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HORSESHOE KIDNEY *

EDWARD S. JUDD, M.D.
WILLIAM F. BRAASCH, M.D.
AND
ALBERT J. SCHOLL, JR., M.D.
ROCHESTER, MINN.

The correct diagnosis of various renal anomalies often materially affects the surgical prognosis, especially in cases of horseshoe kidney. The abnormal structural relations, the unusual attachments, and the unrotated position of the renal pelvis require a surgical approach different from that employed in dealing with normally situated kidneys. The numerous and anomalous blood vessels, and the fixity and location of the renal mass necessitate an accurate anatomic recognition of the condition for the carrying out of any successful surgical procedure.

Although the horseshoe kidney may function normally, owing to its unusual location and deficient pelvic drainage, it is relatively vulnerable to disease and trauma. It is not infrequently discovered during exploration for other abdominal conditions and at necropsy. A patient with a horseshoe kidney may live the normal length of life. Beyer [1] collected ten cases in which the patients lived from sixty-three to seventy-nine years. Of 320 cases collected by Botez,[2] fifty-two of the patients were incapacitated as a result of the renal condition.

The morbidity of horseshoe kidney is clearly seen in the relation between its occurrence and the frequency with which it requires surgical interference. In a collected series of 68,000 necropsies, Carlier and Gérard [3] found eighty horseshoe kidneys, one in every 850 bodies. From Jan. 1, 1910, to Jan. 1, 1920, 2,424 operations were performed on the kidney at the Mayo Clinic, for various conditions; seventeen of these were on horseshoe kidneys, one in 142.

A knowledge of the stages of embryologic development by which the kidneys are fused permits a better understanding of the pathologic conditions which result in later life.

ANATOMIC STRUCTURE

The accessibility for surgical intervention in horseshoe kidney varies indirectly with the degree of fusion. In most cases the kidneys occupy a position median and caudad to that of normal kidneys. Hill [4] reports the only exception to this; in his case, the kidneys were normally placed. Rokitansky [5] says that the more complete the fusion the lower is the position of the kidneys. The completely fused mass is commonly situated at the promontory, or even in the concavity of the sacrum. In the usual type of horseshoe kidney, the renal masses tend to converge downward and inward, responding to the traction exerted by the commissure on the inferior poles. This is accentuated by the lordosity of the lumbar spine; and not infrequently the superior poles are found to be widely separated. There is also a second abnormal deviation of position; the fusion prevents a complete rotation of the kidney on its vertical axis, leaving the pelvis facing anteriorly. The posterior surface of these kidneys is generally smooth, quite in contrast to the curiously retained markings of fetal lobulation on the anterior surface.

Size and Location.—There is often a marked difference in size between the two lobes. Legueu and Papin [6] collected twenty-seven cases in which the lobes were of unequal size. In twenty-three, the left was the larger, and in four, the right. Watson,[7] Levi [8] and Morley [9] each report cases in which there was almost complete atrophy of one renal mass. The majority of horseshoe kidneys are located in the lower lumbar region; not uncommonly the superior pole is found opposite the second or third lumbar vertebra. Occasionally, there is a tipping of the renal mass so that one kidney is found lying across the spine. Küster [10] cites a case in which the pelvis came directly from the isthmus, the horseshoe mass being turned so that only a small bud of renal tissue remained on the right side. Kidneys fused at their superior poles are higher in the abdomen than those in which the commissure is below. Newman [11] reported a case of fusion of the upper poles in which the isthmus was felt 3 cm. below the ensiform cartilage. At times the entire renal mass is freely movable, but in most cases the isthmus is fixed. Occasionally, the two renal masses may be moved independently. Israel[12] and Paschkis[13] both report instances of a fixed isthmus, but the superior poles were freely movable (Fig. 1).

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* From the Sections on Surgery and Urology, Mayo Clinic.

* Read before the Section on Urology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

* Because of lack of space, this article is abbreviated in The Journal. The complete article appears in the Transactions of the Section and in the authors' reprints.

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Pelvis and Ureters.—The pelvis is generally markedly irregular in size and shape, and, with the calices, it is flattened out over an extensive area on the anterior surface of the kidney. In most cases, it is completely extrarenal, markedly deficient, and lacking in the usual support of the enveloping renal tissue. This permits it to dilate readily in response to obstruction and infection. In contrast to this, Robinson[14] cites a case in which the pelvis was completely included in the renal mass, the ureter perforating the parenchyma below. In sixty cases collected by Robinson,[15] the pelves of no two kidneys were alike and often one differed from its mate. Duplication of the pelvis is common. Legueu[6] cites a case in which the pelvis is missing, the ureter opening directly into the individual calices. The calices are generally confined to the middle and upper portions of the renal mass (Fig. 2). However, Israel[12] cites a case in which one of the calices was cut across in resection of the transverse bar.

The high implantation of the ureter and the sharp ureteropelvic angle, which prevent free drainage, are the most common causes of disease in these kidneys. With fusion of the lower poles, the ureters generally pass in front of the isthmus, often in a sulcus between it and the lateral mass. The exposed ureter passes over the solid isthmus, and is easily compressed or distorted by the overlying structures. Landouzy[16] and Durham[17] both report cases in which the ureters passed behind the isthmus. Perruchot[18] reported a case in which the right ureter passed posteriorly and the left anteriorly. Various other ureteral anomalies have been reported. Carlier[3] noted a single ureter which arose directly from the isthmus. Thacher[19] cited the case of an infant with only one pelvis and one ureter. Apert[20] reported a case in which the ureter branched several times before reaching the renal pelvis. Losee[21] found two left ureters running parallel and entering the bladder separately. In most cases, the ureters enter the bladder normally and show very little tendency to become dilated. In contrast to the normal size of the ureter, the dilatation of the renal pelvis indicates obstruction at the ureteropelvic angle.

Isthmus.—In horseshoe kidney the isthmus is characteristic and may vary from a thin fibrous cord to a solid mass of parenchymatous tissue. Küster[10] cites a case in which the isthmus was represented by a thin fibrous band; Schuchardt[22] notes a similar case in which the kidneys were connected by a membranous cord. On the other hand, Sutherland,[23] Rayer,[24] and Perregaux[25] each cite cases in which the isthmus was of such dimensions as to simulate a third kidney. Magnus[26] found an isthmus 5 cm. broad. In the majority of cases, the commissure is 2 or 3 cm. wide and is composed of solid renal tissue. Often there is a plainly visible sulcus or groove indicating the line of junction of the kidneys. When the isthmus is composed of solid tissue, microscopic sections reveal convoluted tubules and a normal number of glomeruli.

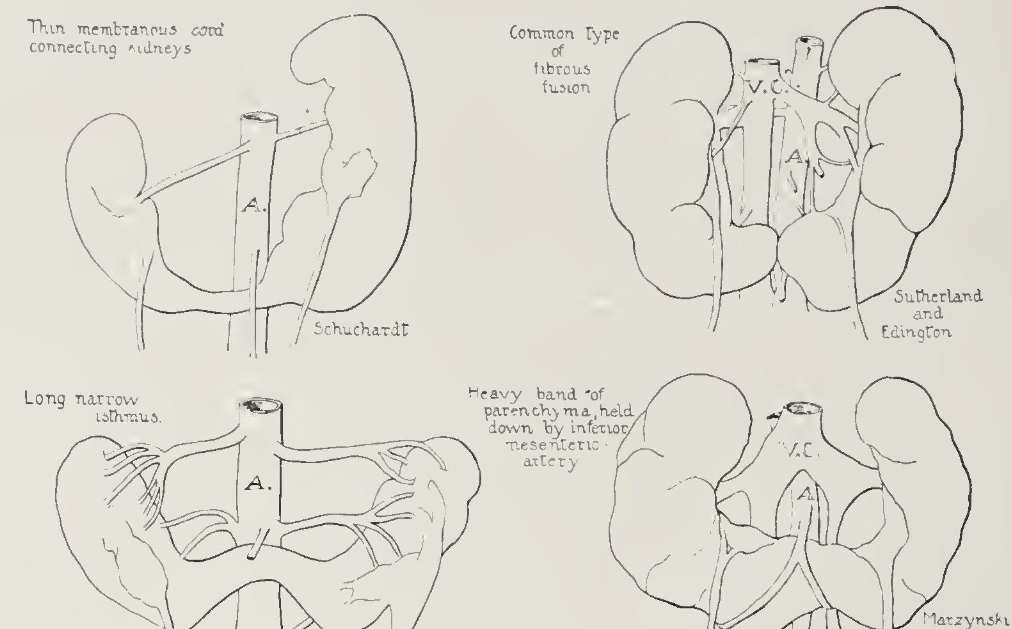
Thin membranous cord connecting kidneys
A.
Schuchardt
Common type of fibrous fusion
V.C.
A.
Sutherland and Edington
Long narrow isthmus
A.
Young and Thompson
Heavy band of parenchyma, held down by inferior mesenteric artery
V.C.
A.
Marzynski
Thick band of tissue connecting kidneys behind aorta and vena cava
V.C.
A.
Robert Zeit
Broad fusion with right pelvis on isthmus
V.C.
A.
Kuster
Fusion of superior poles of kidneys
A.
Warren Hunter
Narrow band of tissue joining superior poles
A
V.C.
Newman

Fig. 1.—Horseshoe kidneys, showing variations in structure of isthmus.

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[14] Robinson, B.: The Ureter in Fused (Horse-Shoe) Kidney, Am. J. Urol. **4**: 121-153, 1908.

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[16] Landouzy, quoted by Papin, E., and Iglésias, A. P.: Sur un cas de rein en fer à cheval calculeux, Ann. d. mal. d. org. génito-urin. **27**: 424-441, 1909.

[17] Durham, A. E.: Misplacement and Mobility of the Kidneys in Reference to the Diagnosis of Abdominal Tumours, Guy's Hosp. Rep. **6**: 404-420, 1860.

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[22] Schuchardt: Berl. klin. Wchnschr. **29**: 833-834, 1892.

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[25] Perregaux, G.: Rein unique, médian, en fer à cheval, Bull. et mém. Soc. anat. de Paris **66**: 380-382, 1891.

[26] Magnus, G.: Heminephrektomie bei Halbseitentuberkulose einer Hufeisenniere, Zentralbl. f. Chir. **47**: 76 (Jan. 24) 1920.

Only occasionally, portions of the medulla are seen extending into the fused area.

In the majority of instances, fusion occurs at the inferior poles. Of 262 cases, Beyer[1] found only eighteen in which the commissure connected the superior poles. Renton[27] reported a case in which the connecting link ran from the posterior part of the left kidney, leaving the poles free. In cases of fusion of the inferior poles, the isthmus usually crosses the fourth or fifth lumbar vertebra about the level of the aortic bifurcation, and in the vast majority of cases it passes in front of the great vessels. Nixon[28] reports a case in which the commissure passed between the great vessels and the vertebral column. Carlier says that this is sometimes the case when the renal masses are connected superiorly. Kelly[29] cited a case of this type in a stillborn infant.

In most cases, the isthmus is marked by furrows which demarcate its anterior surface from the kidneys. The posterior surface is smooth and generally provides a furrow for the passage of the great vessels. The inferior mesenteric artery usually passes over the isthmus. In a case reported by Edington,[30] it passed through a grove on the anterior surface.

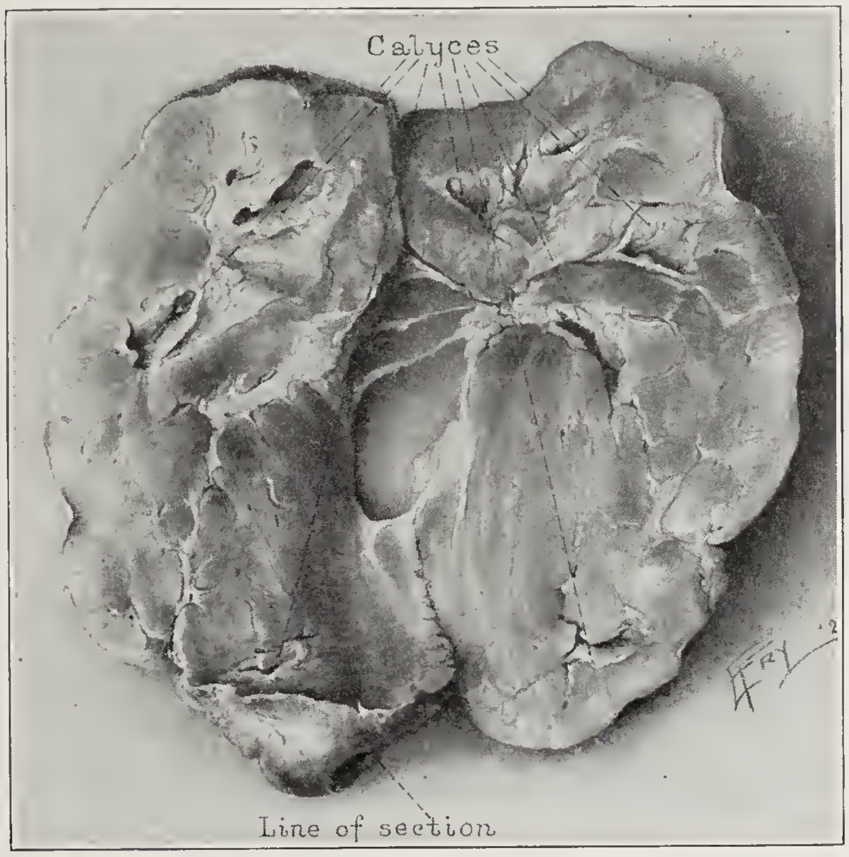

Fig. 2.—Majority of calices at the upper portion of the kidney.

Circulation.—The anomalous blood vessels greatly increase the risk and difficulty of surgical procedures. Israel asserts that the abnormal vascular supply precludes the certainity of pedicle compression for the purpose of performing a bloodless operation on the parenchyma of the kidney. The renal vessels generally follow an oblique course and are markedly irregular in their length and distribution. As in the normal kidney, the renal arteries come from the aorta. The vessels, which are often multiple and above average size, generally occur caudad to the usual attachments.

In forty-eight of Robinson's sixty collected cases, the renal arteries were distal to the normal situation. In twenty-five cases, the arteries were multiple or abnormally distributed. In ten, there was a single renal vessel which divided, sending a branch to each lateral mass. In four, there was a single renal trunk to the isthmus which also supplied the kidneys. This is important surgically, as ligation of a vessel with lateral branches would also affect the two kidneys. Bruncher[31] cites a case in which one renal trunk was divided into a series of branches which formed a concave arc of vessels supplying the entire renal mass.

In thirty-three of Beyer's collected cases, there was a special artery of the isthmus. In twenty-nine, the branch was from the aorta below the origin of the inferior mesenteric artery. In several cases, it came directly from the common iliac artery.

Occasionally, the pressure of the isthmus over the great vessels results in thrombosis of the iliac veins. One of Rovsing's[32] patients had phlebitis of both legs. Davidsohn[33] reports the case of a patient with extensive edema of the legs and marked cardiac hypertrophy from compression of both the aorta and the vena cava.

CLINICAL DIAGNOSIS

It may be very difficult to make a clinical diagnosis of fused kidney. It is evident, however, that diagnosis established prior to operation is of distinct material aid to the surgeon. As a general rule, it may be said that in every case of abdominal tumor, a roentgen-ray shadow, or pain adjacent to the umbilical area, should arouse suspicion of the possibility of a fused kidney.

Subjective Symptoms.—When the fused kidney is abnormally low and the diseased renal pelvis lies close to the median line, the radiation of pain will usually be adjacent to the umbilical area and suggestive of horseshoe kidney. The pelvis of one or both segments of the fused kidney, however, is often situated at some distance from the vertebra and may even be found at a normal level. The pain would then be localized in a comparatively normal renal area. Rovsing observed that if a patient is placed in a position in which the curvature of the lumbar spine is increased, or the back muscles made tense, a characteristic pain may be caused which may be relieved by the patient's lying down. This so-called Rovsing sign has not, however, proved to be of much diagnostic value in this series.

Physical Examination.—A fused kidney, unless abnormally enlarged, can seldom be recognized on abdominal palpation. Any tumor involving the median-lying segment of a fused kidney will usually present a mass in the umbilical area. Therefore, in the presence of a mass that is palpable in the middle of the abdomen, the possibility of fused kidney must be considered. Occasionally, with a low-lying fused kidney, a retroperitoneal mass may be felt through the rectum, with the pulsation of adjacent large blood vessels. Fused kidney was observed in several patients with a urinary sinus in the middle of the abdomen anteriorly; these

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31. Bruncher: Un cas de rein en fer à cheval, Ann. d. mal. d. org. génito-urin. **22**: 1532-1534, 1904.

32. Rovsing, T.: Beitrag zur Symptomatologie, Diagnose und Behandlung der Hufeisenniere, Ztschr. f. Urol. **5**: 586-601, 1911.

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patients had had so-called abdominal abscesses drained elsewhere. Low or median hydronephrotic sacs, or their postoperative anterior sinuses, should lead us to look for further evidence of a fused kidney.

Roentgenographic Data. — The roentgenographic shadow of a fused kidney is usually too indefinite to permit accurate interpretation. Occasionally, the roentgenographic outline of a median mass in a thin subject may be suggestive of fused kidney. With such median line roentgen-ray shadows, abdominal insufflation with oxygen may possibly be of value in the identification of tumors in the middle of the abdomen. In the presence of lithiasis, the resulting shadow may be in a position more median than is usual with renal stone. It has been our experience, however, that a stone in the fused renal pelvis often casts a shadow approximately in the normal position. With multiple stones, the shadows may extend across the vertebrae. Shadows cast by calcified paravertebral glands, low or median lying gallstones, and stone in the upper ureter are most easily confused with those of stone in a fused kidney. If the shadow of a stone lies in an oblique angle and extends toward the median line, as occurred in several cases, it should be regarded as suggestive of fusion.

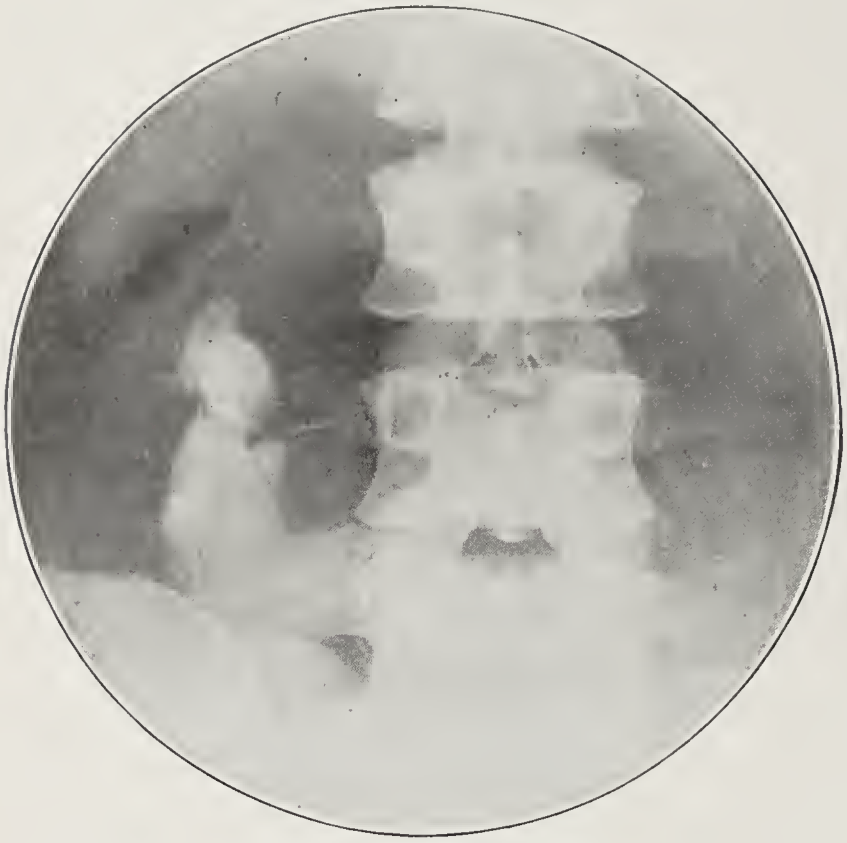

Fig. 3.—Prolongation of the right pelvis of horseshoe kidney toward the midline.

Cystoscopic Examination.—The position of the ureteral orifice was normal in every case except one. This is in contradistinction to the usually abnormal position of the orifice in duplication of the ureters and pelves. This occurrence would be expected from the embryologic factors involved, since in fused kidney the embryologic anomaly affects the nephrogenic tissue, whereas in duplication of the renal pelvis the ureteral buds are involved.

The data that are usually observed on inspection of accompanying pathologic complications would, of course, be noted. As would be expected, the ureteral catheter can often be inserted only for a short distance, particularly when the pelvis is at a low level. It is not uncommon, however, to find that the usual length of catheter can be inserted, and in a subsequent ureterogram this will be found to be due to the tortuosity of the ureter.

The differential functional test is of much value in determining the possibility of heminephrectomy in cases of fused kidney. It is essential that the function of the remaining segment be ascertained before the other portion is removed, even though the combined function is normal. In two cases, the reflex inhibition of dye secretion resulting from stone, as usually observed in a single kidney, was absent in the fused kidney. Although pyelonephritis, such as may accompany lithiasis, is generally confined to the primary segment, pus may be found in the urine catheterized from the other pelvis, indicating that such infection may spread by direct continuation from one segment to the other. As a rule, however, such infection is confined to the primary segment. This was illustrated by a patient who is alive and well several years after heminephrectomy for tuberculosis in one segment.

Pyelogram.—The roentgenographic catheter may be of considerable diagnostic value and sufficient to identify the presence of renal anomaly. The relative position of the shadows of the two lead catheters introduced into the respective pelves and ureters will often demonstrate the presence of fusion. When one catheter is coiled in the pelvis in the normal position, however, and the other is median and low-lying, other data may be necessary in order to distinguish the fused kidney from a so-called ectopic kidney. When the lead catheter identifies the condition, there may be no object in making a pyelogram. It often happens, however, that the two pelves are approximately normal in position, and further identification will then be necessary. Pyelographic evidence may be the only method whereby fusion can be recognized. Because of the scarcity of definite clinical data suggestive of fused kidney, its clinical diagnosis is usually made only in the course of routine pyelography. The characteristic findings are the inverted relative arrangement of the calices and the true pelvis. Instead of lateral extension of the calices, there is torsion of the renal pelvis so that the calices

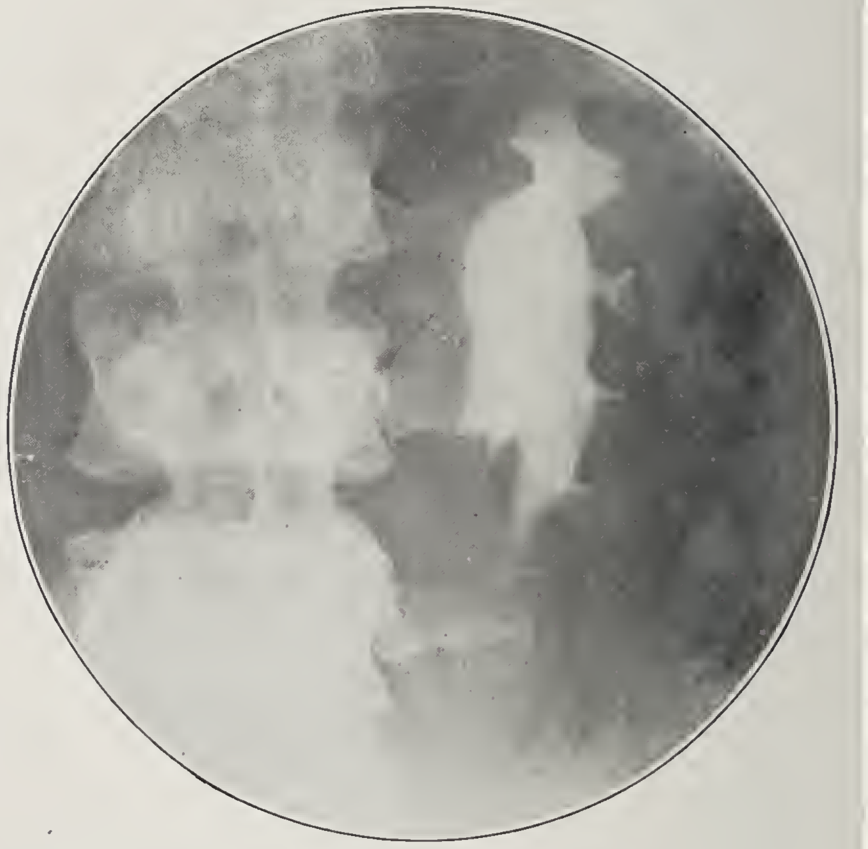

Fig. 4.—Left pelvis of horseshoe kidney, the right pelvis of which is shown in Figure 3.

extend in a median or cephalad direction. Also the ureteropelvic angle, which is usually median to the pelvic outline, is situated at a lateral angle (Figs. 3 and 4). Therefore, when the pyelo-ureterogram shows evidence of renal torsion, the possibility of fused kidney should always be considered. The identification of shadows and the other findings usually brought out by the pyelogram will also afford diagnostic evidence. When a stone shadow is median to the pelvic outline in the pyelogram, the possibility of fused kidney is suggested. It must be remembered, however, that the usual precautions in pyelography should be doubled in cases of fused kidney. It is well known that any pyelographic medium which cannot drain from a distended pelvis will cause irritation and damage to the renal tissue, unless removed. Therefore, any evidence of retention following the pyelogram should require immediate steps to drain the pelvis either through the ureteral catheter or by surgical procedures (Fig. 5).

REPORT OF CASES

HYDRONEPHROSIS

Case I.—Mrs. J. C. McV., aged 41, came to the clinic in April, 1912, because of intermittent left renal colic, frequency, and attacks of hematuria for twenty years.

On physical examination, a mass was found in the lower left abdomen. The roentgen ray revealed a small shadow in the region of the left ureter. Cystoscopy demonstrated a normal right ureteral orifice. The left opening was gaping and eroded, and obstructed a ureteral catheter at 1 cm. from the outlet. The urine from this side was cloudy. A pyelogram of the left side revealed a large hydronephrosis. A diagnosis of left ureteral stone and left hydronephrosis was made.

At operation, the kidney was exposed through an anterior incision. A markedly dilated ureter was found, with a stone in the lower portion corresponding to the roentgen-ray shadow. The stone was forced up to the renal pelvis and ureterectomy performed. The isthmus was excised and the left segment of the kidney, which was almost completely destroyed, was removed through a lumbar incision. The patient recovered rapidly from the operation, and eight years later was perfectly well.

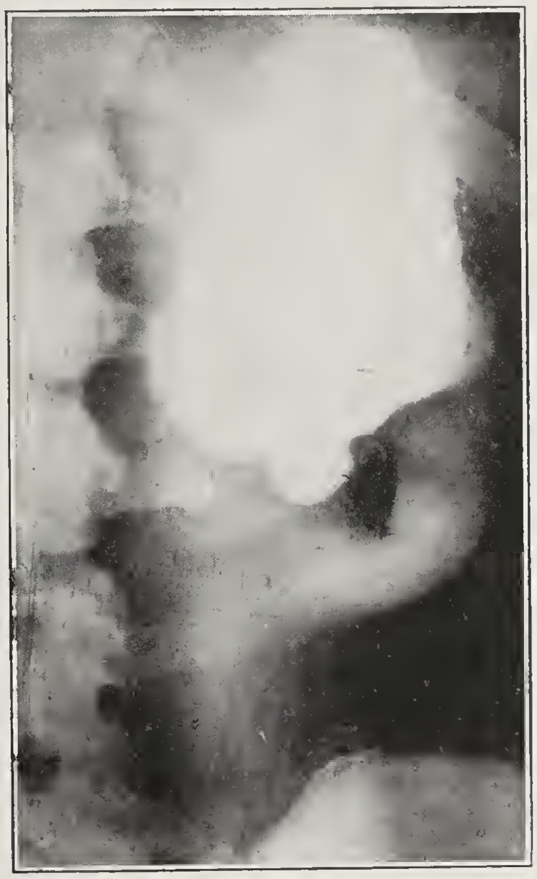
Fig. 5.—Hydronephrotic segment of horseshoe kidney.

Case II.—L. W. S., a man, aged 39, came to the clinic, July 20, 1917, on account of attacks of left renal colic. Fourteen years before, he had had fever, with frequency and dysuria for several months.

Roentgen-ray examination revealed a shadow in the left kidney area. On cystoscopic examination, thick pus was seen coming from the left ureteral orifice. Diagnosis of left calcareous pyonephrosis was made.

Through a left lateral incision, a horseshoe kidney was found, with markedly dilated pelvis, containing several stones which were removed through a pelvic incision. Two months later, a left subcapsular nephrectomy was performed. A clamp left on the stump of the isthmus was removed the fifth day. Two years later, during which time the wound had been draining intermittently, a third operation was performed and the renal capsule and upper ureter were removed. The wound healed readily, and three years later, the patient had had no further trouble save an occasional twinge of pain in the left renal area.

SURGICAL PROCEDURES

At operation one may receive the very first intimation that one is dealing with a fused kidney. After the kidney is exposed, it is found not to be so free as usual. In all patients operated on at the clinic, fusion occurred at the lower pole. The upper pole seemed to be lower and farther from the middle line than under normal conditions. As soon as an attempt was made to liberate the lower pole, definite fixation was recognized as being more firm than that due to inflammatory adhesions. When the kidney is lifted forward, the posterior portion is exposed as a smooth surface, and the usual site of the renal pelvis is found to be a continuation of the renal parenchyma, extending as far toward the middle line as the finger can feel. The renal pelvis and vessels are situated anteriorly and a horseshoe kidney is recognized. We have not encountered a case at operation in which fusion occurred at the upper pole entirely. In most of our cases, an isthmus had joined the two lower poles, although in some the isthmus was larger than in others and contained a considerable amount of renal tissue.

It has been suggested that the best exposure in operation on a fused kidney may be obtained by the anterior transperitoneal incision (Rovsing). This is advantageous, because it reveals the portion of the kidney most difficult to deal with, that is, the isthmus. However, there are some objections to this exposure. We often deal with kidneys that are more or less infected, and by employing this method, the peritoneum is exposed to infection. This is not always a serious matter and can often be satisfactorily controlled; however, in some cases it may amount to a very grave disadvantage.

It would be difficult to expose a horseshoe kidney satisfactorily through a posterior incision; but if this type of incision is converted into a posterior lateral incision, the exposure and working field will be just as adequate as with an anterior incision. If necessary, the anterior limb of the posterolateral incision can be carried farther forward than usual, and in this way the isthmus can be exposed to view without opening the peritoneum (Figs. 6 and 7).

If pyelograms were made before operation, in all cases of renal disease, fused kidneys would be recognized from their abnormal location and relationship. Since it is not always advisable or necessary to subject the patient to this procedure, we shall probably always unexpectedly encounter fused kidneys at operation.

If the functional capacity of each of the fused kidneys, and the number and relationship of the ureters to the renal tissue is not known, the question of how to proceed is a very serious one. We must not remove the only good renal tissue, or that which is probably the best. Even by palpating across the median line, it may be difficult to determine whether there is sufficient renal tissue to maintain function. If the exposed kidney is the larger, this may mean that it is hypertrophied from increased function. Furthermore, it may contain the only functioning renal tissue the patient has. In one instance, the surgeon (Judd) was almost too cautious. Although he had not recognized the condition as fused kidney, he decided, after dividing the ureter, that as he did not know about the function on the opposite side, it would be inadvisable to remove this kidney, although it was badly infected and contained stones. He removed the stones and drained the kidney as well as possible, reuniting the ureter. Convalescence was uneventful, with the exception of a persistent urinary sinus. In the course of a few weeks, it was demonstrated that the patient had a good functioning kidney on the opposite side. As the sinus did not close, the infected kidney was removed. While this necessitated a second operation, it was the safer course to pursue.

In the removal of stones from the pelvis in cases of horseshoe kidney, the approach to the pelvis should be made anterior to the kidney instead of in the usual way. The kidney should be mobilized sufficiently to bring the pelvis into view, but it is not necessary to rotate it forward. The peritoneum is easily reflected. After the stones are removed, it is always advisable to suture the renal pelvis; otherwise urine draining from the anterior pelvis of the kidney could easily extravasate under the peritoneum and might result in considerable infection.

In performing heminephrectomy for infection, multiple stones, or functionless kidney, it may at times be best to perform a subcapsular operation, and tie or suture over the capsule of the isthmus. Unless there is some special reason, it is best to remove the capsule and kidney together. This, of course, is always the rule in the presence of tuberculosis and neoplasms.

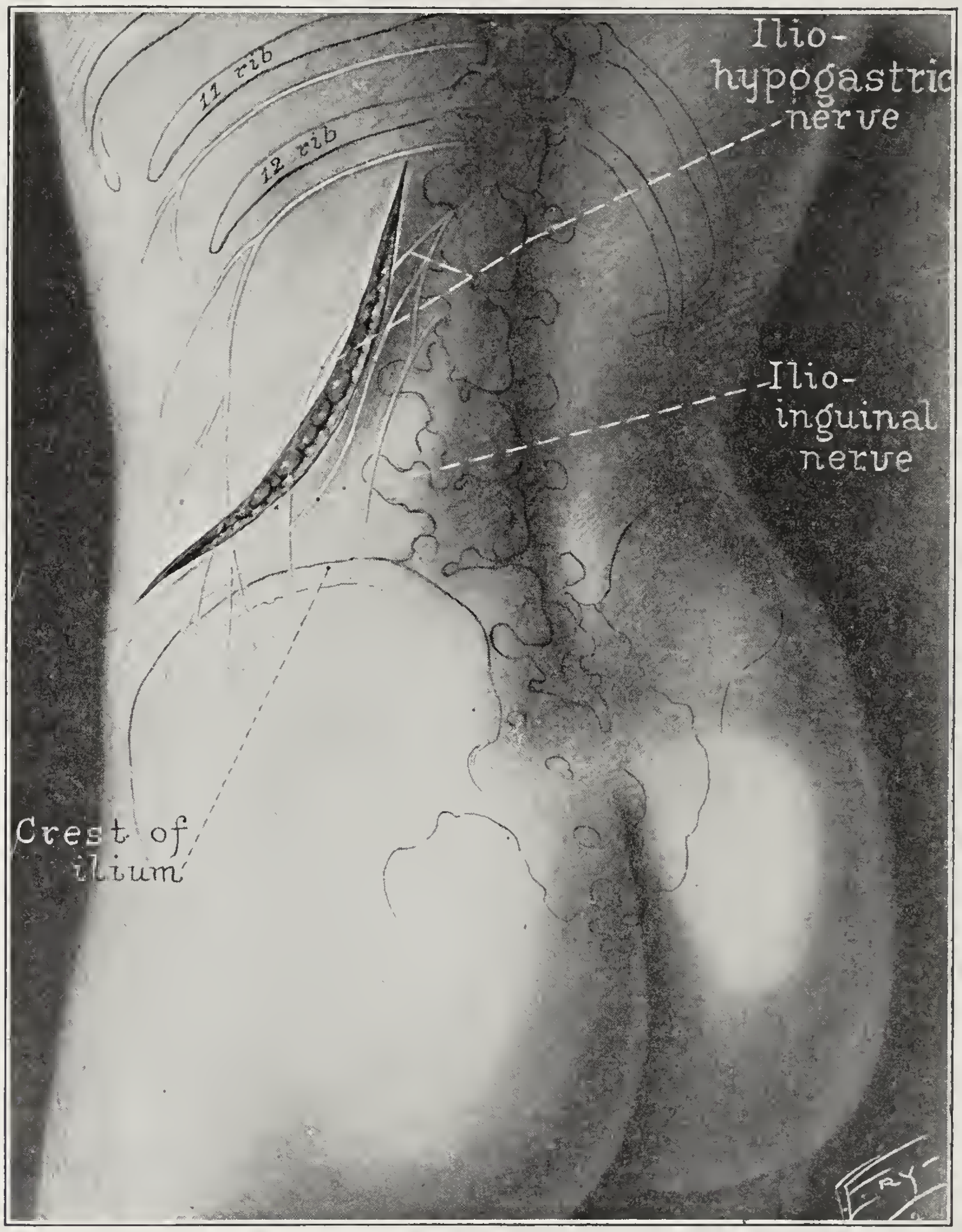

Fig. 6.—Incision for operation on horseshoe kidney and its relation to the nerves and bony structure. The ilio-inguinal and iliohypogastric nerves lie in a position that tends to make it easier to retract them posteriorly.

The method of handling the cut-off end of the isthmus will depend on the accessibility and the amount of infection. If possible, the stump should be sutured over to control oozing, and then covered, by bringing the capsule over. If the patient is very large and there is considerable infection, especially if the isthmus is well controlled by a clamp, it is best to leave the clamp in place for several days. It acts as a good drain, and will care for the isthmus very well. During the first few days, the clamp will possibly cause some pain; but otherwise, in our experience, it has made no difference whether we sutured the isthmus or controlled it by clamp.

Surgical operations performed on horseshoe kidneys are more difficult than similar operations on normally placed kidneys, largely because they are less accessible and it is more difficult to see the structures.

The condition is often discovered when it is too late to determine the individual renal function; thus it is difficult to decide on what course to pursue.

SUMMARY

Sixteen cases of horseshoe kidney seen at the Mayo Clinic required operation. In seven there was hydronephrosis; in six of these the diseased segment was removed, and in the seventh the isthmus was divided and the diseased kidney rotated in order to permit the ureter to lie in the normal position. One patient died; the others recovered rapidly from the operation. Four are now perfectly well: one, eight years; one, four years, and two, one year after operation. Two years after operation, one patient was able to work for a living, although she still felt weak.

The formation of stone is common. Eight patients of the series were operated on for renal calculi; most were removed through a lumbar incision. There were no deaths. Three patients are perfectly well: one, five years, and two, two years, after operation. Two patients are in excellent health, but still have occasional dull pain in the lumbar region: one, four years, and one, one year, after operation. One patient was well four months after operation, but the urine still contained pus. One patient, seven months after operation, had not had a recurrence of renal colic, but dysuria and frequency continued. In one case, heminephrectomy for tuberculosis was followed by a good result.

CONCLUSIONS

1. Horseshoe kidneys, a common type of renal anomaly, are more liable to become diseased than are normal kidneys.

2. In most cases, fusion occurs at the lower poles, the connecting link being composed of solid renal tissue.

3. The renal pelves vary markedly in size and shape. In most cases, there is a sharp ureteropelvic angle, and

the insertion of the ureter is too high to permit satisfactory drainage of the renal pelvis.

4. Horseshoe kidneys are well supplied with blood vessels. The arteries and veins are often large and multiple, arise from unusual locations and are markedly irregular in their length and distribution.

5. Obstruction at the ureteral outlet causing dilatation of the renal pelvis is the most common complication.

6. The clinical diagnosis of fused kidney, and particularly the comparative estimate of renal function in the two segments, is of value in determining the surgical indications.

7. In every case of abdominal tumor, a roentgen-ray shadow, or pain referred to the umbilical area, the possible presence of a fused kidney should be considered.

8. Renal torsion, demonstrated in the pyelogram, is suggestive of fused kidney.

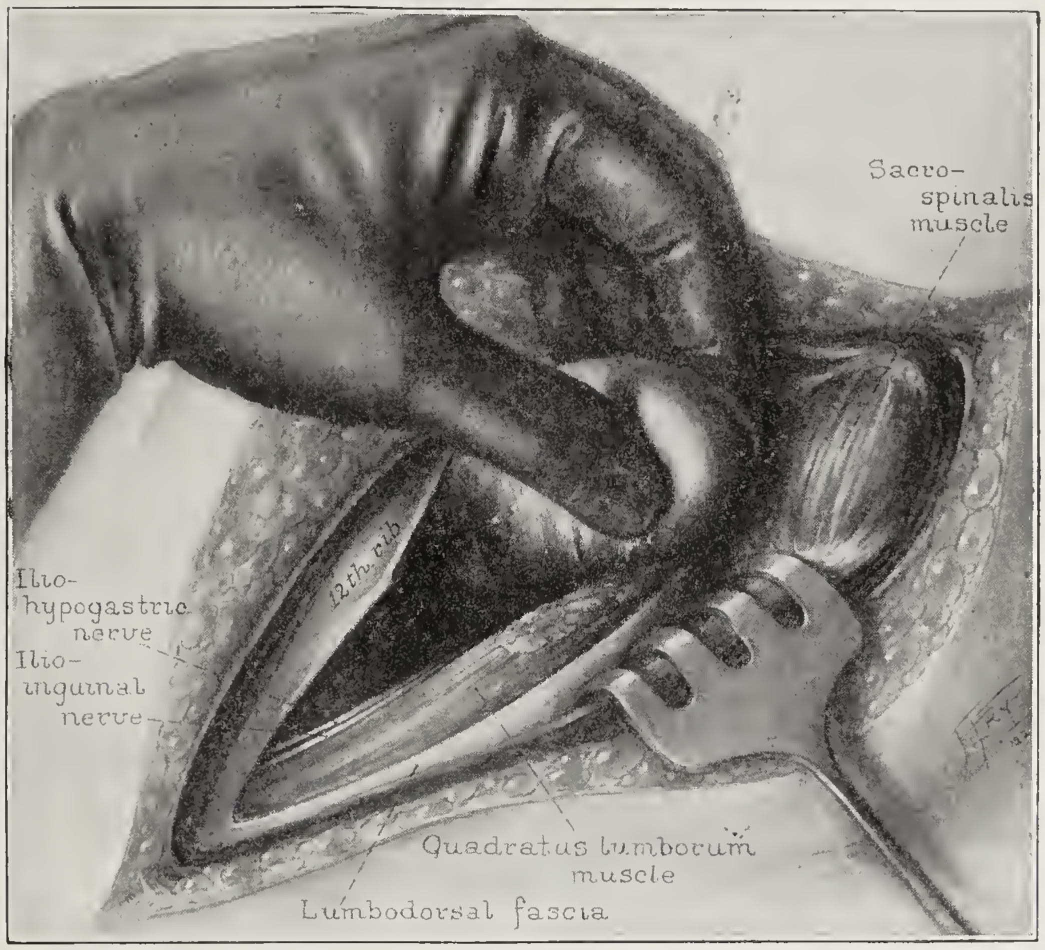

Fig. 7.—Horseshoe kidney brought up into to the wound with great difficuty.

9. Operations performed on fused kidneys are more difficult than similar operations on normally placed kidneys, largely because these kidneys are less accessible, and it is more difficult to see the structures.

10. Heminephrectomy is usually possible if the distance separating the two pelves is sufficient, and if the remaining segment functions normally.

11. Probably the most satisfactory exposure is obtained through the Mayo lateral incision.

12. In spite of technical and clinical complications, the results of the operations on fused kidneys have been just as good as similar operations on normally developed kidneys.

ABSTRACT OF DISCUSSION

Dr. Henry G. Bugbee, New York: I feel loath to discuss a paper based on more than sixty cases of horseshoe kidney when I have seen but eight, an operative experience based on six cases, my own cases being limited to two. This paper impresses on us the possibility of the occurrence of this anomaly and its surgical importance. I am more and more impressed with the necessity of eliminating the possibility of this anomaly in any case of abdominal tumor, especially when such a mass is located near the median line. Diagnosis is the most important phase of this study. This can seldom be made without a most complete cystoscopic and ureterographic study. The necessity of injecting the ureter and kidney pelvis while the ureteral catheter is being withdrawn is important, that a branching of the ureter between the kidney pelvis and bladder may be detected and a pelvic duplication demonstrated, which might easily be overlooked. We are all aware of the importance of poor drainage as a predisposing factor in pathologic conditions of the kidney. A malplaced kidney or ureter is more often subject to pressure than the normally placed and conformed organ, and interference with drainage in such cases is a common occurrence. While the large percentage of fused kidneys observed may be the seat of an infection that will not necessitate operative interference, yet the possibility of one part of a fused kidney harboring a tuberculous process, a pyonephrotic sac, a new growth or calculus must be borne in mind, and one's operative technic governed by the knowledge that we are dealing with a single organ, conservation of kidney tissue being important. I have removed one half of a fused kidney (heminephrectomy) for tuberculosis which was limited to the area drained by one pelvis, and a calculus from one pelvis of a second horseshoe kidney. In two cases, a horseshoe kidney was detected in pregnant women. In both cases, the kidney was placed at the pelvic brim, causing obstruction to normal delivery and necessitating cesarean section.

Dr. Herman L. Kretschmer, Chicago: The important point in these cases, as Dr. Judd said, is diagnosis. The diagnosis can often be made from the pyelographic findings and the peculiar position of the renal pelves and calices. I believe that if it were possible to obtain clear kidney pictures in every case, we might be in a position to make the diagnosis before operation more frequently. That this is possible was recently demonstrated to me by Dr. Potter, who was able to show the outline of a horseshoe kidney in the roentgenogram made with his diaphragm.

Dr. Benjamin S. Barringer, New York: I wonder whether Dr. Judd has used air inflation of the peritoneum to make the diagnosis. I do not believe that this method is established yet as a safe and sane method of making the diagnosis before operation.

Dr. L. T. LeWald, New York: In relation to what Dr. Barringer has just said, this method of perirenal inflation, according to Carrelli, offers a very good chance for a correct diagnosis in this anomaly. In his series of 250 cases, Carrelli had no horseshoe kidney to record; but I believe that the method should be utilized in the suspected cases and that it would give an absolute diagnosis.

Dr. Clarence G. Bandler, New York: I should like to record, in view of what Dr. LeWald has just said, one case of horseshoe kidney which we were able to diagnose by means of the Carrelli inflation method. We have been employing this method in a few cases and as yet we have had no trouble. I was rather encouraged by the work of Carrelli, I had the opportunity of being with him for some time, and trouble did not seem to be a part of his difficulties at any time. I have never seen such wonderful pictures. He did not happen to have any cases of horseshoe kidney to demonstrate, but he had so many roentgenograms of suprarenal glands, clearly depicted, that I do not doubt that he will encounter a horseshoe kidney.

Dr. E. S. Judd, Rochester, Minn.: I believe that the difficult point is that we probably will always be confronted with this unexpected encounter with horseshoe kidney. We will make the diagnosis of the renal condition all right, but we will not make a diagnosis of the fact that one kidney is fused to the other.

THE PATHOLOGY OF HYPERTENSION *

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When we speak of the pathology of a disease, we imply that an alteration in organic structure brings about changes in function which constitute the clinical aspects of the disease. In recent years, the inadequacy of pathology to explain alterations in function in certain morbid states has made many observers skeptical of this relationship. An association of a definite lesion with certain clinical phenomena does not necessarily imply that the lesion was the cause of the symptoms. The lesion may represent merely an end-product of the pathologic conditions that resulted primarily in functional changes which were the first discoverable symptoms of the malady.

This is the problem that confronts us in discussing the pathology of hypertension. For years, the association of arteriosclerosis and nephritis in patients dying of hypertension led many to believe that these lesions were the cause of the increased blood pressure. Many theories were proposed and much experimental work was instituted to explain this causal relationship, but a sound mechanistic explanation is still lacking. This belief was weakened still more by observations of (1) profound arteriosclerosis and nephritis found at necropsy without hypertension being present during life, a condition to which the term decrescent was applied by Allbutt; (2) patients with hypertension, even of a considerable degree, but who at necropsy presented only slight changes in the vascular and renal systems, certainly not sufficient to account for the hypertension during life, and (3) the almost constant lack of any proportion between the degree and extent of the lesions and the degree of the hypertension.

A new aspect was furnished by a clinical observation that repeatedly came to notice. A routine examination, perhaps because of slight disability, may reveal that a person has nothing but a hypertension. This is the condition which Allbutt years ago called hyperpiesis and Huchard presclerosis and which is now conventionally termed essential hypertension. If these patients are observed for a period of years, other evidences of disease arise, such as albuminuria, nocturia, ventricular hypertrophy, evidences of gradual thickening and tortuosity of the superficial vessels, and changes in the retina; profound changes in the function of the renal, and especially of the vascular systems and, ultimately, death.

Then various clinical concepts arose for a group of diseases to which the term cardiovascular-renal is applicable: general arteriosclerosis, localized arteriosclerosis (coronary disease), aortitis, cerebral arteriosclerosis, mesenteric arteriosclerosis, and chronic nephritis with or without uremia. Here was a disease in which a primary disorder of function, namely, hypertension, remained more or less constant or, at least, did not increase in proportion to the other signs of disease, and ended in profound anatomic changes in the cardiac, vascular and renal systems.

We can state the sequence of events only when we have observed the development of changes from the very beginning; but, unfortunately, as a rule, we see our patients in the middle or advanced stages, when evidences of an anatomic damage are only too manifest.

HYPERTENSION AND ANATOMIC CHANGES

Other evidences, especially the rapidly accumulating data which reveal a causal relationship of hypertension to arteriosclerosis, led to the suspicion that hypertension may bring about anatomic changes. Some of these have been admirably set forth by Allbutt[1] and by Faber.[2]

The more important evidences were the following: 1. Arteriosclerosis is most prominent in those portions of the vascular system in which the stress is greatest, at bifurcations and at points of narrowing, whether normal or abnormal. 2. In cases of congenital stenosis of the isthmus of the aorta, there is always a profound sclerosis of the proximal part of the aorta and at the site of the stenosis, while the peripheral portions of the aorta show little or no sclerosis. In these cases most observers have noted also a marked sclerosis and tortuosity of the vessels that maintain the collateral circulation, namely, the internal mammary, the scapular and the vertebral arteries. The same is true in pulmonary stenosis. 3. Marchand[3] found no arteriosclerosis in the arteries of an extremity paralyzed because of poliomyelitis, when there were marked changes in the healthy limb. 4. The endocardium in the left auricle is thickened excessively in mitral stenosis. 5. The endocardial and subendocardial thickenings of the left ventricle in patients with hypertension have been recently described again by Hertel.[4] 6. Arteriosclerosis is usually more prominent in those vessels which are unsupported, for instance, the basal arteries of the brain, the coronary and the temporal arteries, and the aorta; but it is less prominent in vessels that are supported by muscular tissue, as in the extremities. 7. Harvey[5] produced arteriosclerosis in the aorta by digital compression for many days, and Klotz[6] obtained similar results by suspending rabbits in the inverted position for a prolonged period. 8. Carrel[7] found that a section of vein sutured between the divided ends of an artery rapidly showed sclerotic changes. In this instance, every factor except the effect of pressure can be excluded. 10. Observations on arteriosclerosis of the lesser circulation prove the effect of increased pressure in bringing about an arteriosclerosis. It is remarkable that arteriosclerosis of the pulmonary arteries occurs only in those conditions in which an increased intrapulmonary tension is obviously present, namely, emphysema and, especially, mitral stenosis. My studies of the pulmonary vessels in patients having mitral disease reveal a striking disproportion between the profound sclerosis of the pulmonary vessels and the relatively slight sclerosis in the aorta. In these patients, the smaller vessels and the capillaries of the alveoli reveal interesting changes which I shall discuss more fully. 11. Arteriosclerosis

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* Read before the Section on Internal Medicine, Academy of Medicine, New York, May 16, 1922.

* From the First Medical Service, Mount Sinai Hospital (Dr. N. E. Brill), and the Pathological Laboratory, Beth Israel Hospital.

[1] Allbutt: Diseases of the Arteries, London, 1915.
[2] Faber: Die Arteriosklerose, Jena, 1912.
[3] Marchand: Verhandl. d. Cong. f. inn. Med. **21**: 23, 1904.
[4] Hertel: Frankfurt. Ztschr. f. Path. **14**, 1920.
[5] Harvey: Virchows Arch. f. path. Anat. **196**: 303, 1909.
[6] Klotz: Zentralb. f. allg. Path. u. path. Anat. **19**: 535 1908.
[7] Carrel: Bull. Johns Hopkins Hosp. **18**: 18, 1907.

of the retinal vessels occurs only in those conditions in which a hypertension is or has been present. 12. Certain negative evidences may be set forth: (*a*) Sclerosis is relatively absent in the veins in which pressures are low. On the other hand, in veins in which the pressure is increased, as in varicosities or in an arteriovenous aneurysm, sclerosis is present. (*b*) Extensive or profound arteriosclerosis is infrequent in patients who have hypotonia, as tuberculosis. (*c*) Arteriosclerosis, as a rule, is less profound in women than in men. These evidences certainly show that hypertension should be considered as a factor, perhaps the most important, in producing arteriosclerosis.

In what manner hypertension causes the anatomic changes characterized by the term arteriosclerosis we do not know. I believe the explanation is partly mechanical and partly compensatory. Certainly, many of the changes can be accounted for by a mechanical stretching of the tissues with replacement fibrosis and, eventually, hyalinization and calcification. The thickening of the intima, hypertrophy of the media, and increase in the elastic fibers, are probably in a great measure compensatory.

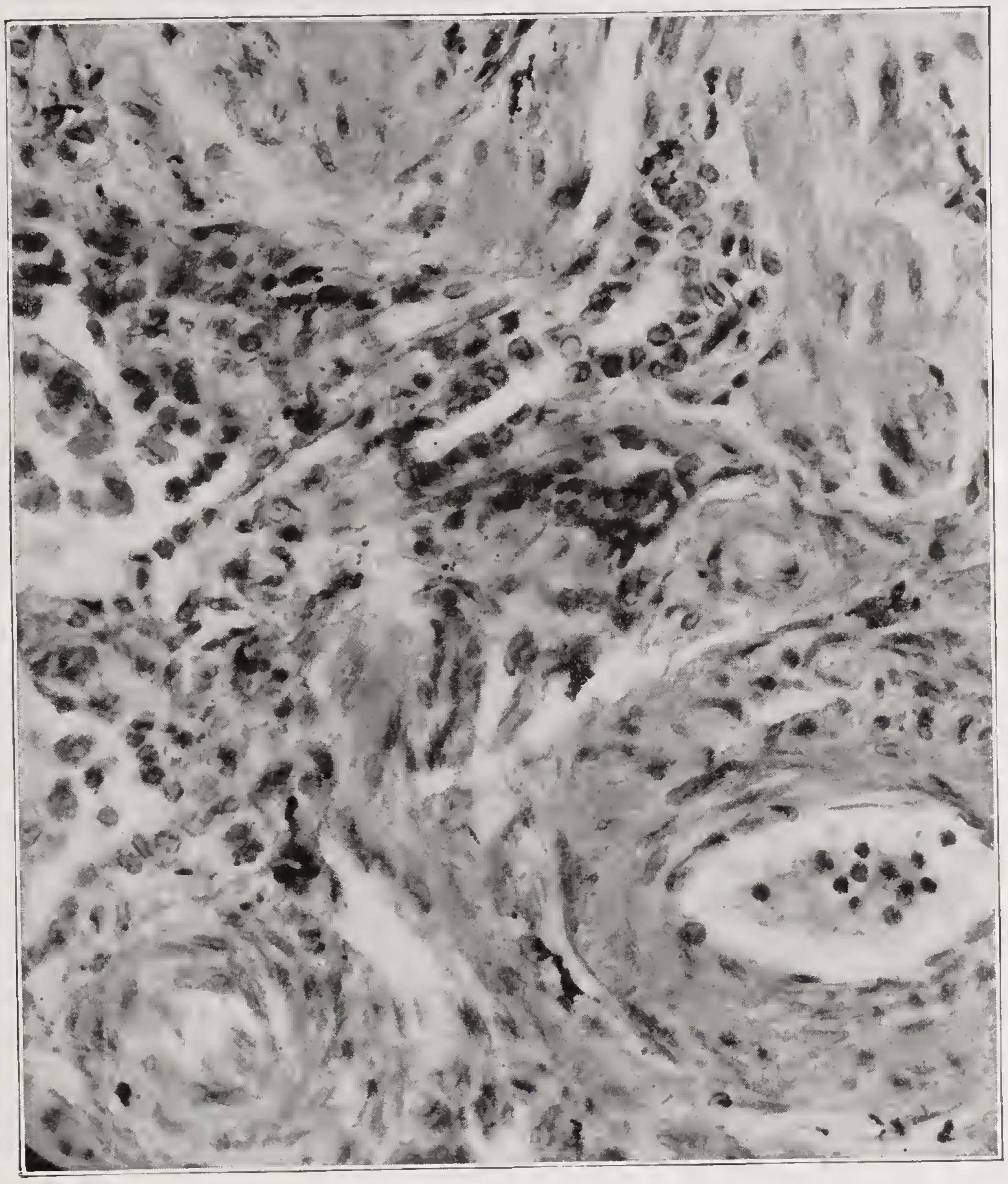
Fig. 1.—Section of lung, in long standing case of mitral stenosis, showing enormous thickening and sclerosis of arterioles with increase of interstitial tissue, and reversion of alveolus to embryonal type; arteriocapillary fibrosis.

In the last year, I have seen an unusual number of patients in the hospital suffering from typical glomerulonephritis following throat infections. At the outset, the pressure is increased, usually from 170 to 180 systolic and from 100 to 120 diastolic; there is more or less edema and oliguria and marked albuminuria. In one or two patients uremic symptoms have appeared. Although the patients are always young, between 15 and 30, the radial arteries are so thickened and tortuous that a diagnosis of juvenile arteriosclerosis has been made. Under treatment, the symptoms subside and the blood pressure falls. The remarkable thing is that, as the blood pressure falls, the artery becomes appreciably softer and less tortuous, and evidently the feel of the artery becomes normal. That the sensation of thickening is not entirely due to the hypertension is shown by the fact that the thickness and tortuosity do not return to normal until a month or two after the tension has become normal. My explanation is that there is a hypertrophy of the median muscular coat, compensatory to the hypertension, analogous to the hypertrophy of the ventricle, and that this hypertrophy is restored to normal when the hypertension disappears. This accords somewhat with the view of Schlayer,[8] who states that it is not the intimal changes that make an artery palpable, but the functional changes in the media which may not even be visible anatomically.

This is not the occasion to enter too greatly into the pathologic anatomy of arteriosclerosis. As MacCallum[9] makes evident, the subject is surrounded by immense difficulties because of a host of conflicting views. Neither the histology of the lesions nor the sequence in which they appear is at all a settled subject. For practical purposes it seems sufficient to recognize, with Marchand, that arteriosclerosis represents all those changes which result in a thickening of the vessels. The distribution of these thickenings in various parts of the vascular system is more important than the question as to whether they are the result of changes in the intima, media or adventitia, or whether these changes represent fatty degeneration, sclerosis and calcification.

The conventional view is that arteriosclerosis is a malady confined to the larger trunks of the vascular system, and that palpation of the radial artery affords an excellent guide to the degree of the involvement. It does not require extensive correlation of clinical signs and morbid anatomy to prove that this is not always true. In the first place, while arteriosclerosis when present is usually fairly well distributed throughout the body, it is not uncommon that the process is more intense in one or more segments of the arterial system than in others. Sometimes the brunt of the injury falls on the cerebral or the coronary arteries, the aorta or the abdominal arteries, or on one or more combinatons. Why this should be so we do not know. In the second place, it is not at all unusual to find advanced sclerotic changes in the terminal portions of the vascular system, with comparatively few and superficial lesions in the main trunks. It is on these cases, which indeed are common, that Jores has laid so much stress; the recognition and interpretation of these lesions mean much in the explanation of the genesis of vascular lesions. Clinically also these cases are important, because, as I have demonstrated in a recent paper, they cannot be differentiated from the syndrome which we have been wont to recognize as true renal disease.

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[8] Schlayer: Deutsch. Arch. f. klin. Med. **98**: 164.

[9] MacCallum, W. G.: Physiol. Rev. **2**: 70 (Jan.) 1922.

HYPERTENSION AND RENAL LESIONS

The frequent association of certain renal lesions with hypertension led to the deduction that these lesions were the cause of hypertension. Soon observations accumulated which could not be thus interpreted: 1. Hypertension was noted during life in persons whose kidneys showed minimal lesions—were practically normal. These patients did show, however, a marked arteriosclerosis of the terminal vessels, not only in the kidney but also in other parenchymatous organs. I reported five such cases, observed in little more than a year, with limited facilities; so that such cases are by no means rare. 2. Profound disease of the kidneys, so-called contracted kidneys, are found at necropsy although no hypertension was present during life. Such disease also is common, and from its analogy to decrescent arteriosclerosis has been designated as "decrescent" kidneys. 3. That the degree of hypertension bears no relation whatever to the amount of renal damage found at necropsy is a corollary of the previous statements. This observation, readily affirmed by even the most superficial attempt to correlate clinical with necropsy findings, is sufficient, it would seem, to discourage any attempt to discover that will-o'-the-wisp, a pressor substance in the damaged renal parenchyma.

How may we reconcile these contradictions? First, they prove that we may be in error when we say that hypertension is caused by renal injury, or the group of injuries termed chronic interstitial nephritis. Secondly, they show that whatever the cause of the hypertension may be, the end-result was either an arteriosclerosis of the terminal arteries, including those within the kidney, or a damage of the kidney parenchyma itself in variable proportions. Study of the lesions of those kidneys associated with hypertension reveals that a single pathogenesis, namely, a primary disease of the vascular content of the organ, explains all of them. The interpretation that all the lesions of the kidney in chronic interstitial nephritis may be the direct result of injury to the vascular supply is certainly legitimate. The thickening of the glomerular epithelium, the fibrosis, hyalinization and, perhaps, calcification of the glomerular tufts, represent an arteriosclerosis in miniature. The profound disease of the terminal arteries entering the glomerular tufts, the vasa recti, and the proximal branches of the renal artery within the fatty portion of the pelvis, are constant findings. The greater or lesser destruction of the epithelial content of the organ is explainable partly by the diminished vascular supply of the tissues, even, partly, by compensation hyperplasia, and complete absence in parts, due to closure of a vessel, with replacement fibrosis, which, as in any organ, leads eventually to contraction. In this light, the kidney in chronic interstitial nephritis may be considered an organ consisting of epithelial tubules enmeshed in the interstices of an extensive vascular framework. When disease of the latter occurs, the tubular portions necessarily disintegrate.

An organ in which these changes occur varies in morphology according to the senescence of the process. If the person dies in the earlier stages, a circumstance not unusual as the result of pure circulatory failure, we find a kidney with minimal lesions or with moderate fibrosis, affording the picture connoted as "finely granular kidney." Such kidneys are not appreciably smaller than normal. The "red" which is frequently prefixed to this designation is due in largest part to a venous congestion caused by circulatory failure. If the person dies in the middle stage of the malady, the kidneys are more coarsely granular and much smaller than normal, and compensatory hyperplasia is more in evidence. Microscopically, there is greater aging of fibrous transformation with narrowing of the cortex, and fatty replacement in the hilum is apparent. Finally, if the patient lives long enough, the progression of the lesions results in what is termed the "secondary contracted kidney"; the senescence of all the pathologic elements reaches its maximum, a veritable scar, and it is the only pathologic kidney we have described which may be properly termed an end-product; the others are merely intermediary stages.

The entire process may be likened to the changes witnessed in a granuloma, which indeed, in the strict sense of the word, the lesions of chronic interstitial nephritis represent, and the resulting changes are in no way different from those seen in a granulomatous transformation of any organ—the ovary, for instance.

Recognition of the progression of lesions will, I believe, help much to eliminate the current confusion in regard to so-called "types" of kidney. We speak of the "large granular kidney," the "small granular kidney" and the "contracted kidney" as though each represented end-reactions. In consequence, many classifications are in vogue, most of which have simply made "confusion worse confounded." A differentiation into types would be understandable, if the types could be strictly defined in the biologic sense; but this, it is acknowledged, is almost impossible since transitions from one to the other are frequent.

The kidney lesion is associated with hypertension only in chronic interstitial nephritis. No other variety of chronic inflammation of the kidney is associated with hypertension, whether it is the parenchymatous which, incidentally, is exceedingly rare, the amyloid, the kidney of subacute bacterial endocarditis, or any destruction of the kidney parenchyma from whatever cause.

CAUSE OF THE RENAL LESION

What is the cause of the renal lesion? In my opinion, the lesions of the kidney in chronic interstitial nephritis present a form of local arteriosclerosis involving not only the smaller and larger arteries but also, to a greater or lesser extent, the capillary tufts of the glomeruli. Some lesions of the vascular system of the kidney are practically constant in hypertensive disease, in which arteriosclerosis is present not only in the kidney but also throughout all the organs supplied by the greater circulation, as Jores and his pupils have demonstrated: in the skin, spleen, pancreas, brain, heart, eye and other organs. If it is not visible to any great extent in the main arterial trunks; it is almost always seen in the terminal arterioles. The kidney in chronic interstitial nephritis, therefore, represents merely the localized expression, perhaps the most prominent, of a generalized arteriosclerosis. Moreover, we must assume, because of the constant presence of the glomerular lesions, that this sclerosis affects not only the arteries but also the capillaries.

Sclerotic changes in blood vessels are not limited to the arteries, but involve the entire vascular system, including the capillaries and the endocardium. The conception of a capillary sclerosis is not new; it is merely a revival of a conception broached by former pathologists. That the capillaries are involved in organs other than the kidney is difficult to prove by the ordinary histologic methods, because sclerosis of an isolated capillary is almost impossible to demonstrate. However, where capillaries are arranged in bundles or tufts, as in the glomeruli and in the islands of Langerhans, sclerotic changes are readily demonstrable. In the islands, sclerosis is a not uncommon accompaniment of hypertensive disease, accounting perhaps for the frequent association with diabetes. Capillaroscopy best demonstrates the presence of a generalized capillary sclerosis in hypertensive disease. By this method, tortuous, deformed and irregular capillaries are found almost invariably when hypertension is present. Whether the sclerosis begins in the capillaries or in the terminal arterioles cannot be determined. Probably the sclerosis arises in all parts of the vascular system simultaneously.

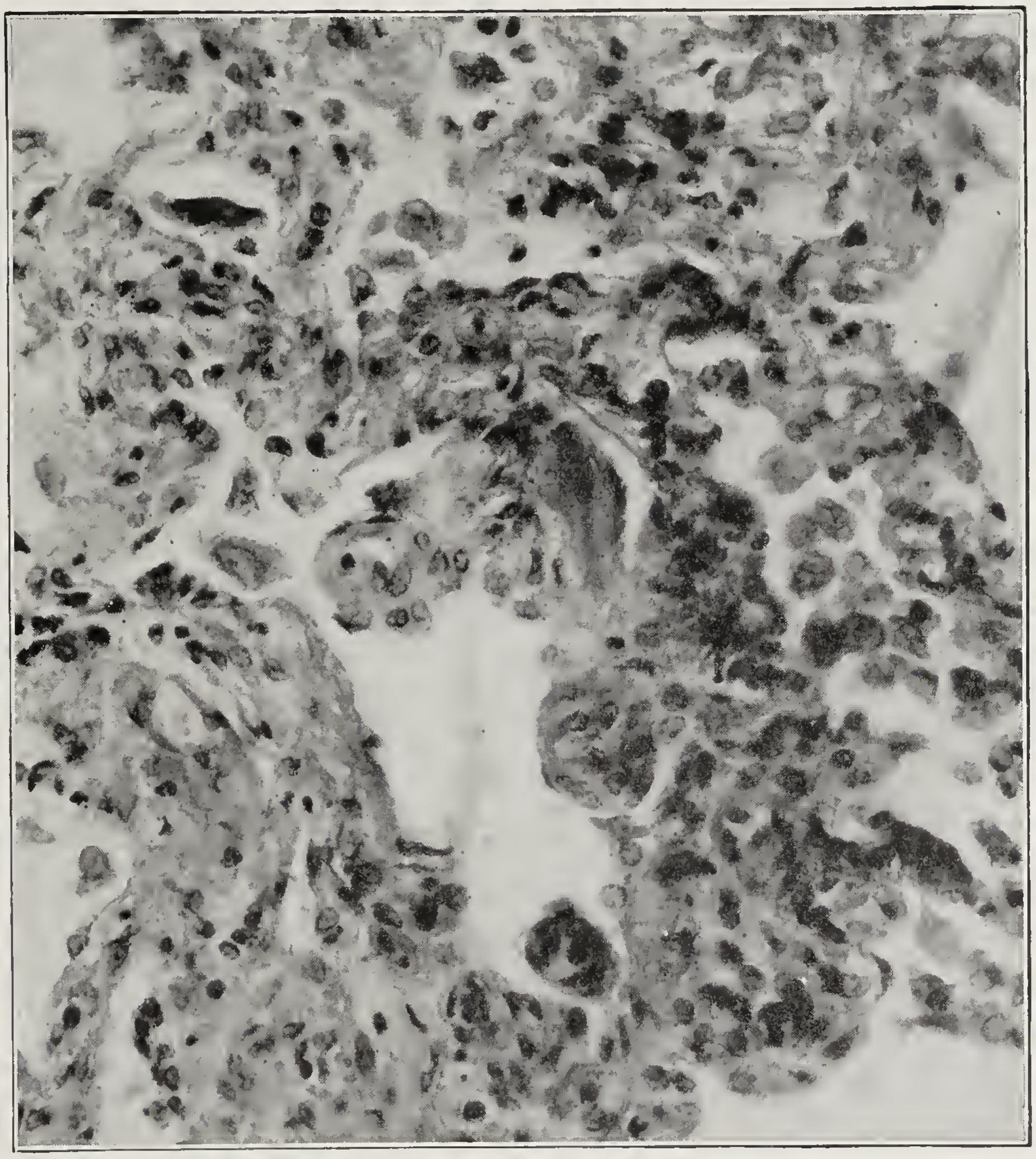
Fig. 2.—High power section of the lung, in a long standing case of mitral stenosis, showing profound thickening of the alveolar capillaries and increase in interstitial connective tissue; arteriocapillary fibrosis.

For these reasons, the term "arteriocapillary fibrosis," first employed by Gull and Sutton in a different connotation, seems more appropriate than terms in current use. With this conception, a syllogism enters the argument: (*a*) Hypertension is an important, if not the most important, factor in producing the lesions of arteriosclerosis. (*b*) Arteriosclerosis and arteriocapillary fibrosis of the kidney are one and the same lesion and are always associated. (*c*) Therefore, hypertension is the most prominent cause of arteriocapillary fibrosis of the kidney. The arterial and renal lesions, then, are not separate and distinct entities and do not bear mutual reactions to each other, but are the simultaneous resultants of the same insult.

This conclusion can be fortified by a number of interesting observations:

1. Changes in the background of the eye always follow a long standing hypertension and are never seen unless hypertension is or has been present. These changes, according to all descriptions, are the precise analogues of those seen in arteriocapillary fibrosis. If, therefore, these changes follow hypertension, it seems reasonable to conclude that the associated analogue of this lesion is the result of the same cause. It would be interesting to note whether the retinal and the renal changes parallel each other in intensity. I know of no studies in which this question has been investigated.

2. Sclerosis of the larger pulmonary vessels is invariably associated with increased vascular tension in the lesser circulation, caused by mitral stenosis, for instance. The contrast between the extent of the sclerosis in the greater and lesser circulatory systems is most striking, especially in younger subjects, and affords a strong argument against the thesis that a general toxin, an infection, for instance, causes arteriosclerosis. The interesting point is this: If the hypertension can cause sclerosis of the larger pulmonary vessels, we must presume, if our argument concerning fibrosis of the capillaries is valid, that arteriocapillary fibrosis of the lung does occasionally occur. This, indeed, is a fact. From studies thus far uncompleted, I can say that in cases of mitral stenosis of long standing, lesions of the lung are found that can be interpreted, according to all morphologic criteria, as arteriocapillary fibrosis. These lesions are termed, in textbooks, "fibrous induration of heart disease" or "Stauungsinduration" (Figs. 1 and 2).

3. These observations fulfil the expectations based on hypothesis. If hypertension is primary and arteriocapillary fibrosis of the kidney is secondary, it would seem important to discover what pathologic changes occur when an artificial hypertension of pure mechanical nature is induced by increasing the peripheral resistance. Nature has performed this experiment in the congenital narrowing of the blood vessels, a well known anomaly in the necropsy room, described by numerous writers. The anomaly is supposed to predispose the individual to numerous maladies, but this is doubted in a recent monograph by Kaufman. There is considerable literature and abundant testimony concerning the not uncommon association of renal lesions typical of arteriocapillary fibrosis with congenital aplasia of the blood vessels. The observation that the association is usually found in young nephritics is largely the result of the labors of Lancereaux,[10] Bezançon,[11] Mosgofian[12] and Chiaruttini.[13]

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[10] Lancereaux: Leçons de clinique médicales, Paris, 1894.
[11] Bezançon: D'une néphrite liée a l'aplasie artérielle, Paris, 1889.
[12] Mosgofian: Thèse, Paris, 1893.
[13] Chiaruttini: Clin. Med. Ital. **37**: 686, 1898.

Opportunity is afforded for speculation as to whether, after all, the cause of the puzzling nephritis in young persons is not a congenital vascular malformation.

Other observers and I have seen that arteriosclerosis and nephritis occasionally follow another form of congenital increase in peripheral resistance, namely, congenital narrowing of the aortic isthmus.

CAUSE OF HYPERTENSION

The cause of hypertension itself is unknown. I have elsewhere described a type of individual with certain physical and, especially, psychic characteristics, in whom hypertension is very prone to occur.

The proponents of the primary renal origin of hypertension are in the habit of citing the effects of a primary scarlatinal nephritis on blood pressure. A scarlatinal nephritis, which is most often an acute glomerulonephritis, heals in the clinical sense and leaves little or no trace of the damage that has been done. We are told that this nephritis remains dormant for a varying period of years, say from ten to twenty, and that in adult life the nephritis becomes evident again and affords the clinical aspects of the chronic variety, with hypertension and other symptoms. This belief seems untenable in view of the fact that there is no instance in all pathology of an infection which has ceased to act initiating an inflammation which is progressive in character. When the insult is over, there is a *restitutio ad integram,* a healed lesion or death.

Since we are not often in the position to follow the end-results of certain diseases, I was interested to know what happened to patients with scarlatinal nephritis after many years of observation. Duyvis[14] studied thirty patients who had had scarlatinal nephritis sixteen years previously. All were well. A few showed traces of albumin in the urine. The significant thing is this: A glomerulonephritis is a productive inflammation and, when such an inflammation heals, there can be no complete *restitutio ad integram.* We must therefore assume that a glomerulonephritis from scarlatina must leave some scar in the kidney, the nature of which we do not know. Granting that such a kidney may be predisposed to a subsequent chronic inflammation, it is quite different to say that the lesion is the cause of a chronic nephritis.

I have not observed the disease for a sufficiently long period to be able to say whether or not all varieties of primary hypertensions eventually lead to arteriocapillary fibrosis. Certainly there is a great difference in the time of onset of the clinical evidences of the cardiovascular-renal syndrome after the hypertension has been discovered. In some patients it occurs within a year or two. In others the syndrome has not yet appeared even after observation of five or more years, especially in cases of so-called hypertension of the menopause, some of which are associated with mild evidence of exophthalmic goiter or autonomic imbalance. Perhaps the explanation lies in a different tissue resistance of the vascular organs or, as Osler calls it, "bad tubing." What part the endocrine organs play is entirely speculative.

How we are to account for the lesions of decrescent arteriosclerosis and decrescent nephritis, which is usually found in persons past 55 and in which hypertension is not associated, has been discussed in a previous paper. The prominence of hypertension as a clinical symptom should not make us forget that, after all, hypertension is merely an exaggerated phase of tension, and it is this element which by some is called wear and tear. Our vessels are constantly under tension, and there is no reason why changes in the expansion and contraction of vessels extending over a great many years should not cause changes similar to those induced by hypertension. We presume that, when hypertension is present, the changes occur sooner and are not accompanied by those compensatory changes witnessed in patients with the decrescent lesion. In recent years there has been a growing tendency to regard the lesions of the decrescent kidney or its synonyms, the arteriosclerotic and the primary contracted kidney, as identical with those of the secondary contracted kidney.

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CERTAIN DYSKINESIAS IRREMEDIABLE BY OPERATIVE OR PROSTHETIC MEASURES

THE PATHOGEN AND THE MANAGEMENT *

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That abnormal movements or attitudes can occur apart from focal destruction or irritation of tissue is denied by those whose thinking has been circumscribed by too exclusive a study of lesional interpretation. There are still a few reactionaries, unable to think in terms of modification of function, who maintain that what are known as the psychoneuroses arise from physical alterations as such, even if these be only hereditarily derived tendencies of the neural protoplasm. Their argument is not purely *a priori,* but is based on instances in which the dealing with a physical state has restored to health an individual whose disease was regarded as a disorder of function merely; but it is surprising that the same observers ignore the still more numerous instances in which health is restored by purely psychic means to patients whose disorders have been erroneously attributed to physical agencies. Of these, the dyskinesias of which I am to speak are a striking example.

When a surgeon encounters a deviation of the neck without ankylosis or fibrous contracture, the temptation is very great to attribute the muscular contraction to an overexcitation of the nerve supply of an unknown nature. His purview may even reach the cortex cerebri, and he may attribute the contraction to an activation of the neck-moving neurons in the third frontal convolution. But further than this he rarely attempts to think. The natural bent of his training driving him to deal with effects rather than causes, he is strongly tempted to cut the spinal accessory nerve; and this has often been done, with the quiet neglect of the fact that other muscles than the sternocleidomastoid and the trapezius are concerned in the rotation of the neck, and that to be logical the operation would have to comprise the cutting of all the nerves of the cervical plexus also. This, of course, abolishes the twisting of the patient's neck, but only at the price of its paralysis.

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[14] Duyvis, M. A.: Scarlatinal Nephritis, Nederlandsch. Tijdschr. v. Geneesk. **2**: 1339 (Nov. 1) 1919; abstr. J. A. M. A. **74**: 570 (Feb. 21) 1920.

* Read before the Section on Orthopedic Surgery at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

Far better, then, to seek for and deal with the cause if possible. The imaginer in lesions would then be tempted to proceed to the cerebrum and perhaps expose the rolandic area in the hope of removing an irritation as hypothetic as the supposed irritation of peripheral nerve or spinal center. But for the serious consequences of radical operations of this kind, and but for the relative unfamiliarity of surgeons with nerve and brain surgery, these mystic operations would have been more often undertaken.

To contractures of the arms, legs and spine, to orbicular spasm, to facial twitching and contortions of the body, the same reflections apply. One could formulate a classification of the dyskinesias of each region from an anatomic point of view. Were the source of the movements local, this would be profitable; but as the pathogen is not local, and as the anatomic relations are therapeutically unimportant, this classification is not only unscientific but misleading.

LESIONAL DISTURBANCES OF MOTILITY

Dyskinesias, like other diseases, should be classified pathogenically. We must exclude from the category of dyskinesia the aberrant movements already designated by the terms paralysis, such as poliomyelitis, neuritis, Sydenham's and Huntington's chorea, hemiplegia, facial palsy, paralysis agitans, encephalitis and the consequences of syphilitic invasions; and we must exclude also the restriction or amplification of movement by alteration of the connective or muscular tissues. All of these have a definite lesional pathology of comparatively simple mechanism which does not require discussion here.

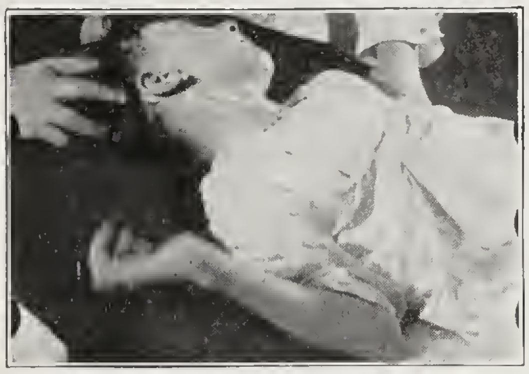
Fig. 1.—Torticollis after encephalitis, possibly a true spasm from central lesion. (From photograph supplied by Dr. S. P. Goodhart of New York.)

Forced movements are not infrequent sequences of encephalitis; in some cases they have persisted to date, and it is highly probable that they will be permanent, as they are due to lesions. Although the best known type closely resembles the movements of paralysis agitans, other types are not infrequent. Among these are rhythmic jerkings of the limbs, body or neck. The latter by mere inspection are sometimes indistinguishable from those of the torticollis which Brissaud called mental. They differ in several important particulars, however, more particularly in that they are not controllable volitionally; they are usually highly rhythmic, often with a definite time period; they may persist during sleep, and they are unaccompanied by anxiety or distress other than the unpleasantness which is inevitable (Fig. 1). They are not of the nature of purposive or adaptive movements, even though, like tic, they may be increased by excitement, emotion or during observation. Physical signs are often altered. This is never the case in pure tic. Lastly, the movements cannot be controlled by psychologic devices of the patient, and they are unamenable to psychotherapy. In some instances they may be attenuated by depressants which usually aggravate the true tic.

VARIETIES

There are two varieties of dyskinesias other than the foregoing:

1. *Of Chemical Origin.*—These are aberrant movements due to the direct irritation of nerve structure by chemicals. They can be readily demonstrated in the laboratory, although clinically they are not only rare but difficult to establish except by inference. The convulsive movements provoked by absinthe furnish an example, and perhaps those of epileptics belong to this category also. In orbicular spasm, periodicity is dependent on chemical or vascular variations in the medullary center or facial nerve as it passes through the aqueduct. This is purely inferential, however, Some kinds of singultus may be assumed to arise chemically, as they are provoked by ingestion of food and are removed by drugs.

In this category may be included the reflex spasms, for they are provoked by a peripheral irritation which modifies the chemistry of the receptors and induces the kind of reactions we call reflex. Such are blepharospasm, some forms of vomiting and hiccup, and perhaps some of the jerkings and wrigglings (more usually included among the tics) in which the real incitant is a state of local tissue uneasiness, such as may be provoked by a mild arthritis, pleurisy or even by a skin irritation, such as the wearing of uncomfortable clothing. Any of these may provoke a reacting movement against the discomfort, which will cease when the local irritation is done away with. Strictly speaking, the mechanism in the latter is neither chemical nor reflex in its entirety, for the integrations through which it is performed comprise cerebral activity, intention, consciousness and volition.

2. *Of Psychic Origin.*—These are nowadays termed tic, which is defined as an integrated movement (or attitude) performed by the patient at first intentionally, but which later becomes a habit against which he may struggle, and giving rise to distress, on account of struggle to overcome it, as well as from pain caused by the muscular contractions, or because of the shame felt at being observed to assume attitudes or make movements which seem purposeless and eccentric. While the dyskinesia often gets the better of the patient, he can temporarily succeed in completely controlling it by a special effort. Moreover, the movements can be suppressed or modified by various devices which affect the patient's attention or feelings. For instance, a turning of the head may be arrested by touching the chin with the finger. A forcible closing of the eyelids may be forestalled by dropping the jaw or looking upward, by wrinkling of the forehead, or even by whistling. A cramping of the hand on writing may be obviated by placing the pen in an unusual position, as under the crooked finger, by turning the hand to the ulnar side, or by complete change of writing style. None of these expedients remain efficacious for long, the dyskinesia getting the better of them in each turn, until the person may become incapacitated for writing, from keeping open the eyes, or even from using knife and fork, on account of the extreme turning of the head and the participation of the shoulder and arm in the movement, as the case may be.

Dyskinesias of this kind may cease for a time through the distraction of the attention. In some instances the dyskinesia is provoked only on the contemplation of a particular act. This is more especially the case in occupational dyskinesias (cramp of writers, musicians or telegraphers, in some of the cases to follow).

In all dyskinesias of this variety, the emotivity of the patient is disturbed, and not only in consequence of the incapacity. The cases to be related will show the part played by emotion in the genesis of the condition. A study of these cases will make it clear that their mechanism has nothing to do with special chemistry or peripheral reflexes, and that the problem is of the kind we call psychopathologic; that is to say, it has to do with the integration in an unfavorable way of those impulses and activities which depend on perception and cognition of a situation which is unpleasant, and to which the patient reacts as a whole intentionally in the first place, by the kind of attitudes and movements which we choose to call dyskinesias, and which superficially may resemble attitudes and movements created by lesions or chemical stimuli, but which differ from them essentially in genesis, in character and in therapeutic requirements as set forth in the accompanying table.

DYSKINESIAS

Spasm	Tic	Chorea	Cerebellar and Cerebello-rubrospinal Tremor
Sudden, resembling electrical stimulation	Brusk and brief, slower........................	Still slower........................	Not sudden, but regular and increased by movement
Rhythmic and synchronous or in lightening waves of same movement	In volleys of similar movement repeatedly	Irregular, not synchronous	
	When tonic, distinguished from stereotyped act by absence of catatonic attitude	Extreme variability in movement with tendency to unilaterality	Similar oscillations
Muscle often enfeebled	No weakness; often hyperkinetic hypertrophy	Myasthenia, hypotonia..........	Myasthenia, hypotonia or the reverse
Modification of reflexes concerned only	Reflexes normal	Reflexes often modified..........	Reflexes increased
Distribution of peripheral nerve	Locally conditioned by an idea................	Usually bilaterally...............	Laterality or not
Often painful, always distressing; no craving	Painless	Sometimes painful...............	Never painful
Persisting in, and may interrupt, sleep	Tic disappears in sleep........................	Sleep interfered with............	Disappears in sleep
Purposeless...........	Pseudocoordinate, intentional act..............	Purposeless........................	Purposeless
Irreproducible voluntarily unmodified by volition or emotion	Influenced by emotion or volition, but impulsive and followed by satisfaction, always arrestable (leaving no trace) by a subterfuge, a neutralizing act inefficacious mechanically or physically but effective psychically; also variously by solitude, distraction, position, etc.	Uncontrollable by will, aggravated by emotion	Cease at rest
Various etiology, but generally peripheral irritation, e. g., trigeminal neuralgia (which is not a true tic)	Psychasthenic character, similar heredity, but always first generated by a determining stimulus; it is the sequel to the unhindered repetition of a once voluntary purposive act, becoming an impulsive obsession	Acute rheumatic diathesis, probably bacterial; no similar heredity	Various, neoplasm

DISTINCTION FROM MANNERISMS, AND GESTURAL AND ATTITUDINAL HABITS

A few words must be said of the difference between habitual gestures and attitudes and the true tics. The former occur in perfectly normal individuals as well as in the insane, in whom they are called stereotypies. Examples in the normal are stroking of the mustache, wrinkling of the brow, whistling, playing with the watch chain, grimacing of the face, waving the hand, or sawing the air while speaking. So long as these are unconscious automatisms, and so long as they could be prevented without suffering, by a little care on the part of the performer, they do not merit the name of habit spasm, nor can they be classed with the tics.

CHARACTER OF THE TICS

The tics are convulsive and intemperate in character, are accompanied by consciousness of the act, are preceded by a desire sometimes amounting to a passion to perform the act, and are followed by a feeling of relief after performance of the movement. At all events, the victim of tics feels compelled to make the movement comprising the tic; hence the term impulsion or compulsion neurosis. The movements always represent, however, incompletely, some voluntary act, e. g., turning the head, wrinkling the nose, shrugging the shoulders, biting the cheek, blinking the eye, sniffing, or jerking a limb. The end to which the movement was first directed has, however, often passed from the recollection of the patient; and the act itself has often degenerated into a caricature of what it originally was. A simple example is a winking of the eyes, which has continued for years in spite of the fact that the irritation of the foreign body which first excited it has long subsided. It often originates in an idea which ultimately becomes ignored or forgotten by the patient, such as in Case 7.

TWO CLASSES OF TIC

1. *The Hysterical.*—In hypersuggestible persons tics are easily induced, sometimes make little impression on the patient, and are very simply removed by reeducation and persuasion or even by suggestion. These we call hysterical.

Disorders of gait and station independent of lesions or physical disease have been well known to neurologists for many years, but their significance was not generally grasped until the Great War revealed them in thousands. Thereby orthopedic surgeons gained an insight into psychologic mechanism; but it was very difficult not to regard a disorder of gait as lesional while lesions stared one in the face, even though these were not responsible for the dyskinesia.

A striking instance is afforded in Case 1.

Case 1.—*Psychic dyskinesia of locomotion.* In this man an enormous loss of tissue had impaired the efficiency of the quadriceps femoris. It could have been speciously inferred that the dropping gait, with extreme flexion of the knee when he threw his weight on the injured member, was due to lack of extensor power; but a careful study of the poses proves that this is not the reason (Fig. 2). A man whose leg bent in walking as much as this because of a weak quadriceps would fall; for a leg which cannot be held extended at an oblique angle has even less power of extension when the knee is more acutely flexed. Hence the dyskinesia of the man has a psychologic source, and by a maneuver which distracted the man's attention from the act of leg extension, we were able to prove that the muscle could extend the leg quite well.

Thousands of like cases were successfully dealt with during and after the war by psychotherapy irrespective of whether the men were deliberately malingering or merely the victims of wrong ways of thinking about their impotences [1] (Figs. 3 and 4).

Unfortunately, there were also thousands of cases in which contact with medical and surgical ways of thinking served to maintain the belief of the men that their dyskinesias were of physical causation. It was the old story of the traumatic neurosis with the modification of a new setting. It took a long time for psychiatric conceptions to pervade the surgeons sufficiently to enable them to prevent the cultivation of "hospital" dyskinesias. In spite of all the experience of the war, this often happens even now.[2]

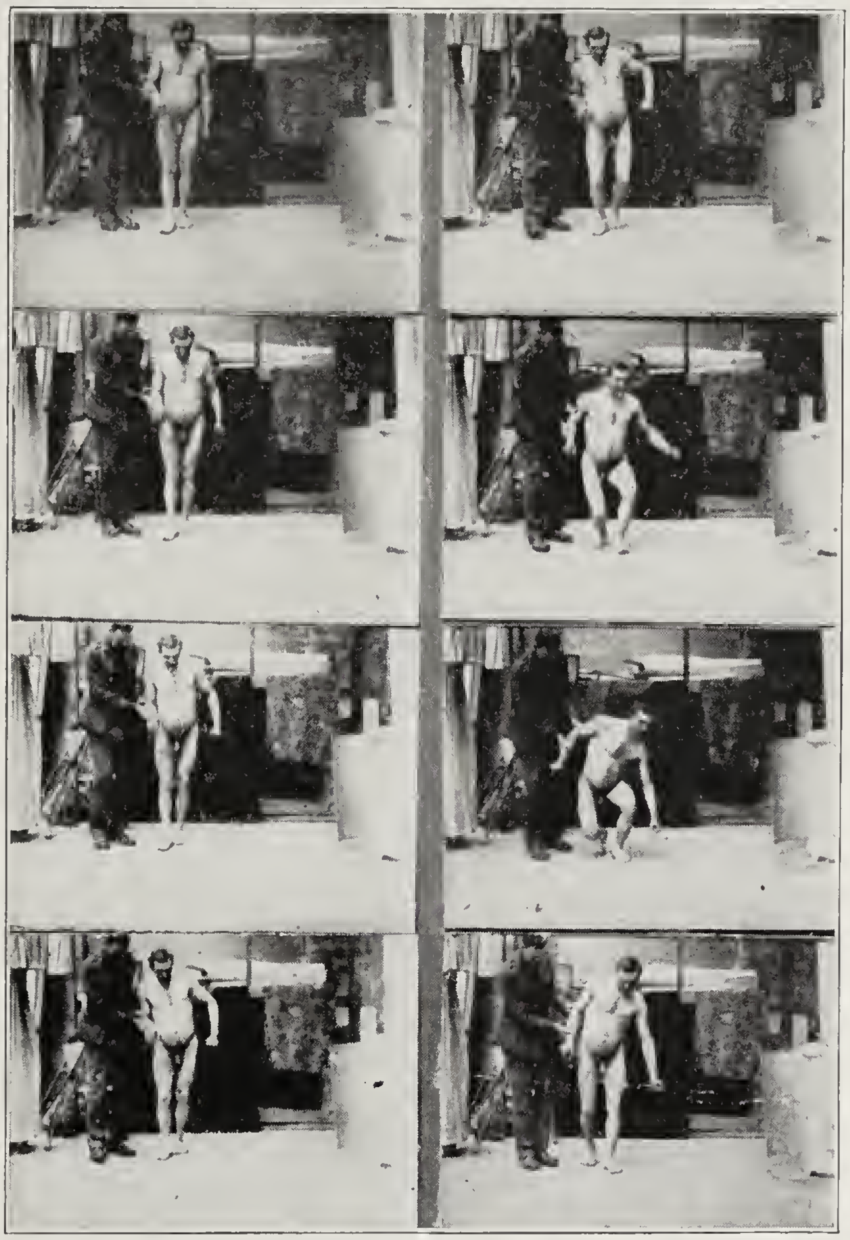

Fig. 2 (Case 1).—Dyskinesic gait not due to lesion of muscle in front of the thigh.

Case 2.—*Suggestion of medical origin as the pathogenic factor.* Perhaps the most striking example that I have seen is that of a man in whom a dyskinesia of the orbicularis palpebrarum occurred as a result of conjunctival irritation due to driving on dusty roads in summer, while short of sleep because of conviviality. The protective closing of the lids became a habit. Even though a predisposition to this tic was revealed by the shoulder and face tics early in life, the palpebral dyskinesia might have receded as spontaneously as did the other tics but for its fortification by the frequent repetition of medical opinions expressed before him for six weeks by distinguished men in a famous hospital nearby. As it was, the therapeutic problem had become most difficult, and the secret of its solution lay in the avoidance of further examination which would focus attention on the possibility of physical interpretation. This precaution permitted the reeducational procedures to take hold of the patient, so that in ten days he was able to go about alone, although he had been completely incapable of doing so for seven months.

Case 3.—*Dyskinesia of the abdominal muscles cured by psychomotor discipline.* A striking case was that of a man referred by an enterologist because of a grunting noise which he made with respiration, while at the same time he bent his body in a bowing tic. Physicians had recognized its functional character and had used electricity and other methods of suggestion without success. I observed that sudden contractions of the rectus muscles and diaphragm occurred, and inferred that if the patient could be taught control of these muscles, the movements would necessarily cease. He was shown how to perform contraction of the recti and diaphragm, and that when he was voluntarily moving his abdominal muscles he could not perform the bowing tic; and that when he voluntarily contracted the diaphragm he could not make the grunting noise. He was cured in two sittings.[3]

Case 4.—A similar case was observed in a woman patient referred by Dr. E. E. Mayer of Pittsburgh. The same procedure cured her in one interview without reference to the etiologic factor, which consisted of a domestic quarrel, the elements of which were adjusted with her afterward.

Case 5.—*Iliopsoas spasm (psychogenic) consequent on appendicitis.* Another patient seen with Dr. I. S. Stone had persistent pain after appendectomy because of a constant reference by the patient to the region formerly painful, which produced a spasm of the iliopsoas and oblique abdominal muscles. Reeducation in relaxation of muscles in general, and then of those affected, was the treatment.[4]

Case 6.—*Torticollis removed in ten days.* Again, a Russian boy, aged 11, declared that ever since the age of 5 he had felt the need of periodically turning his head abruptly to the right every few minutes. He experienced no desire to do this, but he never attempted to inhibit the movement, and performed it at least every few minutes. He gave himself no opportunity to develop angoisse. He presented no other neuropathic stigmas, not having scruples, timidities, aboulias or feelings of inadequacy, morbid fears or monomanias, although he occasionally indulged in day-dreams—but what boy of his age does not? The movements were short, yet not "electric," but they often occurred in volleys. They were such as could be reproduced volitionally. They were painless, and disappeared with sleep. However, no conditioning idea could be elicited, and he was entirely unaware how he began the movement, saying, "It just comes." The movements were more numerous when he was perturbed, and had never been influenced by any neutralizing subterfuges, none having been tried. They consisted of sudden turning of the chin over the right shoulder, sometimes accompanied by its elevation and that of the shoulder, and a twitching of the face, more especially the lips.

It is evident that the spinal accessory nerve alone could not perform such a movement, and it is inconceivable that a local irritation could comprise the facial nerve, the spinal accessory and all the nerves of the cervical plexus without having some effect on contiguous structures and implicating the phrenic nerve as well. It must, therefore, be cerebral.

The question whether focal or psychic was answered by the test of voluntary inhibition of the movements, and I found that by maintaining the attention of the patient firmly to follow with his eyes the movements of my slowly moving finger, fixing it intently and vividly, I was able entirely to suppress the movement, first for a space of thirty seconds, and later for periods of increasing duration. I then impressed on him the power of his own will in suppressing the movements; and he was ordered to come to the dispensary every day for treatment, which consisted of the psychomotor discipline of fixing with his eyes slowly moving and stationary points for longer and longer periods under the supervision of two of the students in the dispensary. He supplemented this by similar exercises at home, and at the end of ten days the tic was under such control that he made the movement only twice daily, later recovering completely (1908).

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[1] Williams, T. A.: Management of Hysteria in War, Mil. Surgeon **45**: 549 (Nov.) 1919.

[2] Williams, T. A.: National Morale in Relation to Hysteria, Military and Industrial, Tr. Am. Medico-Psychological Assn., 1919; New York M. J. **112**: 436 (Sept. 25) 1920.

[3] Patient exhibited before the Medical Society of the District of Columbia; M. Ann., 1910.

[4] Williams, T. A.: Surg., Gynec. & Obst., January, 1912.

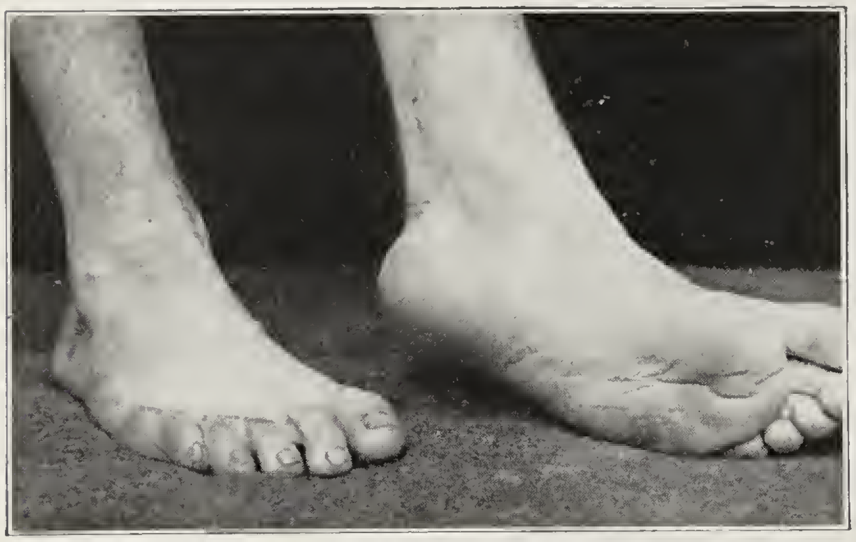

Fig. 3.—Position of feet of a soldier in the field who had dyskinesic station and gait. Its psychologic nature was demonstrated by its rapid removal by intensive persuasion after orthopedic and suggestive measures had been of no avail for months.

2. *The Psychasthenic Tic.*—The tic, on the other hand, which is preceded by an imperative longing, the struggle against which causes intense suffering, occurs in overscrupulous individuals of little suggestibility, whom Janet has called psychasthenics, and who show numerous stigmas of their constitution in addition to the tics for which they may seek advice.

Case 7.—*Torticollis traced to emotional stresses.* E. L., a single woman, aged 31, who was employed as an expert counter in the U. S. treasury, was unable to use the right arm, for each motion caused the head to turn to the right, and she was compelled to look backward with a most powerful force, over which she had no control. The trouble began three months before with a pain behind the right shoulder, running round to the right side. She now had pain all the time. She consulted a physician, who called it neuritis and advised massage. The nurse who was called feared to massage her; so electricity [sic] was tried, and did good at first to both the pain and the movements.

Three months before the tic there had occurred a serious unpleasantness with a comrade in the office, whom she stigmatized as an ignorant, conscienceless woman. There was great emotional bitterness displayed during the patient's account.

She brooded deeply over this episode, and as her work in counting can be performed quite automatically, her thoughts were free all day long to dwell on the constant unpleasantness of being in the same room as the other woman, who sat behind her on the right.

It was evident that the girl's thoughts about her enemy caused her head to veer and turn toward the place where she knew her to be. This was the less easy to resist because her attention was partly occupied by the counting of the money, which was her duty. As she was anxious to do this as rapidly and well as possible, mistakes or insufficient work not being condoned, she was less able to resist the motor response to her underlying thought, which was essentially a desire for an understanding with the other woman and a reconstruction of her own desire to be in harmony with her surroundings.

However, by a process of psychologic substitution, the need of turning the head had come to accompany every use of the right hand, so that she was unable to use her knife at the table without a turning of the head and an ensuing rigidity of the arm and head in the effort to arrest the torticollis and accomplish the act she wished. In writing, the same thing occurred.

The case affords also an example of occupational cramp mechanically produced by torticollis of mental origin, which by a psychologic association had in turn become producible by any use of the hand and arm.

The cause of pain was the action of the muscles antagonistic to the turning movement, which the patient consciously sought to prevent. Between the automatic desire to turn the head and the conscious effort not to do so, the muscles of the shoulder, neck and upper part of the chest were maintained more or less constantly in a state of powerful contraction; and this severe drag on their attachments, combined with a state of fatigue, provoked the pain of which the patient complained. It is similar to the pain caused by the carrying of a heavy bag for a long while.

Even at rest, the patient held the head somewhat to the right, and kept contracted the neck and shoulder muscles on that side.

Had the mental groundwork of this patient been different, it was unlikely that the incident would have occurred. That mental groundwork was made up by the unfortunate life of the patient's mother, which had led the daughter to take an attitude on the part of her family which made harmonious intercourse with other people quite difficult. In the proverb of the street, she went through life with a chip on her shoulder.

OCCUPATIONAL DYSKINESIA

Case 8.—*Writers' cramp.* A single woman, aged 29, was referred, April 10, 1910, by an orthopedic surgeon, after the failure of orthopedics and massage to improve an incapacity to write, apparently due to a painful stiffness and cramp of the shoulder and wrist of two years' duration. Several months in the country had also failed to remedy the cramp, although he had gained 10 pounds (4.5 kg.) in weight and become much stronger.

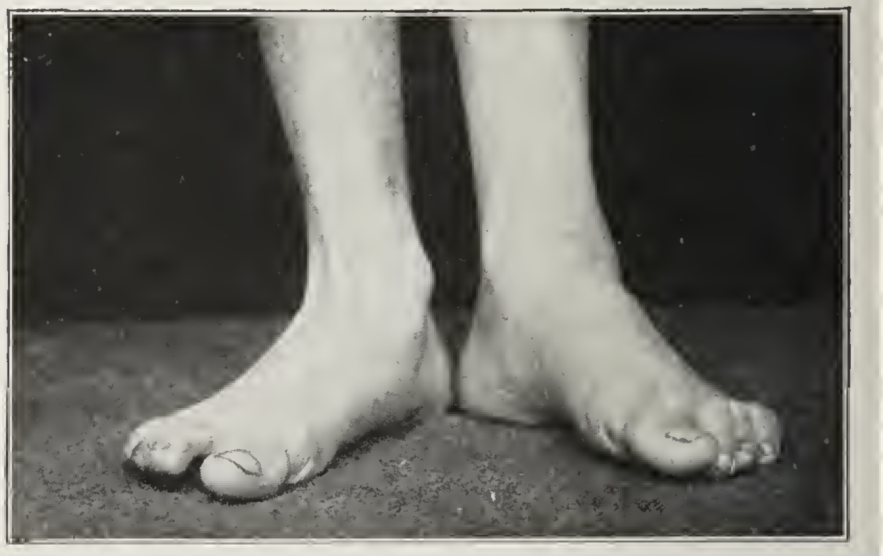

Fig. 4.—Position of feet after treatment.

When, in the act of writing, the wrist stiffened, the forefinger and thumb tightened up on the pen, the hand trembled, and the patient complained of severe pain in the wrist and between the first and second metacarpal bones.

Psychologically she was overconscientious and inclined to melancholy.

She was employed as bookkeeper in a railroad office, and on returning to work after influenza, she had great difficulty in finishing the day. She felt that this position must be kept, as she could no longer, by singing, earn the money she needed to support herself, as she had formerly done. Against the increasing difficulty of writing her daily quota, she struggled hard; but anxiety only added to the physical burden, and she finally succumbed after trying various methods of holding the pen in the effort to write. This process occupied about six months, and ended in a tremor so violent that she had to be fed. She attributed her incapacity to a broken muscle in the shoulder, and hoped that a month's rest would enable her to return to work. This belief was largely the fruit of medical opinion, showing the need for psychopathologic skill in a variety of conditions common in medical practice.

After a month's treatment she greatly improved, but was very pessimistic, and thought she had a tapeworm because of her ravenous appetite.

After the first eight weeks I did not see her so often, and she unfortunately relapsed on account of frequent discussions of her state by well meaning friends, so that toward the end of July she was firmly impressed with the idea that there was a deformity in the hand and shoulder. This was disproved with some difficulty, as her attitude was distinctly contrary. But after this she fell back on the notion that she needed something to make her food assimilate. A rediscussion of her digestive difficulties showed her that they were caused by her emotions.

In spite of all reasoning to the contrary, she declared that she could feel her hand contract sometimes, even when not writing. I decided, therefore, that she had not a real grasp of the principles I had been trying to inculcate. One is likely to fail to carry the patient along in understanding unless the temptation to go rapidly without sounding the patient all the way is not succumbed to. Accordingly, I recapitulated them systematically, with great care, and wrote out a summary for her to take home and study. After her next visit, I kept this, and asked her to write to me an account of the mechanism of her condition as she understood it. This account disclosed that she had not even yet transcended the physical explanation, as she referred her condition to disease of the brain cells, failing entirely to appreciate that her disability was psychologic; that is, a disharmony of acts arising in ideas. It was as though on a typewriter neither broken nor worn, when one wrote the wrong letters were brought into operation. It would not be possible to overcome the abnormal acts derived from diseased brain cells by any amount of studied indifference or exercise of self-will, which would serve in a psychologic situation.

The patient's own explanation of the mechanism of her affection showed that she had by no means an adequate conception of her own condition, as she believed that the brain cells were diseased. As it was necessary for her recovery that she should have a clear understanding, I again tried to place before her that which it was necessary for her to comprehend, and to eradicate from her mind her erroneous ideas about herself, as follows: First, it is an error to say that your "brain cells have become diseased." There is no disease of your cells: there is a disorder only of the harmony of action among them in writing, etc. This originated in the extraordinary efforts to accomplish much during a time of fatigue and mental distress. It was the difficulty of doing this which caused the unusual attitude of the hand, which arose from conscious effort to perform what was beyond your staying power. The tightening of the muscles was "mental." The habit of wrong writing was thus engendered, and it is this which now persists as an automatism. That is to say, when you are not paying attention, the hand of itself is guided by the mind unconsciously into these perverted positions. But ven when attending, there is an inclination to fall into the very position you desire to avoid. This is partly due to its habitualness and partly to the natural tendency of many persons to perform the very act they most wish to avoid; a familiar example is of the cyclist to collide with the obstruction he sees in the road. By practice, this tendency is soon overcome. So you see that the abnormal acts are not the esult of disease of the cells; but are merely bad habits to e overcome in the same way as those of the learning of the piano or of any act needing mechanical dexterity.

It was only after this that rapid improvement occurred nd that the writing, though a little large, became normal. Perfect ease, however, was not attained, although she did good deal of clerical work intermittently, and was ready to take a position demanding it continuously, knowing that if the right hand failed, the left hand, with which she had learnt to write, could take its place.

As a result, one year later she was in better physical condition than she had been for years, and was able to walk long distances and to do hard housework without fatigue, whereas formerly she was tired out by walking a few squares or by any hard work. But that the restoration of her physical health was not the cause of her partial recovery from writing cramp is proved by the relapse of the latter, in spite of continued improvement of her physique. This relapse was due to circumstances which compelled the cessation of the reeducative training.

The patient, however, has remained for ten years in important clerical positions.

The dyskinesia of the patient was the product of fear of failing to perform the work required and hold her position. She had long previously developed singers' cramp, owing to embarrassment when she sang a solo. This had been induced by remarks on her appearance by an anonymous correspondent. No attempt was made to deal with this, as she was content to sing in the chorus, which caused her no embarrassment. The most important feature of this patient's dyskinesias was their etiology, which was a defect of character making her prone to shame. Space will not permit a detailed description of this, or of the individual steps by which she was adjusted to satisfactory economic efficiency and effective contentment, in which the dealing with the dyskinesia was not the major element; for she remained happy and efficient, although she found it preferable to do most of her writing with her left hand. The case, however, is an excellent example of psychogenic dyskinesia and its cure.

It will be observed that in both these cases the term tic has been applied to a dyskinesia concerned with the patient's occupation. While it is a more precise term than merely neurosis, it may surprise because of its association with conditions that do not arise in connection with occupational activity. But I have shown elsewhere[5] that the occupational act cannot be performed because the muscles that perform it are occupied with the tic movement, and the tic movement is a reaction to the idea of beginning or continuing the occupational act. It is a discordance rearoused by the mechanism of association. Of this the following case is an extraordinarily striking example:

Case 9.—*Writers' cramp.* A man referred by Dr. Williams of Boston had been unable for one month to write his name clearly on account of a tremor. We know that tremor is a symptom of toxemia or of nervous disease; but this man could draw without trembling, which he could not do if his neurons were diseased or intoxicated, so we concluded that his tremor was psychogenic. Analysis revealed that the first time he trembled was when he returned to work after a surgical operation before he was fit. The bank did not recognize his signature, and apprehension of this caused him to tremble thereafter when attempting to write. Reeducation led to his cure in a month after one visit.

The rôle of mental prepossession inhibiting the due coordination of muscular movements was explained to him and illustrated by means of the strokes in lawn tennis, more especially that known as the drive. It was shown that fear of making an improper stroke is very likely to lead to lack of freedom and cramping of the muscles, which is the very position to be avoided. Still greater anxiety will create an uncertain, wobbling stroke, the incoordination of which is comparable to his writing.

The relationship of these facts to the episode of the refused check was discussed with him at length. When he had clearly realized the psychologic mechanism of his condition, he was directed entirely to cease writing with purpose, and to begin exercise with free-arm movements with chalk on a blackboard, paying attention to the forms he drew, but concentrating himself on the attainment of freedom in action. When this was insured, he might pass to a slate, and later to pencil and paper, and gradually reduce the size of the writing. But over two years later he sent me a specimen and informed me that he had almost entirely recovered after one month of the exercise prescribed.[6]

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[5] Williams, T. A.: Studies of the Genesis of the "Cramp" of Writers, Telegraphers, etc.: The Treatment Made Possible by This Research, J. f. Psychol. u. Neurol., 1911-1912.

THE RÔLE OF PHYSICAL INADEQUACIES

Psychic inadequacy to a situation is the real pathogen of the tics. This is the case even when physical inadequacies are the basis of this; for it is because of the incapacity of his function that the patient cannot succeed in adapting. In these cases, however, it is not by an intensive psychotherapy that adaptation is to be sought, but by an improvement of the bodily state, after which adaptation will be spontaneous unless maladjustments have become habitual. For example:

Case 10.—A child, aged 11, was brought to me ten years ago because of forced movements of the face. Psychomotor discipline only aggravated the movements, besides creating resentment. The movements were merely one of the reactions of an inadequacy due to endocrine unbalance. The other signs were mental sluggishness, with narcolepsy, adiposis, hypotrichosis and increased sugar tolerance.

The inadequacies due to these physical conditions expressed themselves in the unusual behavior of fibbing, deceitfulness, evasions of duty and the tic before mentioned. After hypophysial feeding compensated the inadequacy of the pituitary gland, the forced movements and other psychic consequences disappeared in a few months and had not recurred ten years later.

Case 11.—An only child, a third grade lad aged 11 who had not gone to school until 8, was referred to me by Dr. and Mrs. Cary Grayson, in November, 1921, because of blinking and grimacing since the age of 5. He had begun to shoot his cuffs at the age of 6. A former head shaking, shoulder shrugging had ceased for two years, but the head still nodded. He had been a nail biter and would cough before speaking, and latterly his eyes began to blink and roll. In spite of all this he was active in play, interested in school, well nourished and ate and slept well. Any of these movements could be stopped at will, but, boy-like, he would forget.

In a case of multiple tics of this kind, a constitutional state may often be incriminated. A lymphatic appearance, and overstoutness, were all that could be found in this case. Because of this he was given pituitary gland. But the morbid gesturing was a habit for which restraining was necessary; hence a series of exercises in inhibitions were begun so that at the end of a week the boy was capable of remaining motionless 600 seconds in full control of the blinking and eye rolling tic which was the direct cause of his being brought to me, as it had interfered with his book work at school.

In addition to this, recommendations in mental hygiene were given to the mother, a good sensible country woman, so that the patient has been able to proceed quite satisfactorily with his school work for six months.

THERAPEUTIC PRINCIPLES

It should be apparent from the perusal of these illustrations that dyskinesia cannot profitably be treated as such by rule. It is the inadequacy of which it is an expresion which must be aimed at. Whether this is a neurologic lesion or whether it is a chemical disturbance, or whether it is a reaction to circumstance purely psychic, the etiologic factor, broadly speaking, must be ascertained. The problem is often a subtle one. And in the psychogenic case the adaptation of means of control to the particular issue is essential to successful treatment. The cases have shown how in some instances direct control may be gained by kinetic education which enables the patient to deal readily with forced movements which are mere perpetuation by habit of a reaction the causes for which have ceased to be operative, whereas in other instances it is necessary to deal with a specific psychic situation in order to change the mental attitude of the patient toward that. In still other instances, it is a life attitude which is concerned, and a radical reeducation of the patient is required.

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ABSTRACT OF DISCUSSION

Dr. Hugh T. Patrick, Chicago: If I properly interpreted this presentation, it is a sort of admonition to the surgeon not to operate on these patients and not to treat them by apparatus. Apparently, the attitude of the surgeons in my part of the country is different from that of the surgeons in Dr. Williams' district; for, so far as I know, our surgeons are not operating for tic, writers' cramp, or things of that sort. It may be that once in a while they are tempted to operate on spasmodic torticollis. Perhaps I could add to Dr. Williams' admonition to these gentlemen to keep their hands off. Tic is a poor name for a condition for which we have no better name. It is more than a habit, and less than a spasm. Some of these cases are exceedingly refractory, and some are merely temporary. If refractory, why is it so? If one can answer the question "Why is a confirmed habit refractory?" one can tell why a tic is rebellious. If a man has a vicious habit which cannot be corrected, it is because there is a defect in that man's character. Such a man fundamentally does not wish it to be corrected for some reason which may not be apparent to us or to himself, but which is there just the same. This applies in a general way to refractory tic. To illustrate what tic is: For many years in the street car which carried him and me uptown and downtown, I observed the antics of a real artist who painted good pictures. Constantly he jerked and twitched hands, fingers, arms, shoulders or head. But none of these bizarre movements ever misdirected the stroke of his brush. Spasmodic torticollis is the worst kind of tic, if it is a tic. In this disorder the patient has what Brissaud called a restraining gesture. The most striking example I have seen was in a powerful man whose head twisted to the left with irresistible force. At the height of the spasm, when he could not possibly force the head into a natural position, if he approached the extended left forefinger horizontally toward the nose, just before the finger reached the nose the head would smoothly rotate to the right into a normal position. If by any stretch of imagination a disorder of that kind can be attributed to some perverted action of the nerves supplying the sternocleidomastoid muscle, I should like to know what it may be. That disorder is exactly what Brissaud called it—mental torticollis. It has no more to do with the anatomic structures of the neck than have the anatomic structures of lips and tongue to do with the violent oaths which some men use. To cure profanity, one might as well operate on the lips as to operate on any particular anatomic structure in the neck to cure spasmodic torticollis. I have never seen a case cured or much helped by operation. I had a few patients operated on by the old Keen method without any benefit.

Dr. M. S. Henderson, Rochester, Minn.: Dr. Rosenow took material from the tonsils of patients who came in with spasmodic torticollis, and injected it into rabbits. In quite a number of rabbits, he produced spasmodic torticollis. One rabbit had it so extremely that his head was almost turned upside down by the action of the muscles. I gathered from Dr. Williams' paper that he was emphasizing the functional side of this condition. I bring this point forward merely to show that sometimes, at least, spasmodic torticollis is due to organic disease.

Dr. Tom A. Williams, Washington, D. C.: I have gone at considerable length into the discussion of those symptoms due to lesions and also those due to chemical disturbances besides those of mental torticollis. There are cases caused by lesions in the striate apparatus. They are to be found abundantly in postencephalitic dystonias. Many patients with encephalitis have dyskinesias. Those are due to distinct lesions which can be demonstrated postmortem. The paper discussed especially the states which Dr. Patrick so beautifully illustrated when he said, illustrating the return of the twisted neck, by means of the approach of the forefinger, "What is the pathology of that?" It is a psychic pathology. Many of these movements (those we term psychasthenic movements) are influenced by psychologic means. It is true that many of these tics are incurable by our present means, because they are incorporated into the personality. In them the tic is the patient's life, so to speak; without it he is lost. Unless one can change that patient's whole attitude of looking at things, one cannot cure the tic. Those are the difficult cases spoken of in the last paragraph of my paper. Most cases are not so difficult and they can be cured, some by changing the patient's attitude to life, some by a series of exercises. The question arises in cases of tic as to the physician's personality. It is a great trouble to correct the condition in some patients. I myself cannot do it in cases of long standing. Some men can. What I read the paper for was not so much to draw attention to the inadvisability of operating in cases of torticollis as to call attention to other dyskinesias, writers' and other cramps of occupation and the like, which are fundamentally psychogenic, tics, and to which the same principles apply as those which we have tried to speak of in torticollis. The cases which are cured by operation can be cured more easily another way. When surgical measures do by chance cure the patient, it is not the operation, but the suggestion given thereby which affects the patient. Such patients can easily be cured in the same way as the cases I described, sometimes in one interview, by changing the patient's attitude toward his disability. These are the cases that are not difficult. In the difficult cases, it is a question of whether to undertake treatment or to leave them as they are.

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[6] Williams, T. A.: New York M. J., March, 1911.

TREATMENT OF INDUSTRIAL ACCIDENTS TO THE KNEE-JOINT *

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Injuries to the knee resulting from industrial accidents comprise practically all types of traumatic lesions except gunshot wounds, and these have their counterpart in penetrating and lacerating wounds not infrequently encountered. Therefore the valuable lessons of the World War in knee surgery are largely applicable here and should be generally understood and practiced in this branch of civil surgery, and the problem of unction, as well as of healing, should be kept contantly in the minds of those having the management f these cases.

It appears that in many quarters there is still serious isregard or ignorance of many of the special points in diagnosis and treatment of knee injuries, which are so essential if these patients are to be back on the job in the shortest possible time with the least possible disbility. This problem became one of great importance uring the war, and its solution, chiefly by the British rthopedic surgeons under the leadership of Sir Robert ones,[1] forms a notable chapter in the history of military surgery.

A thorough knowledge of the complex anatomy and function of the joint is a sine qua non. There is a close analogy between the abdomen and the knee in many respects, and those who undertake knee cases should learn to make a careful and thorough study of the knee and to recognize the many special points relating to its numerous structures, just as they would make in intra-abdominal conditions before arriving at conclusions as to diagnosis and treatment. Likewise, a carefully and wisely taken history may be even more important than the physical examination, though, of course, both are important. Contrary to former belief, the knee joint cavity has almost if not as great a natural resistance to infection as the abdomen, an important difference being that the latter has greater capacity for localizing any infection that may occur. Neither cavity can be effectively drained by tubes or wicks, a fact that explains the serious results in septic knees. Furthermore, the knee may be affected by a considerable variety of lesions, and it is sometimes difficult or impossible to make an exact diagnosis; exploratory arthrotomy is occasionally justifiable, as is exploratory laparotomy.

These points of similarity are mentioned to emphasize the importance and scope of knee surgery. Practically, it is a very distinct field demanding special training and experience. The after-care of these cases, with their complex problems of splinting and the tedious details of physical therapy, is even more important than the operative procedures in many of them, so far as restoration of function is concerned. Certainly no surgeon without special training in this field of very technical work and the necessary equipment, including a closely supervised physical therapy department, can get the best results in these or other joint cases. The insurance companies are slowly but surely beginning to recognize the economic value of such specialized treatment.

SOME PRACTICAL POINTS IN THE MORE COMMON TYPES OF INJURIES

So-called sprains or synovitis of the knee are very frequent. No knee injury, however insignificant it may appear at first, should be treated as such until after a careful search for a definite injury to the internal lateral ligament, semilunar cartilages, postpatellar fat pads, tibial tubercle and spine, crucial ligaments, patellar ligament, etc. Failure to recognize any of these at first may make a vast difference in the result. In simple traumatic synovitis without definite injury to other structures, I am convinced that the best treatment, in those cases showing enough fluid to float the patella, is completely to immobilize the joint for from five to ten days. A light plaster cast gives most perfect rest. It should be split down each side to make the front half removable so that radiant heat and graduated contractions of the quadriceps femoris by the Bristow coil can be carried out daily. The cast is held together by adhesive plaster the remainder of the time. A posterior gutter splint serves the purposes not quite so well. After removal of cast or splint, heat, contractions by the Bristow coil and graduated movements are continued daily, until the cure is complete, usually only a few days. This method gives the advantage of rest to the joint without muscle atrophy from disuse, which meets the objections raised by some against splinting these joints. I have used the popular compression and exercise method, but it has not proved so effective, nor does it seem rational. Rest of acutely inflamed tissues

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* Read before the Section on Orthopedic Surgery at the Seventy-hird Annual Session of the American Medical Association, St. Louis, ay, 1922.

[1] Jones, Robert: Derangements of the Knee, Ann. Surg. **1**: 969, 09; Lancet **2**: 297, 1914; Injuries to Joints, London, Oxford Univery Press, 1917, pp. 144-164; Military Orthopedics, London, Cassell & ., 1917, pp. 96-109.

is still the great aid to healing. An apparent exception to this is in the Willems treatment of septic joints, but here drainage is the paramount issue, and it is best obtained by active movements, the minor evil effects of motion having to be disregarded.

In subacute or chronic synovitis, the acute cases in which recovery does not occur after a few weeks should be handled the same way, but the fixation being continued for three or four weeks. If there is thickening and repeated pinching of the postpatellar fat pads, the muscular contractions of the quadriceps should not be carried out until this swelling has subsided and the splint is removed, then the foregoing physical therapy should be used.

Injuries to the semilunar cartilages are an interesting class of cases, now more frequently recognized in this country than formerly, though still often overlooked. Very little can be added to the classical papers of several years ago by Jones,[1] Morison,[2] Martin[3] and Corner.[4] A safe rule to follow, when these cases are seen soon after the injury, is, first, to be certain that the torn part has been reduced to its normal position, as evidenced by ability fully and freely to extend the knee, then immobilizing completely in full extension (not hyperextension) for four weeks. If reduction is impossible after repeated gentle manipulations of the proper kind, first without, then with, an anesthetic, the cartilage should be excised after a week or ten days of rest for subsidence of acute symptoms. If it has remained unreduced for a month or more, or if there is repeated displacement and locking, then it should be excised. After operation, the case should be treated as an acute traumatic synovitis, as described above.

In cases without the classical locking but with a sensation of something slipping or giving way in the joint at time of injury, it is safer to treat this as a cartilage case. It may save future trouble and an operation, if treated this way at first. If seen later with persistent symptoms, not positive, the same fixation and physiotherapy treatment should be tried for a few weeks. If symptoms still persist and a loose cartilage seems the most probable cause, then it may be justifiable to do an exploratory arthrotomy. I would hesitate to operate on a patient with a history of chronic arthritis preceding the cartilage injury. In cases of long duration since first injury, there may be a chronic thickening of the synovia which may retard or prevent a cure from operation. I have had two such cases in my series of nearly fifty operations.

The Jones technic is the classical one for operation. I wish to suggest a small modification which has aided me materially in avoiding scratching or cutting the articular cartilage or synovia. Instead of the usual straight bistoury to separate and sever the cartilage, I use narrow bladed, blunt pointed scissors, curved on the flat, such as the Mayo dissecting type; this also facilitates the operation.

Rupture of the internal lateral ligament often results in serious instability, discomfort and permanent disability. At the time of injury and for some time after, it is evidenced by localized tenderness, pain on forced abduction, and lateral mobility of the extended knee. The intimately attached internal cartilage is also often disturbed. If locking has occurred at the time of injury, the limb should be immobilized in practically full extension in order to fix the cartilage in place. However, as the internal lateral ligament is on tension when the knee is fully extended, it would seem best to relieve this tension slightly during healing by at least avoiding hyperextension, which is so often produced when a plaster cast is applied while the limb is being supported by the foot. If the cartilage was not displaced, it is better to immobilize with the knee flexed about 30 degrees, for the same reason that one everts the foot in a sprained ankle with rupture of the external lateral ligament of the ankle. For chronic relaxation or separation of the ligament, several operations have been devised, such as shortening or suture, and replacement by a band of fascia lata or the sartorius tendon. These will be rarely needed if the flexed position is maintained after the injury to allow healing without tension on the torn ligament.

It may be stated here that relaxed knees following prolonged traction and immobilization for other injuries to the limb may be very largely prevented by keeping the knee slightly flexed. If a Thomas splint is used, it is an easy matter to bend slightly the rods opposite the knee.

Rupture of the crucial ligaments, usually only the anterior one, is the result of more severe trauma than that causing the preceding conditions, though they may be associated. There may be a fracture of the articular portion of the tibia or the femur which may obscure the diagnosis. It is always present in dislocations of the knee joint. If the anterior crucial ligament is ruptured, manipulation will show abnormal forward sliding of the tibia on the femur with the knee fully extended. If the posterior crucial ligament is ruptured, there will be backward sliding, more particularly with the knee in flexion, though Walton[3] has shown that both crucial ligaments are tightened when the knee is fully extended. Forced hyperextension of the knee would cause a rupture of one or both ligaments, more often the anterior, together with a tearing of the posterior ligament of the knee and probably part or all of the internal lateral. Severe lateral strain, especially abduction of the leg, may also be a cause. The rational and usually satisfactory treatment is to immobilize the joint in about 30 degrees of flexion. This position keeps all the torn structures relaxed during healing. A knee brace with stopjoint to check extension should be worn for some months. I believe that this principle is not generally understood, the joint being usually treated in extension. Mr. Martin[3] of Newcastle-on-Tyne was the first to emphasize the importance of this principle. I was associated with him for several months, and am indebted to him for this and many other practical points on knee injuries.

Reconstruction of the crucial ligaments, substitutions by silk ligaments, bands of fascia lata and tendons have been attempted by a few surgeons, but the results to be expected from such procedures are not yet definitely determined. Smith[5] reports some good results from the Hey Groves operation combined with repair of the internal lateral ligament.

Fracture of the tibial spine or its inner tubercle is produced in much the same way as rupture of the crucial ligaments. The internal lateral ligament also suffers. The treatment should be immobilization in 10 degrees of flexion, as more marked flexion during healing may result in extension being permanently limited by a bony block. If union fails to occur, it may be worth while to fix the bone in place by a bone peg, though Ryerson reports a failure from this operation.

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[2] Morison, Rutherford: Injury to Semilunar Cartilages, Lancet **1**: 604, 1909.

[3] Martin, A. M., and Walton, A. J.: Injuries of the Knee-Joint, Brit. M. J. **2**: 1070-1079, 1913.

[4] Corner, E. M.: Surgery of the Knee-Joint, J. A. M. A. **63**: 1069 (Sept. 26) 1914.

[5] Smith, S. A., in Jones: Orthopedic Surgery of Injuries **1**: 297-358, 1921.

Osgood-Schlatter disease, though necessarily occurring in youth, is occasionally seen in industrial work. If the tibial tubercle is separated and displaced upward, it should be promptly reduced and fixed in place by kangaroo sutures or a bone peg. If there is only a strain or partial separation of the epiphysis of the tubercle, a posterior gutter splint and adhesive strapping above the patella to keep the patellar ligament relaxed is simple and effective treatment.

Acute and recurrent dislocations of the patella seem well enough understood not to merit special mention here. The same may be said of fractures of the patella and rupture of the patellar ligament.

Fractures of the femur and tibia which extend into the knee joint frequently require open operation for reduction and maintenance of good apposition. But this should be resorted to only after a skilful attempt by gentle manipulation and splinting have failed to secure fairly accurate approximation. When reduction of fragments by conservative measures is not quite perfect, it may be very difficult to decide as to the wisdom of open operation. The trauma of the operation itself carries the risk of considerable disability, even though it may obtain perfect anatomic reduction of the fragments. Here, as in other fractures, the soft parts must be considered, and we must remember that good function is more important than a perfect reduction as shown in a roentgenogram. In case of open operation, it is hardly necessary now, I hope, to condemn the use of metal plates and other nonabsorbable materials. For the last ten years I have argued that Lane plates and Murphy nails were irrational methods of treating fractures, and that they are rarely necessary if one knows how to use kangaroo tendon, bone grafts and pegs, together with external appliances skilfully designed and applied. It is gratifying now to see this belief generally concurred in.

Open wounds into the joint cavity are a serious problem both as to life and to limb. To operate or not is often a most difficult question to decide. The excellent classification and recommendations of Gray [6] for war injuries of this joint are largely applicable here. When a septic joint results in spite of prompt and proper treatment, or otherwise, the Willems [7] method of free incisions, no drainage tubes and active movements seems to obtain the most thorough drainage and often gets surprisingly good functional results. This, however, requires courage and persistence on the part of both patient and attendants.

In the treatment of knee injuries through the convalescent stage, the most effective splints, properly timed and executed movements, massage, Bristow treatment of thigh muscles by graduated contractions to the faradic current, mobilization of stiff joints by special flexion and extension appliances, and the other physical means for obtaining the most rapid and complete restoration of function are the true test of the surgeon's skill and resourcefulness in these cases.

With the present workmen's compensation laws and the prevalent method of having this work done by contract surgeons and so-called insurance doctors, the ideal management of industrial injuries to bones and joints seems difficult of attainment. Evidently we must convince employers and insurance companies of the economic value to them of these modern orthopedic methods.

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ABSTRACT OF DISCUSSION

Dr. A. L. Fisher, San Francisco: Dr. Billington mentioned physiotherapy. As far as I know, the value of physiotherapy is practically nil. What is the action of electrical stimuli, light stimuli, etc.? I opened one joint that was subjected to diathermy treatment for a year. This was a villous synovitis. I made very careful sections, and as far as I could see there was no difference in that material from any other villous synovitis. I think that physiotherapy is in the same state that drug therapy was before the days of pharmacology—we are using it empirically and without foundation, and we all know what happened to drug therapy since the days of pharmacology.

Dr. M. S. Henderson, Rochester, Minn.: We often speak of loose cartilages. As a matter of fact, a loose cartilage is very rare, and we should speak of it as a tear or fracture in the great majority of cases. Many patients are going about with some disability, not very severe, but they have a feeling of insecurity in the knee. In some cases we find that there is lack of full extension in the knee, although the patient claims that he can straighten the knee, but examination discloses that the knee slightly lacks full extension. Rutherford Morison has described a type of tear or fracture in the semilunar cartilage, which he speaks of as the bucket handle type of tear, and in my experience this is the most common lesion. Strange to say, occasionally there is no history of an accident or trauma of any kind. Some patients wake up in the morning with the knee locked. One point more that deserves attention is the fact that we have been overcautious in advising operations on the knee-joint, and many patients have been denied the benefits to which they are entitled. We have operated on more than 300 knee-joints for mechanical derangements, and have so far not had a single case of infection which involved the joint cavity. Our technic has been that which is accorded ordinarily, and would be demanded in any good operating room. We have had no special form of preparation. I think that the knee-joint is just as tolerant of infection as the abdomen.

Dr. G. D. Marshall, Kokomo, Ind.: In reading roentgenograms of these disabilities of the knee, I think that the cloudiness of the prepatellar fat is often overlooked by the radiologist. Another thing is the protection of the soft tissues. There is no use in giving electric treatments, diathermy and physiotherapy if one lets the soft tissues become pinched the moment the patient starts to walk. The knee cage brace will permit him to walk. In many of these patients, when they go about limping, the soft tissues will be pinched. By the application of a knee cage brace, we protect the soft tissues from this repeated trauma. If this repeated trauma goes on, there will be the formation of new processes and a longer period of disability. There are many cases of arthritis in which, if we put on a knee cage brace, the patient will walk, and we cure the patient because he is using the knee all the time in the natural position. This is of particular value in industrial cases because the man will walk without any difficulty and, without this protection to the soft tissues, although we may treat the case for months, the first time he puts his leg in hyperextension he will get a traumatic synovitis.

Dr. R. Wallace Billington, Nashville, Tenn.: In answer to Dr. Fisher's question, I referred rather generally to physiotherapy. I myself use the simple forms of physiotherapy, of which movement, passive and active, is probably the chief and most valuable element; but this requires proper supervision. I do not believe in a lot of machinery and that sort of thing. I do not know just how much value there is to diathermy. I saw it used extensively in the departments with which I was connected during the war. Theoretically, it should have some value in aiding resolution, but I think we can get on without it very well. I think that exercise, active and passive motion, is the biggest element in most cases. Massage helps to get rid of the edema and helps to restore the tissues to normal. Radiant heat and graduated contractions of the thigh muscles by the Bristow coil are also helpful at times in these knee cases.

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[6] Gray, H. M. W.: Treatment of Gunshot Wounds of the Knee, Brit. M. J. **2**: 41, 1915.

[7] Willems, C.: Treatment of Purulent Arthritis, Surg., Gynec. & Obst. **28**: 546 (June) 1919.

THE ACUTE PAINFUL BACK AMONG INDUSTRIAL EMPLOYEES ALLEGING COMPENSABLE INJURY *

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The surgical consideration of alleged traumatic backache involves primarily a query as to whether a backache actually exists and secondarily an almost equally essential question as to the traumatic element in a lesion admitted to exist. The answer to both these questions remains a matter of diagnosis, an admittedly difficult problem when confronted, as we are, with a variety of etiologic factors covering a field which extends from congenital malformations to the chronic infections of old age.

MALINGERING

The investigations of recent years have made the answer to the first question far easier and have forced us to acknowledge the existence of pain and disability sometimes previously denied. Despite, however, the pleas for more careful examinations and for more hesitancy in denying the alleged existence of pain, the traumatic back still enjoys an unenviable notoriety as a sort of rock-bound refuge for malingerers, a reputation which we believe is unmerited. This presumption is not based on the absence of malingering among the subsequent cases, but rather on the retraction of such a diagnosis in four instances while following the patient through to complete recovery. There are excuses, however, for the suspicion with which backache is regarded, chief among which is the relatively large number of patients who allege injury as the specific cause of a nontraumatic disability. Careful consideration leads us to believe that these allegations are the genuinely conceived, but erroneous, premises of etiology which are characteristic of the lay mind regarding not only backache but a host of other human ills. For example, it is easy to trace the mental processes of a patient who, after a hard previous day's work, honestly concludes that the lumbago of today had its origin in the employment of yesterday. Such an individual is scarcely a malingerer, but rather the victim of a false conception, the more deep-rooted often because of tactless disputes at previous examinations.

A second, and more important, factor influencing our suspicions, and one which at first was thoroughly misunderstood, was the almost universal exaggeration of the subjective symptoms. Patients previously treated for painful injuries and known to have minimized the discomfort of them, commonly reported, making ridiculous claims relative to the disability arising from back lesions. Some little effort was made to explain these statements before the solution, which now seems self-evident, occurred. The employee, with an ugly and striking visible laceration, often submits silently to suture and insists on returning to work, a very natural bit of bravado and one that impresses his fellow workmen. On the contrary, the same person with a genuinely painful back appreciates the lack, this time, of evident injury. The foreman often views with suspicion his request for medical attention, consequently he presents himself for examination with the subconscious idea that the burden of proof is his and that he must impress the surgeon with his suffering or return to work and face a most embarrassing situation as regards his standing with his employer and fellow employees. This psychologic apprehension, if it be nothing more, immediately disappears on the assurance that a definite lesion is recognized and is appreciated by the examiner—the true malingerer is encouraged to enumerate still more weird disabilities. Before a diagnosis of malingering is made, two factors should be carefully discounted: the patient's very likely misconception of etiology and his not altogether groundless apprehension regarding the acumen of his surgeon.

FINDINGS

The following series of 156 cases is reported from the records of an industrial hospital devoted to the treatment of employees engaged in manual labor which offers unusual hazards for injuries to the back. The claimants were all adults, with ages ranging from 18 to 63, and, with three exceptions, men. A consecutive series was selected from those claimants whose complaint was a painful back and who alleged an injury as the specific cause. The original examinations were made, for the most part, within an hour of the accident; a few patients were not seen until the following day, and nine patients failed to report until after one week or more of incapacitation. In 92 per cent. the pain was complained of at a point below the level of the tenth dorsal vertebra, a finding which resolves us to a consideration almost entirely of the low back.

TABLE 1.—FINDINGS IN ONE HUNDRED AND FIFTY-SIX CASES OF PAINFUL BACK

Traumatic		Potential		Nontraumatic	
Strain	54	Postural strain	22	Infectious myositis	18
Sprain	11	Osseous abnormality	6	Infectious arthritis	8
Contusion	7	Coxa vara	1	Varicocele	7
Sacrolumbar	9			Lesions of urinary tract	4
Sacro-iliac	3			Osteomyelitis	1
Compression fracture	2			Dorsal Pott's dis.	1
Spondylolisthesis	1			Carcinoma of liver	1
	87		29		40

The incidence in this region of certain frank traumatic lesions and certainly equally frank nontraumatic lesions was anticipated, but the attempt to classify sharply all the lesions encountered under these headings left a group that was definitely neither. More will be said about this group later; but for the present, it deserves consideration as a type offering inherent possibilities for disability, either with or without violence.

Those lesions classed as traumatic are essentially so; but the shadow of doubt cannot be denied as to whether or not an element of potential weakness does not often antedate the exciting violence in many of the strains, and also in sacro-iliac and sacrolumbar lesions. The nontraumatic lesions may be dismissed with a warning which their multiplicity well illustrates—the necessity for complete physical examinations. The patients were followed through to recovery, the diagnostic findings being those of the termination.

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POTENTIAL GROUP

The marked incidence of faulty posture among adult males has become somewhat a matter of common observation and has formed the basis for many assumptions which may logically be denied on evidence which proves that the majority of these static abnormalities are symptomless. Many are explainable on a hypothesis of poor nutrition during early life, plus sickness or overfatigue; but an analysis of any series of painful backs urges a consideration of the practically universal occurrence of some degree of bad body mechanics. The impression also forces itself on one that a considerable number may be found, roentgenographically, to reveal osseous and structural abnormalities responsible for faulty attitudes and even low back pain; the slender cylindric type of vertebral body, or the incidence of a sixth lumbar segment with a resultant lumbar lordosis and unstable hypermobility being a noteworthy example. Inequality in the length of the legs, unilateral sacralization of the fifth lumbar vertebra, impingement of a fishtail transverse process on the iliac crests, structural variations in the articular processes or occasionally the apposition of spinous process are not uncommon irregularities which seem to represent especial susceptibility to injury and are frequently mirrored in postural defects. The rigid and unyielding spine of quiescent chronic osteoarthritis is an additional structural type, delicately susceptible to slight trauma.

TABLE 2.—ROUTINE OF EXAMINATION

	Onset	History	Posture at Examination	Muscle Spasm	Distribution	Painful Pressure Points	Referred Pain	Diagnostic Features
Traumatic strain	Within twelve hours	Recent change of occupation; continuous arduous work, or sudden unusual effort	Variable..............	Mild	Variable	Variable	None	Diffuse area of tenderness; pain on flexion of spine not markedly increased by extension against resistance
Postural strain	Slow	Never been able to stand heavy lifting; can endure walking better than constant standing	Leans against every available support with weight on one leg or sits in slumped manner	None	Bilateral	Over the iliolumbar ligaments	Occasionally, the posterior thigh muscles	Poor posture; iliolumbar ligaments tender; lack of muscle spasm and history of pain and fatigue after a day's labor
Sprain	Sudden	Severe effort or wrench, interrupted by a stabbing and disabling pain	Knees, hips and spine in slight flexion; back guarded with hands or hands on knees	Marked	Unilateral	Over the erector spinae at a well defined point	Radiating up and down erector spinae	Immediate disability; marked muscle spasm; painful limitation of spine flexion, aggravated by attempts at extension against resistance
Sacrolumbar lesion (intrinsic)	Sudden	Severe twist of spine with the pelvis rigid; immediate disability	Spine held at a neutral point between flexion and extension, rotation toward affected side	Marked	Variable	Over the area of the articulation	Adductor thigh muscles, rarely below the knee	History, posture at examination, low back pain, pain in the thigh not extending below the knee; pain on rotation of spine on the pelvis
Sacro-iliac lesion	Sudden	Often premonitory backache; sudden "slip," occurring at a moment of slight effort	Affected thigh at midpoint between flexion and extension; sits on sound hip	Marked	Unilateral	Over the superior gluteal nerve	Marked along the course of the sciatic on the affected side	On the affected side, limitation of straight leg raising; pain elicited by abduction of hip with the thigh in 90 degrees flexion; occasional abolition of plantar and patellar reflexes
Infectious myositis	Generally on awakening	Recent focal infection or exposure	Guarded gait; sits on edge of chair, with weight equally on both hips	Marked	Bilateral	Wide area along the erector spinae	None	History, pain and spasm increased after resting; elevation of the temperature; severe pain on extension of the spine against resistance

Considered on a basis of range of motion in the spine, these structural variations belong roughly to one of three types. These are in the order of their frequency: class in which there is hypermobility; another in which there is asymmetrical limitation of motion, and a third in which there is rigid immobility.

It must be admitted that some weakness exists in the foregoing assumption, for if correct in the assertion that structural abnormalities are commonly mirrored in postural defects, the image should, with reasonable certainty, indicate the underlying lesion. This we have not been able to demonstrate with a regularity which warrants diagnostic conclusions. We can and do recognize in the "lanky," hollow backed person something of his underlying osseous structure. The same is true of the stiff spine of the arthritic patient. Occasionally, the variation between the arcs of lateral bending in unilateral sacralization of the fifth lumbar segment will offer a suggestion of what the roentgen ray may reveal. The examination, however, so commonly follows the onset of the acute disability that the latter symptoms completely obliterate the previous picture.

A history of trauma is the rule with these patients, yet a sufficient number present themselves denying injury to force our acceptance of the possibility of disability not excited by violence. This uncertainty as to the true etiology offers the excuse for the term potential. That they are actually potential is still somewhat an open question;[1] but excellent affirmation often exists in the past occupational histories of these patients. The story commonly is one of frequent changes of employment in the effort to avoid heavy work. There is a process of self elimination which accounts for the rarity of "wandlike" spines among, for example, shovelmen and freight handlers. It is this autopremonition of impending disaster that best reveals the true inherent weakness and offers the strongest testimony in favor of the actual potential susceptibility of osseus abnormality to trauma. Solely on a basis of length of disability and a tendency to recurrence, this group has proved a sore trial. This condition could largely be avoided by the postural inspection of prospective employees. Once a reasonable assertion of trauma has been established, the claimant becomes compensable and generally remains so despite our best speculations as to whether he is essentially traumatic or structurally unfortunate.

DIAGNOSIS

Lack of space precludes the possibility of a discussion of differential diagnosis. The plan outlined in Table 2, however, has been of value in dispensary work.

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[1] Osgood, R. B.: Back Strain, an Accident or Disease? J. Industrial Hygiene 1: 150 (July) 1919.

SACRO-ILIAC LESIONS

Previous writers[2] have called attention to the frequency with which pain low in the back has been attributed erroneously to sacro-iliac relaxation, an observation strikingly in accord with the present findings. Three cases only were encountered in this series, in which the patients exhibited an exaggerated lumbar lordosis, poor muscle tone and admitted premonitory low back pain over varying periods, factors offering a temptation to deny the lesions as essentially traumatic. All of them, however, alleged a specific trauma which in every instance was illuminating. Briefly, the first dated his incapacitation from a slip which occurred while alighting from a truck, the second while getting out of a bath tub and the third while leaning forward to pick up a light tool. It will be observed that the primary disability occurred at a moment of probable muscular relaxation or rather at a moment in which the surrounding musculature was not on guard against strain on the sacro-iliac articulations. This experience well bears out previous investigations in which the etiologic importance of the structure of the joint has been discussed. It likewise adds evidence to the importance of the muscular support, a fact further enhanced by a review of the histories of nearly 400 cases in which sacro-iliac subluxation had occurred only once synchronously under strain on the back of a person doing heavy lifting.

LUMBOSACRAL LESIONS

The region of the sacrolumbar articulation has acted as host to the referred pain from a complexity of lesions, many of which bear no anatomic connection to the joint proper and may be classed as extrinsic. In this group will appear most of the strains, both traumatic and postural; a few of the sprains, and a lesser number of the osseous abnormalities—entities whose only similarity is expressed in the location of the pain. The intrinsic possibilities are not less numerous; there have been observed spondylolisthesis, arthritis, fracture of the articular processes between the fifth lumbar vertebra and the sacrum, and strain or sprain of the intra-articular or the iliolumbar ligaments. These intrinsic lesions have been noted to exceed in incidence very markedly the affections of the sacro-iliac joints, a finding quite logically in accord with the existing anatomic possibilities in the two articulations.

In this series, restive torsion has played a rôle in the mechanics underlying sacrolumbar lesions which was quite distinguishable from the torsion plus partial muscular relaxation in the sacro-iliac cases. Commonly, the history was that of a severe twist on the semiflexed and lifting back, with the pelvis immobilized, as in leaning over a bench, and with the thighs pressed firmly against the edge to gain leverage. In such a position, should the load applied on the upper back through the arms and shoulders suddenly shift laterally, the fixed pelvis acts to prevent pivoting of the whole body. The patient must then choose a fall across the fulcrum represented by the table edge or receive the lateral twist on the lumbar spine, the weak point of which is the sacrolumbar articulation. If fortunate, the resultant lesion involves only extrinsic structures, but a not inconsiderable number of persons suffer sufficient mechanical insult to superimpose on an extrinsic lesion, actual disarrangement of the articulation proper, that is, the true sacrolumbar entity.

Despite the somewhat general acceptance of an increased lumbar curve as a symptom of sacrolumbar lesions, such has not been the rule among the intrinsic cases here observed. With the exception of spondylolisthesis in which the lordosis is structural, the remaining lesions have exhibited a marked muscle spasm. The spasm is seemingly an attempt to flatten the low back curve; relieve from strain the ilio-lumbar ligaments, and balance the spine on the sacrum at a neutral point.

CONCLUSIONS

Trauma is blameless as an etiologic factor in a large percentage of cases of alleged traumatic backs.

Malingering is of uncommon occurrence, but often is implied to the surgeon by the patient's false conceptions of etiology and an overanxiety to establish the recognition of a real disability.

Osseous abnormalities in the lower portion of the back furnish a potential group, especially susceptible to violence but capable of developing disability unexcited by trauma.

Sacro-iliac relaxations are of infrequent occurrence.

Sacrolumbar lesions are properly of two classes as regards the involvement of the articulation, extrinsic and intrinsic, the latter representing the grave traumatic lesions of most common occurrence.

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ABSTRACT OF DISCUSSION

Dr. J. Archer O'Reilly, St. Louis: The question of the back is very important, especially in relation to industrial accidents. The more one thinks one knows about the back, the less one knows, especially in studying roentgenograms. Such pictures of the back, especially of the normal spine, vary. Pictures taken of patients who had no backache showed a number of abnormalities that could be supposed to cause backache. I found, as Dr. Conn said, that there are various abnormalities of the fifth lumbar, seventh transverse process, etc., all of which are dependent factors in causing backache, and if trauma supervenes, these abnormalities will cause a serious backache. It has been believed that when backache has been caused by these abnormalities, the condition is very much more difficult to correct. These cases are much more difficult to cure than are the cases in which the back is more or less normal. I will not discuss the question of sacro-iliac strain. Whether the strain is in the sacro-iliac joint or not, the end-result is the same as far as the patient is concerned. For this reason backache in most industrial injuries is really an orthopedic condition. Many backaches are seen by men who are not orthopedists, and they sometimes think it is just a strain and does not amount to anything. The patient is told to rub with liniments, and he is allowed to go several months without treatment. They are orthopedic cases and should be seen by an orthopedist, and treatment should be begun immediately. A roentgenogram should be made in every case of injury to the back. A man who knows how to interpret a roentgenogram should see these patients and treat them from the beginning and not be expected to take charge of them several months after they have been injured. Some day we shall come to the point at which a great many of these men who are about to be employed in positions that require severe strains on the back or are likely to produce strain, such as mining, shall have a roentgen examination first so as to limit the possibility of a potentially weak back and to lessen the possibility of getting a man who will be injured easily and have to be paid a compensation.

Dr. Henry W. Frauenthal, New York: I appreciate the frequency of the percentage of sacro-iliac strains. In my own institution in more than 15,000 cases we had 471 cases of sacro-iliac strain. The patients were relieved by treatment.

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[2] Lovett, R. W.: The Causes and Treatment of Chronic Backache, J. A. M. A. 62: 1615 (May 23) 1914.

A STUDY OF EXOPHTHALMIC GOITER AND THE INVOLUNTARY NERVOUS SYSTEM

IX. AN ESTIMATION OF THE PATHOGENESIS AND THE EVALUATION OF THERAPEUTIC PROCEDURES IN EXOPHTHALMIC GOITER *

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In 1835, Graves described a condition characterized by exophthalmos, goiter and tachycardia. To the classical triad of symptoms Charcot later added a fourth cardinal symptom, tremor. Further study of the syndrome indicated that all four symptoms did not necessarily occur in every patient, and that the only constant symptom was tachycardia. The variance in the clinical picture led to the introduction of such ill-defined terms as forme fruste, basedowoid, and larval hyperthyroidism. This classification, based on symptoms, was soon replaced by one based on disturbed function. Moebius recognized that many of the symptoms of the syndrome were the antithesis to those of myxedema, which had just been proved to be a thyroid deficiency disease. He therefore postulated that exophthalmic goiter was due to hyperthyroidism, the conception that prevails today.

Unfortunately, it is impossible to estimate accurately the output of the thyroid hormone, and the proponents of this theory have been compelled to resort to speculation and analogy to make their point. To prove that exophthalmic goiter is a hyperthyroidism, it is necessary to demonstrate an increased secretion in the gland itself or in the thyroid vessels. Tadpole tests ("Gudernatsch experiments") [1] fail to indicate any secretion in blood taken from the thyroid vein of patients with exophthalmic goiter, or from animals with hyperplastic glands. In one instance, electrical stimulation of the nerves of a normal gland produced sufficient hormone to hasten the tadpole metamorphosis, while similar stimulation of a hyperplastic gland failed. The potency of the thyroid hormone is proportional to its iodin content. In the hyperplastic gland of exophthalmic goiter there is a diminution of iodin.[2] There is no direct proof that an increased thyroid secretion is present in hyperplasia. What data are available indicate a decreased output and storage.

The inferences on which the theory of hypersecretion is based are:

1. Since the secreting surface of the hyperplastic gland is increased, it is postulated that the secretion also is increased. Against this inference, it may be urged that exophthalmic goiter may exist in the presence of a normal or colloid gland; that hyperplasia may coexist with thyroid deficiency (myxedema) in human beings and animals; hyperplasia may be present (endemic goiter) unassociated with symptoms of exophthalmic goiter. It is evident, therefore, that hyperplasia is compatible with normal or decreased function.

2. Many of the symptoms of myxedema and exophthalmic goiter are exact opposites, but many are possessed by the two in common (lymphocytosis, alimentary hyperglycemia, and hyperplasia of the thyroid gland); in fact, the two diseases may coexist.

3. The administration of thyroid gland may augment the symptoms of exophthalmic goiter or evoke some of them in normal individuals, but it has never been possible to produce artificially a typical clinical picture of exophthalmic goiter. The only constant symptoms that Carlson [3] was able to produce from feeding large quantities of thyroid extract to man and other vertebrates were loss of weight, gastro-enteritis and diarrhea. He never succeeded in constantly producing exophthalmos, tachycardia, goiter or nervousness. Other substances, notably cocain, epinephrin, ergotoxin and tyramin also augment or reproduce the symptoms even more accurately. Evidently, then, the effect of *feeding* thyroid is not necessarily a specific one.

Therefore, these inferential arguments, although superficially attractive, are not only not supported but are even opposed by scientific data. Accordingly, many exponents of the hyperthyroidism theory claim a disordered function, or dysthyroidism. Until there is proof that a qualitative alteration in secretion can occur, this speculation does not warrant discussion. That adenomas are not causative is evident from the fact that they may be present in cretinism (thyroid deficiency) and in endemic goiter (without general symptoms), and their avidity for iodin is less than in nontumor tissue of the same gland.

Definitions based on clinical descriptions and etiology are unsatisfactory.

We define exophthalmic goiter as (1) a clinical collection of sympathomimetic symptoms (tachycardia, tremor, exophthalmos, sweating, asthenia, polyrrhea [diarrhea], etc.), associated with (2) metabolic upset (elevated basal metabolism), and usually accompanied by (3) hyperplasia of the thyroid gland. No one of these three components is pathognomonic. Elevations of basal metabolism may occur in other conditions dissociated from goiter or alterations in the involuntary nervous system. Hyperplasia may also occur dissociated from alterations in the involuntary nervous system or elevation of the basal metabolism. Sympathomimetic manifestations may be present with or without hyperplasia of the thyroid gland and with a normal basal metabolism. It is to the last group of symptoms that we apply the term "autonomic imbalance." This syndrome differs from exophthalmic goiter only in that the basal metabolism remains normal. Patients with active exophthalmic goiter usually give a history of autonomic imbalance, and those with arrested exophthalmic goiter differ only in presenting a history of crisis. The transition from autonomic imbalance to exophthalmic goiter has occurred in a patient under our observation. This has led us to believe that disturbance of the involuntary nervous system plays an important rôle in the causation of exophthalmic goiter. The fact that stimulation of the involuntary nervous system by epinephrin produces an elevation of the basal metabolism and that this increase is independent of the thyroid gland suggested a more complete study of the involuntary nervous system, especially the thoracicolumbar division. Since it is admitted that epinephrin acts only on the myoneural junctions of the thoracicolumbar division, the sensitiveness of these patients to the subcutaneous injection of epinephrin localizes the abnormality in the myoneural junctions.

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* From the Department of Medicine, Mount Sinai Hospital, and the Department of Pharmacology, College of Physicians and Surgeons.

* Read before the Section on Practice of Medicine at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

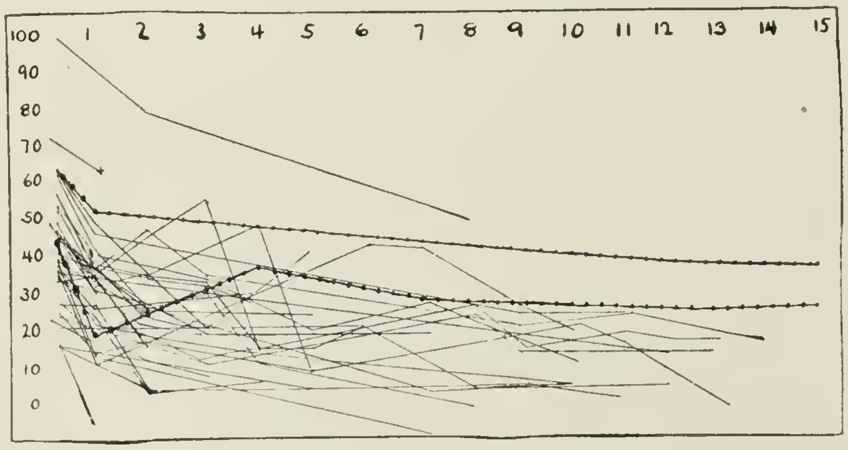
[1] Rogoff, J. M.: Aberration of Thyroid Secretion into Blood, Pharmacol. & Exper. Therap. **12:** 193 (Oct.) 1918.

[2] Marine, David, and Williams, W. W.: The Relation of Iodin to he Structure of the Thyroid, Arch. Int. Med. **1:** 349 (May) 1908.

[3] Carlson, A. J.: Experimental Hyperthyroidism in Mammals and Birds, Am. J. Physiol. **30:** 129, 1912.

As an index of the activity of this division, we used the vascular response to epinephrin of the pithed, decerebrate cat. We found that neither injection of thyroxin nor removal of the thyroid gland affected in any way the response of the thoracicolumbar division. Other workers using similar preparations and obtaining similar results ascribed the increased epinephrin response to the stimulation of the thyroid gland. This, we believe, is a misinterpretation, for we have shown that the increased response is due not to the thyroid but to a "sensitization" of the myoneural junctions of the thoracicolumbar division. Crile bases his explanation of exophthalmic goiter on the "sensitization" of the involuntary nervous system by iodin. We have satisfied ourselves that iodids have no such sensitizing power. We were able to exclude epinephrin, and showed that the other ductless glands play no evident rôle. We were therefore compelled to assume the position that in exophthalmic goiter we had evidences only of a disturbance of the involuntary nervous system and no clue as to the cause of this derangement. While the basal metabolism increase was most likely secondary to this upset, thyroid hyperplasia was difficult to explain. We are at present attempting to produce thyroid hyperplasia by creating autonomic imbalance. Whatever the mechanism, goiter is probably not responsible for the autonomic imbalance. For the present we regard the goiter as a purely secondary and symptomatic feature of exophthalmic goiter.

However interesting the study of the pathogenesis and definition of the disease, our main object in undertaking the pursuit was to outline a rational therapy for our patients. Since the time of Trousseau, remedies of all types and manner have been suggested, and at present these patients are reported "cured" by medical treatment, roentgen-ray treatment, mechanotherapy, organotherapy, spondylotherapy, and all manner of surgical procedures, from the injection of boiling water to complete thyroidectomy. The reported success from so many diverse methods of treatment suggested that the disease might run a self-limited course toward arrest. In order to determine this point and to secure an index whereby therapeutic procedures might be gaged, we studied the spontaneous course in fifty patients. Our management consisted in placing the patients under conditions as ideal as possible in hospital wards. The basal metabolism was used to confirm the diagnosis and to estimate the progress of the disease.



Evaluation of therapeutic procedures in exophthalmic goiter: Upper dotted line, average of patients treated by roentgen ray (Means and Aub); lower dotted line, average of patients treated surgically (Means and Aub). Narrow lines are individual records of patients observed by authors. In these patients, no specific measures were instituted, and the course is "spontaneous." The elevation of the basal metabolism is used as the index in all.

During the year 1921, thirty-eight patients were observed and all are included in the accompanying chart, irrespective of the outcome. Two patients died, one (Patient 18) of an acute crisis of the disease and the other (Patient 14) of a terminal pneumonia and pericarditis following pyelitis. The data on two patients (7 and 22) are incomplete; but, since each is at work, the indications are that they have made at least a symptomatic recovery. The most striking thing noted in the other patients is the tendency of the basal metabolism to fall rather abruptly. The most marked decreases are seen in those patients who had the highest initial readings. In one patient (13) a recrudescence occurred in the seventh month; this was associated with pregnancy and pansinusitis. Patient 34 also had a recrudescence. It was impossible to secure her cooperation, and she is considered a failure.

COURSE OF THE BASAL METABOLISM IN INDIVIDUAL PATIENTS WITH EXOPHTHALMIC GOITER ("SPONTANEOUS" COURSE)

		Time in Months													
Patient	Admission	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. S. G.	48	38	48	36	..	..	..	..	..	22	..	25	..	..	17
2. R. B.	25	..	..	12	..	..	..	..	25	15	..	15	..	15	..
3. E. K.	55	42	36	..	49	10	..	..	..	..	22	17	..	0	..
4. M. N.	53	39	36	34	16	16	22	..	5	..	..	..	6	..	..
5. M. F.	54	46	46	56	16	..	..	..	29	16	..	20	18	18	..
6. N. J.	63	43	27	31	12	..	..	..	0	..	..	..	..	..	..
7. A. A.	37	..	..	..	..	..	..	..	..	..	..	..	14	..	..
8. E. B.	17	..	..	..	..	5	..	..	..	..	..	..	..	..	..
9. M. G.	64	47	..	..	..	..	..	..	..	25	..	25	..	..	..
10. E. C.	17	..	5	..	..	..	..	..	..	..	16	12	..	..	..
11. D. H.	58	42	39	35	..	21	..	28	..	..	12	..	..	..	..
12. M. R.	47	38	28	20	..	..	..	..	20	..	..	..	..	..	..
13. C. H.	35	12	..	..	..	..	..	44	43	27	21	..	..	..	..
14. S. M.	50	32	..	27	..	..	..	..	..	..	..	..	..	..	..
15. B. R.	48	..	20	..	15	..	..	..	..	..	6	..	..	..	..
16. B. H.	22	..	..	..	..	22	..	..	..	..	..	..	..	..	..
17. M. H.	40	14	..	..	..	..	..	..	7	..	..	..	..	..	..
18. I. K.	73	65	..	..	..	..	..	..	..	..	..	..	..	..	..
19. A. C.	39	27	..	..	31	..	..	..	..	..	..	..	..	..	..
20. S. G.	35	..	..	..	..	..	..	4	5	..	6	..	..	..	..
21. L. K.	36	25	4	..	7	..	..	..	..	..	..	..	..	..	..
22. H. H.	38	..	..	..	..	..	..	..	..	..	..	..	..	..	..
23. B. A.	29	20	13	8	..	..	..	..	..	..	..	..	..	..	..
24. J. W.	26	15	18	..	..	10	..	..	..	..	..	..	..	..	..
25. L. R.	34	36	17	..	..	..	..	..	..	..	..	..	..	..	..
26. D. T.	24	19	..	..	..	..	..	..	..	..	..	..	..	..	..
27. G. S.	28	28	..	6	..	..	..	..	..	..	..	..	..	..	..
28. E. N.	40	33	36	..	..	..	..	..	..	..	..	..	..	..	..
29. R. F.	42	38	27	..	..	25	..	..	..	..	..	..	..	..	..
30. M. F.	48	35	26	..	..	..	..	..	..	..	..	..	..	..	..
31. D. F.	100	..	80	..	..	..	..	..	50	..	..	..	..	..	..
32. A. L.	50	..	..	..	35	..	..	..	..	..	..	..	..	..	..
33. M. D.	40	..	35	33	28	..	..	..	..	..	..	..	..	..	..
34. S. S.	64	50	..	22	..	42	..	..	..	..	..	..	..	..	..
35. W. W.	37	23	21	13	16	..	..	..	..	..	..	..	..	..	..
36. F. A.	46	38	25	22	..	..	..	..	..	..	..	..	..	..	..
37. E. B.	18	—5	..	..	..	..	..	..	..	..	..	..	..	..	..
38. S. G.	50	32	23	20	..	..	..	..	..	..	..	..	..	..	..

We then attempted to compare the course followed by these patients with reported statistics. In spite of the fact that so many data on basal metabolism have been collected, it was found that but one report, that of Means and Aub,[4] contained comparable material.

The average curves of Means and Aub are for two groups of patients, the one treated by roentgen ray and the other by thyroidectomy. The first group had an initial basal metabolism averaging + 64, which fell to about + 38 at the end of fifteen months. The surgical group had a lower initial metabolism (about + 45). There was an immediate fall after operation to about + 20, and a secondary rise, reaching to + 38 in the fourth month—that is, to a little less than the original level. At the end of the fifteenth month the average was about + 27.

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[4] Means, J. H., and Aub, J. C.: Basal Metabolism in Exophthalmic Goiter, Arch. Int. Med. **24**: 645 (Dec.) 1919.

We have superimposed on these curves the course of the basal metabolism in each of the thirty-eight individuals listed in the chart. It will be seen that the average basal metabolism at onset in our patients was considerably lower than the average of Means and Aub's roentgen-ray patients, but about equal to the surgical group. Our patients showed a endency to a decrease in the basal metabolism that was more marked than that in the groups studied by Means and Aub. This is particularly apparent in comparing our patients with the thyroidectomized group, for it will be seen that at onset approximately half of our patients had a basal metabolism above the average nitial figure reported by Means and Aub. After the fourth month the basal metabolism of all but three of our patients was below the average figure for the thyroidectomized group at the end of fifteen months. Furthermore, on an average of four months after their admission to the hospital, these patients were restored o economic and social usefulness.

ABSTRACT OF DISCUSSION

Dr. Charles F. Hoover, Cleveland: Exophthalmic goiter as a long duration, and its course is characterized by fre-uent remission and exacerbation of symptoms. These haracteristics of the natural history of the disease have een responsible for the introduction of a great variety of herapeutic measures. To estimate soundly the therapeutic alue of any procedure in the treatment of such a disease equires very alert criticism. Hyperthyroidism is a word hat has found acceptance in the minds of many medical nen because it is the antithesis of hypothyroidism, which as been proved by clinical and experimental facts. This word hyperthyroidism carries with it the logical significance hat has served practical purposes for many surgeons. Dr. Kessel indicated the great danger of accepting the meaning f a word without carefully weighing its significance. The cceptance of the word hyperthyroidism has smoothed the way for the indoctrination of ignorance on the subject. There s no doubt that many patients have endured partial removal f the thyroid gland, but a very small percentage of patients uffering from exophthalmic goiter succumb to it untreated y any other method than rest. The further one proceeds in he study of this mysterious syndrome, the more evident is that the pathologic condition of the thyroid gland fails to eveal the source of the disease. To the uncritical and uperficial mind, the disease appears simple and the pathogenesis seems easily revealed; but critical physicians have hus far found no solution of the problem. Dr. Kessel has dded to the evidence that the known methods of studying he functions of the thyroid gland fail to yield any proof hat exophthalmic goiter is due to hyperthyroidism.

Dr. A. S. Blumgarten, New York: There are two points hich I wish to discuss: one is the relation between auto-omic imbalance and hyperthyroidism, and the other is the fferential diagnosis between hyperthyroidism and the clin-al state of autonomic imbalance. Some years ago, Eppinger nd Hess described certain constitutional states characterized symptoms referable to the autonomic nervous system. hey divided these states into vagotonia, showing evidence disturbance in the function of the parasympathetic branches, nd sympathicotonia, showing symptoms of disturbance in the mpathetic nervous system. Clinically, however, we very rely see a state of pure vagotonia or pure sympathicotonia. is much more common to observe a state of vagotonia and mpathicotonia together, or vagotonia changing into sym-thicotonia, or vice versa. These conditions are character-ed by marked variability. Patients may show symptoms autonomic imbalance at one time and not at another. urthermore, all sorts of combinations of symptoms occur hich do not fit in with the definite states as described by pinger and Hess. The fact that symptoms of disturbed function of the autonomic system occur in hyperthyroidism and exophthalmic goiter indicates that there is apparently a relationship between these two conditions. Whether, however, the disturbance of the autonomic nervous system is the cause of hyperthyroidism or whether hyperthyroidism is the cause of the symptoms of autonomic imbalance is still a moot question. Dr. Kessel and his associates have attempted to solve this question. Their experimental work, however, consisted of the injection of various organic substances into animals under very artificial conditions. It seems to me, therefore, that their conclusions are more far-reaching than their negative findings suggest. All that one can say, from their experiments, is that the organic products as they can be obtained today have no effect on the autonomic nervous system under the artificial conditions in which the experiments were carried out. This, however, does not solve the clinical problem, which must still remain an open question. From the diagnostic standpoint, it is interesting to note that in large cities, such as New York, where conditions of autonomic imbalance are so frequent, the differential diagnosis between this state and hyperthyroidism is exceedingly difficult, even by a basal metabolic test, as it is very difficult to put such patients in a basal metabolic state with the the ordinary technic.

Dr. H. T. Hyman, New York: As one of Dr. Kessel's co-workers, I wish to respond to Dr. Blumgarten. The syndrome of autonomic imbalance was described on a clinical basis. The mechanism alone was made clear by the laboratory work. The use of drugs played a minor rôle in the experiments on the involuntary nervous system. Of far greater importance are the ablation experiments. The relation between autonomic imbalance and exophthalmic goiter seems to be as follows: There is present in the majority of patients with exophthalmic goiter a diathesis in the nature of an active autonomic imbalance; the transition from the diathesis, autonomic imbalance, to exophthalmic goiter, has occurred under my observation. When exophthalmic goiter is arrested, there is not a restitution to the normal but there is usually a resumption of the autonomic imbalance. In the literature on exophthalmic goiter, it is difficult to determine whether or not the persons reported really suffered from the disease. The utilization of the Goetsch test as a pathognomonic test leads to great error; according to tests on normal medical students and convalescent ward patients, a sensitiveness existed in about 30 per cent. The fact that sensitization may be produced weeks after complete thyroidectomy and that the injection of thyroxin, despite other reports, is without effect on the epinephrin response indicates that the sensitiveness is independent of the thyroid gland. To perform thyroidectomy on the basis of sensitiveness to epinephrin seems, therefore, without foundation. The second difficulty with the thyroid literature is the absence of reports as to end-results. Of the extensive writing on the subject of exophthalmic goiter, the splendid article by Means and Aub was the single report in which there could be no question as to the diagnosis and in which the end-results were accurately reported.

Dr. J. C. Aub, Boston: I am very glad that Dr. Kessel has done this work. I wanted to do it, but did not feel justified in keeping patients in the hospital without any medical treatment. In an original paper I gave the results of rest for three or four weeks. In some cases there was a distinct improvement from rest, but in others, for whom rest did not seem to do much good, we started other procedures. In Dr. Kessel's series, rest was prolonged. Practically all of my patients had returned to their original occupations. They were not in bed, and certainly complete rest in bed would change the picture. The increased metabolism in exophthalmic goiter is most important. Most of the symptoms and signs which one sees can be explained by that increased metabolism; the nervousness, the sweating and the high pulse rate can be attributed to the effect of the active principle of the thyroid. The one sign that does not seem to be produced is exophthalmos. That is not seen in giving large doses of thyroid. That thyroid and epinephrin have different actions has been shown clearly.

Dr. Leo Kessel, New York: I am glad that Dr. Hoover used the term "lump in the neck" because the patients are embarrassed by its presence, and the significance of it should be explained to them. They should understand that "lump in the neck" is a secondary phenomenon. With reference to the autonomic imbalance and exophthalmic goiter, I realize that a clear-cut differentiation cannot be made; but none of the eighty-six patients with autonomic imbalance had an increased basal metabolism. In other words an elevation of the basal metabolism is the sharp line of demarcation between these two groups of patients. I consider these persons with exophthalmic goiter as having a decompensation, as it were, of their involuntary nervous system, so that the clinical differentiation between patients with autonomic imbalance and those with exophthalmic goiter is similar to the difference between the compensated and decompensated cardiac patient. These patients remain in the hospital for from six to ten weeks, and then they usually spend a month in the country. Following this period of rest, practically all of these patients return to their former occupations, working from eight to ten hours a day. Contrary to general belief, the pulse rate does not run hand in hand with the basal metabolism. I have had patients with an elevated metabolism of 60 per cent. who have a pulse rate of 80 or 90. I have seen the basal metabolism fall and remain at plus 10 or 20 when the pulse rate remained quite high. One occasionally sees persons who have a pronounced fall in basal metabolism until they have a normal metabolic rate, but the symptoms of the disease persist in a mild form.

THE EXAMINATION OF THE EYE BY DIRECT SUNLIGHT *

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It is a striking fact that the utilization of ordinary daylight in the lighting of the interior of buildings has been less developed than the arrangement and supply of artificial light. It is equally true that in the "darkroom" examination of the eye, direct sunlight has been very much neglected, while great ingenuity has been expended in producing and adapting to the purpose various forms of artificial light. Whether this is due to the existence of illuminating engineers and makers of apparatus chiefly interested in exploiting artificial light need not here be discussed, but we must recognize the fact.

Direct sunlight is not always available for the examination of the eye. But when available it possesses these advantages: It gives the standard illumination from which to judge or analyze colors; it gives light of maximum amount and intensity, easily reducible to any desired degree. But in order that it can be used, it must be turned in a convenient direction; and it must be rendered safe by shutting out any dangerous amount of heat and by avoidance of too great concentration of light on the retina. Its production costs nothing and its control need not be expensive. It has been used for some things many times, but its use is nowhere systematically described or adequately appreciated. So far as known, nothing on the subject has been published since my paper [1] calling attention to the value of direct sunlight in examining eyes with hazy media, and the way that such examination could be made safe by attention to the focusing, twenty-three years ago.

GENERAL ARRANGEMENT AND CONTROL

In order to bring the sun's rays into the proper direction for such use, they must be reflected. This may be done by a heliostat that will keep them steadily directed on a certain point so long as the sun is shining on the instrument. This is desirable for laboratory work or certain lines of investigation. But for most ordinary clinical work, the only apparatus necessary is a simple inexpensive arrangement of a movable mirror, that will keep the rays turned on the opening by which light is admitted to the darkroom, during the period necessary for an ordinary examination, and, by readjustment, for any desired number of such periods.

At this opening, the light is modified to adapt it to the particular use to be made of it. It is admitted through a slit or small circular aperture for examination of the anterior segment of the eye by focal illumination, or microscopy of the living eye, or by a pin hole opening for skiascopy. It is received on a ground glass disk for ordinary ophthalmoscopy. The infra-red radiations are filtered out by alum solution, when the direct sunlight is to be used to penetrate hazy media; or a Vogt filter is interposed for ophthalmoscopy by red-free light; and such other modification is made of the incident pencil of rays as may be desired.

Within the darkroom, the apparatus and methods of using it are adapted to the special kind of examination to be made. The aperture itself is 50 mm. in diameter, and holds a ring that can be revolved in it, and which carries two clips, in which may be placed slits or circular apertures of various sizes, ground glass or glass to cut out undesirable radiations.

REFLECTION OF THE LIGHT

If the heliostat is employed, the only problems to be considered refer to the condensation or diffusion of the light. Reflection from a plane surface produces a certain diminution of the light dependent on the reflecting surface and the angle of incidence of the light. But this is not so great as seriously to lessen the enormous superiority of this source of illumination over others commonly employed.

With a simple mirror, not kept adjusted by a heliostat, the continual change in the direction of the incident rays from the sun makes an equal change in the direction of the reflected rays. This change of direction is 15 degrees per hour in the plane of the sun's path, or 1 degree in four minutes. This change of direction has two practical effects: (1) It causes the reflection to move off the aperture into the darkroom, so that direct sunlight no longer enters through this aperture. This affects all kinds of examinations made with it (Fig. 1). (2) It changes the direction and, therefore, the position of rays admitted through the aperture within the darkroom, so that the change must be compensated by some optical adjustment, or the eye under examination moved as the light passes off it. These two effects and the problems they raise are to be considered separately.

1. With a plane mirror, the movement of the area of reflected light across the aperture depends on the width of the mirror and its distance from the aperture. Disregarding the width of the aperture, as we may for a pin hole opening, or a narrow slit running in a plane perpendicular to that of the movement, and other details unimportant in this connection, the distance of the mirror is to the width of the mirror as 1 is to the tangent of the angular change required to carry the

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* Read before the Section on Ophthalmology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] Jackson, Edward: The Use of Direct Sunlight for Examining Eyes with Hazy Dioptric Media, Ophth. Rev. **18**: 151, 1899.

area of light entirely across the given point. Thus, at 1 meter, a mirror 20 cm. across would subtend the angle of 11 degrees, requiring 11 degrees change in the direction of the sun or forty-five minutes of time to cause the light to move off the aperture.

2. With the convex or concave mirror, a new factor is introduced, the focal distance of the mirror, which directly modifies the time required for the reflected light area to pass off the aperture. Without serious error for this purpose, we may disregard the width of the sun's disk and think of it as a point of light. The mirror forms at its principal focus an image of the sun, and it is the slight change in the position of this image that we have to think of in comparison with the width of the mirror, as determining the length of time the aperture will continue to be illuminated. Or, to put it in a different way, the angle subtended by the light area will be equal to the angle subtended by the mirror at this principal focus. Suppose the mirror 10 cm. in diameter has a focus at 50 cm. from the mirror. It would subtend an angle of about 11 degrees, requiring more than forty-five minutes for the reflected light area to move across the aperture. The same reasoning applies to the reflection by a convex mirror, except that the focus in this case is a virtual focus behind the mirror instead of a real focus in front of it.

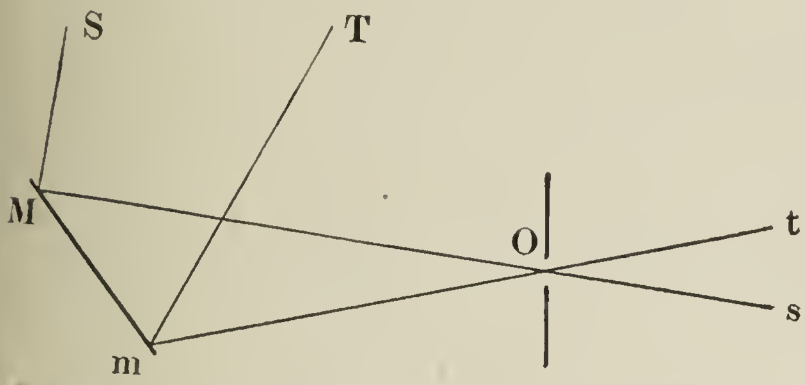

Fig. 1.—Effect of movement of sun on light reflected on the opening. With the sun in the direction S, the ray reflected by the mirror at M will enter the opening O, going toward s. When the rays come from T, the one reflected from m enters at O and goes toward t.

Reflection of the light from a concave or convex mirror will prove satisfactory for general ophthalmoscopy, or rough illumination of the anterior segment. But it is not satisfactory for microscopy of the living eye, or for skiascopy, because of the astigmatism of the reflected pencil from a spherical surface placed obliquely. For the latter purposes, the light should be reflected from a plane mirror, and concentrated or diffused by a convex lens placed perpendicular to the path of the reflected rays (Fig. 2).

The change of direction of the reflected sun's rays in the darkroom is of no importance except where they are to fall directly on the eye, as for microscopic examination of the cornea and iris. For most clinical purposes, the position of the illuminated area may be controlled, as in ordinary focal illumination, by interposing a convex lens and moving it so as to concentrate the light where it is wanted; the prismatic action of a certain part of the lens being sufficient to focus the light where it is wanted, until any ordinary examination will be completed.

But for microscopy of the living eye, the aberration of peripheral portions of the condensing lens interferes too much with the accurate focusing of the illuminated aperture on or near the tissues to be examined. For greatest accuracy of illumination, the light may be carefully focused on the part to be examined, and the eye slowly moved with the head rest and microscope, so as to keep the part under inspection continuously in the light.

The amount of movement that is required to keep the area of light on the patient's eye is proportioned to its distance from the aperture that admits the light into the darkroom. At 25 cm., the movement, with the light reflected from a plane mirror (the maximum in practice), is only 1 mm. per minute, a rate that permits careful serial examination of the different layers of tissue, without movement, but allows continued examination of a single plane of tissue by a corresponding slight movement of the microscope and the patient's head.

FOCAL ILLUMINATION AND MICROSCOPY OF THE LIVING EYE

For this examination, the patient is seated in the darkroom, with the eye to be examined on the side toward the aperture through which the light is admitted. For use of the simple loupe, Coddington lens, ordinary binocular magnifier, or the binocular microscope attached to a headband, the patient's head is steadied in the proper position by the surgeon's hand, which also keeps the lids retracted, so that the lashes will not interfere with the lateral illumination; and by slightly drawing the patient's head forward or pushing it back, the structures under inspection are brought or kept in the illumination desired.

It should be borne in mind that the recent enormous advances in microscopy of the living eye have been made not by any important change in the microscope used, but by improvement of the illumination. Direct sunlight is capable of giving the most intense and definite illumination, and by it the value of the commonly employed methods of magnifying the eye can be greatly increased, revealing appearances that were quite unknown until Gullstrand applied the slit lamp to studies of this kind.

When the larger fixed form of binocular microscope is used, the Czapski instrument, a fixed head rest is essential. This may be a simple window chin rest, with a metal band crossing above, against which the patient's head is firmly pressed. This is rigidly fixed to the table on which the microscope is placed, the whole moving together on large casters. With the head thus placed, the whole is adjusted, so that the light falls on the patient's eye. The patient's height must be adjusted by an adjustable seat, and the height of the eye in the head rest may be controlled by a pad or towel folded and placed under the chin, or an adjustable chin rest may be added.

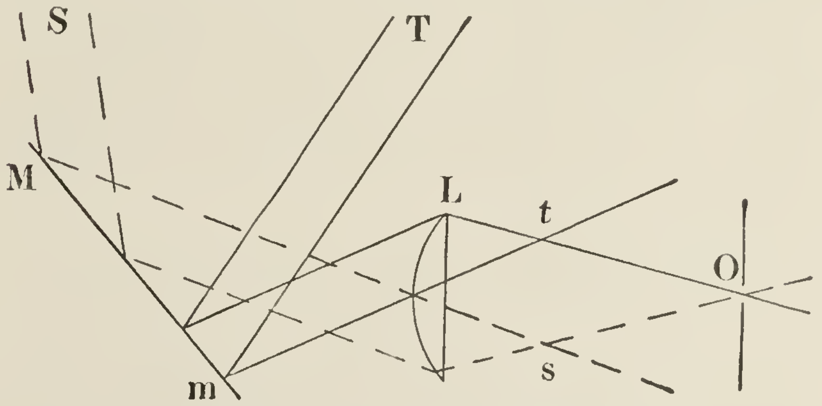

Fig. 2.—The convex lens L has been interposed between the mirror Mm and the opening at O. The angle tOs subtended at O by the lens L is the measure of movement of the sun before the light passes off the opening.

If the mirror that reflects light into the darkroom is supported so that it can be raised or lowered a little, such adjustment, causing the pencil of rays to pass a little obliquely upward or downward, will bring the light to the desired height for any eye, without any adjustment of the chin rest. With the pencil of rays passing somewhat upward, the temporal part of the lashes interferes less than if the light comes exactly level. For some examinations, the patient's head and the microscope should be turned so that the light comes more from in front; and in other cases the lid should be drawn up by the finger of an assistant, so as to raise the lashes.

OPHTHALMOSCOPY

This includes three procedures: (1) ordinary ophthalmoscopy for examination of the fundus through clear media; (2) ophthalmoscopy by modified light, as red-free light; (3) ophthalmoscopy by direct sunlight, to reveal deeper structures through hazy media.

1. If the direct rays of the sun are reflected on a ground glass disk placed in the aperture, there results a rather brilliant perfectly uniform source of light that may be used just as the lamp or gas flame, or the incandescent mantle, or a white opaque glass, incandescent electric lamp. Seen by this light, the normal fundus appears less red than by the various flames, or the white glass incandescent lamp; but not so pale as when seen by diffuse daylight from the blue sky or gray clouds, or by light from some of the incandescent gas mantles. This illumination by direct sunlight, on standard white ground glass, should furnish a permanent light standard, with which other forms of illumination may be compared at different times and in different parts of the world, being in the long run less variable than any artificial source of light.

2. To secure the red-free light of Vogt, a filter, such as he has used, is placed before the aperture. A slit and prism, so placed with sufficient intensification of the light by a condensing lens, will render available ophthalmoscopy with any of the colors of the spectrum. The Vogt filter consists of two parts: First, a solution of copper sulphate 30 per cent., placed in a cell in front of the aperture which gives 25 mm. thickness of the solution. This excludes all infra-red and red radiations. The second part is a solution of erioviridin, 1 per cent., 3 mm., which excludes the orange and orange yellow rays. The latter may be replaced by a celluloid film of proper color.

3. Ophthalmoscopy with the unmodified direct or concentrated sunlight is useful when the media are too hazy to be pierced by the illuminants commonly used. It is strange that no attention has been called to it since the presentation of my paper, before mentioned. It is subject to certain possible dangers that must be borne in mind, but are readily guarded against. The undue concentration of infra-red (heat) radiation would be harmful, and the undue concentration of light might be a source of danger to the eye, if the light were kept too long focused on the retina. The danger of heat concentration is readily avoided by placing before the aperture a filter of 6 per cent. watery solution of alum.

It is to be remembered, however, that in the solar spectrum, the heat radiations reach their maximum near the red end of the light spectrum, then decline rapidly in the red and more slowly toward the ultraviolet. A filter containing copper sulphate stops most of the heat found in association with light. But it is not suitable for this particular purpose, because the red light, cut out by such a filter, is the light that penetrates best through hazy media.

However, the alum solution stops so much of the heat that any danger from that source is removed. Indeed, my work with concentrated sunlight, to see through hazy media, has been done almost entirely without any heat filter whatever, care being taken not to concentrate the rays too strongly or to subject any one part of the tissue to the influence too long at a time. This care should be exercised in any case, to avoid possible danger from intense light.

The danger from too intense light seems to be avoided entirely by not concentrating it on the retina. There is no evidence that other tissues of the eye are damaged by intense light, and the evidence seems to show that only rather prolonged exposure of the retina to concentrated light, accurately focused on it, is dangerous. Kostich[2] reports the case of a girl with one eye emmetropic, the other hyperopic, 2 diopters. The first eye suffered from prolonged gazing at the sun during an eclipse. But, although both eyes were equally exposed, the ametropic eye was not injured. He cites a similar case reported by Tschémolossoff.

The eyes on which direct sunlight is used for examination are safe from this form of injury, because they are usually blind to start with, and because of the haziness of the media, on account of which the reflected sunlight is used, and which causes enough diffusion of light to prevent retinal lesions. But all possibility of damage of this kind in any eye may be removed by focusing the light in the media some distance in front of the retina, or in the air in front of the eye. The concave mirror used by the indirect method, or held a few inches away from the eye is quite safe.

As to any danger from the concentration of ultraviolet radiations on the eye, ordinary optical glass is so opaque to these that they are greatly reduced by the glass of the mirror, and the condensing lens and the glass of the heat filter; and the anterior media are so opaque to ultraviolet radiations that no harmful amount could reach the back of the eye in the comparatively short time it is under examination. The only chance of harm from this source would be in the concentration of ultraviolet light on the cornea or crystalline lens. This danger would be greater with lateral focal illumination of the eye by direct sunlight than with ophthalmoscopy. But no unpleasant or harmful effects that could be ascribed to it have been noticed during such examinations.

SKIASCOPY

At the point of reversal for the shadow test, the retina appears so magnified that the image of a single point occupies the whole of the pupil; and it is a point of the retina that is illuminated mainly or wholly from the sight hole of the skiascopic mirror. At, or near, the point of reversal, the area of light in the pupil depends chiefly on the light reflected from the sight hole. No such light is reflected if the sight hole is cut through the glass, and there is only the reflection from the unsilvered surface, when the silvering is removed to make the sight hole, and the glass left.

The sources of light heretofore used for skiascopy are not reflected from unsilvered glass, in sufficient quantity to serve in making practical the test. But direct sunlight gives a reflection from the uncoated glass surface bright enough for all practical purposes, one quite superior to the reflection of artificial lights from a silvered surface, and this reflection can be obtained from every part of the sight hole. Any piece of flat glass, such as a microscope slide or a weak lens, can be successfully used for the test. The plane glass acts like a plane mirror, a surface concave toward the source of light as a concave mirror, or convex toward the light as a convex mirror.

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[2] Kostich, D.: Ocular Troubles Following Direct Observation of a Solar Eclipse, Presession Volume of An International Congress of Ophthalmology in Washington, 1922.

A difficulty arises from the fact that each surface of the glass gives its own reflection; and, except for light falling perpendicularly on both surfaces, these two reflections do not coincide. The doubling of the reflection, even when slight, makes skiascopy more puzzling and difficult. The undesired reflection may be avoided in various ways.

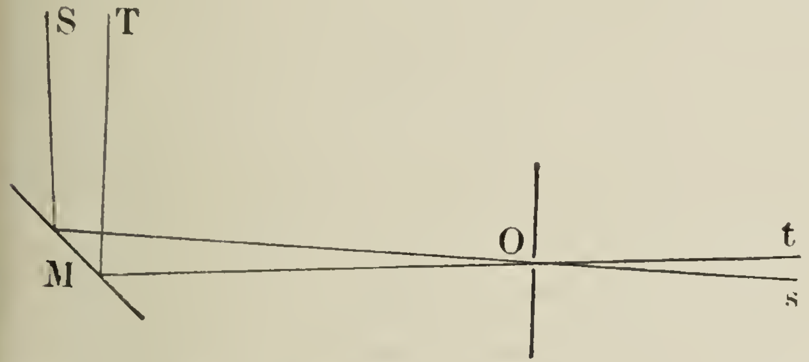

Fig. 3.—Direct sunlight admitted through pin hole aperture. Rays on margin of the sun, S, and from the other, T, are reflected by the mirror, M, into the opening O, where they cross. The angle, tOs, is equal to that subtended by the sun's disk, 32′, here exaggerated.

If one surface is plane, the other may be made convex or concave so that the diffusion of the light it reflects will make it so feeble that it will not be noticeable, and will cause no confusion with the reflection from the plane surface. Or one surface may be plane or curved just enough to give the desired reflection of a concave mirror, and the other more strongly curved so as to give a feeble reflection that will not be noticed. However, the curves needed to diffuse one reflection and make it invisible cause a lens action, when looked hrough at the sight hole, that is generally undesirable.

To avoid the undesired reflection, without the undeirable lens action, the *prism mirror* has been adopted. The two surfaces of the glass make an angle with each other; an angle of 1 degree is best, so as to throw their eflections in different directions. It is then easy to hrow one on the eye, while the other is thrown lsewhere and causes no interference with the one n use. The inclination of the surfaces and the disance of the mirror from the patient can be so adjusted hat one area of light will fall on one eye, and the ther area on the other; and the movement of light and hadow in both pupils will be visible for comparison at he same time, under exactly similar conditions.

The mirror may be made with one surface plane and he other concave toward the source of light. A 1.00 iopter planoconvex lens, silvered on the curved side, ives a concave mirror with a focal distance of about ne sixth of a meter, which can be used as a concave irror for skiascopy by ordinary light. The plane side, nsilvered, is available for skiascopy by direct sunght. Such a mirror should have a sight hole 4 mm. diameter which will give at 1 meter a space 20 mm. diameter with no reflection from the silvered surce. This central area of feeble illumination is to be rown on the patient's eye when direct sunlight is ed, and the other eye screened by an opaque disk before it in the trial frame, to shut out the brighter reflection from the silvered part of the mirror.

In using the "prism mirror," it is not necessary to screen the eye which is not under observation, because the bright reflex from the silvered plane surface is thrown only in a single direction, and can be on the brow, where it is a help in judging the position of the feebler reflection that is used. The reflection from a concave silvered surface forms a large circle of light, any part of which is unpleasant to the eye on which it falls, and which can be avoided only by screening the other eye or by introducing a very strong prism effect.

For the use of direct sunlight for skiascopy, a pin hole disk is placed in the aperture to the darkroom. An opening 1 mm. in diameter admits ample sunlight for the test, and affords an extremely delicate and accurate objective test for astigmatism. Indeed, the reflection of such light from the plane mirror is stronger than is necessary, and may be diminished with benefit.

The direct light from the sun, admitted to the darkroom through a pin hole, is all that is necessary. But the pencil thus obtained is so narrow that a slight movement of the examiner's head and mirror carries the region of the sight hole entirely out of it. This may be understood from Figure 3. The sun's disk as seen from the earth subtends an angle of a little less than 32 minutes. This will be the angle of the pencil entering the darkroom. Such a pencil is only 9 mm. in diameter, 1 meter away from the sight hole, and would have to travel four or five times as far before being wide enough for easy use.

But by placing a convex lens in front of the aperture into the darkroom, as shown in Figure 4, the angle of the pencil of rays in the darkroom can be enlarged to any desired extent. It then becomes the angle subtended at the aperture by the part of the lens through which rays are thrown on the sight hole. Thus, if a 2 diopter convex lens is placed with its focus near enough to the sight hole to throw light on the aperture from a circle 20 mm. in diameter, the pencil of rays in the darkroom would have a diameter of 20 mm. at half a meter from the aperture, or 40 mm. at 1 meter from the point at which the light entered. The diffusion of light produced by such an arrangement with a 2 or 3 diopter lens still leaves the light intense enough for the test.

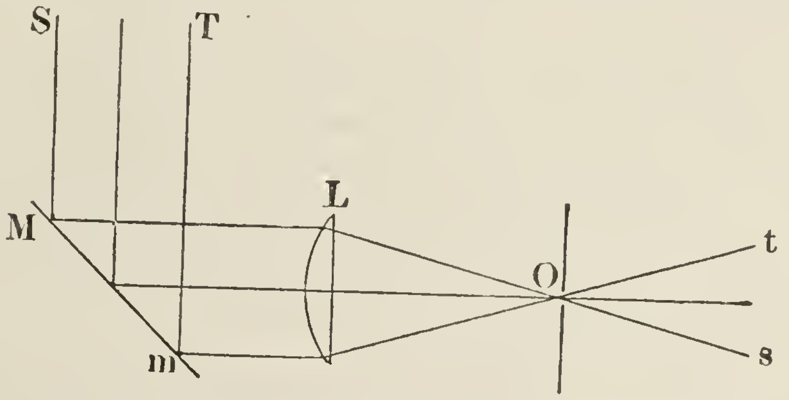

Fig. 4.—A convex lens, L, placed between the mirror, Mm, and the aperture O. The angle, tOs of the pencil in the darkroom will equal the angle subtended by the part of the lens from which rays enter O, even when the rays were originally parallel.

TRANSILLUMINATION AND PHOTOGRAPHY

The use of direct sunlight for transillumination of the eye, or of the adjoining sinuses, is perfectly practicable, and it offers the advantages of a very powerful means of illumination. But to bring the direction of the light sufficiently under control, and to furnish it of proper intensity in the desired direction, requires more elaborate and costly apparatus, that has not been worked out to a practical basis and is rather apart from the purpose of the present communication, which is to call attention to the value of sunlight in ordinary clinical examinations, and some of the more simple and generally applicable methods of using it.

The same is true with regard to the application of direct sunlight to photography of the living fundus of the eye. But in this direction, the substitution of sunlight for the sources of light hitherto employed would be quite simple, and would lessen rather than increase the expense.

COMMENT

In working with such a light, one can get the best results only by keeping his own eyes in good condition, by avoiding the dazzling afterimages that follow looking directly at a brilliantly illuminated point. This is especially true with regard to the brilliant image of the sun formed near the aperture to the darkroom, in adjusting it to give the desired illumination. This caution is needed also with regard to brilliant artificial light.

In general, the closer study of methods of lighting will greatly improve our methods of examination of the eye, and we have in direct sunlight the agent with which the general principles of illumination can best be studied. The opening into the darkroom, and the mirror to reflect the light on the opening are the simple means by which such studies are made possible to anyone who has some acquaintance with optics.

It is true that sunlight is not obtainable everywhere and always; but that is also true of every agent or piece of apparatus used in scientific experiment. There are many places in which it is as much to be relied on for certain hours each day as the usual sources of artificial light. In a town in Colorado, a hotel keeper advertised free board to all his guests every day that the sun did not shine; and it was several years before there was a day on which he could be called on to give it.

To determine the presence or absence of an intraocular tumor would justify leaving one's office to examine the eye where direct sunlight was available, or having the patient come repeatedly to use a favorable hour. Such patients have been watched months and years, or until the onset of glaucoma symptoms for this purpose; and in many cases the point could be settled by a single examination with direct sunlight that would penetrate the hazy media.

As to skiascopy, the use of direct sunlight is rendered practical and convenient by the prism mirror, which reflects the light into the eye from the direction of the very center of the observer's pupil, and thus removes those difficulties of the sight hole that have long been recognized as limiting the delicacy and accuracy of the shadow test. It is possible that a source of artificial light may be found brilliant enough to be used in the same way with the prism mirror. The gain by such a modification of the method is great enough to justify its universal adoption.

The possibilities that direct sunlight affords for laboratory investigations have not been touched on. The value of results to be attained through relatively simple and inexpensive methods for its clinical use fully justifies this calling of attention to it.

Majestic Building.

ABSTRACT OF DISCUSSION

Dr. Marcus Feingold, New Orleans: The essential condition a light source must possess to be serviceable for our purposes is that of high intensity, and it must be as uniform as possible. In this direction the labors of Gullstrand with the Nernst slit lamp, the nitro slit lamp, and the Pointolite lamp, are extremely instructive. Dr. Jackson's suggestions as to the use of sunlight for this purpose present the problem in the most elementary form, for there is no stronger source of illumination, and none more uniform, than sunlight. Sunlight for ophthalmoscopy has been tried in a limited degree only, partly because most investigators were still under the influence of the old dictum that details in the fundus could best be seen with weaker illumination. Under certain conditions weaker light will bring out details that may be overshadowed, so to say, or extinguished by the greater light. But strong light has the undoubted advantage that it can give all the results claimed for it, and that slight modifications, such as screens and filters of the simplest nature, will convert it into a light having in addition all the advantages of a feeble illuminant. On a few favorable occasions I have used sunlight for fundus examination. One cannot help being impressed by the greater satisfaction experienced during the examination of the fundus with the newer light sources, the Gullstrand apparatus, the Azo projection lamp, and undoubtedly one would experience even greater joy seeing the fundus under direct sunlight. Vogt has shown that colored, and especially red free light, will help detect details that are otherwise almost invisible. But this method has the great disadvantage that the light intensity is tremendously reduced by the filter and that this defect must be counterbalanced by a stronger original light source. Only the electric arc can give real satisfaction for this and, of course, also direct sunlight. On the other hand, the greater resolving power of strong light will make details visible that otherwise would escape observation. Details in the cornea, aqueous, iris, lens, vitreous, become visible with the daylight globe, Azo globe, Gullstrand lamp, slit lamps and most probably, though I lack personal experience, with the Pointolite lamp, and undoubtedly also with daylight. Things never dreamed of become visible. Sunlight has its limitations over which we have no control, but that should be no reason why we should not use it whenever we can.

Dr. George F. Keiper, Lafayette, Ind.: During my student days we used to examine fundi and the throat a great deal with direct sunlight, especially the larynx, and the picture is quite different from that obtained by artificial illumination, and very beautiful. But the trouble in our location is that direct sunlight is such a variable quantity. We have many cloudy days. Besides, the atmosphere is smoky. A practical point in the use of the red free filter of Vogt is that some of the glass filters on the market are not red free. Some of the solutions are not red free. A simple method of determining this point is to test the filter with the ordinary pocket spectroscope, which really ought to be a part of our armentarium, especially in making tests for color vision or its absence. By holding the filter in front of the spectroscope in full daylight the red end of the spectrum ought to be eliminated if the filter is correctly made.

Dr. William C. Finnoff, Denver: I have examined the anterior segment of the eye with sunlight under Dr. Jackson's direction, and found the illumination as satisfactory as with the slit lamp. For the use of the corneal microscope we certainly have a satisfactory source of illumination in sunlight. The picture we obtain with the red free filter is very striking and the fundus is well illuminated. It is a revelation to use the Jackson mirror with the prism in the shadow test. The band of light and the movement of the shadow are brought out very strikingly.

Dr. Edward Jackson, Denver: The possibility of getting direct sunlight under control is easy, and if the dark room is situated where sunlight can be reflected through some window during office hours, it is possible to see a great deal with ordinary focal illumination that we have not been able to see with former sources of light. We cannot control sunlight, however. Some days it will not be there; but there are many things possible with it that make it worth while to have the patient come again and again, especially in cases of suspected tumor of the fundus. It certainly does penetrate through a hazy lens far better than artificial light. It is absolutely safe. I have been making use of it for twenty years and most of my work has been done without any attempt to filter out the heat rays, and by avoiding long exposure I have not had the slightest trouble. An alum filter will render the light just as safe as regards heat as any artificial source of light.

ACHYLIA GASTRICA *

JOSEPH SAILER, M.D.
PHILADELPHIA

Achylia gastrica was first described by Fenwick [1] in 1877. He then reported four cases that were undoubtedly progressive pernicious anemia characterized by a yellow discoloration of the skin, the absence of free hydrochloric acid in the gastric contents, the probable absence of ferments in the gastric contents as indicated by the undigested condition of the food, and a rapidly progressive and fatal course. He called these cases atrophy of the gastric mucous membrane. Quincke, Jaworski [2] and others studied the condition at the same ime. The literature is considerable; but, on the whole, it cannot be said that achylia gastrica has excited any great degree of attention on the part of he medical profession. This has been largely due to he fact that it is often merely a complication of certain other conditions, such as carcinoma, progressive pernicious anemia and amyloid disease, and that very often it may exist without attracting the attention of he patient or, if its existence does cause symptoms, the patient nevertheless may be well nourished and in no particular danger from the defect in the gastric ecretion.

Probably the best definition is that it is a persistent ailure of free hydrochloric acid in the gastric contents nd the absence of gastric ferments. If we accept Fenwick's original statement that the total acidity hould not exceed 4 or 5, this would exclude nearly ll of the cases, because there are few that will not, at imes, show a total acidity in excess of this amount.

On the other hand, there are frequently cases in which the total acidity is comparatively high and yet ree hydrochloric acid and the ferments are absent. It seems to me that this is a matter of comparatively little nportance.

I have endeavored to determine the hydrochloric acid eficit and to draw some conclusion from it regarding he nature or degree of the case, but I have been unable o do so. When there is any considerable deficit, owever, the ferments are invariably absent, so that it qualitatively of some value, apparently, in making he diagnosis.

In 1888 and later in 1892, Einhorn [3] called attention o a very important clinical distinction between those orms of achylia gastrica which are associated with ome other condition and those in which apparently the efect in the gastric secretion is the principal lesion. e noted particularly that in many of these cases the patients manifested symptoms associated with a condition known at that time as neurasthenia. This appears to have been recognized as a correct observation, but to my mind the attention that it deserves has not been accorded to it. It was about this time that some American physicians, Henry, Kitticott, Osler and Stockton, emphasized the association of achylia gastrica with anemia.

I have recently gone over some of my more typical cases of achylia. The results are summarized in the accompanying tabulation.

They indicate that achylia gastrica is more common in women than in men, almost two to one; that it is much more common between the ages of 30 and 60 years than at either of the extremes, and that during the thirty years of middle life, it is about equally common in all the decades; that in about half the cases the nutrition is from fair to very good and in about half it is from poor to very poor. Contrary to my belief when I started the investigation, constipation is twice as common as diarrhea, and in about one third of the patients the bowels are normal. In 18 per cent., the tongue can be described as abnormal. These abnormalities consist of either persistent soreness or a sour or bitter taste, and a red or glossy appearance of the tongue. In 60 per cent., the tongue appears to be normal.

FINDINGS IN TYPICAL CASES OF ACHYLIA

	Male	Female	Total
Patients	21	37	58
Age:			
From 20 to 30	4	2	6
From 30 to 40	5	10	15
From 40 to 50	5	8	13
From 50 to 60	4	12	16
From 60 to 70	4	3	7
Duodenal contents:			
Trypsin and amylopsin	..	..	4
Nutrition:			
Very good	5	6	11
Good	..	3	3
Fair	4	4	8
Poor	4	12	16
Very poor	2	11	13
Bowels:			
Constipation	..	..	31
Diarrhea	..	..	12
Normal	..	..	14
Tongue:			
Normal	..	..	29
Sore	..	..	4
Pale	..	..	13
Red	..	..	3
Glossy	..	..	2
Gallbladder:			
Normal	..	..	43
Infected (?)	..	..	8
Infected (certain)	..	..	3
Jaundice	..	..	1
Mental:			
Anxiety	..	..	12
Depressed	..	..	8
Vasomotor	..	..	1
Normal	..	..	34
Pulse:			
From 60 to 70	..	..	10
From 70 to 80	..	..	20
From 80 to 90	..	..	11
From 90 to 100	..	..	8
100 plus	..	..	3

Stress has been laid on the relation of gallbladder disease to achylia gastrica. In three, or 6 per cent., of the cases, operation either had been performed before I saw the patient or was performed afterward and gallstones were found. In eight, or 16 per cent., of the cases, there was an examination of the duodenal contents that indicated the presence of some pathologic condition in the gallbladder, and one patient reported having had jaundice. This is rather a larger proportion of gallbladder cases than would ordinarily be found.

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* Read before the Section on Gastro-Enterology and Proctology at : Seventy-Third Annual Session of the American Medical Association, Louis, May, 1922.

1. Fenwick, Samuel: Lancet **2**: 1 (July 7) 1877.
2. Jaworski, W.: München. med. Wchnschr., 1887, pp. 117, 634.
3. Einhorn, M.: M. Rec., June 11, 1892.

I noted particularly in all these cases the mental condition. All together, fifty-five cases were studied from this standpoint, and twelve had a typical anxiety neurosis, if I may be permitted to use this term. Eight suffered from more or less profound depression that sometimes interfered with their work. One complained of various vasomotor disturbances, which were not associated with the climacterium or sexual involution. In thirty-four, no definite mental disturbance could be observed.

The pulse rate yielded nothing of significance. There was a slight tendency to tachycardia, and twenty-two had a pulse that was persistently over 80; but in only three of these was it over 100.

For various reasons, complete examinations of the duodenal contents were not made as frequently as I desired. In only four cases were careful and repeated examinations of the duodenal contents for the pancreatic ferments made, and in all of these only trypsin and amylopsin were tested. Schoppe[4] remarks that the findings are monotonous. They all show that the pancreas is functioning actively. It would seem as if this must be the case, because it is hardly conceivable that a person with combined achylia gastrica and pancreatica would survive. I am not aware that any such case has been recorded, but I have not by any means exhausted the literature. It is idle to speculate as to the way in which this occurs. It would seem as if the nervous supply to the gastric glands should be stimulated as is the nervous supply to the pancreas, but this is evidently not the case. We must also assume that the substance that excites the secretion of the pancreas is very different from that which excites the secretion of the glands of the stomach.

There is also adequate proof in this finding that the gastric secretion is one of the dispensable functions of the body, for many of our patients not only are well nourished, but may improve nutrition without the return of the gastric secretion.

Achylia gastrica is probably in large part a functional disease. At least, our clinical experience would lead to this supposition, for in two cases that I have been able to examine frequently over periods of years, there have been occasionally spontaneous returns of the gastric juice, in one case twice and in the other once. In both cases it was found only on single examination; that is, there was no persistence in the return; but it is a fair presumption that there were probably many occasions on which secretion was temporarily restored, and occurred when no observations were being made. The fractional test meal seems undoubtedly the only satisfactory method of testing for achylia gastrica. Not infrequently during the first hour no free hydrochloric acid appears, and after that it is secreted in considerable quantities. These, of course, are not cases of achylia. Less frequently one observes that secretion at first fairly abundant disappears entirely before the end of the test; but whether the glands start slowly to secrete or become early exhausted, there can be no question that these cases do not belong in the group of achylia gastrica.

ILLUSTRATIVE CASES

I wish to report particularly as examples two cases with the anxiety neurosis that I mentioned. This seems to be so similar in all the cases, although different in degree, that I believe it characterizes one of the peculiar types of achylia gastrica.

Case 1.—Mrs. S. E. L., aged about 50, was referred to me by Dr. Charles K. Mills of Philadelphia, who believed that she had some mental disturbances. She had constant mucous diarrhea. The previous history was unimportant. The climacterium had occurred four years previously and without special incident. She complained of a sense of crawling in the stomach. She would eructate several hours after eating, and there was sometimes some burning in the rectum. She vomited only occasionally. Her weight was 138 pounds (62 kg.). The laboratory examination indicated a true achylia gastrica, and with two exceptions at long intervals in a period of fourteen years during which she has been under observation, the achylia gastrica has persisted. Her mental condition was very interesting. She was extremely anxious about her health. She seemed to fear death without any particular reason, and required constant assurance. She cried very easily, suspected her friends, and was afraid to go anywhere alone. Indeed, she feared to be alone at all, and for a number of years required the constant services of a trained nurse. At times she would sleep poorly. She worried continuously about the diet and about the amount of exercise she should take, but apparently was perfectly normal mentally, and managed her estate shrewdly and successfully. She was a tall woman with a large frame, and regarded herself as much underweight.

On treatment she steadily improved, until at the end of about ten years her weight had increased to more than 200 pounds (91 kg.). Her condition had returned to normal. The diarrhea was almost completely controlled, although there were occasional attacks when she would have a number of movements in twenty-four hours for a few days, and the achylia gastrica has remained unaltered.

Case 2.—W. J. P., aged 48, a salesman, has been under treatment a little more than a year. He complained of chronic diarrhea and mental depression. Although he was greatly worried about himself and feared he would be obliged to give up his work, which was fairly lucrative, and that his wife and children would suffer in consequence, his depression was much less than his curious state of anxiety. His anxiety about his health and his diet was great, much greater than his fear in regard to his financial condition. He particularly dreaded to be alone, fearing that something might happen to him. The result of this was that although he felt great anxiety about his children, he insisted on his wife traveling with him whenever he left the city, leaving the children home in some one else's care.

The physical examination disclosed only the achylia gastrica. This has been persistent in a number of fractional tests that were taken. During the fourteen mouths he has been under observation his weight has increased from 136 to 148 pounds (from 62 to 67 kg.). His neurosis has practically disappeared. He takes his trips alone and apparently has entire confidence in himself. Nevertheless, the achylia remains unchanged.

TREATMENT

It is of no advantage to multiply these histories. It cannot be as interesting to those who read them as to the one who observes the patients, nor is it possible to impress upon a hearer the extreme state of anxiety these patients manifested, which at times was almost painful. Nevertheless, none of my patients have had hallucinations or delusions. All have been able to attend to their business or other work successfully. None have done anything ridiculous or foolish.

There is little to say about the treatment. Martius,[5] a quarter of a century ago, called attention to the impossibility of replacing the deficient hydrochloric acid. Apparently no patient can endure in the stomach the same amount of hydrochloric acid that would be secreted by the glands. Nevertheless, in these cases hydrochloric acid has always done good, and we can only assume that, as the hydrochloric acid stimulates the formation of secretion when applied to the duodenal mucous membrane and in that manner the secretion of the pancreatic juice, so, in the same way, it serves some useful purpose when introduced into the stomach. Jaworski was able to cause the secretion of pepsin in these cases by using a hydrochloric test meal, a fact that I have been able to confirm not only in functional achylia but also in the achylia associated with carcinoma. Consequently, it should be given, and in my opinion the dose is limited only by the capacity of the patient to take it. In one case it was possible for a patient to take 4 c.c. of the dilute hydrochloric acid further diluted after each meal, and in other cases 1 c.c. seems to be all that can be borne. In one case of complete achylia gastrica, associated with pernicious anemia, the patient's tongue always became very sore after he had taken hydrochloric acid for two or three days, whether the hydrochloric acid was administered in water or administered, according to the suggestion of Jacobi, in milk. As a rule, however, the administration in milk is well borne, and enough should be added just to fail of giving a reaction of free acid, which in an ordinary glass of milk is about 2 c.c. of dilute hydrochloric acid.

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[4] Schoppe: Arch. f. Verdauungskr., October, 1921, p. 289.

[5] Martius, F.: Achylia Gastrica, 1897.

Whether pepsin should be administered or not, I do not know. The ordinary scale pepsin of commerce has a very definite digestive power. This is less than the digestive power of normal gastric juice, but it may be of use, and I have yet to see any disturbance which pepsin could reasonably be supposed to have caused. It is therefore my custom to combine it with the hydrochloric acid, and in the majority of cases this has been the only treatment employed.

Diet may be briefly dismissed. All foods apparently can be well digested; but in cases of achylia gastrica, foods that are likely to spoil should be excluded from the diet, particularly in hot weather, for undoubtedly these patients are more susceptible to food infection than are ordinary persons well supplied with hydrochloric acid.

DIAGNOSIS

I have of late made some effort to establish a basis for the differentiation between cases of achylia gastrica, early cases of progressive pernicious anemia and cases of achylia gastrica associated with carcinoma. There are no sharp differential features. The following, however, in a small series of cases seem to have been of some use:

The sugar tolerance is lower in nearly all cases of carcinoma. I have tested it in my wards at the Philadelphia and Presbyterian hospitals in all cases of carcinoma, including carcinoma of the head of the pancreas and of the other organs in the abdomen and with or without achylia gastrica. In practically all these cases, sugar tolerance was lower; so considerably lower that it attracted attention. In our cases of achylia this has not been the case. I should hesitate to make a positive differentiation on the basis of this sign alone, but t may be of value in adding weight to other evidence.

In cases of progressive pernicious anemia in which the diagnosis is not definitely established by the blood or other conditions, I have found, even in the early stages, that the vibratory sensation in the bones of the ower extremities is distinctly diminished. Indeed, even fairly early in the course of the disease, it may be completely lost, as it is in tabes. This has not been he case in any patient with the so-called functional or neurasthenic type of achylia. Moreover, in some of the cases of pernicious progressive anemia, we find a pulse that suggests a Corrigan type, and in these cases the blood pressure is higher in the lower extremities than it is in the upper.

Again, the number of cases that I have observed is too small to permit sweeping conclusions. At least the results hitherto have been uniform.

ABSTRACT OF DISCUSSION

Dr. Frank Smithies, Chicago: It is very necessary to impress on clinicians generally the advisability of proving that an achylia is an achylia. There is variation in the velocity of secretion, a difference in the rate at which a stomach becomes aroused to excretion after food has been put into it. Not only when test meals have been given, but also in the case of ordinary meals, it is quite likely that in some cases the stimulus to the gastric lining has not been present sufficiently long to arouse the stomach to the production of acid. In other words, the material has left the stomach before it had opportunity to bring about the local reflex. There is a great difference in velocity rates of secretion in the stomach; consequently, when judging a case by the results of the test meals, we sometimes erroneously conclude that the patient is harboring an achylia. It seems necessary to test this patient frequently under the stimulus of a meal which leaves the stomach very slowly, a dry meal. When this is done I think it can readily be shown that many cases of supposed achylia are simply cases of diminished secretion with a decreased velocity. We have never found a subject past the age of 40, when proved in this fashion to have bone achylia gastrica, in whom the acid secretion was later restored. We have had a number of patients below 30 in whom we were not able to secure at one time or another an acid secretion, and yet later there was partial or complete return of the normal acid curve. It is quite likely that during certain stages of disease, especially infectious disease either acute or chronic, there is a diminution or total absence of gastric secretion. In this type of case, the prognosis, of course, is more favorable than in those persons over 40 who have been proved to have a permanent absence of secretion. I agree with Dr. Sailer as to the associated physical upsets in these patients. Some of them have absence of the usual textbook concomitants of achylia gastrica. It seems to me, however, that those patients who have had what might be called a "primary achylia," an achylia due to disappearance or destruction primarily of the secretive mechanism of their glands, do suffer from these classic symptoms, whereas the group of patients who have what might be called a secondary type of achylia, concomitant with systemic disease generally, are persons who do not suffer from the so-called classic symptoms of absence of hydrochloric acid. I have not noted, except as a temporary influence, that a psychic state of the patient bore much relationship to the permanency of an achylia gastrica. But I have been particularly struck by the association of biliary tract affections. Twenty per cent. of cases of gallbladder disease showed permanent achylia gastrica. These patients were usually over 40. One should examine the same patient at different times. I cannot too strongly emphasize this. Having once found that the patient has achylia, one should examine him at intervals to see whether he maintains this condition. Furthermore, do not get into the habit of thinking that merely because a man has a persistent achylia he cannot have such disease as duodenal or gastric ulcer.

Dr. Seale Harris, Birmingham, Ala.: One very important point in diagnosing an achylia is not to depend too much on one examination. There should be repeated examinations, made, of course, at different times. By using the fractional tests we shall find some cases in which we would not detect hydrochloric acid by the Ewald method, but after one and a quarter or one and a half hours, hydrochloric acid is found. In a number of cases I have been interested to note that in thirty or forty-five minutes the patient would show a secretion of hydrochloric acid, in an hour no hydrochloric acid, and then in an hour and a quarter or an hour and a half it would again be found. Dr. Sailer states that the majority of his patients with achylia were constipated. I am not quite sure that that is true in my cases, because I see many cases of diarrhea in which achylia is present, and in that type I frequently find intestinal parasites, particularly *Trichomonas intestinalis;* and in some cases of achylia I find constipation with those parasites present. I have felt that in some cases the administration of hydrochloric acid helped in removing or reducing the intestinal parasites found in the stools. As to the association of achylia and pernicious anemia, I have seen one such case.

Dr. A. L. Levin, New Orleans: Achylia gastrica is a very puzzling problem in gastric pathology. We often see persons with achylia who get along nicely without any discomfort whatever; then, again, another victim of this disease will suffer greatly. I feel that the lack of hydrochloric acid in the gastric juice is probably due to some disturbing influence, whether faulty metabolism causing disturbance in the sodium chlorid content of the body, a diminution or otherwise, or something else. Luckhardt injected gastrin hypodermically; and by taking the reading of the hydrochloric acid before and after injecting it, he showed conclusively that by this means he had doubled the quantity of hydrochloric acid in the animal. I question whether this would not be of value in cases of achylia gastrica. I agree with Dr. Smithies as to the association of biliary tract disease with this condition. My observations lead me to believe that in a large number of cases of gallbladder disease we find disturbance of hydrochloric acid secretion. In 1916 Fravel conducted some experiments on dogs, obtaining the hydrochloric acid reading before he removed the gallbladder, and again studied the hydrochloric acid in the stomach. In all of the sixteen dogs on which the experiment was made he found that either the amount of hydrochloric acid was diminished or there was an achylia. This would serve as a caution to the surgeon to practice conservatism in gallbladder surgery because this organ has some bearing on the amount of hydrochloric acid secreted in the stomach.

Dr. Arno B. Luckhardt, Chicago: I have no experimental evidence relative to the cause of achylia gastrica. So far as I know, that condition cannot be produced experimentally in the animal. I shall leave the question of pancreatic and gastric secretion without comment, but should like to ask Dr. Sailer this: If the pancreatic secretion is formed as he stated, under the influence of free acid in the duodenum or because of the presence in the duodenum of free hydrogen ions, how can he expect to get increased secretion of pancreatic juice by the administration of hydrochloric acid whose free acidity he has neutralized by mixing it with proteins such as are contained in milk?

Dr. H. W. Soper, St. Louis: A differential diagnosis between true achylia gastrica and an acid gastritis is of extreme importance, and study of the cytology of the fasting stomach contents will usually establish the diagnosis. The progress of a case of achylia largely depends on the integrity of the mucosa of the small intestine. Therefore dietetic measures are always of importance in achylia in order to protect the small intestine. The patients with achylia that do not do well usually show a catarrhal condition of the small intestine, which can be demonstrated by frequent analyses of the feces.

Dr. A. J. Carlson, Chicago: I should like Dr. Sailer to speak more to the point on "pepsin achylia." I understood him to say that the decrease of pepsin runs parallel with the decrease of hydrochloric acid. On the experimental side there is evidence that the secretion of pepsin is largely independent of the secretion of hydrochloric acid. We can obtain gastric juice that has no free and little or no combined acid, but is higher in pepsin than is the normal gastric juice. It is supposed that some cases of achylia are congenital. There are probably some that have an organic cause, namely, atrophy of the gastric mucosa. I understand that he was inclined to classify all of them as functional. I hope Dr. Sailer is taking steps to follow his persistent achylia to postmortem. These people do not die of achylia. But chemical and histologic studies of the gastric mucosa would help to decide the question of functional or organic etiology.

Dr. Joseph Sailer, Philadelphia: I do not think the diagnosis of achylia can be based on a single examination or on a single test meal. I have taken the gastric contents in cases in which the gallbladder has been removed, and found no evidence of achylia. I do not believe that the administration of hydrochloric acid, either alone or in milk, was the cause of the secretion of the pancreas. It is a problem for the physiologist, for the duodenal contents removed before the patient has taken hydrochloric acid contain pancreatic ferments. The only way I know of whereby we can demonstrate the existence of pepsin is the evidence of digestive activity in an acid solution. And in none of the cases I have chosen to use in my study of achylia gastrica has there been any evidence of digestive activity. On the other hand, it is sometimes possible to obtain digestive activity in these cases by acid test meals. Achylia gastrica probably has nothing whatever to do with what one might possibly call a paroxysmal suspension of gastric juice, which I am sure ocurs rather frequently. The diagnosis of achylia gastrica does not include the cases first described by Fenwick, which were undoubtedly cases of pernicious anemia. Achylia gastrica, as far as we know, is not itself a fatal disease. Referring to Dr. Smithies' remarks, a patient whom I have examined at frequent intervals for a period of fourteen years, and in whom on two occasions hydrochloric acid and pepsin were found in the gastric secretion on examination, now has no hydrochloric acid. I see her only infrequently because she feels perfectly well. She is now about 54, well above the age that has been mentioned. Therefore, if that patient could on two occasions secrete hydrochloric acid, it seems reasonable to suppose that total functional absence of secretion of hydrochloric acid can be present in such cases.

SOME OPHTHALMOLOGIC MANIFESTATIONS OF DISEASES OF THE NERVOUS SYSTEM *

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The ophthalmologic manifestations of diseases of the nervous system have long occupied a conspicuous place, and have been studied with great interest by the neurologist and the ophthalmologist.

Realizing the close relation existing between the eye and the brain, the retina being an outgrowth from the rudimentary brain of the primary optic vesicle, and the optic nerves being portions of the lobes of the brain,[1] and admitting that these anatomic and embryologic facts are true, one readily realizes how the early manifestations of diseases of the brain may reveal themselves through the medium of the eye, which is the principal means we have of noting the changes resulting from disease of this organ. On examining the eye, we are able, in many cases, to see these changes in their incipiency, and thus make an intelligent diagnosis of the workings of this great machine (consisting of 600 million cells) before the disease has progressed to a point beyond all hope of medical or surgical intervention.

Assuming that the eye is a portion of the brain, then diseases of this complex machine will, in many instances, reveal early changes in the visual organs by alteration in the normal physiologic functions which manifest themselves by organic changes in the anatomic structure of the eye and visual pathways; or, by functional derangement of its mechanism.

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* Read before the Section on Ophthalmology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] Church and Peterson: Textbook of Nervous and Mental Diseases, 4: 95, 1910.

In this paper I do not propose to go deeply into any particular disease, many of which the variegated symptomatology and diversity of syndromes would carry one far into other fields to describe. I will, therefore, limit myself to the discussion of a few common diseases of the nervous system, and attempt to give the eye signs encountered in each, with an outline for examination that I use, adopted after Holden.[2] By following carefully this method of examination one is able to make an intelligent observation, and on the correlation of the findings, arrive at a satisfactory diagnosis. Etiologic and pathologic changes that ensue, I will not discuss in detail, but will touch on them only when necessary. The following outline is of particular value:

1. Sensibility of the cornea.
2. Size, shape and reaction of the pupils.
3. Abnormalities of the extra-ocular muscles, squint, nystagmus or paralysis.
4. Visual acuity near and distant.
5. Visual fields.
6. Examination of fundi, noting condition of optic disk as regards atrophy, edema or alterations in the blood vessels.
7. Any abnormality, such as exophthalmos, ptosis of the lids, inflammation, operations or injuries.
8. Convergence reaction, especially noting whether there is paralysis of convergence or divergence.

Corneal sensibility is tested by gently touching the cornea with a piece of absorbent cotton twisted to a thread, noting the discomfort experienced and the rapidity with which the patient winks, and thereby readily noting any loss of function in the ophthalmic division of the fifth nerve. If winking reaction is slow or absent, we immediately think of: (*a*) section of this branch; (*b*) herpes zoster involving this branch; (*c*) the use of some drug in the eye, such as cocain. If sensibility is diminished and unilateral, without facial hyperesthesia, it may mean tumor of the cerebellum on the same side. In these cases, we should look for an accompanying nystagmus, which is of the course type and to the same side; an unstable gait, and a tendency to fall to the same side.

Hysteria may cause hyperesthesia of one or both corneas, with accompanying sensory disturbances of other parts of the body, often with equal pupils and negative fundus findings.

As for the size and reaction of the pupils, inequality of pupils is always pathologic. Contraction of pupils takes place through the third nerve; dilatation through the sympathetic ciliospinal center. The average pupil should measure about 4 mm. in diameter, allowing for old age, during which time its diameter is diminished. When the pupil is dilated, one should think of mydriatics, myopia, excitement or emotion, irritaton of the sympathetic nerves or paralysis of the third nerve. When the pupil is contracted, one should think of myotics, irritation of the third nerve or inhibition of the sympathetic. Normally, the pupil contracts to light, accommodation and convergence; however, disturbances in the motor portion of the reflex path of the third nerve may prove an exception. If such disturbance is in that portion of the reflex path which lies between the optic nerve (centripetal limb) and the third nerve (centrifugal limb), we find that the reaction of convergence and accommodation is maintained, while the reaction for light is absent (Argyll Robertson pupil, so often associated with tabes and progressive paresis). This has also been found in certain tumors located in the region of the third ventricle. By pressure, these growths may produce similar findings. Attention is called to the cases in which there is contraction of the pupil to light, but the patients are not aware of the presence of light. To these belong the type in which there are lesions high up in the optic pathway above the connecting fibers between the optic and third nerve.

We also find patients that show normal reaction to light and accommodation, but a complete paralysis of convergence, and all extra-ocular muscles functioning normally. Regarding the frequency of convergence paralysis as an early manifestation of disease of the nervous system, I should like to say a few words. The causes are many. Posey and Spiller[3] give as causes: tabes, multiple sclerosis (in 3 per cent. of cases), and probably other organic nervous diseases. Parinaud[4] and Uhthoff[5] point out that paralysis of the power of convergence, partial or complete, without disturbance in lateral movements, is a form of nuclear palsy which is often found in disseminated sclerosis. I have found this condition associated with syphilis, migraine and intestinal toxemia. In the last two conditions, it is usually of transitory nature. As to the localization of the lesion giving rise to this condition, many theories have been advanced, but few facts have been given to substantiate them. It is thought by many that disturbances in the region of Deiter's nucleus in the medulla oblongata may give rise to this symptom. Bernheimer believes that the anatomic site of the lesion is probably in the fibers connecting the nondecussating fasciculi of the two internal recti nuclei with each other, or connecting these fasciculi with the cortex. Edinger's views, as presented in the seventh edition of his lectures on the structure of the nervous system, are that the center of convergence may be formed by the large cell median nucleus of the ocular motor nerve, associated with the nerve cells for the rectus internus which lie on each side and near the median nucleus, and that these three groups together may form a center for convergence; while Marina's[6] investigations have made the existence of such a center in the oculomotor nucleus seem doubtful. The majority of us, however, will admit the existence of such a center, wherever it may be.

I have found six patients showing this condition, two acknowledging syphilis and having + + + + Wassermann reactions, and two suffering from gastro-intestinal toxemia with negative Wassermann reactions. The fifth had a negative venereal and family history, and no cause for this condition could be determined. The sixth suddenly developed a dilated pupil on the left side with loss of reaction to light and accommodation and an accompanying convergence paralysis. The Wassermann reaction was doubtful.

The examination of the ocular muscles is of great importance in the early diagnosis of diseases of the central nervous system. It is well to notice the position of the eyes in the primary field, and to have the patient perform the associated movement tests in the six cardinal positions. If diplopia is found, the tangent screen, with a red glass in front of one eye, readily enables one to locate the muscle or muscles involved, and in this way, phorias, trophias and paralytic deviations may be differentiated. One or more ocular muscles may be involved very early, and frequently diplopia is one of the first symptoms complained of, and may be a forerunner of a grave disease of the brain. This is especially true in lethargic encephalitis. In this condition, the prodromal symptoms are usually diplopia, perhaps associated with a headache or general bodily weakness. On examination, there is often found paresis or a true paralysis of one or more of the ocular muscles, and an associated sluggishness of accommodation.

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[2] Holden, W. A.: The Eye in Nervous Diseases, Arch. Ophth. **47**: 2 (May) 1918.

[3] Posey and Spiller: The Eye and the Nervous System, **4**: 259, 1906.

[4] Parinaud: Paralysie de la convergence, Progrès méd. May 8, 1886.

[5] Uhthoff: Arch. f. Psychiat. **21**: 382, 1893.

[6] Marina: Neurol. Centralbl., Sept. 1, 1904. p. 797.

I do not recall seeing a case of this disease in which, at one time or another, the patient did not have symptoms of diplopia. In the ocular muscle palsies, the site of the lesion is, as a rule, in the nucleus of the supplying nerve or its trunk, and, of all the muscles of the eye, the external recti are the most frequently involved, chiefly because of the long basilar course of the sixth nerve. Next in order come the muscles supplied by the third or ocular motor nerve; and, lastly, the superior oblique muscle, which is innervated by the fourth nerve.

In cases of intracranial pressure, the external rectus is frequently involved; this, however, is of little value in localizing the site of the lesion. The cause of this early and frequent involvement is thought to be compression of the nerve trunk by a cerebellar artery (Cushing).

In lesions involving the nucleus of the third nerve, we may have, as a resulting condition, ophthalmoplegia external, internal and totalis. In the former case, the sphincter muscle and muscle of accommodation are not involved. We often encounter isolated paralysis of the muscles supplied by the oculomotor nerve, and which are not of nuclear origin. This may be explained by the fact that the fibers forming the third nerve are not closely united at the point of exit of the nerve from the cerebral peduncle, and it is because of this that paralysis of one or more of the muscles innervated by the nerve may be encountered in basilar meningitis without paralysis of the whole muscular supply of this nerve.

We rarely encounter paralysis of the superior oblique, but when found it usually is of basilar origin. However, it has been found in relation to tumor in the pineal gland.[7]

When conjugate deviations are noted, we may readily assume that the lesion is central. The causes of this condition are many; namely, apoplexy, epilepsy, or certain tumors of the brain, etc. It is not necessary to discuss the question of the value of testing the visual acuity, as it is important to correct any refractive error so that we may be sure the reduction of vision is not due to this cause. A routine examination of the fundus, preferably under a mydriatic, often gives us the true picture of the changes with which we are confronted and what to expect. It also enables us, in many cases, to make an accurate diagnosis; to give the neurologist information which may help him to localize the causative lesion, and an opinion as to the necessity for surgical intervention; and, lastly, to furnish a fair prognosis as to the probability of blindness.

Perimetry is of untold value; therefore, a careful perimetric test should be made in every case, and an accurate record of the findings kept. By so doing, we can check up the findings formerly made, and in this way map out islands of blindness and accurately determine the extent of involvement. We are also able by this method to make a differential diagnosis in many cases, and frequently, before visible changes in the nerve head are perceived with the ophthalmoscope, are further able to make fairly accurate localization of the lesion with the perimeter, and to differentiate the organic from the functional.

Before reporting several cases, I should like to discuss briefly the condition that is commonly termed migraine, or scintillating scotoma. This condition, which I define as a neurosis characterized by paroxysmal attacks of headache, preceded by visual disturbances bizarre in character, is thought by many to be of hereditary origin, closely resembling epilepsy, and caused by a disturbance in the circulation of the blood vessels of the brain, probably an angioneurosis of the vessels in the calcarine cortex. However, whether it is hereditary or allied to epilepsy, I am not prepared to say.

It has been my experience to find that these cases of migraine have, as a contributory cause, eye strain, produced by small refractive errors; frequently astigmatism, against the rule, or one or the other cylinder off axis. In other cases, I have found a history of gastro-intestinal toxemia with constipation.

In no way am I trying to discredit or attempting to disprove any statements made by well known authorities who have gone much farther and deeper into the question of the etiologic factors underlying this condition; but I am speaking only from observations I have made.

I have found, associated with the visual disturbances, one case that presented distinct paralysis of convergence, which was transitory in character. The patient, on the subsiding of the attack, was found to have binocular single vision, thus showing that whatever the etiologic factor may have been, the visual centers were in some way affected, as well as the center of convergence.

Having had the opportunity of closely studying one patient, during an attack, while taking the visual field and making a fundus examination, I found that he was not only apathetic, but frequently called things by the wrong name (psychic migraine). This condition has been described in detail by Liveing[8] and Oppenheim.[9] The only way in which I could account for these symptoms was by the extension of the angioneurosis to other areas of the brain. When taking the fields, at different intervals, of two patients, the frequency of left homonymous hemianopsia was noted and I thought I had made a discovery. A few days later, one of these patients had another attack, and when taking the fields I was surprised to find a right homonymous hemianopsia.

The onset of these attacks is described vividly in many cases, from a beginning with zigzag lines and many colored lights, to a blurring of portions of objects. The latter was found to be the most common type, the blurring gradually progressing to the point of blotting out of definite areas of the fields, and at times taking the form of homonymous hemianopsia, more intense on one side than another. As the attack progresses, there is a constriction in the corresponding fields. Such an attack, as a rule, does not last longer than thirty or forty minutes, and with the wearing off of the visual disturbance the headache follows.

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[7] Nieden: Neurol. Centralbl., 1879, No. 8.

[8] Liveing: On Megrim, Sick Headache, and Some Allied Disorders, London, 1873.

[9] Oppenheim: Diseases of the Nervous System, translated by Mayer, 1900, p. 751.

With the subsiding of these visual disturbances, I have seen the paralysis of convergence remain for forty-eight hours, and when this condition had passed, the patient had orthophoria with perfect fusion of images.

REPORT OF CASES

Case 1.—*Migraine associated with astigmatism against the rule, convergence insufficiency and history of gastro-intestinal toxemia.* J. P., man, aged 29, white, had attacks of headache and blurred vision, associated with dancing lights in front of the eyes. These attacks came on, as a rule, after the patient had been reading or studying. The family history was negative; the patient had had the usual diseases of childhood; the venereal history was negative. The patient used tobacco moderately, had a good appetite, and slept well. He suffered from intestinal stasis and indigestion. Examination of the eyes revealed vision of 20/20 in each eye. Fundi and media were normal and clear. Examination of extra-ocular muscles revealed 12 degrees of exophoria for near, with a remote near point. Retinoscopy revealed O. D. + 0.25 C. ax. 40, O. S. — 0.25 sph. + 0.50 C. ax. 180. With the foregoing correction, the patient read 20/15. In the examination of visual fields, the first field, which was taken Aug. 1, 1920, about twenty minutes after the attack of blurred vision had started, showed left homonymous hemianopsia with a restriction in the corresponding halves in both fields. As the attack progressed, the entire fields of both eyes were contracted to within 30 degree limits, after which there was found to be a sudden cessation of the blurring experience, and the fields cleared rapidly.

October 5, thirty minutes after an attack of blurred vision, the visual fields showed right homonymous hemianopsia, with restriction of the corresponding fields. The fields taken between the attacks were found to be normal, and no enlargement of blind spots was noted. The patient's refractive error was corrected and he was advised to wear his glasses constantly. Convergence exercises were started and careful attention to the diet and the gastro-intestinal tract was advised, with the result that the attacks that used to occur at frequent intervals have not occurred in a period of several months. This, to my mind, was a case of migraine, largely due to a refractive error associated with an ocular muscle insufficiency, intensified by gastro-intestinal disturbance.

Case 2.—*Paralysis of convergence, probably of syphilitic origin.* E. H., man aged 41, colored, who complained of double vision, gave a history of rheumatism. Venereal disease was denied. The present trouble started three years previously, following an attack of rheumatism. The patient began to see double at that time and the condition had grown worse. Examination revealed: Vision, right eye, 20/100; left eye, 20/70; corrected to: right eye, 20/20, with a + 0.50 sph. + 0.75 C. ax. vertical; left eye, 20/20, with a + 0.70 sph. + 0.50 sph. ax. vertical. The fundi and media were normal. Pupillary reactions were normal to light and accommodation. The near point of accommodation was 22.5 cm., in each eye. Extra-ocular muscle movements were normal in all fields. Exotropia was 14 degrees for near, 1½ degrees for distance. The tangent screen revealed crossed diplopia in primary fields, not increasing in other fields. The patient was unable to converge to the slightest degree. The neurologic examination was negative, except for some inequality of the knee jerks. Roentgen-ray examination of the skull, and paranasal sinuses was negative. The blood Wassermann reaction was positive. This was a case of convergence paralysis and, in my opinion, was due to syphilis. The patient was put on mixed treatment and intravenous injections of arsphenamin. His condition has remained stationary.

Case 3.—H. J., man, aged 22, colored, who complained of double vision, presented a negative family history. His present history was negative and venereal history was denied The present trouble dated back seven years, when the patient had suddenly noticed that objects appeared double. The condition had progressed very slowly. Examination revealed vision, 20/20, in each eye. The fundi and media were clear. The pupils reacted to light and accommodation. The near point of accommodation was 12 cm., in each eye. The near point of convergence was 225 cm. Examination of the extra-ocular muscles revealed 7½ degrees of exotropia for near; orthophoria for distance. Associated movements tested normal in all positions. There was no individual muscle paralysis. The tangent screen revealed crossed diplopia in the primary field, remaining the same in all other fields. The neurologic report was negative. Roentgen-ray examination of the skull failed to reveal any pathologic findings. The paranasal sinuses were negative. The blood Wassermann reaction was positive. The patient is receiving intravenous injections of arsphenamin and mixed treatment, and his condition has, to date, remained stationary, with no improvement of ocular symptoms.

Case 4.—S. A., woman, colored, aged 46, suddenly developed a dilated pupil on the left side, with inability to fuse objects. The past history was of no consequence; venereal history was denied. Examination revealed fundi and media clear and normal. The right pupil reacted to light and accommodation, and was normal in size. The left eye showed complete internal ophthalmoplegia, with a fixed pupil that did not react to light and accommodation. The consensual reflex from right to left was absent, from left to right present. Examination of extra-ocular muscles revealed no individual muscle paralysis. There was crossed diplopia in the primary field, not increased in any other field. The near point of convergence was 150 cm. The blood Wassermann was questionable. This, I think, should be looked on as a case of convergence paralysis associated with an ophthalmoplegia interna. It tends to substantiate the teachings of Edinger in locating the center of convergence in close proximity to the nucleus of the ocular motor nerve. As to the doubtful Wassermann reaction, I am skeptical. However, the left pupil returned to normal size in less than two weeks' time, under an intensive course of treatment of mercury and iodid.

CONCLUSION

A routine examination, similar or as outlined, should be adhered to in the examination of every patient. If this is done, an insight may be gained, in many cases, into the condition of the central nervous system.

Every patient complaining of headache, especially of migrainous type, should undergo refraction and the diet should be regulated or watched, as this condition is frequently due to an astigmatic error or some disturbance in the gastro-intestinal tract. In the examination of the ocular muscles, it is well to bear in mind the importance of convergence paralysis, as it is a symptom more common than is generally believed, and frequently of syphilitic origin.

ABSTRACT OF DISCUSSION

Dr. J. M. Banister, Omaha: I should like to mention one point, and that is the subject of scintillating scotoma or fugacious lateral homonymous hemianopsia. The internist is singularly deficient in his knowledge of this frequently alarming condition and the ophthalmologist is often called on to make the decision as to the gravity or seriousness of a case manifesting the characteristic symptoms. Hemianopsia may be divided into two general classes—the permanent type from a definite organic lesion, and the temporary type. In cases of temporary lateral homonymous hemianopsia the causative angioneurotic is on only one side of the brain. It is our business to make a practical diagnosis and let the patient understand that in these seizures there is merely a temporary loss of vision. This condition is due to a toxemia resulting from intestinal autointoxication or from some focal infection, possibly of the teeth or nasal accessory sinuses. I have lately operated in two marked cases of the latter type in which the foci of infection were located in the antrums. This temporary hemianoptic condition is due to a spasm of the branches of the posterior cerebral artery on the affected side of the brain. The toxemia is the exciting cause of this vasomotor constriction.

STUDIES ON THE RELATION OF THE THYROID TO PANCREATIC DIABETES IN DOGS

WITH SUGGESTIONS AS TO DIABETES MELLITUS IN MAN *

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Little doubt as to the pancreatic origin of diabetes mellitus remains, since Weichselbaum [1] demonstrated, by special staining methods in all diabetics from his large necropsy material, definite changes in the islands of Langerhans, and since Cecil [2] noted similar changes at necropsies in seventy-nine of his ninety diabetics.

The fact, however, that glycosuria and hyperglycemia may be transient in some persons favors the assumption that anatomic changes in the islets must not necessarily be present in mild cases of the disease. Emotional causes may lead in some persons to a transient glycosuria, especially in those with a congenital inferiority of the pancreas. A temporary disturbance in the insular apparatus also occurs during infections, as in the course of chronic cholecystitis. Various drugs also may have this effect. Last but not least, certain endocrine disorders, such as hyperpituitary and hyperthyroid states, will occasionally lead to glycosuria and even to true diabetes mellitus. As actual pathologic changes in the islands were hardly ever found in acromegaly and in exophthalmic goiter, one must assume that in these maladies the insular apparatus is disturbed functionally.

The relationship between thyroid diseases and diabetes mellitus was first pointed out by Dumonptallier [3] in 1867. He described a case of exophthalmic goiter and diabetes in a young woman. Since that time similar cases have been reported from time to time. However, Fitz [4] and Sainton [5] and his associates emphasize the rarity of the two maladies combined in one person, and both consider such a combination as a mere coincidence. Holst [6] reports eight cases of exophthalmic goiter with not only alimentary but also spontaneous glycosuria, including three cases which must be considered as a combination of exophthalmic goiter and diabetes. From this and other data cited in his paper, he draws the conclusion that tests for sugar should be applied as a routine measure in cases of hyperthyroidism, and that diabetic patients should always be examined for hyperthyroid symptoms.

Although every clinician will admit that spontaneous glycosuria, as well as fasting hyperglycemia, are rare occurrences in hyperthyroid states, yet alimentary glycosuria in the latter conditions may be considered as common. Low sugar tolerance was reported by Denis [7] and her associates in all their cases of hyperthyroidism, and recently it was corroborated by Morris [8] and others. It is also a well established fact that, in true myxedema, the assimilation limit for dextrose is high. Experimentally, it was shown by McCurdy [9] and others that dextrose tolerance was high in thyroidectomized dogs, and if the parathyroids were preserved, the results were permanent. This does not exist in hypothyroid conditions. Garrod [10] refers to the occurrence of glycosuria and even of true diabetes in subthyroid persons. From these considerations one is justified in concluding that, while thyroid overactivity does not lead to definite pathologic changes in the insular apparatus, it leads to a functional disturbance in the latter, as evidenced from the low sugar tolerance in hyperthyroid states. The high sugar tolerance in athyroid conditions must be credited with a functional disturbance of reverse nature. Various degrees of thyroid hypo-activity do not suffice to upset the islands of Langerhans in the same manner as in myxedema.

It is but logical to assume that a functional disturbance in the thyroid may be a possibility in diabetes mellitus. We speak of a functional disturbance of the pancreatic islets in exophthalmic goiter and of a similar disturbance of the thyroid in diabetes because a thorough search through the literature does not reveal sufficient data as to the actual pathologic condition of the pancreas in the former condition, nor to thyroid changes in the latter. Garrod,[10] while stating that glycosuria may exist in conjunction with thyroid deficiency, admits knowledge of a few cases in which exophthalmic goiter was associated with atrophy and other lesions of the pancreas. According to Holst,[6] in nine cases of exophthalmic goiter recorded, the pancreas was pathologic. Just as little is known about thyroid changes in diabetics. Cecil [11] writes that adenoma of thyroid glands has been noted in the anatomic diagnosis of two cases of diabetes. But it is rather strange that in these cases the pancreatic islets were hyperthophied, a seemingly paradoxical histologic picture of the pancreas in diabetics, though described by MacCallum [12] and others. Kraus [13] speaking of the changes in the pars media of the hypophysis in diabetes mellitus, cites several cases in which the pathologic picture of the thyroid was interpreted by him as corresponding to overactivity of the thyroid. Few investigators studied the thyroid microscopically in depancreatized dogs. Lorand [14] asserts that the histologic picture of the thyroid in diabetic dogs must be interpreted as overactivity. Licini [15] described the thyroid in experimental diabetes as presenting the colloid type, which may occasionally be seen in exophthalmic goiter. He emphasizes overactivity of the thyroid in his dogs and states that endemic goiter did not exist in the locality from which his animals were procured.

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[1] Weichselbaum, quoted by Pratt, J. H.: Internal Function of Pancreas, J. A. M. A. **59**: 322 (Aug. 3) 1912.

[2] Cecil, R. L.: A Study of the Pathological Anatomy of the Pancreas in Ninety Cases of Diabetes Mellitus, J. Exper. Med. **11**: 266, 1909.

[3] Dumonptallier: Goitre exophthalmique et glycosurie chèz la même malade, Compt. rend. Soc. de biol. **4**: 116, 1867.

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[5] Sainton, P.; Schulmann, E., and Justin-Besançon: Bull. et mém. Soc. méd. d. hôp. de Paris **45**: 1298 (July 29) 1921.

[6] Holst, J.: Glycosuria and Diabetes in Exophthalmic Goiter, Acta med. Scand. **55**: 302 (June) 1921 (in English); abstr. J. A. M. A. **77**: 744 (Aug. 27) 1921.

[7] Denis, W.; Aub, J. C., and Minot, A. S.: Blood Sugar in Hyperthyroidism, Arch. Int. Med. **20**: 964 (Dec.) 1917.

[8] Morris, M. F., Jr.: Value of the Alimentary Test in the Diagnosis of Mild Hyperthyroidism, J. A. M. A. **76**: 1566 (June 4) 1921.

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[10] Garrod, A. E.: Glycosuria, Lancet, March 9, 1912.

[11] Cecil, R. L.: The Effect of Certain Experimental Procedures on the Islands of Langerhans, J. Exper. Med. **16**: 1, 1912.

[12] MacCallum, W. G.: Hypertrophy of the Islands of Langerhans in Diabetes Mellitus, Am. J. M. Sc., March, 1907.

[13] Kraus, E. J.: Hypophyse und Diabetes Mellitus, Virchows Arch. f. path. Anat. **228**: 68-133, 1920.

[14] Lorand, A.: Les rapports du pancreas (Islets of Langerhans) avec la thyroïde, Compt. rend. Soc. de biol. **56**: 488-490, 1904.

[15] Licini, C.: Einfluss der Exstirpation des Pancreas auf die Schilddrüse, Deutsch. Ztschr. f. Chir. **101**: 4, 5 and 6, 1909.

Pratt[16] is rather careful in commenting on the histologic picture of the thyroids in his depancreatized animals. The glands of three dogs, in whom pancreatic insufficiency without glycosuria had existed from five to thirty-four months, presented the normal size, color and consistency. The histologic study, however, revealed either a partial or total disappearance of colloid, and in its place were desquamated epithelial cells, so numerous as to fill many of the alveoli. The cells varied in size, but large ones predominated. The nuclei took the stain deeply and uniformly. Pratt is in doubt as to whether the changes he discovered indicate a compensatory action on the part of the thyroid or whether they presented merely a degenerative state.

As the histology of the thyroid in our depancreatized dogs will be referred to in another paper, it should be stated here that there is no uniform histologic picture, even in exophthalmic goiter. Kocher[17] and Marine[18] have described three types in this malady: the hyperplastic, the colloid, and the hyperplastic and degenerative. It may also be mentioned that sufficient information cannot be obtained by studying thyroids from depancreatized dogs microscopically. The determination of the iodin content of the thyroids of depancreatized animals may lead to a better understanding of the part taken by the thyroid in diabetes mellitus. Such investigation has been started by us.

From all the considerations of the relationship of the thyroid to the pancreas, two statements may be considered as absolutely certain: that overactivity of the thyroids leads to a lowering of the assimilation limit of dextrose, and that complete atrophy of the gland raises it. Myxedematous persons are not likely to become diabetic.

It is highly probable that the difference in the severity of the clinical course in diabetes mellitus at various ages depends in a measure on the difference, with age, in the physiologic functioning of the thyroid. In nfancy, the epithelium of the thyroid is of a columnar type, according to Marine,[19] Kocher[20] and Jackson,[21] n adolescence the epithelium is cubical, and in elderly persons, flat. It is well known that diabetes takes a very severe course in children; the disease is severe n adults but extremely mild when acquired in old age. The mortality from diabetes mellitus in children is almost 100 per cent., in spite of advanced modern reatment; and if Riesman[22] has observed several cures n children, he himself admits that the diabetes in them was of renal origin. The mortality from diabetes is till high in adolescence.

It seems, then, that the tendency of the thyroid to physiologic atrophy may be the determining factor for he mild course of diabetes in elderly persons. The bsence of diabetes in true myxedema and the mild course of diabetes in advanced age are suggestive of a ure for diabetes by inducing a complete atrophy of he thyroid. If this is true, it would be reasonable to ssume that a spontaneous cure of diabetes is occasionally possible through an atrophic state of the gland, brought about by unknown causes.

In connection with this point of view, one of Rohdenburg's[23] cases may be cited:

> A Russian Jewess, aged 45, married and having five children, was examined for insurance when 30 years of age, and sugar was discovered in the urine. Treatment was of no avail. The menopause was very stormy from 39 to 41. After this, it was accidently discovered that the sugar had disappeared. The patient was then able to eat candy with impunity. Death occurred at the age of 45 with what resembled chronic nephritis, though it was evident that there was also myxedema. The necropsy revealed almost complete fibrosis of the thyroid, fibrosis of the major portion of the head of the pancreas, hypertrophy of the islands of Langerhans in the middle portions, a normal pancreatic tail, marked arteriosclerosis, and marked interstitial nephritis.

As true myxedema is hardly ever combined with diabetes mellitus; as the course of diabetes is mild in elderly persons, and since a spontaneous cure of the disease is possible through atrophy of the thyroid, the possibility of observing the disappearance of glycosuria in depancreatized dogs, either after ligation of all thyroid arteries, or after removal of the thyroid gland in toto, suggested itself to us. One could not expect to observe an increase in weight of depancreatized animals after these procedures, as it is well known that total or nearly total extirpation of the pancreas leads to enormous losses in body weight in every case.

At the present stage of our knowledge, we do not possess means to destroy only the insular apparatus of the pancreas, leaving the external secretory apparatus intact; so one can imitate human diabetes only to some extent by the experiment. Complete removal of the pancreas always leads to glycosuria and hyperglycemia. To produce glycosuria after partial pancreatectomy, one must remove a little more than 2 gm. for each kilogram of body weight of the animal in the majority of cases. While one may occasionally succeed in obtaining persistent glycosuria by removing less than this amount, hyperglycemia without glycosuria manifests itself almost always after removal of small amounts of pancreatic tissue.

Of fifty dogs which we depancreatized from January, 1921, to May, 1922, persistent glycosuria became evident after removal of 1.3 gm. in one dog and, in another, after extirpation of 1 gm. per kilogram of body weight. As the latter animal's digestion did not suffer from a lack of pancreatic ferments, we believe that, by chance, we imitated true human diabetes. This information is by no means new since, in the literature on experimental diabetes, reports have frequently appeared pertaining to induction of diabetes in dogs by removal of comparatively small amounts of pancreatic tissue.

The duration of life in diabetic dogs, after complete thyroidectomy, is greatly shortened, as is evidenced by the experiments of Lorand, MacCallum and Eppinger, quoted in a previous paper.[24] Our own diabetic dogs in which the thyroid was removed in one sitting also died in from two to three days after thyroidectomy. Complete ligation of the thyroid arteries, or, better still, partial ligation followed at a later date by complete thyroidectomy, enabled us to keep the animals alive for a longer period of time, and greatly extended the time of observation.

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[16] Pratt, J. H.: (Footnote 1).

[17] Kocher, Albert: Die histologische und chemische Veranderung er Schilddrüse, Virchows Arch. f. path. Anat. **208**: 86-296, 1912.

[18] Marine, David, and Lenhart, C. H.: Pathologic Anatomy of xophthalmic Goiter, Arch. Int. Med. **8**: 265 (Sept.) 1911.

[19] Marine, David, quoted by Jackson, C. M.: Effects of Inanition n Structure of Thyroid and Parathyroid Glands of Albino Rat, J. Anat. **9**: 305 (March) 1916.

[20] Kocher, Albert: Morbus Basedowii, in Kraus und Brugsch: pecielle Pathologie und Therapie innerer Krankheiten, Berlin and ienna, Urban and Schwarzenberg **1**: 909, 1919.

[21] Jackson, C. M.: (Footnote 19).

[22] Riesman, D.: Mild Diabetes in Children, Am. J. M. Sc. **151**: -44 (Jan.) 1916.

[23] Rohdenburg, G. L.: A Case of Spontaneous Disappearance of Diabetes, Endocrinology **6**: 519 (July) 1922.

[24] Friedman, G. A., and Gottesman, Julius: Relation of Thyroid and Parathyroids to Pancreatic Diabetes in Dogs, Proc. Soc. Exper. Biol. & Med. **19**: 215-221, 1922.

Recently we performed thyroidectomy in hyperglycemic dogs in two sittings, but during the second lobectomy we left a tiny piece of the thyroid tissue in situ. In performing a thyroidectomy, one only occasionally succeeds in sparing all parathyroids, so that tetany ensues. The occurrence of tetany is less frequent after total ligature of the vessel than after thyroidectomy.

Diabetic dogs are more liable to be affected by tetanic seizures with two or three parathyroids left in situ, than are nondiabetic dogs with the same number of parathyroids.

During the time of observation, all the dogs were on the routine laboratory diet, consisting of bread, meat and carrots. Blood sugar estimations were made by the Lewis and Benedict method, by Miss Helen Emmons.

RESULTS OF EXPERIMENTS

Ligation of all thyroid arteries in completely or almost completely depancreatized dogs leads to the disappearance of sugar from the urine in from one to five days after ligation, provided tetany or infection does not occur. Parallel with the disappearance of the sugar, the blood sugar greatly diminishes or may become normal.

Partial ligation of the thyroid arteries does not lead to cessation of glycosuria, and the blood sugar may even become increased.

Total thyroidectomy which is preceded by partial ligation of the arteries leads to the disappearance of sugar, provided tetany does not occur. If, however, mild attacks of tetany set in, the glycosuria does not cease. But when one succeeds in checking the tetanic seizures completely, by intravenous injections of calcium lactate, the sugar in the urine disappears entirely, and reappears when tetany sets in again. Parallel with the disappearance of sugar in the urine, the blood sugar greatly diminishes and becomes normal.

If a small amount of pancreatic tissue is removed in order to cause hyperglycemia, one-sided thyroidectomy does not diminish the blood sugar content; and if, in removing the second lobe, a tiny fragment of thyroid is left, the blood sugar may become normal temporarily, but later it becomes high. These dogs with high blood sugar gain in weight and remind one of human beings in the prediabetic state.

If one succeeds in causing diabetes in a dog by removing a comparatively small amount of pancreatic tissue, 1 gm. per kilogram of body weight, and succeeds also in sparing all the parathyroids of the animal in performing a thyroidectomy, the glycosuria which has not ceased after partial ligation of the arteries ceases after removal of the thyroid.

ABSTRACTS FROM PROTOCOLS OF SOME EXPERIMENTS PERFORMED IN 1921

LIGATION OF ALL THYROID ARTERIES IN DEPANCREATIZED DOGS

Experiment 1 (Dog 4).—Complete pancreatectomy was performed, March 2. The urine was positive for sugar from the day following operation in amounts varying from 5 to 6 per cent. Ligation was effected, March 5. The dog continued to have sugar in the urine until March 8. The urine became sugar free, March 9, and continued to be sugar free in passed and catheterized specimens until March 19, when the dog developed distemper, which was followed by death on the next day. Necropsy revealed lobular pneumonia involving all lobes and complete absence of pancreatic tissue.

Experiment 2 (Dog 15).—Complete pancreatectomy was performed, June 22. There was glycosuria from June 23 to June 28. Ligation was effected, June 28. The urine was sugar positive, June 29, and sugar negative on daily examinations of passed and catheterized specimens from June 30 to July 13. The animal was found dead, July 14. Necropsy revealed no demonstrable lesions. The dog had a good appetite until July 12.

Experiment 3 (Dog 10).—Complete pancreatectomy was performed, June 29. There was glycosuria from June 30 to July 5. Ligation was effected, July 5. The urine was strongly positive for sugar, July 6, but there was no a trace of sugar in the urine, July 7. There was glycosuria from July 8 to July 14. Twitching of the musculature of the back took place from July 8 to July 10. July 11, the dog had a severe attack of tetany. July 12, he had mild attacks of tetany. Infection at the neck was noted. The dog was killed with chloroform, July 14. Necropsy revealed a large pocket of pus at the neck.

Experiment 4 (Dog 16).—Almost complete pancreatectomy was performed, July 25. There was glycosuria from July 27 to July 30. Ligation was effected, July 30. Glycosuria persisted until August 6, when the animal was found dead. There was no necropsy. During the course of the experiment, no tetany was noted. Infection at the neck was noted, August 3, four days after ligation.

Experiment 5 (Dog 9).—Almost complete pancreatectomy was performed, April 3. There was glycosuria from April 4 to April 10. The superior and inferior thyroid arteries on the right side were ligated. Glycosuria persisted on daily examinations. The superior and inferior thyroid arteries on the left side were ligated, April 17. The urine was sugar positive, April 18. The dog died on the next day from a severe attack of tetany. The animal was in good condition until the day after the second ligation. No necropsy was performed.

COMPLETE THYROIDECTOMY PRECEDED BY LIGATION OF INFERIOR THYROID ARTERIES IN DEPANCREATIZED DOGS

In these experiments, two or three parathyroids were left in situ, and all were left in one dog.

Experiment 6 (Dog 17).—Partial pancreatectomy was performed, November 9. Glycosuria was noted from the 10th to the 16th. Ligation was effected, November 16. Glycosuria persisted from the 17th to the 30th. Thyroidectomy was performed, December 1. There was not a trace of sugar in the urine, December 2. Glycosuria followed, and the dog developed a severe attack of tetany early in the morning and died in the afternoon. Necropsy did not reveal demonstrable lesions.

Experiment 7 (Dog 14).—Partial pancreatectomy was performed, December 3. There was glycosuria from the 5th to the 7th. Ligation was effected, December 7. Glycosuria persisted until the 10th. Thyroidectomy was performed, preceded by intravenous injections of 10 c.c. of 5 per cent. calcium lactate solution. Three parathyroids were left in situ. There was glycosuria, December 12 and 13. Twitching of the musculature of the back was noted. Fifty cubic centimeters of 5 per cent. solution of calcium lactate was administered through a stomach tube. December 14, the dog had a severe attack of tetany early in the morning. At 11 a. m. calcium lactate was injected intravenously in the same dosage as preceded the operation. The animal recovered from the attack, but twitchings persisted. At 2 p. m., he had another attack and was in a dying condition. At 3 p. m., calcium lactate in the same dosage was injected. The dog was catheterized twice, and on both occasions a positive test for sugar in the urine was obtained by adding two drops to Benedict's solution. December 15 and 16, the animal completely recovered from the attack, had an excellent appetite and ate plenty of bread and meat. There was not a trace of sugar in the catheterized and passed specimens of urine, according to tests made with Nylander's and Benedict's reagents. On the 17th, 18th and 19th, twitchings were seen but there were no severe attacks; sugar in the urine was strongly positive. On the 20th, the dog had a severe attack of tetany. Sugar in the urine was strongly positive. Calcium lacate was injected intravenously in the morning and in the afternoon. December 21 and 22, tetany was completely absent. The urine was sugar free on these days. December 23, the dog was bitten in the back by another dog. On account of the large open wound, he was killed.

Experiment 8 (Dog 19).—Partial pancreatectomy and ligation of inferior thyroid arteries was performed, December 17. Glycosuria was noted from the 18th to the 21st. Thyroidectomy was performed, December 21. Glycosuria was noted from the 23d to the 25th, and twitching of the musculature of the back was noted on the day following removal of the thyroid. This persisted, although daily subcutaneous injections of calcium lactate, in the same dosage as the intravenous injections, were given. The animal vomited with blood, December 24 and 25, and was found dead, December 26. Necropsy revealed no pneumonia, but the stomach was filled with blood. No food was present. The mucosa of the pylorus was covered with numerous hemorrhagic erosions.

Experiment 9 (Dog 28).—On a male dog, weighing 14 kg., partial pancreatectomy was performed, January 12. He became glycosuric on the day following the removal of about 1 gm. of pancreatic tissue per kilogram of his body weight. Seven days after there was from 2 to 3 per cent. of sugar in the urine. Both inferior thyroid arteries were ligated. The glycosuria persisted on daily examinations. Seven days ater, both lobes of the thyroid were removed; all the parahyroids were spared. There was not a trace of sugar in he urine on the day following thyroidectomy, and the urine remained sugar free for 108 days, although eleven days after removal of the thyroid, additional pancreatic tissue was removed, and ninety-three days after the second pancreaectomy, the last remnant of the gland was taken out. The animal was sugar free for four days after the third pancreatectomy. He died on the fifth day from prolapse of the intestine, which was probably brought about by the three aparotomies. The dog's condition was excellent throughout; he ate well until the day of the accident. He did not show igns of myxedema during the time of observation, and while his original weight was 14 kg., his weight on the day before death was 15.9 kg., a gain of 1.9 kg. The blood sugar remained normal, and fourteen days after removal of the thyroid, the sugar tolerance was about 10 gm. per kilogram of he body weight.

ABSTRACTS FROM PROTOCOLS OF EXPERIMENTS PERFORMED IN 1922

Thyroidectomy was performed in one or two sittings n depancreatized hyperglycemic dogs which at no time howed glycosuria. Three parathyroids were spared n all of them.

Experiment 10 (Dog 20).—Partial pancreatectomy was performed, February 2. Hyperglycemia was noted, and a second ancreatectomy was performed, February 20. Hyperglycemia ncreased. Right-sided lobectomy was performed, February 7. Hyperglycemia persisted. Left-sided lobectomy was performed, March 13. The animal died, March 17, from an cute attack of tetany.

Experiment 11 (Dog 27).—Partial pancreatectomy was performed, April 9, followed by hyperglycemia. Right-sided bectomy was performed, April 22. Hyperglycemia increased, nd left-sided lobectomy was performed, April 29. In the orning of May 1, the animal had a severe attack of tetany. he dog recovered after subcutaneous injection of calcium ctate, but died in the afternoon from tetany.

Experiment 12 (Dog 23).—Partial pancreatectomy was performed, March 8, followed by hyperglycemia. After removal both thyroid lobes, March 19, blood sugar was normal, arch 20. Tetany manifested itself March 21, and was ecked by intravenous injections of calcium lactate. The imal was free from tetany from March 21 in the afternoon til March 25, when it suddenly developed tetany and was led with chloroform. The blood sugar was normal on the ternoon of March 21 and on two examinations, March 22.

EXPERIMENTS ON DEPANCREATIZED HYPERGLYCEMIC DOGS

In these animals, when the second lobectomy was performed, a tiny fragment of thyroid tissue was left; also three parathyroids were spared.

Experiment 13 (Dog 24).—Partial pancreatectomy was performed, March 15, followed by hyperglycemia. There was hyperglycemia after right-sided lobectomy, March 25. After left-sided incomplete lobectomy, April 1, there was a tendency of the blood sugar to become normal, but it ultimately remained high. There was considerable gain in weight, which was originally 9 kg., March 25; ten days after pancreatectomy, it was 8 kg.; May 8, it was 11.6 kg.

Experiment 14 (Dog 25).—The pancreatic tail was removed, April 2. There was hyperglycemia. Right-sided lobectomy was performed, April 15. There was hyperglycemia. An incomplete left-sided lobectomy was performed, April 23. At the beginning, the blood sugar became normal, but later it increased and remained high. There was a gain in weight, which was originally, 7 kg., and May 8, 7.6 kg.

Experiment 15 (Dog 26).—Partial pancreatectomy was performed, April 8. There was hyperglycemia. Right-sided lobectomy was performed, April 17. There was hyperglycemia. An incomplete left-sided lobectomy was performed, April 24. There was normal blood sugar at the beginning, but later it became high. The original weight was 10.8 kg.; April 24, the dog weighed 10.1 kg.; the weight, May 8, was 11.2 kg.

These three animals are alive and in excellent condition.

COMMENT

The glycosuria and hyperglycemia in diabetic dogs, after complete ligation of the thyroid vessels, or after complete thyroidectomy, provided tetany or infection does not occur, must be ascribed to the absence of thyroid hormones from the blood stream. When a condition of athyroidism established itself in the dog in Experiment 9, even repeated pancreatectomies did not cause the reappearance of glycosuria. The considerable gain in weight in this animal must also be credited to the condition of athyroidism created by the complete removal of the thyroid. The sugar tolerance in this animal remained high as in thyroidectomized dogs without diabetes. The dogs in Experiments 13, 14 and 15, in which a minute fragment of thyroid tissue was left at a second lobectomy, differed from the dog in Experiment 9 in that the glycemia remained high. The tendency to obesity, however, manifested itself in these animals, as in the dog in Experiment 9, which had been deprived of all its thyroid tissue.

Since the incompletely depancreatized dogs are still alive, one can only speculate as to the histologic picture in their remnants. But it is highly probable that a compensatory hypertrophy occurred in the fragment left behind. Ribbert [25] was the first to point out that, in incompletely thyroidectomized dogs, hyperplasia occurs in the remnant, and this hyperplasia is usually noticeable in the peripheral acini. MacCallum [26] writes that the so-called typical hyperplastic type of exophthalmic goiter may be noted in dogs in the small fragment left after incomplete thyroidectomy. It is well known that in man hypothyroidism may go hand in hand with hyperthyroidism. A similar condition might have occurred as a result of incomplete removal of the thyroid in the dogs in Experiments 13, 14 and 15. On account of deprivation of the greater parts of their thyroids, a tendency to obesity was established.

For the persistence of hyperglycemia, of course, a compensatory hypertrophy might have been responsible.

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25. Ribbert: Ueber die Regeneration des Schilddrüsengewebes, Virchows Arch. f. path. Anat. **117**: 151, 1889.
26. MacCallum, W. G.: A Text Book of Pathology, Philadelphia, W. B. Saunders Company, 1916, p. 817.

This would be quite in accord with clinical facts that the dextrose tolerance is low in hyperthyroidism and that there may be in man a combination of subthyroidism and glycosuria. It should be emphasized that the condition created in the three animals by partial pancreatectomy and incomplete thyroidectomy greatly resembles the preglycosuric or prediabetic state in man, i. e., increase in body weight and hyperglycemia.

TABLE 1.—BLOOD SUGAR IN NORMAL DOGS

No.	Mg. Sugar per Hundred C.c. Blood	No.	Mg. Sugar per Hundred C.c. Blood
1	53	8	90
2	83	9	78
3	56	10	98
4	76	11	104
5	78	12	104
6	67	13	104
7	94	14	100

The persistence of glycosuria after thyroidectomy, or after complete ligation of the thyroid arteries, when tetany develops, indicates the antagonism between the parathyroids and the thyroid. The high dextrose tolerance in nondiabetic thyroidectomized dogs in which the parathyroids were preserved has already been referred to.

TENTATIVE CONCLUSIONS

The question arises whether our experimental results can be applied to the treatment of human diabetes. Our material is not sufficiently large to permit definite conclusions. But the following line of reasoning leads one to believe that complete thyroidectomy in diabetics must be at least as effective. The advantages to man might be as follows:

1. The loss of the pancreatic islet, produced by complete or almost complete pancreatectomy, rarely has its counterpart in human diabetes.

TABLE 2.—BLOOD SUGAR IN DOGS AFTER PANCREATECTOMY

No.	Sex*	Body Weight, Kg.	Weight of Removed Pancreas per Kilogram of Body Weight, Gm.	Weight of Removed Gland per Kilogram of Body Weight, Gm.	Sugar per Hundred C.c. Blood, Mg.	No. Days Following Operations When Sugar Determinations Were Taken
2	♀	10.0	23.0	2.30	203	3
3	♂	8.3	22.5	2.71	270	3
4	♂	7.5	18.2	2.42	250	3
5	♂	9.1	20.0	2.20	125	9
6	♀	8.7	21.0	2.42	293	6
7	♀	13.0	28.0	2.15	222	7
9	♂	6.7	17.0	2.53	200	7
15	♂	9.6	21.0	2.10	238	6
10	♀	20.0	44.0	2.20	238	6
13	♂	8.0	15.0	1.85	100	4
16	♀	13.8	20.0	1.45	228	5
17	♂	13.0	17.0	1.30	250	7
18	♂	17.8	35.0	1.96	200	7
14	♂	15.7	26.0	1.60	290	4
19	♀	12.0	23.0	1.90	228	4

* In this column, ♂ indicates male; ♀ indicates female.

2. The external apparatus in diabetes usually remains intact, so that even great losses in body weight resulting from this malady may be counteracted by thyroidectomy.

3. There is hardly a chance for a skilful surgeon to damage the parathyroids in man on account of the difference in the topographic relation of the latter to the thyroid.

4. Shock from the operation may be avoided by performance of the operation in two sittings.

One may hesitate in proposing complete thyroidectomy for the treatment of diabetes, since it has never been recommended, but one of Rohdenburg's[27] cases offers direct support for such a suggestion. The patient developed exophthalmic goiter during a course of diabetes mellitus. A part of the thyroid was removed. The glycosuria ceased and the patient remained sugar free for several years. In a second case of Rohdenburg, partial thyroidectomy was performed by Dr. Semken for exophthalmic goiter. Several years later glycosuria developed. Dr. Semken removed more of the thyroid, leaving only the isthmus. A complete cure occurred also in this patient.

It is perhaps worth mentioning that total removal of the spleen brings about a cure in hemolytic jaundice, the etiology of which is just as unknown as in diabetes mellitus. Although the majority of physicians believe that the chief trouble in the former condition lies in the spleen, others, for example, Pick and Strauss,[28] adhere to the hepatic origin of this malady. It is possible that a cure is accomplished in hemolytic jaundice because of removal of the gland which plays a secondary rôle in the disease. It is probable, then, that diabetes mellitus may be cured by removal of the gland which plays a secondary rôle in this malady. If the view that we take is correct, then complete thyroidectomy in two stages should be beneficial in diabetes mellitus of young children, in whom the mortality is about 100 per cent. The procedure may also be tried in diabetic adults who do not respond to any of the modern methods of treatment.

TABLE 3.—BLOOD SUGAR IN NORMAL DOGS AFTER PARTIAL PANCREATECTOMY

No.	Sex	Body Weight, Kg.	Weight of Removed Pancreas per Kilogram of Body Weight, Gm.	Weight of Removed Gland per Kilogram of Body Weight, Gm.	Sugar per Hundred C.c. Blood, Mg.	No. Days Following Operations When Blood Sugar Determinations Were Taken
12	♂	11.2	27	2.70	127	5
14	♂	13.7	14	1.02	91	11
20	♂	22.0	13	0.60	108	5
					84	11
					133	18
		19.0	23.5	1.24	196	5
21	♂	17.7	18	1.02	79	5
		(second pancreatectomy)				
22	♂	27.2	22	0.80	143	11
23	♂	12.2	20.2	1.65	148	11
24	♂	9.0	14	1.55	158	10
25	♂	7.0	4.3	0.61	111	13
26	♂	10.8	11.9	1.10	143	9
27	♀	11.0	22.8	2.05	143	13

INTERPRETATION OF TABLES

Table 1: These dogs were starved from eighteen to twenty-four hours before blood was taken for estimation of glucose. The highest figures were obtained during the hot days of July.

Table 2: Nine males and six females whose body weights ranged from 6.7 to 20 kg., became persistently glycosuric after pancreatectomy. One dog became glycosuric after the removal of 1.3 gm. per kilogram of body weight. Dog 28, not included in this table, persistently showed glycosuria after removal of 1 gm. per kilogram of body weight. Dog 13, which was glycosuric, did not show an increase in the blood sugar content. The higher blood sugar figures in fourteen

glycosuric dogs ranged between 290 and 125 mg. per hundred cubic centimeters of blood.

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[27] Rohdenburg, G. L.: Thyroid Diabetes, Endocrinology 4:63 (Jan.-March) 1920.

[28] Pick, E., and Strauss, H., quoted by Hans Hirschfield: Erkrankungen der Milz, Berlin, Julius Springer, 1920, p. 232.

Table 3: Nine males and one female did not become glycosuric after partial pancreatectomy. The body weight ranged between 7 and 27.2 kg. Eight of ten became hyperglycemic. In one dog (Dog 20), vicarious hyperfunction of the pancreatic islets established itself eleven days after removal of the pancreatic tail, but the normal glycemia did not last. There was a greater increase in the glucose of the blood five days after the second pancreatectomy. Dog 12 did not become glycosuric, although 2.7 gm. of the pancreas per kilogram of body weight was removed.

Table 4: In these glycosuric dogs, the sugar from the urine disappeared after complete ligation of the thyroid vessels and after complete thyroidectomy, which was preceded by partial ligation when tetany did not occur. Partial ligation alone did not check the glycosuria. In Dog 28, the glycemia remained normal for two months, and the sugar tolerance was normal after thyroidectomy. The blood sugar also became normal in Dog 4 and, in Dog 18 it became normal when tetany was checked by calcium lactate injections. Partial ligation of the vessels did not have any influence on the glycemia.

Table 5: The blood sugar became normal in one of the hyperglycemic dogs (Dog 23) after complete thyroidectomy, and when tetany was kept in check by calcium lactate injections. The blood sugar in none of the dogs became normal after right-sided lobectomy. Dogs 24, 25 and 26 remained hyperglycemic after incomplete removal of the left lobe, although at first there was a drop of the blood sugar to normal. These dogs showed a tendency to obesity.

TABLE 4.—BLOOD SUGAR IN GLYCOSURIC DOGS

	Mg. Sugar per Hundred C.c. of Blood				
o.	After Total Ligation	After Partial Ligation	After Thyroidectomy	Dates	Comment
	192	...	...	Mar 7	Animal remained sugar free ten days after ligation
	90	...	...	Mar. 10	
	50	...	...	Mar. 14	
	180	...	...	Mar. 25	Blood sugar diminished after ligation; increased with tetany
	240	...	...	Mar. 30	
	...	214	...	April 17	Glycemia increased after partial ligation
	200	...	...	July 1	Remained sugar free for fourteén days
	172	...	...	July 5	
	213	...	...	July 14	Sugar free one day after ligation; reappearance of glycosuria with tetany
	...	...	95	Feb. 15	Persistent glycosuria after partial ligation; sugar free 108 days after thyroidectomy
			86	Mar. 9	
			66	April 15	
	...	285	...	Nov. 30	Increased blood sugar after partial ligation; sugar free on days when tetany free
			145	Dec. 2	
	...	310	...	Dec. 10	Increased blood sugar after partial ligation; sugar free on days when tetany was absent
			238	Dec. 17	
			100	Dec. 22	

SUMMARY

1. Diabetes mellitus is primarily a disease of the sular apparatus of the pancreas, with an actual pathogic condition in severe cases.

2. The low sugar tolerance in all cases of hyperyroidism suggests that the islands of Langerhans in is disease are always functionally affected, and that, casionally, histologic changes in them may occur in ose rare cases in which exophthalmic goiter and abetes mellitus are combined.

3. Since overactivity of the thyroid caused by pathologic alteration in the gland upsets the pancreatic islets, a pathologic condition of the latter may functionally affect the thyroid.

4. The fact that true myxedematous individuals are not liable to become diabetic, and that a spontaneous cure from diabetes mellitus may occur through hypoplasia of the thyroid, brought about by various unknown causes, is highly suggestive that complete removal of the thyroid in man might have a curative effect for the malady.

TABLE 5.—BLOOD SUGAR IN HYPERGLYCEMIC DOGS

	Mg. Sugar per Hundred C.c. of Blood				
No.	After One-sided Lobectomy	After Incomplete Removal of Second Lobe	After Complete Removal of Both Lobes	Dates	Comment
20	167	...	...	Mar. 4	Animal died from tetany four days after removal of second lobe
	181	...	...	Mar. 13	
23	...	...	102	Mar. 20	Blood sugar, in absence of tetany, normal; tetany prevented three days by calcium lactate injections
			100	Mar. 21	
			98	Mar. 22	
24	130	...	...	Mar. 28	Blood sugar became normal on April 12, but the glycemia remained high; great gain in weight
	152	...	...	April 1	
		143	...	April 2	
		185	...	April 4	
		100	...	April 12	
		137	...	April 24	
		123	...	May 2	
25	111	...	...	April 23	Drop in blood sugar to normal three days after lobectomy; glycemia remained high; gain in weight
		100	...	April 26	
		120	...	May 3	
26	105	...	...	April 24	Glycemia decreased at first, but become high; gain in weight
		100	...	April 27	
		124	...	May 3	
27	160	...	...	April 29	Blood sugar increased after removal of right lobe; animal died from tetany after removal of left lobe

5. That the removal must be a complete one becomes evident from clinical observations that subthyroidism and diabetes are found combined in the same individual.

6. The association of hyperglycemia with a tendency to obesity, in depancreatized nonglycosuric dogs after incomplete pancreatectomy, resembles the prediabetic state in man, i. e., hyperglycemia and increase in body weight.

7. Depancreatized glycosuric dogs become sugar free after complete ligation of the thyroid arteries or after thyroidectomy, preceded by partial ligation of the vessels, provided tetany or infection does not occur.

8. Partial ligation of the thyroid vessels or one-sided lobectomy has no effect in checking the glycosuria or the hyperglycemia.

9. From some considerations given in this discussion, it is probable that thyroidectomy in two sittings may be even more effective in human diabetes than in depancreatized dogs.

10. It is therefore suggested that complete thyroidectomy should be tried in the diabetes of children and in severe diabetes of adults who do not respond to the modern treatment.

63 East Eighty-Fourth Street.

ABSTRACT OF DISCUSSION

DR. WALTER M. BOOTHBY, Rochester, Minn.: An increase in carbohydrate tolerance is obtained by reducing the basal metabolism in patients with severe diabetes. This may be accomplished readily, as pointed out by Wilder, Boothby and

Beeler, by an appropriate reduction in the total calories ingested and by keeping the protein intake low. A reduction in the basal metabolism can also be obtained by removal of the thyroid gland, but with many secondary disadvantages. The reduction in the basal metabolism and also the total metabolism probably explains the results obtained by Friedman and Gottesman. However, to infer that thyroidectomy is a desirable method of decreasing the basal metabolism, and thereby possibly increasing the sugar tolerance in diabetes is, I think, not the intent of the paper.

Dr. Charles W. Greene, Columbia, Mo.: It seems rather apropos of this paper, since Dr. Boothby did not mention this fact, to state that, in the first week of this month in Washington, Dr. J. J. R. Macleod reported an investigation in his laboratory in which they are isolating and testing the internal secretion of the pancreas. In diabetes experimentally produced they are able actually to get a deposit of glycogen in the liver if the amount of sugar in the blood is augmented by injection at the time of injecting the internal secretion of the pancreas. That fact has never been demonstrated before. It would seem that the Toronto laboratory is producing an extract of pancreas in which an internal secretion is prepared in sufficiently pure form for experimental purposes. At the time of the announcement, the encouraging promise was extended of a preparation pure enough for therapeutic purposes, applicable to the rather hopeless cases of pancreatic diabetes.

Dr. Arno B. Luckhardt, Chicago: If I understood Dr. Boothby correctly, he inferred that animals which had suffered partial or complete thyroidectomy were extremely sluggish. Dr. Dragstedt and I have animals alive months after complete thyroparathyroidectomy. These animals are extremely active. No amount of thyroid feeding has changed them in the slightest degree. The question of the importance of the thyroid to the dog is interesting; one cannot produce symptoms of myxedema in the dog. You can remove both lobes and all four parathyroids without changing the animal in the least degree.

Dr. A. J. Carlson, Chicago: It is difficult to predict what will happen to the blood sugar in a dog on which a partial pancreatectomy has been performed. Even though we try to remove enough of the organ to produce the Sandmeyer type of diabetes, we cannot predict whether the dog will be partially diabetic for one, two or three weeks and then spontaneously recover and be perfectly normal so far as sugar tolerance is concerned, or whether he will gradually go down. The authors use the term pancreatectomy a little too loosely. While they give a number of experiments, I am not sure that the hyperglycemia they described has anything to do with the operation of the thyroid. I do not deny, of course, the fact that occasionally glycosuria and real diabetes are associated with toxic goiter, but, by the law of chance, we are going to have these together in one person, particularly in races having a higher percentage of toxic goiter as well as of diabetes. If the pancreatic diabetes is causally connected with thyroid hyperactivity or hypoactivity, that fact would have been brought out by the clinical condition more clearly than it is at present. I should like to emphasize the point that Dr. Luckhardt has brought out, that the story of thyroid function is by no means clear in all animals. Years ago, I fed from 10 to 20 gm. a day of desiccated (therapeutic) thyroid to dogs, without loss of body weight. We did not follow the basal metabolic rate, but one of the workers in our laboratory is following that at present and so far as this work goes, feeding dried thyroid to dogs, in ten times the therapeutic dose given to man, has not influenced the basal metabolic rate.

Dr. G. A. Friedman, New York: I think it would be worth while to study the basal metabolism in depancreatized and thyroidectomized dogs. It is rather difficult to answer the question as to what the metabolic rate would be in such animals. However, the actual metabolic changes in them, from a practical standpoint, are unimportant. Our aim was to show the disappearance of glycosuria in depancreatized dogs after complete thyroidectomy or complete ligation of the thyroid vessels, when tetany did not occur. It was possible to free a dog from glycosuria after thyroidectomy. The animal gained considerably in weight and was lively, being on a liberal diet throughout. It is our impression that depancreatized and thyroidectomized dogs do not show signs of myxedema as compared with the stuporous condition of thyroidectomized nondiabetic dogs, which was noted by one of us in experiments performed some years ago. The thyroidectomized normal animals are not so liable to develop tetany as diabetic dogs. Pancreatic extracts, but not the actual insular products, were administered intravenously to diabetic dogs by Meltzer and Kleiner. They showed that glycosuria was checked as long as injections were given. It is possible that the recently discovered endocrine product from the pancreas will have a transitory effect in diabetics similar to that of epinephrin in Addison's disease. One may succeed in raising blood pressure through injections of the drug for a short time, but one cannot obtain permanent results. In regard to Dr. Carlson's remark, our paper was practically an abstract and he will find more convincing evidence in the original. There is some evidence in the literature that the histologic picture in depancreatized dogs corresponds to the picture in overactivity. Our own histologic studies of the thyroids in depancreatized dogs we reserved for another paper. I believe it is of equal importance to investigate the iodin content of the thyroids in diabetic dogs. Such work is already in progress.

DIFFERENTIAL DIAGNOSIS OF DIABETES BY MEANS OF GLUCOSE TOLERANCE *

HENRY J. JOHN, M.D.
CLEVELAND

Given a case with sugar in the urine, is one justified in concluding that "This is a case of diabetes"? In my judgment it may or it may not be; and, on the other hand, a case without sugar in the urine may be a case of diabetes, as can be clearly demonstrated by blood sugar determination. A fasting hyperglycemia means diabetes; and sugar in the urine alone means simply that the renal filter is permeable to sugar—nothing more. This permeability of the renal filter varies with the individual, and may be present at any concentration of sugar in the blood from 45 to 348 mg. per hundred cubic centimeters. The renal filter of every person is permeable at some point between these extremes. It is incorrect to consider the permeability at 170 mg. per hundred cubic centimeters as normal, and therefore the term "individual permeability" should be substituted for "normal permeability," the "individual permeability" in any case being the normal permeability for the person in question. The individual permeability probably varies with age and with disease, just as blood pressure does, a point which has never been investigated. We do know, however, that the individual permeability is increased in cases of untreated diabetes (Macleod). A person with a renal permeability when his blood sugar content is 45 mg. per hundred cubic centimeters is in apparently as good health as the one with a renal permeability at 200 mg. Both are apparently well, for no pathologic condition can be demonstrated, clinically. Thus we must assume that each of these extremes is normal for the individual in question.

To illustrate the value of glucose tolerance estimations as a means of differential diagnosis, and the inaccuracy of urine examination alone, I am offering the reports of six cases with the blood sugar chart of each.

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* From the Cleveland Clinic.

It may be well to state that I consider that glucose tolerance studies are definitely indicated in the presence of:

1. Glycosuria.
2. Sudden obesity.
3. Diabetes, chiefly to determine the severity of the condition and the renal permeability.
4. Hyperglycemia, as revealed by the routine blood sugar estimation.
5. The presence of fasting blood sugar to the amount of from 125 to 135 mg. per hundred cubic centimeters, and of blood sugar three hours or more after the last meal to an amount above 120 mg. per hundred cubic centimeters.
6. The familial occurrence of diabetes, to separate children who have the diabetic tendency from those who are perfectly normal.

PROCEDURE

The first blood specimen in each case is taken in the morning before any food has been taken, after which glucose is given as described below and no other food is taken during the intervals between the successive blood tests. During the period of four or more hours required for the complete study, each patient remains in a private room where he is at liberty to sit up and read or to lie down as he chooses.

Whenever possible, the patient is advised not to urinate in the morning until his arrival at the clinic, in order that the urine may be secured just before the test. In any case the bladder is emptied before the first test is made. This accounts for the large amount of urine in the first specimen in some of the cases. This amount, however, is not included in the calculation of the total output of urine during the period covered by the study, as this always starts with an empty bladder. This initial specimen is used only as a control, to see whether or not the patient "starts" with a glycosuria.

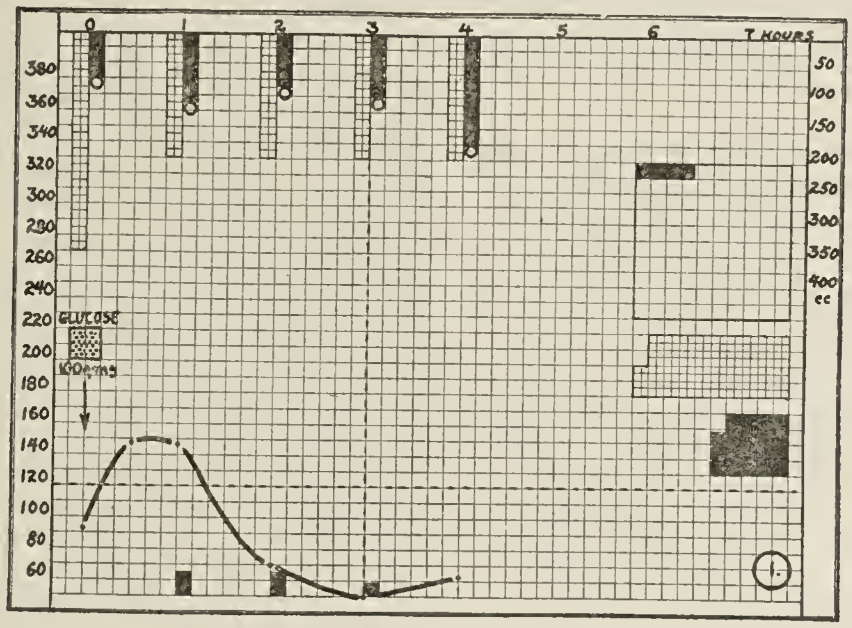

Chart 1.—Blood sugar in Case 1.

The first specimen of blood amounts to about 12 to 19 c.c. in order to have a sufficient amount for the determination of chlorids, urea, uric acid, creatinin, and for the Wassermann reaction, etc., in addition to the blood sugar estimation. From 6 to 8 c.c. is taken for each of the subsequent tests.

Following the taking of the first specimen, the patient is given 100 gm. of anhydrous glucose dissolved in from 250 to 350 c.c. of water to which the juice of one or two lemons has been added. This solution is less nauseating if it is ice cold. The time is noted, and specimens of blood are taken at the end of one-half hour, one hour, and two, three and four hours. At the end of each hour the patient voids, each time in a separate jar, and is given 200 c.c. of cold water to drink. The last water taken is not included in the total water intake, however, as no later specimen of blood is taken.

On each sample of blood four observations are made: (1) sugar content of whole blood; (2) sugar content of plasma; (3) sugar content of corpuscles, and (4) corpuscle volume.

On each specimen of urine these observations are made: (1) total volume; (2) specific gravity; (3) presence or absence of sugar, qualitatively determined by the Benedict reagent, and (4) sugar content, quantitatively estimated by the Benedict method.

The blood sugar estimation is made by Myer's modification of Benedict's method, the Kober calorimeter being used. The estimation of the corpuscle volume is made by centrifuging the oxalated blood at the rate of 3,000 revolutions a minute for ten minutes.

EXPLANATION OF CHARTS

The checkered columns at the top of the charts indicate the water intake; the solid black columns at the top indicate the urine output. The total intake and output during the period of four hours or more is indicated by a like marking at the lower right corner of the chart. The circles at the lower ends of the black columns indicate the presence of sugar in the urine.

The broken horizontal line opposite 120 is the normal level of blood sugar, i. e., 120 mg. per hundred cubic centimeters of blood. The broken vertical line opposite 3 hours indicates the period within which, in normal persons, the blood sugar content again becomes normal after the ingestion of the standard dose of glucose. The heavy curve represents the blood sugar content at the designated periods. The dots which break the glucose tolerance curve indicate the intervals at which blood was taken for sugar estimation. Each solid black column at the bottom of the charts represents the sugar content of the urine output indicated by the corresponding solid black column at the top of the chart. Each square included in these lower columns represents 1 gm. of sugar, and the total sugar output—the sum of these squares—is indicated by the solid black portion of the large square at the right of the chart, which includes 100 squares, representing 100 gm. of glucose—the total sugar intake.

REPORT OF CASES

Case 1.—*History.*—A man, aged 32, an upholsterer, married, whose wife was living and well and had one child in good health, and whose past history was negative, several years ago had an appendectomy, and the glands in the groin were incised and drained. He was referred by his factory physician, who had discovered sugar in the urine, following which he turned him over to his family physician, who gave him some medicine which was imported from Germany. He prescribed gluten bread and plenty of water, and told the patient to eat but little meat, no vegetables, no sugar and no flour. It is self-evident that no sensible human being will confine himself to such a dietary regimen, nor did this patient. During subsequent investigation the factory physician found that the patient was not improving, and sent him to the clinic. The man showed a fasting blood sugar content of 92 mg. per hundred cubic centimeters—a perfectly normal amount. Sugar was present in the urine, however, throughout the test. The highest rise of blood sugar appeared at the end of half an hour; in one and one-half hours the blood sugar content, as shown by the curve, was normal. The blood sugar curve was that of a perfectly normal person, like my own, for example, as shown in Curve 2, Chart 7.

The patient received 950 c.c. of water by mouth during the four hours of the test, and put out 470 c.c. of urine. The ingestion of glucose was 100 gm. Of this he excreted 3.84

gm. in the urine, as follows: first hour, 1.485 gm.; second hour, 1.445 gm.; third hour, 0.91 gm.; fourth hour, only a trace. It appears, then, that this man's kidneys were moderately permeable for sugar, the permeability of his renal filter being below 120 mg. per hundred cubic centimeters. The coincident blood examinations showed plasma chlorids, 605 mg. per hundred cubic centimeters; blood urea, 21 mg.; blood creatinin, 1.5 mg., and blood uric acid, 2 mg. per cubic centimeters. The Wassermann reaction was negative.

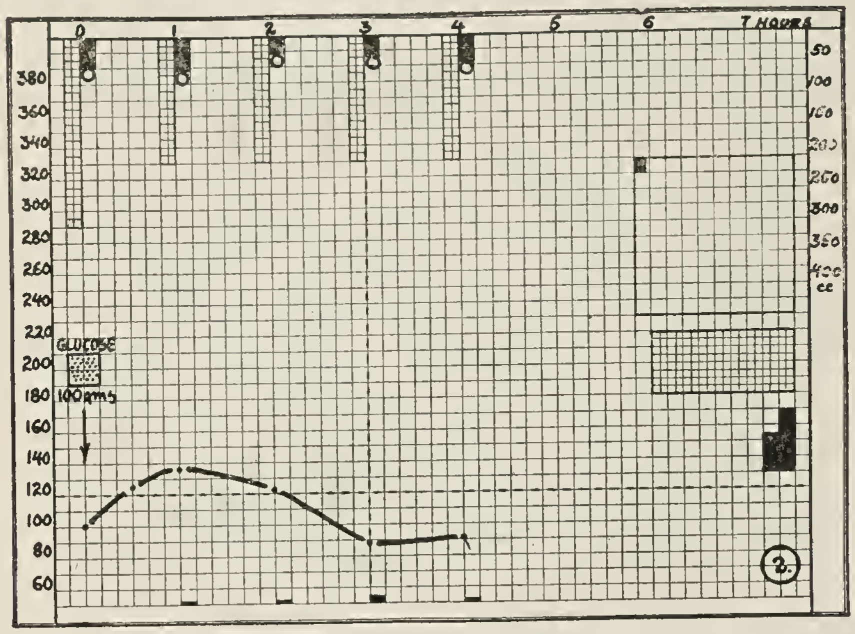

Chart 2.—Blood sugar in Case 2.

Comment.—In this case a young man, in good health, with a good carbohydrate tolerance, but with kidneys which were permeable to less than the normal blood sugar content, was subjected to an unnecessary and dangerously depleting dietary. In this type of individual, the presence of sugar in the urine does not mean anything and there is no reason to expect that this person will develop diabetes unless a pancreatitis develops from an intercurrent infection or from some other cause. Glycosuria in this man is not diabetes.

Case 2.—*History*.—A physician, aged 44, married, with two children in good health, whose father died of diabetes, when 9 years of age had measles which was followed by a protracted cough. He came to the clinic with a diabetophobia, being quite certain that he had diabetes since he showed sugar in the urine, for which he had been treating himself for several years without avail. The patient was a slender, thin man with negative physical findings outside of fibrosis of both apexes. No tubercle bacilli were found. His highest weight had been 130 pounds; the present weight, 112 pounds. His fasting blood sugar was 100 mg. per cubic centimeters. After the ingestion of 100 gm. of glucose, the highest rise of blood sugar came at the end of one hour, at which time it was 136 mg. per hundred cubic centimeters. The normal content was again reached in little more than two hours. Sugar was present in the urine throughout the period of the test. Thus, although his blood sugar was below normal, this patient still showed glycosuria. The total intake of water during this period was 900 c.c.; total urine output, 162 c.c.; total sugar intake, 100 gm.; total sugar output, 0.775 gm., excreted as follows: first hour, 0.13 gm.; second hour, 0.13 gm.; third hour, 0.37 gm.; fourth hour, 0.14 gm. The plasma chlorids were 575 mg. per hundred cubic centimeters; blood urea, 35 mg. per hundred cubic centimeters; Wassermann reaction, negative.

Comment.—This patient, a middle aged man, a physician, scared to death of diabetes, had been subjecting himself to a low diet because he had glycosuria. This glycosuria was due to the permeability of his renal filter and not to hyperglycemia. Thus, he was not a diabetic, since he had a good carbohydrate tolerance.

Case 3.—*History*.—A woman, aged 30, married, with two children living and well, had passed the menopause two years before. Her family history was negative. She had otitis media five years before; she had had none of the diseases of childhood. Her complaint was that she had had diabetes for the last three years, which had been ushered in with the usual symptoms—marked thirst, polyuria and polyphagia. Her physician treated her with some medicine imported from Germany. She did not adhere to any diet, resting her hope on the German medicine. The physical examination disclosed a slight cataract, a slight enlargement of the thyroid, and no teeth; otherwise it was negative. The blood pressure was 170 systolic and 100 diastolic. There was a slight sclerosis of the palpable arteries. Repeated Wassermann tests were negative. The blood examination revealed: plasma acetone, negative; urea, 30 mg. per hundred cubic centimeters; nonprotein nitrogen, 26 mg.; plasma chlorids, 635 mg.; phenolsulphonephthalein functional test, 50 per cent. excretion in the first hour. The fasting blood sugar was 234 mg. per hundred cubic centimeters. After the ingestion of 100 gm. of glucose it rose to 500 mg. at the end of two hours, after which it gradually returned to the normal, as is shown by Chart 3. In spite of the high blood sugar content, there was no sugar in the overnight specimen of urine. Sugar appeared in the urine, however, with rise of the blood sugar. The water intake was 850 c.c.; the urine output, 700 c.c.; the sugar intake was 100 gm.; the sugar output, 8.95 gm., as follows: first hour, 0.816 gm.; second hour, 2.34 gm.; third hour, 3 gm.; fourth hour, 2.8 gm.

Comment.—This case was definitely one of severe diabetes with marked hyperglycemia but only transient glycosuria. The glucose tolerance test gave a definite diabetic curve with the excretion of a considerable quantity of sugar. This case shows the importance of the blood sugar estimation in establishing the diagnosis of diabetes, as the diagnosis would have been obscured by urinary analysis alone.

Case 4.—*History*.—A physician, aged 50, married, whose family history was of no consequence, had had abdominal pain and diarrhea while in the army, losing about 40 pounds while in camp. Following this he had pain in the back for about a year. This returned six weeks before he came to the clinic, when he was running after a car. Six weeks before he had had influenza and he had felt bad ever since. He had been very thirsty of late and had passed much urine of high specific gravity, and containing sugar. Three months before there was no sugar in the urine. The patient was large and well-built, with a blood pressure of 140 systolic and 90 diastolic; there were no other pathologic findings. Blood examination revealed: blood sugar, 374 mg. per hundred cubic centimeters; blood urea, 36 mg.; blood chlorids, 625 mg.; blood creatinin, 1.1 mg.; blood uric acid, 6 mg., and blood nonprotein nitrogen, 21 mg. per hundred cubic centimeters. Examination of the urine disclosed the presence of sugar, 3 plus; the Wassermann reaction was negative. A glucose tolerance test six days later gave the following results: fasting blood sugar, 222 mg. per hundred cubic centimeters; after the ingestion of 100 gm. of glucose, the

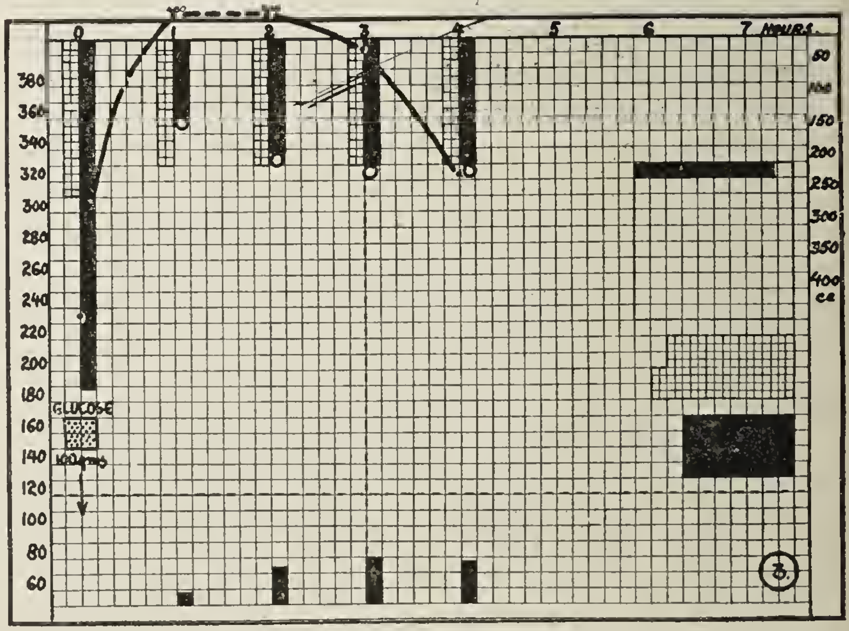

Chart 3.—Blood sugar in Case 3.

highest point, 428 mg., was reached at the end of one hour, and the return toward normal was slow (Chart 4). The total water intake was 925 c.c.; total urine output, 470 c.c.; total sugar intake, 100 gm.; sugar output, 10.04 gm., as follows: first hour, 0.9 gm.; second hour, 3 gm.; third hour, 3.4 gm.; fourth hour, 2.66 gm.

Comment.—In this case there was a marked fasting hyperglycemia, yet there was no sugar in the overnight specimen of urine. The case was definitely that of a diabetic. The patient's renal permeability was high, at some point between 200 and 300 mg. per hundred cubic centimeters. Were one to follow such a case by urinary analysis alone, the patient could carry a blood sugar content of about 200 mg. per hundred cubic centimeters with sugar-free urine, and the destructive process of diabetes would go unchecked.

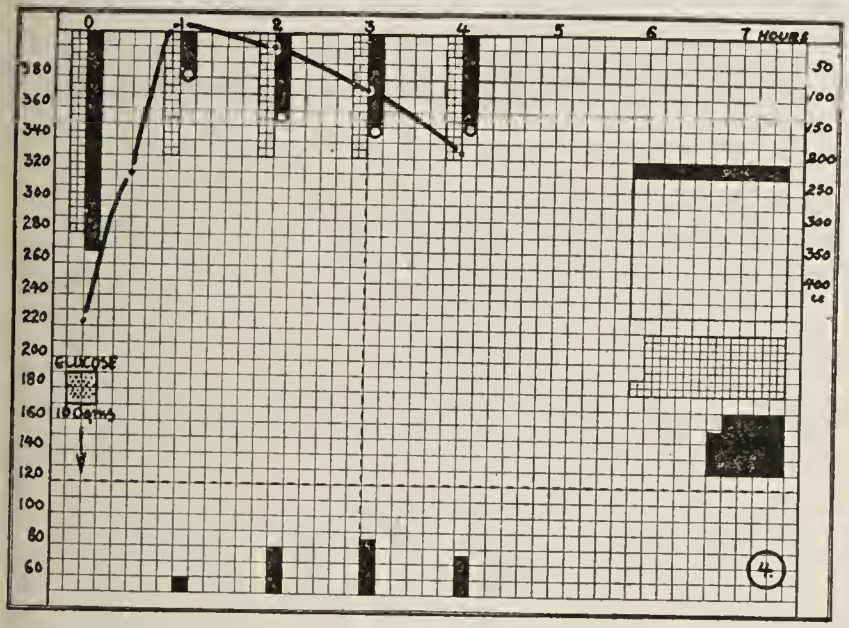

Chart 4.—Blood sugar in Case 4.

CASE 5.—*History.*—A woman, aged 18, came to the clinic knowing that she had diabetes. Her mother and grandmother died of diabetes. She had been weak all her life. One year before, ulcer of the stomach had been diagnosed, and she had been kept on a Sippy treatment for months. During the last two years her weight had dropped from 130 to 95 pounds. The urine had been examined frequently on account of her family history, but no sugar was found until two months before she came to us. She was very nervous, and had swollen ankles. During the last two months she had been on the Allen treatment, but was not improving. The patient was a slender, thin girl with a pale skin; the blood pressure was 100 systolic and 70 diastolic; there was slight edema of the extremities; otherwise the patient was normal. Urine examination revealed sugar and a few granular casts; the blood examination revealed blood sugar, 324 mg. per hundred cubic centimeters; blood urea, 12 mg.; blood uric acid, 4.3 mg.; blood chlorids, 585 mg.; blood creatinin, 2.3 mg., and nonprotein nitrogen, 18.2 mg. per hundred cubic centimeters; plasma carbon dioxid, 51.9. The Wassermann reaction was negative. A glucose tolerance test gave the following findings: fasting blood sugar, 272 mg. per hundred cubic centimeters; after the ingestion of glucose the blood sugar curve rose and kept on rising to 584 mg. at the end of four hours, when the test was discontinued (Chart 5). The first urine specimen showed sugar, as did all the others. The water intake was 980 c.c.; urine output, 615 c.c.; sugar intake, 100 gm.; sugar output, 20.81 gm.: first hour, 1.87 gm.; second hour, 4.78 gm.; third hour, 5.80 gm.; fourth hour, 8.36 gm.

Comment.—This is a definite case of severe diabetes, the onset and early stages of which had been overlooked in spite of the fact that, on account of the diabetic history in her family, she had been watched closely—but by urine examination only. This would have been an ideal case for an early diagnosis. If a glucose tolerance test had been made years ago, the prediabetic condition[1] would have been manifested by a decreased tolerance of carbohydrates; and by a slight reduction of her carbohydrate intake and a checking up from time to time, the girl, no doubt, would have been kept nondiabetic, although with a somewhat lowered tolerance for carbohydrates in contrast to her present condition—that of a severe, very severe, diabetic with but little hope for the future. Such cases as this make one think seriously of the responsibility of protecting the children of diabetic parents. Therein lies the solution of the diabetic problem—prevention rather than treatment.[2]

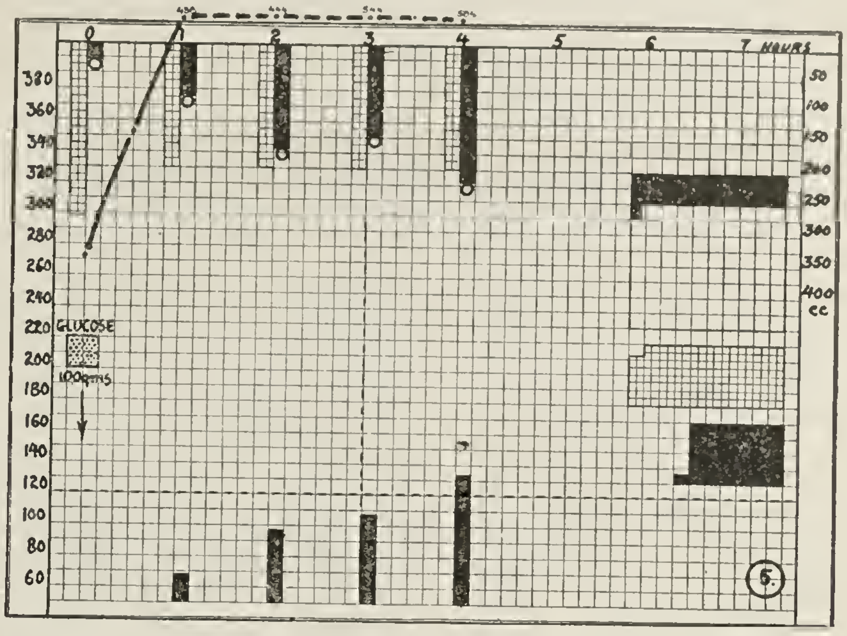

Chart 5.—Blood sugar in Case 5.

CASE 6.—*History.*—An Italian woman, aged 30, married, with three living and healthy children, with negative family history and a personal history of no significance, complained chiefly of thirst. Her family physician had found sugar in the urine, and she came to the clinic to verify the statement that she had diabetes. Her present illness had lasted for five months, during which she had had marked thirst and polyuria, with itching about the genitals. During this time she had lost 17 pounds in weight. She was well developed but poorly nourished, and appeared ill. Her face was slightly flushed; the pupils reacted to light and accommodation. There was marked pyorrhea alveolaris; the tongue was coated. There was no thyroid or glandular enlargement. The heart and lungs were quite normal. The blood pressure was 124 systolic and 80 diastolic. The temperature was 98.2. The abdomen and extremities were negative. The reflexes were equal and active. The skin was dry and harsh. The blood sugar was 306 mg. per hundred cubic centimeters; blood chlorids, 565 mg.; blood urea, 21 mg.; blood creatinin, 1.2 mg.; blood uric

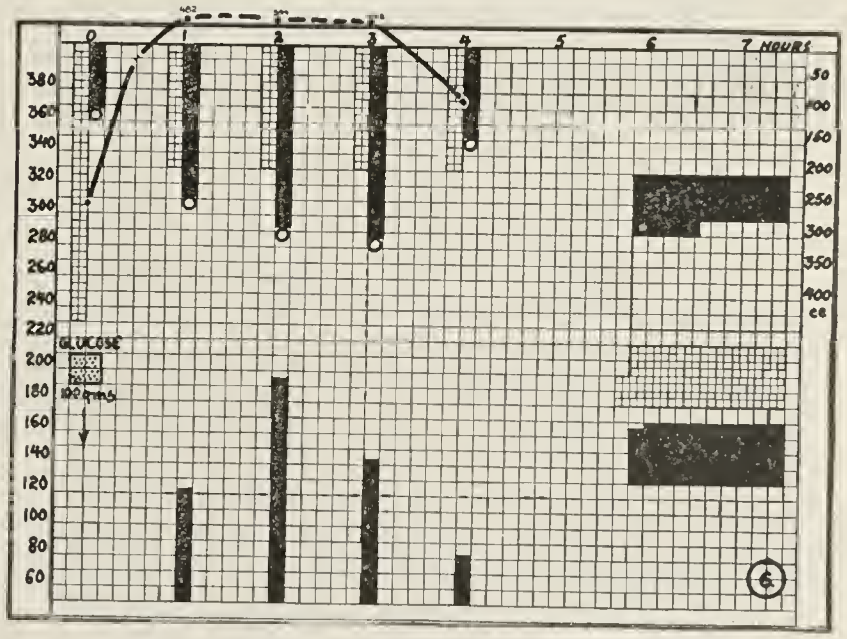

Chart 6.—Blood sugar in Case 6.

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[1] John, H. J.: Ohio State M. J. **17**: 826 (Dec.) 1921.

[2] This patient has died since the article was written.

acid, 2.5 mg., and blood nonprotein nitrogen, 23 mg. per hundred cubic centimeters; plasma carbon dioxid, 85.3; plasma acetone, negative. The Wassermann reaction was negative. The glucose tolerance test showed fasting blood sugar, 306 mg. per hundred cubic centimeters, the highest rise of 544 mg. being reached at the end of two hours. A gradual return toward the normal followed; the sugar being still 374 mg. per hundred cubic centimeters at the end of four hours (Chart 6). The water intake was 1,050 c.c.; urine output, 990 c.c.; sugar intake, 100 gm.; sugar output, 34.34 gm., as follows: first hour, 7.35 gm.; second hour, 14.50 gm.; third hour, 9.30 gm.; fourth hour, 3.19 gm.

Comment.—This case shows a typical onset of diabetes, without any apparent cause. Italians are known to partake heavily of flour preparations, macaroni, bread, pastries, etc. There is no doubt that this patient had originally a weakened tolerance for carbohydrates. The pancreas withstood the slight but continuous overstrain until it finally "gave out" and could no longer utilize the carbohydrates. The glucose tolerance curve is that of a typical diabetic. We were unable to determine the renal permeability, since the patient started with glycosuria; all we can say is that it lies below 300 mg. for each hundred cubic centimeters.

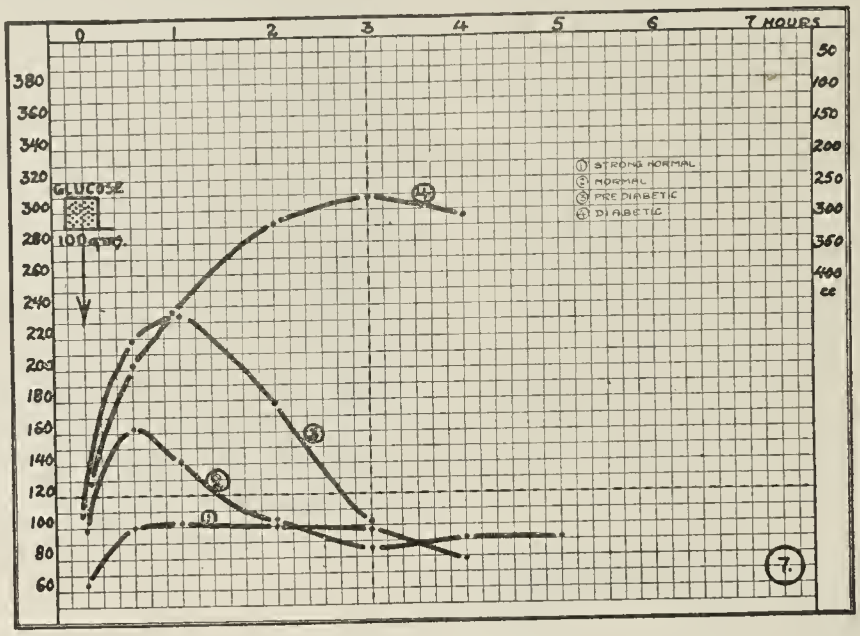

Chart 7.—Typical curves

SUMMARY

The important points that are emphasized by a study of these cases are:

1. The lack of sugar in the urine in typical cases of severe diabetes with a high blood sugar (Cases 3 and 4). These patients undoubtedly do have sugar in the urine periodically, and one may or may not discover it at the time of examination; for often a diabetic needs only to reduce his diet somewhat and to drink a lot of water, in order to become sugar free. In this way the diagnosis may be missed for a long time.

2. Sugar in the urine with a normal glucose tolerance (Cases 1 and 2). These patients had been diagnosed as diabetics, because they had sugar in the urine, and had been subjected to a rigid diet. But they were not diabetics. They had permeable renal filters—thus, the glycosuria. Such cases as these emphasize the point that one cannot afford to stop with the urinary examination alone—blood sugar estimation is essential, with the glucose tolerance test as a final proof.

Many persons like these two have been rejected by the insurance companies in the past—have been considered as bad risks, as diabetics—when in reality they were exceedingly good risks—were perfectly normal individuals.

On the other hand, the same insurance companies have accepted many cases of the Types 3 and 4, just because they had no sugar in the urine, when in reality they had severe diabetes, and were thus exceedingly bad risks. Furthermore, even when a blood sugar estimation is made, what is easier than for a diabetic to go on a low diet, bring the blood sugar to normal, and then present himself for a life insurance

TABLE 1.—DIABETIC PATIENTS SHOWING NO GLYCOSURIA

	Fasting				1 Hour Later		2 Hours Later		3 Hours Later		4 Hours Later		
Case Number	Blood Sugar, Mg. per 100 C.c.	Urine Sugar		½ Hour Later: Blood Sugar, Mg. per 100 C.c.	Blood Sugar, Mg. per 100 C.c.	Urine Sugar	Blood Sugar, Mg. per 100 C.c.	Urine Sugar	Blood Sugar, Mg. per 100 C.c.	Urine Sugar	Blood Sugar, Mg. per 100 C.e.	Urine Sugar	Total Output of Sugar Gm.
7	172	Neg	100 gm. of glucose by mouth	265	329	Plus	225	Plus	153	Plus	140	Neg.	0.690
8	126	Neg.		208	227	Plus	267	Plus	226	Plus	170	Plus	4.728
9	132	Neg.		254	256	Plus	241	Plus	208	Plus	150	Neg.	.....
10	155	Neg.		214	267	Plus	334	Plus	334	Plus	175	Plus	.....
11	104	Neg.		206	230	Plus	300	Plus	193	Plus	176	Plus	.....
12	134	Neg.		230	272	Plus	309	Plus	214	Plus	167	Plus	.....
13	200	Neg.		263	333	Plus	250	Plus	192	Plus	194	Plus	.....
14	250	Neg.		334	460	Plus	438	Plus	214	Plus	136	Plus	.....
15	192	Neg.		346	352	Plus	280	Plus	238	Plus	184	Plus	3.04
16	155	Neg.		286	374	Plus	368	Plus	306	Plus	210	Neg.	4.54
17	196	Neg.		315	356	Plus	411	Plus	310	Plus	237	Plus	5.58
18	203	Neg.		300	364	Plus	377	Plus	405	Plus	146	Neg.	11.84
19	233	Neg.		323	376	Plus	420	Plus	265	Plus	157	Neg.	10.86
20	237	Neg.		383	424	Plus	485	Plus	428	Plus	273	Plus	19.90
21	230	Neg.		373	437	Plus	511	Plus	557	Plus	...	.....	8.51
22	129	Neg.		202	233	Neg.	291	Plus	308	Plus	296	Plus	6.03
23	234	Neg.		382	460	Plus	500	Plus	404	Plus	324	Plus	8.956
24	222	Neg.		319	428	Plus	400	Plus	374	Plus	334	Plus	10.04

TABLE 2.—NONDIABETIC GLYCOSURIA

	Fasting				1 Hour Later		2 Hours Later		3 Hours Later		4 Hours Later		
Case Number	Blood Sugar, Mg. per 100 C.c.	Urine Sugar		½ Hour Later: Blood Sugar, Mg. per 100 C.c.	Blood Sugar, Mg. per 100 C.e.	Urine Sugar	Blood Sugar, Mg. per 100 C.e.	Urine Sugar	Blood Sugar, Mg. per 100 C.c.	Urine Sugar	Blood Sugar, Mg. per 100 C.e.	Urine Sugar	Total Output of Sugar Gm.
25	75	Plus	100 gm. of glucose by mouth	117	59	Plus	53	Plus	63	Plus	62	Neg.	0.207
26	74	Plus		148	115	Plus	65	Neg.	70	Neg.	67	Neg.	0.267
27	100	Plus		125	136	Plus	123	Plus	89	Plus	91	Plus	0.773
28	121	Plus		127	130	Plus	117	Plus	143	Plus	73	Plus	.....
29	111	Plus		151	145	Plus	77	Plus	77	Plus	88	Plus	0.206
30	89	Plus		62	143	Plus	108	Plus	55	Neg.	72	Neg.	1.297
31	99	Plus		162	141	Plus	103	Plus	77	Plus	91	Plus	0.037
32	120	Plus		174	151	Plus	98	Plus	106	Neg.	83	Neg.	0.500
33	103	Plus		184	161	Plus	103	Plus	91	Plus	81	Neg.	0.114
34	103	Plus		123	145	Plus	117	Plus	100	Neg.	..	.....	0.287

examination and successfully pass the test? But, while a patient with a severe case of diabetes can temporarily bring his blood sugar to normal or can render his urine sugar free, yet no diabetic or prediabetic patient (which is just as important) can produce a normal blood sugar curve after the ingestion of 100 gm. of glucose. This will always be of the diabetic type, and will reveal the true state of affairs.

CONCLUSION

1. In the presence of sugar in the urine, before a diagnosis of diabetes can be definitely established, a fasting blood sugar estimation should be made to ascertain whether the urinary sugar is due to a true diabetes or merely to a permeable renal filter.

2. The true carbohydrate tolerance of a person can be obtained by glucose tolerance estimation such as has been outlined in this paper.

3. Children with a diabetic inheritance should always be subjected to a glucose tolerance test, as the development of diabetes can thus be established before the ordinary tests can give any clue.

4. The presence of glycosuria indicates one of two things: (1) a true disturbance of carbohydrate metabolism, i. e., diabetes, or (2) a permeable renal filter, i. e., not diabetes.

Euclid Avenue at Ninety-Third Street.

STUDIES ON THE THERMAL DEATH TIME OF SPORES OF CLOSTRIDIUM BOTULINUM

PRELIMINARY REPORT *

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SAN FRANCISCO

As a part of the investigation of botulism in California, experiments were undertaken at Stanford University to determine the thermal death time of the spores of *Clostridium botulinum* under conditions which may apply in the processing of preserved foods. It is proposed to publish the details of this investigation in monograph form in the Stanford University Publications, but because of the importance of some of the observations it is deemed advisable to place them on record in a preliminary report.

The secret of obtaining sufficient quantities of spores for the investigation was found to lie in providing a medium suitable for rapid and profuse growth of the organism. There is considerable variation in the growth of *Clostridium botulinum* under given conditions, and unless there is a profuse initial vegetative growth the occurrence of sporulation is very scanty. The majority of strains examined grew well and produced numerous spores in peptic digest glucose broth of p_H 7.0 to 7.5, but for some strains it was necessary to provide gelatin-vegetable-juice mixtures, pea gelatin, spinach gelatin or bean gelatin, and, for others, brain or meat mediums in order to obtain sufficient spores.[1]

In every instance the purity of the strain was carefully tested before the medium was inoculated. The cultures were incubated at 37 C. for two weeks and then stored at room temperature. The contents of each bottle were tested for purity of growth before they were used in heating experiments, and the number of spores per cubic centimeter was determined by actual count in an Elei counting chamber. Preliminary resistance tests were made of forty strains from which the more resistant were selected for subsequent experiments.

In the earlier experiments we adopted the method of heating the spores which was recommended by Bigelow and Esty,[2] with minor modifications; but because of the difficulty in preventing contamination when several hundred tubes were inoculated daily, a closed tube technic, which was described in a previous report,[3] was substituted. In this closed tube technic the spores are added to the medium in which they are to be incubated, and the mixture is sealed into small glass tubes before it is heated. There can thus be no contamination of the spore-bearing mixture after it has been heated, and any growth which may occur within the tube must be from some spore or bacterium which has survived the heating process. It is believed that this absolute prevention of contamination more than offsets any disadvantages which may lie in the sealed tube method.

The tubes were heated in electric oil baths in which the temperature was kept constant by thermostatic regulation and the oil actively agitated by a mechanical stirring device. The temperature was closely checked by means of several thermometers suspended in different portions of the bath.

The time required for penetration of the heat into the tube, i. e., the lag, was determined in each experiment by standardized thermometers immersed in oil within tubes, since this method was demonstrated by means of thermocouples to approximate closely the readings obtained in the sealed tubes. The error which exists is on the side of safety, since it requires slightly longer for the thermometer to register than is actually demonstrated by the thermocouple.

After the tubes were heated they were immediately cooled and labeled, and were incubated at 37.5 C. for one month, after which they were kept at room temperature. When growth was observed they were incubated again at 37.5 C. for ten days to allow for toxin formation. The contents of the tubes were then tested for characteristic growth and the presence of virulent toxin.

In this report, unless the contrary is specifically stated, all results were obtained by the closed tube method of heating.

RESULTS

1. There is very marked variation in the heat resistance of spores of different strains of *Clostridium botulinum*. In the preliminary open tube tests of forty strains heated at 100 C. it was found that the survival times varied between thirty minutes and six hours. Some of the most resistant strains were Type A and some were Type B.

2. There is considerable variation in the resistance of spores in the same culture of the same strain of

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* From the Laboratory of Experimental Medicine, Stanford University Medical School.

* These experiments are a part of an investigation on botulism which was made in California by the U. S. Public Health Service, Stanford University and the University of California under a grant from the National Canners' Association, the Canners' League of California and the California Olive Association.

[1] The formulas for the different mediums will be discussed in the later report.

[2] Bigelow, W. D., and Esty, J. R.: The Thermal Death Point in Relation to Time of Typical Thermophylic Organisms, J. Infect. Dis. **27**: 602 (Dec.) 1920.

[3] Dickson, E. C., and Burke, G. S.: A Method for Determining the Thermal Death and Time of the Spores of Bacillus Botulinus, Proc. Soc. Exper. Biol. & Med. **19**: 99, 1921.

Clostridium botulinum. When series of duplicate sets of tubes are heated, it is noted that there is no sharp line of demarcation on one side of which it can be said that all the tubes show growth and on the other side of which all are sterile. There is considerable irregularity, with the occurrence of skips, which show that in some tubes which have been submitted to a longer exposure to heat, the spores have survived, whereas in others in which the exposure was considerably shorter, they were all destroyed. Similar results were observed by actual count of surviving bacteria in sets of agar tubes. In the tubes which show surviving spores there is a gradual decrease in the number up to a certain point, at which the drop is sudden and beyond which but few survive. Beyond this point there may be persisting growth after considerably longer exposures to heat, although only one or two colonies develop in each tube.

From observations based on approximately 40,000 tubes, it appears that about 95 per cent. of the spores are destroyed comparatively quickly, and that among the remaining 5 per cent. there are a few spores which are much more resistant. If this is true, it explains why only a few tubes in a series show the maximum heat resistance time, or a few cans in a pack show botulinus contamination, and also suggests as a reason for the average lower resistance time when but few spores are present in the heating mixture, that among the few spores there is less probability of a highly resistant spore being present.

3. There may be very marked delay of germination of spores of *Clostridium botulinum* after they have been heated. In practically all experiments it was noted that some of the tubes would remain apparently sterile for weeks or months after the others had shown growth, but would eventually show vigorous growth with toxin formation. The longest delay which has thus far been observed is 330 days.

The causes of this delayed germination of heated spores are not yet apparent. An analogous condition occurs in normal, unheated botulinus spores, but has not been demonstrated for so long a time. Whether the heating increases the normal tendency to dormancy or whether the dormant normal spores are the more resistant ones has not been determined.

MAXIMUM SURVIVAL TIME IN MINUTES OF SPORES OF CLOSTRIDIUM BOTULINUM WHEN HEATED AT DIFFERENT TEMPERATURES IN DIFFERENT SUBSTRATA

Temperature Heated in Degrees C.	Broth	Brain	Oil Stratified Broth
100	225	270	315
107.5	40	45	80
115.5	7	10	42
121	4	6	22

4. The age of spores which have been kept at room temperature in the culture medium in which they developed does not materially influence their resistance to heat after their equilibrium of resistance has been reached. It was found that spores in a culture aged 22 days were considerably less resistant than those in a culture of 66 days, but that between 66 and 315 days the resistance was practically constant.

5. The reaction of the material in which the spores are heated plays an important part in determining their resistance to heat. The maximum resistance exists when the medium is approximately neutral, and rapidly decreases as the hydrogen-ion concentration approaches both the acid and alkaline ranges. There is a much narrower zone of greater resistance at higher than at lower temperatures.

Parallel studies of hydrochloric, citric, acetic and lactic acids by sealed tube technic were complicated by the fact that the bacteria were incubated in the mediums in which they had been heated; but there seemed to be no appreciable difference in the resistance of the spores at corresponding hydrogen-ion concentrations of these acids.

6. The kind of medium in which the spores have grown does not seem to influence their heat resistance, but there is a variation in the heat resistance, depending on the type of substratum in which they are heated, which is not dependent on any difference in reaction.

When spores are heated in broth of approximately neutral reaction, they are more quickly destroyed than when they are heated in brain medium of like reaction; and if a thin layer of oil is placed on the surface of the broth, there is a greatly increased survival after the heating process.

7. The maximum survival times for *Clostridium botulinum* which have thus far been obtained in this series of experiments in sealed tubes are shown in the accompanying table. It will be noted that the survival time at 100 C. falls considerably short of that obtained in open tubes, which was six hours.

INTENSIVE DEEP ROENTGEN IRRADIATION

A STUDY OF THE IMMEDIATE EFFECTS

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CINCINNATI

My observations are based on a series of 100 intensive deep roentgen irradiation doses that I have applied since therapeutic apparatus for this purpose has become available in this country. The term "intensive deep irradiation dose" is used to describe a quantity of roentgen rays that is absorbed by deep tissues and sufficiently large to bring about certain biologic and clinical results.

I record primarily the observations concerning the immediate effect of this newer method of roentgen irradiation on the patient, and the physical reaction.

It is well established that the absorption of large irradiation doses leads to certain more or less transient effects on the patient. Recourse to this newer form of therapy is, therefore, determined not only by the probable local result but also, and properly, by the effect that exposure to the intensive irradiation will have on the individual.

Understanding of the effect of irradiation depends on one's conception of the process of intensive deep irradiation. To avoid the use of technical terms in which workers in this field have come to think, I shall briefly describe, as the basis for these observations, the factors that determine the character of the irradiation.

TYPE AND QUANTITY OF ROENTGEN RAYS

The roentgen rays applied in this series were produced at a voltage of from 200,000 to 220,000, using a Coolidge deep therapy tube. They were filtered through copper filters, from 0.5 to 1 mm. in thickness, according to the penetration and depth dose desired. An area of entrance of the rays was as large as possible, but not exceeding, as a rule, 20 by 20 cm. In one case the area included an entire side of the chest. The distance from the anode to the skin varied in different cases between 50 and 80 cm., depending on the depth dose desired.

The unit of measurement in this series is the erythema dose, as determined by Wintz, or the quantity of ultrahard rays, absorbed by the skin, which produces an erythema in ten days in the average case. His "carcinoma dose" is from 100 to 110 per cent. of this surface dose of ultrahard rays administered deep into the body tissues. The required dose for certain other pathologic conditions has been determined as somewhat less. The measurements were made by the Wintz iontoquantimeter, and the transformer, the tube and the filter were carefully calibrated by this instrument, which is reliable. All results in deep roentgen therapy in German clinics have been made possible only through the advantages of the iontoquantimeter.

PROTECTION OF THE PATIENT

Irradiation effects are due primarily to the amount of roentgen rays absorbed by the tissues through the treated areas. The effects may be aggravated by unwonted absorption through insufficiently protected areas that are not being treated, and through continuous breathing of the contaminated air that is often present in the treatment room. In my cases, the diffusion of the rays was limited as much as possible by the usual lead glass tube holder and lead-rubber treatment cones. The patient is covered entirely with heavy lead-rubber, except over the treated area. The possible absorption of extraneous rays is thereby reduced to a minimum. The absence of wires eliminates corona discharges, and thorough ventilation eliminates even traces of nitrous gases. The patient rests on an insolated table.

All treatments had for their aim the administration of the required dose in one sitting, or as few sittings as the patient's condition permitted. The longest exposures have been in the most superficial cases. The longest continuous exposure lasted six hours; other cases have required two periods of four hours each in one day; one patient with traumatic sarcoma of the thigh, with metastases in both lungs, received three sarcoma doses within ten days.

EFFECT OF INTENSIVE DEEP ROENTGEN IRRADIATION ON BLOOD PICTURE *

Date	Per Cent. Hemoglobin	Red Blood Cells	White Blood Cells	Polymorphonuclears	Eosinophils	Basophils	Lymphocytes		Transitionals	Myelocytes	Large Mononuclears	Area Irradiated
							Large	Small				
Before irradiation												
1/19/22................	80	5,135,000	6,225	56	7	..	3	33	..	..	1	
After irradiation												
1/23/22................	80	5,120,000	5,225	66	2	..	2	26	4	..	..	Thigh
1/26/22................	80	5,020 000	5,850	66	6	..	3	24	1	..	..	Thorax
1/30/22................	80	4,750,000	3,950	69	3	..	3	21	4	..	..	Thorax
2/ 4/22................	80	4,430,000	3,800	65	8	3	4	20	..	..	..	Thigh
2/10/22................	80	4,740,000	3,750	4	10	..	14	3	..	..	1	
Patient discharged from hospital; period of recovery; no further irradiation until March 18, 1922.												
Before new irradiation												
3/18/22................	..	4,050,000	5,350	59	..	..	4	28	9	..	..	
After new irradiation												
3/28/22................	.....	4,120,000	3,750	62	..	..	6	32	..	..	..	Thigh
4/ 3/22................	70-80	4,180,000	3 950	68	..	..	4	27	1	..	..	Thorax
4/ 7/22................	70-80	4,040,000	3,350	62	1	..	4	24	6	..	3	Thorax
Period of recovery; no further irradiation until June 27, 1922.												
Before new irradiation												
6/27/22................	70-80	4,530,000	4,975	60	4	2	2	29	8	..	..	
After new irradiation												
6/30/22................	70-80	3,700,000	5,550	74	1	..	2	23	..	..	..	Liver
7/ 1/22................	70-80	3,630,000	5,600	65	..	..	1	34	..	..	..	Thigh
7/ 6/22................	70-80	4,450,000	3,550	63	4	2	4	23	4	..	..	

* The patient was being treated for sarcoma of the thigh with metastases in both lungs and in the liver. Dates under "after new irradiation" designate time of separate doses.

GENERAL EFFECTS

The general constitutional effects have been surprisingly mild. The patients have felt somewhat indisposed; loss of appetite sometimes persisted for a week. Occasionally there was some nausea, but rarely vomiting. None of my patients reacted so badly as to become confined to bed from irradiation effects, although they had received full irradiation doses of the type described, through rather large masses of tissue. In general, the unpleasant effects from hard rays have been very much less noticeable than from soft rays.

Blood examinations tend to confirm the conclusion of other investigators, that no matter what region is subjected to irradiation, there is a marked effect on the blood-forming organs. Within the first three days there is generally a marked reduction of lymphocytes, and often an improvement in the red cell count. At the end of a week, the blood picture begins to be restored, and at the end of six weeks it has approached the normal again in favorable cases.

The blood counts in the accompanying table illustrate the effect of heavy irradiation.

A rise of temperature amounting to not more than a fraction of a degree was observed now and then. It was sharply defined after irradiation of the liver for metastatic sarcoma, as shown in the accompanying chart.

LOCAL EFFECTS

The local effect is manifested on the skin, on the superficial organs such as glands, and on the organs subjected to irradiation.

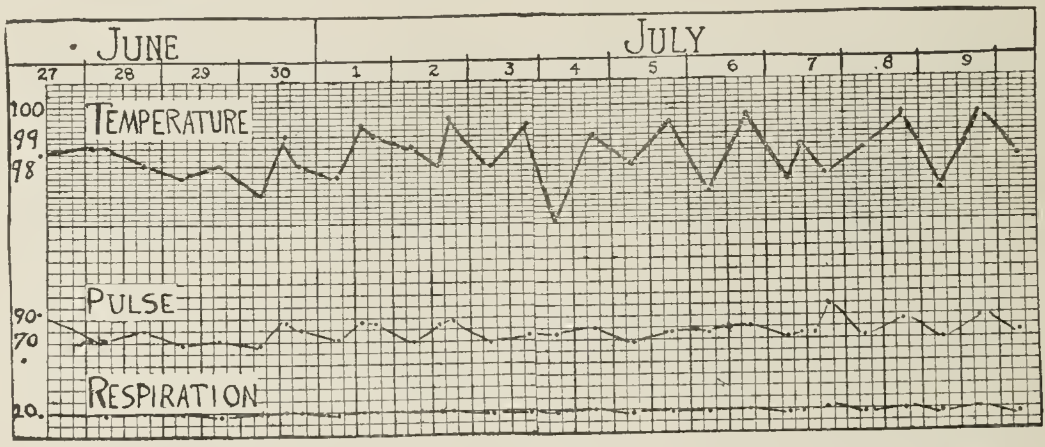
The Skin.—An erythema was produced in all cases in which the full dose was administered through one area. It varied in degree with different persons. When the pathologic tissue was situated close to the surface, I was required to administer very full erythema doses. In one case of multiple, superficial, large carcinomatous masses, there appeared immediately after treatment three areas of erythema that remained three weeks, with the rather annoying accompaniments of a dermatitis of that degree. The skin recovered fully without denudation, and in six weeks the carcinomatous masses had disappeared, with the exception of a still palpable axillary gland. In the course of these treatments I have not seen blisters produced, necrotic areas, or telangiectases of the skin.

The erythema is followed by a transient, faint browning of the skin.

When more than one area may be utilized for entrance of the rays, it is rarely necessary to produce an erythema, because the skin dose may be so apportioned on the basis of iontoquantimeter calculations that an erythema is avoided.

The Glands.—There is usually an enlargement of the superficial lymphatic glands in the irradiated region, which subsides after two or three days. When the region of the neck is irradiated, the effect on the salivary glands leads to an annoying dryness of the mouth, and there is usually an enlargement of the parotid glands. In one case of sarcoma of the nasopharynx, I administered the full sarcoma dose in one sitting of four hours. Because of the massive glandular involvement on each side of the neck, it was to be expected that the salivary glands could not be spared. The sarcomatous masses disappeared entirely within twenty-two days, but the trying dryness of the mouth remained for months.

The Nerves.—It is worthy of record that in two cases in which the chest was irradiated, a true herpes zoster occurred soon after the irradiation. One was a case of metastatic carcinoma of the lungs, and the other was an inoperable case of cancer of the breast. The herpes occurred in the latter case on the side of the lesion. The rays had been applied only from the anterior aspect. I cannot prove any causative relationships between the disease, the treatment and the herpes.



Small but well-defined rise in temperature after irradiation, July 1; temperature previously normal (sarcoma).

The Lungs.—Full irradiation doses, applied to the lungs for cancer or sarcoma, gave rise to a feeling of "tightness in the chest." There was bronchial irritation in each instance, and in the case of metastatic carcinoma of the lungs, from mammary cancer, there was slightly blood-streaked sputum for several days. It is my opinion that these manifestations correspond to a surface erythema reaction.

The Esophagus.—I have observed a marked immediate effect in only one case of temporary complete cancerous occlusion of the lower portion of the esophagus. The patient was unable to swallow either hot or cold water on the day of the treatment. Twelve hours after the intensive irradiation, the patient telephoned me that he was able to swallow a cupful of water "and two bottles of pop." This man was able to take soft food without regurgitation during three weeks after that, when occlusion again occurred. A second treatment permitted him to take food for another three weeks, again followed by occlusion. At that time a gastrostomy was performed for relief. The patient died in about one month after operation.

The Bladder.—Immediate effects have been observed in malignant disease of the bladder, as evidenced by production of subjective symptoms, or modification of symptoms, and by cystoscopic examination, and in cases in which the bladder was not directly involved but bladder symptoms were produced by involvement of the vesicovaginal wall. In intravesicular disease, I have found the bladder exceedingly sensitive to roentgen irradiation. The bladder irritability was much increased. If there was pain prior to the irradiation, it became more severe after the treatment. All the subjective symptoms subsided in the measure that the local condition improved. When there was bladder irritability from involvement of adjoining organs, I have observed entire disappearance of this complaint from the moment that deep irradiation was applied.

When there was discharge of blood and pus from the bladder in the course of the disease, this discharge became gradually less in the course of a week after the irradiation. A noteworthy observation was the presence in the urine of shreds of necrotic tissue after the administration of carcinoma irradiation doses to the bladder.

Cystoscopic Observation.—In a number of cases I had the advantage of cystoscopic observation of the bladder wall of patients suffering from carcinoma of the bladder. The patients were observed immediately prior to, and one week after the irradiation. The immediate effect on the malignant ulceration, as seen one week after the irradiation, was, to use the surgeon's own words, "miraculous; the ulcerated area decreased one-half in size." In other cases the information was that the mass was sloughing. In all these cases there was observed a strong reaction in the bladder wall. Since a full erythema depth dose was given, controlled by iontoquantimeter measurement, the local reaction, which was expected, undoubtedly corresponds to a surface erythema. The reaction, in connection with the demonstrated necrotic process in the malignant mass in the bladder, tends to support the theory advanced by some pathologists that the disappearance of malignant tumors in some areas and in some tissue elements, after irradiation, is possibly due to the effect of the irradiation on the blood vessels supplying the neoplasm, causing their obliteration and, consequently, necrosis in the mass. It is possible that this process has its effect on the type of carcinoma occurring in the bladder.

The Abdomen.—After full erythema doses to the deep abdominal tissues, I have regularly observed increased intestinal irritability, evidenced by more frequent evacuations. The systemic effects are more noticeable, and the nausea occurs rather promptly. In a case of tuberculosis of the peritoneum, in which for some time before their irradiation a gallon of fluid had been aspirated every two weeks, there was no further exudate after the second dose, and the tuberculous masses, formerly very distinct and palpable, had entirely disappeared.

SUMMARY

1. Large doses of intensive, deep roentgen irradiation with ultrahard rays, with proper precautions, have been safely administered to patients who were not cachectic.

2. The general systemic effect is, under these conditions, less distressing than formerly, after irradiation with the soft rays.

3. The immediate effect on the blood and blood-forming organs is marked, but restoration begins as a rule within a week after the irradiation in noncachectic cases. Hemorrhages from internal malignant growths ceased; this result alone is of immediate benefit to the patient.

4. The immediate effect of therapeutic doses on the deeper organs in irradiated areas is that of irritation, and probably corresponds to a surface erythema. Glandular tissues may be destroyed.

5. In noncachectic patients, a surface erythema from these ultrahard rays was safely produced when necessary. It must be attained whenever a malignant mass near the surface is to be treated through one area of entry.

6. The iontoquantimeter permits the administration of the desired and known depth dose, and is the basis of scientific deep roentgenotherapy.

11½ East Eighth Street.

THE SIMULTANEOUS OCCURRENCE OF TUMORS IN THE THYROID, UTERUS AND BREAST

MAX BALLIN, M.D.
AND
R. C. MOEHLIG, M.D.
DETROIT

Every surgeon who operates upon goiters must have noticed the frequent occurrence of tumors in the thyroid, uterus and breast. Apparently there has been very little written on the subject, however, for we could find only two references in the literature. Falta's[1] "Ductless Glandular Diseases" contains this note:

> There seems to exist a certain relationship between goiter and myomata of the uterus. At least it has been observed that in strumous women who also suffer from myomata the struma also decreases in size with the retrogression of the myoma at the menopause.

Falta's note is quoted from an article by Ullman[2] of Vienna. This article reads:

> It has been known for a long time that a relationship exists between the uterus and the normal thyroid gland. The nature of this relationship is, of course, enshrouded in darkness; we only know that in a not infrequent number of women a transitory enlargement of the thyroid gland takes place at the time of menstruation. After the cessation of menstruation, the thyroid returns to normal. . . . In many women during pregnancy an enlargement of the thyroid takes place, which still exists after childbirth. . . . A third fact which concerns the question of the relationship between uterus and thyroid is that as to whether strumas develop more frequently in females then in males. . . . I wish to emphasize that in women affected with myomas I was able to show a distinct enlargement of the thyroid gland, an enlargement that could be spoken of partly as struma parenchymatosa, partly as the result of degeneration, as colloid struma. . . . I was then able to determine that these strumas following complete myomectomy became decidedly smaller; in many cases they disappeared entirely.

In looking over our own records, we find that of the last 100 female patients who consulted us for goiter, eighteen had fibroids;[3] four of them also had breast tumors; and of the last 100 patients who consulted us for fibroids, thirty-five had goiter; six had breast tumors. Thus, of the total 200 patients, fifty-three, or 26.5 per cent., had tumors of both thyroid and uterus. Ten of these 200 patients required operations on both the thyroid and the uterus. This large number of multiple lesions is obviously much more than a coincidence; yet, as noted above, very little mention of it has been made.

The matter therefore seemed important enough to call attention to again. Three points suggest themselves:

(*a*) It is possible, as suggested by Ullman, that certain goiters might be reduced in size or even cured by removal of a fibroid.

(*b*) Thyroid extract and iodin might be beneficial in preventing the development of fibroids as well as of goiters.

(*c*) These relationships might have some bearing on the etiology of these tumor groups.

In the eighteen goiters found in the examination of 100 fibroids, fourteen were adenomas of the thyroid, three were colloid goiters, and one was an exophthalmic goiter. Of the four breast tumors which accompanied goiters, an adenofibroma with cyst-areas accompanied an adenomatous goiter; an adenoma of the left breast accompanied an adenomatous goiter; an intracanalicular adenofibroma in the right breast, and a similar tumor with hyaline changes in the left breast accompanied a colloid adenomatous goiter. Another goiter which is not tabulated showed virginal hypertrophy of the right breast. Of the six breast tumors which accompanied fibroids, three were interstitial mastitis; one was a fibro-adenoma; one was a carcinoma of the left breast and fibro-adenoma of the right breast, and one was a cystadenoma.

Of the fifty-three patients with the combination of goiter and fibroid, the youngest was 25 years old, this patient being the only one below 30. Fully two thirds were over 35. We may say, therefore, that the incidence mounts with age, the simultaneous occurrence of goiter and fibroid being most prevalent in the latter half of the third decade and during the fourth decade. Of the 100 goiter patients, twenty-one were under the age of 25. There were no fibroids among these patients, so that the percentage of eighteen fibroids is borne by seventy-nine patients more than 25 years of age. In other words, the fibroid-goiter combination shows its entire incidence after 25 years of age, and increases rapidly after 35 years.

The simultaneous occurrence of goiters, fibroids and breast tumors is more frequent than is usually supposed. The thyroid, breast and uterus have different anatomic structures and are different in their embryologic origins, but we note that the function of the thyroid is closely related to, and influences the function of the sexual organs. The interrelationship of uterus and breast is obvious. Since these organs are related to each other only by function, it must be that physiologic interdependence is a factor in the tumor formation.

When sexual function ceases or begins to wane, usually the time arises for the growth of all these tumors. The symptoms of fibroids usually become more alarming toward the end of the reproductive period. The adenomatous goiter, in the great majority of cases, does not give much discomfort until the menopause. Then pressure and toxic symptoms arise. Small tumors in the breast have often existed from the age of 20 to the age of 40 without giving any symptoms, or without having been noticed at all; still, their long-standing existence usually is clear when their presence becomes obvious through growth or discomfort. Because of the aforementioned functional (physiologic) relationship which exists between thyroid, uterus and breast, we may be able to understand why growth or irritation in one of these organs may induce growth or irritation in another. For instance, when a small fibroid which has existed innocently for many years suddenly begins to grow, it may induce growth or irritation in the thyroid or breast (and vice versa).

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[1] Falta, Wilhelm: Ductless Glandular Diseases, Philadelphia, P. Blakiston's Son & Co., 1916, p. 156.

[2] Ullman, Emmerich: Ueber Uterusmyom und Kropf, Wien. klin. Wchnschr. 23: 585, 1910.

[3] Though some patients had large uteri, no diagnosis of fibroid was made unless there was a certainty of this condition.

CONCLUSIONS

1. In a series of 200 cases (100 fibroids and 100 goiters), fifty-three patients, or 26.5 per cent., had both goiter and fibroid. Five per cent. had breast tumors.
2. The age of incidence of these combinations was greatest after 35.
3. Since these three organs are not related anatomically or embryologically, the simultaneous occurrence of tumors in the thyroid, uterus and breast may be explained by their physiologic interrelationship.
4. The prophylactic treatment now advocated, of giving iodids for goiter, may likewise prove beneficial in the prevention of fibroid.
5. Perhaps certain goiters can be reduced in size or even cured by the removal of a fibroid (as suggested by Ullman).

269 Rowena Street.

Clinical Notes, Suggestions, and New Instruments

REPORT OF A CASE OF FULL TERM ABDOMINAL PREGNANCY

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A colored woman, aged 33, married, was admitted to Grady Hospital, Dec. 3, 1920, complaining of weakness and pain in the right lower abdomen. She had always been in good health and gave no history of serious illness, operations or venereal disease. Her menses had been regular. She had had three full term, normal pregnancies and labors with normal puerperia, the last one occurring in 1917. There had been no miscarriages.

The menstrual periods were regular and normal during the summer and fall of 1920, and the October period began at the regular time but was more profuse than usual, and lasted two weeks. From this time on, the periods remained absent. During the latter part of October and during part of November, she was nursing a sick relative and thought that the strain of lifting the patient caused pain in the right lower abdomen. She gave no history of a sudden sharp pain or fainting attack. The pain in the right lower abdomen continued throughout November, and was associated with considerable weakness.

She came to the hospital early in December, 1920, complaining of pain in the right lower abdomen, and weakness. She was repeatedly questioned and examined during her stay of one week. Examination disclosed a mass in the middle lower abdomen of the size, shape and consistency of a normal four months' pregnancy; the lower abdomen seemed to be more than normally tender, especially in the right lower quadrant. The skin showed a yellowish pallor. Vaginal examination revealed a moderately firm cervix in normal position and apparently continuous with the mass described, although the tenderness of the abdomen prevented satisfactory palpation. The fornices were soft, and no mass was palpable on either side, although there was more tenderness on the right. Had the patient been examined under anesthesia with, perhaps, a puncture and aspiration of the culdesac to endeavor to demonstrate the presence of free blood in the pelvis, the true condition might have been recognized; but as there seemed to be no apparent cause for her complaint, she was discharged and not seen again until readmission to the hospital, June 3, 1921.

The pregnancy had apparently progressed normally except for more pain than she had ever experienced with her previous gestations. On examination, the skin showed a yellowish, anemic tint with some pallor of the mucous membranes. The heart and lungs were normal. The blood pressure registered 135 systolic and 90 diastolic. The size and contour of the abdomen were quite typical of a full term intra-uterine pregnancy, except perhaps for a somewhat more abrupt rise above the pubes than normal. A moderate degree of hydramnios was suspected on account of a fairly definite fluid wave and the shiny appearance of the skin. There was more than normal tenderness to palpation. The fetal parts were distinctly palpable, but not to a greater degree than in many thin walled multiparous uteri. The position of the fetus was readily recognized as left sacro-anterior, and the fetal heart sounds were distinctly heard to the left and above the umbilicus. The inlet measurements were normal. Rectal examination revealed no dilatation of the cervix and, although the patient complained of irregular pains, no definite contractions were noted. However, as labor was likely to begin at any time, the patient was kept in the ward under observation. After several days, an attempt was made to induce labor with castor oil and quinin, but without success.

June 8, the patient ceased to feel movements, and repeated examinations failed to reveal fetal heart sounds or movements. It was deemed best not to interfere but to let labor come on naturally, if possible, and the patient was permitted to go home for a few days.

She returned to the hospital, June 23, and stated that bleeding had commenced, June 21, and still continued. She had also been feeling worse during the last week on account of increased backache, feeling of weight in the pelvis, and a foul taste in the mouth. During the next two days, an afternoon rise of temperature to 100 F. was noted. Examination revealed the same physical findings as before, but the cervix seemed slightly more open, although only moderately softened.

It was decided to induce labor on account of the delay in expelling the dead fetus and the evidence of beginning infection, as there seemed to be no other cause for the rise in temperature. June 25, 3 p. m., two large rubber catheters were passed through the cervix. It was noted that the catheters seemed to encounter a firm obstruction after passing in about 10 cm., but this was thought to be, possibly, the placental implantation. On the 26th, at 8:30 p. m., the catheters were removed, no definite pains having resulted. However, the cervix was now dilated sufficiently to admit one finger. On the 27th, at noon, a No. 4 Voorhees bag was introduced through the cervix. The canal seemed to lead off to the left. The membranes could not be reached. On the 28th, at 5 p. m., the bag was removed, as no definite pains had resulted. Examination after removal of the bag revealed that the cervix was dilated about three fingers' breadth and, on further exploration, was found to lead into a cavity about 10 cm. in depth, manifestly a nonpregnant uterus.

The probable diagnosis, therefore, was an extra-uterine pregnancy which must have ruptured at an early stage and retained sufficient attachment to develop to full term as an abdominal pregnancy. It was also possible, but less likely, that the patient had a double uterus with pregnancy in one side.

The patient was visibly weaker and beginning to appear septic. The temperature had reached 101 F., the pulse was more rapid, from 110 to 120, and the abdomen becoming more tender. An area of tympany in the umbilical region was interpreted as due to adherent intestines in this region. The white blood count was 18,600, with polymorphonuclear cells 81 per cent. and hemoglobin 55 per cent. The urine showed heavy albumin, with many granular and hyaline casts. The contents of the sac were evidently becoming infected, and operation was urgently indicated.

June 29, under gas-oxygen anesthesia, a vaginal examination revealed that the uterus was only slightly enlarged, about the size of a six weeks' pregnancy, and displaced to the left, lying almost parallel to Poupart's ligament. At the beginning of the operation, hypodermic stimulation with caffein and intravenous injection of 500 c.c. of physiologic sodium chlorid solution with epinephrin were given. When a midline incision between the pubes and umbilicus was made, the wall of the sac was firmly adherent to the parietal peritoneum and accidentally opened, releasing a large amount of gas and brownish fluid of foul colon odor. An 8 pound (3.6 kg.) macerated female infant was removed and, after complete evacuation of the fluid, the sac was seen to be completely isolated from the abdominal cavity. The placental end of the cord led up toward the liver, from which it could not be traced. The placenta seemed to be in the pelvis, but, when I attempted to locate it more definitely, a sharp hemorrhage occurred in the pelvis, which fortunately was controlled by the pressure of a hot pack as there was no definite blood supply to be clamped off. The pelvic organs were completely covered over by the sac wall, which had a roughened, somewhat necrotic appearance. A piece of dry gauze was placed over the site of the hemorrhage and three large cigaret drains were placed to drain the sac, through the lower end of the incision, which was closed to this point. The patient's condition remained satisfactory throughout the operation, and she reacted quickly.

July 4, the gauze was removed and, on the 11th, the drains were removed. On the 20th, the wound had broken down and the placenta appeared in the depth of the cavity. July 27, and, again, August 3, two large pieces of necrotic placenta were successively extruded and easily lifted out, leaving the wound quite clean and granulating rapidly. There was no fever after August 2. The patient was allowed out of bed, August 13, and discharged from the hospital on the 21st, with the wound practically closed.

COMMENT

Dr. Beck[1] reports a case of abdominal pregnancy, and analyzes 262 cases compiled from the literature from 1809 to 1919. He urges that every case be reported and states, in his conclusions, that the interests of the child should be considered; that interference at the thirty-eighth week of gestation offers the best chance of saving the child and is associated with less operative risk than at any other time; that preliminary preparation for hemorrhage should precede the operation; that it is best to remove the placenta if it is possible first to ligate its blood supply; otherwise it should be left in and the abdomen closed without drainage, as it will ultimately be absorbed, although occasionally it may become infected from the intestines and subsequently require drainage; and that marsupialization is indicated in those cases in which the blood supply of the placenta cannot be controlled, or hemorrhage requires a tampon, or infection necessitates drainage.

It was unfortunate that the diagnosis of abdominal pregnancy was not suspected in this case, in the early stages of the pregnancy or at the termination of the pregnancy before the fetus died, as an operation undertaken a few days earlier would have saved the child as well as the mother. However, the absence of a history suggesting ectopic pregnancy, and the omission of an examination under anesthesia to clear up the doubtful physical findings, delayed the true diagnosis until efforts were made to induce labor. The obscure anatomic relations of the placenta and its blood supply, the hemorrhage set up by manipulations, and the presence of infection made it necessary to drain, and to depend on the patient's own resistive powers to absorb or extrude the placenta, control the infection, and restore her to health.

20 Ponce de Leon Avenue.

LIGATION OF FEMORAL ARTERY IN MIDDLE THIGH

J. M. DODD, M.D., ASHLAND, WIS.

J. K., a man, aged 25, laborer, April 4, 1921, while employed on the construction of an ore dock, was struck by an iron rod about 20 feet long and 1½ inches in diameter, which fell from the work above him. It came down endwise, struck him in the middle of the left thigh, and passed down through the popliteal space and out of the outer side of the leg about the middle and on to the ground, fracturing the fibula in addition to inflicting severe lacerations of the soft parts. No serious hemorrhage occurred at the time, nor was there more than slight primary shock.

The man was taken at once to the hospital, and the wound track was cleared of débris. The femoral artery could be felt pulsating in the upper wound, the rod having passed in front and to the outer side of the vessel and behind the popliteal artery, the leg being slightly bent when struck. A dressing was applied, and the patient was put to bed. All went well for six days, when suddenly, without warning, the wound in the thigh began to bleed copiously. Being in the hospital and near at hand, I was able to check the bleeding and apply a ligature to the bleeding point. The case then pursued a normal course for six days more, when, being in the vicinity of the ward, I heard the patient cry out and, hastening to him, found the wound bleeding again most seriously. Hastily removing the dressing and placing a thumb in the wound over the artery, I was able to control the bleeding until instruments could be procured. I then clamped the femoral artery in the upper and lower angles of the wound, and had the patient removed to the operating room. The femoral artery had been injured, erosion had taken place, and the wall had finally given away so that there was an opening 0.5 by 1 cm. in the side of the vessel. Had not help been instantly at hand, a fatal hemorrhage must have occurred. As it was, nearly a pint of blood escaped. Nothing could be done but to ligate the artery above and below the opening and await results, with the expectation, of course, that it would be necessary to amputate the leg.

The entire leg lived, however, and by keeping it encased in cotton to keep it warm, and slightly elevated to facilitate the return venous flow, we found that there was sufficient collateral circulation to sustain its vitality. The wounds healed slowly; the one in the thigh healed in eight months, and the wound of exit in the leg remained as a slow healing ulcer for nearly a year. The patient walked on the leg in about three months. There was no swelling or edema of the leg of any consequence at any time. Thirteen months after the injury the wounds had entirely healed, and there is very little difference in the size of the legs, the injured one being a little smaller.

No pulsation can be felt anywhere in the injured leg. It can be felt at the usual locations in the right. When the blood pressure apparatus is applied to the left leg, with the cuff above the knee, the mercury oscillates at 110 and 70; no sound is heard over the popliteal space or anywhere below. The cuff applied below the knee gives the same effect. Collateral circulation is well established, and the leg approaches nearly normal function.

The femoral vein was apparently not injured, and this is no doubt a factor in saving the leg by favoring the return circulation. The first hemorrhage was evidently due to the giving way of a branch of the femoral artery, since the bleeding point was easily caught and controlled by ligature. The second hemorrhage came through an opening so large in the softened wall of the artery that closure was not to be thought of.

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[1] Beck, A. C.: Treatment of Extra-Uterine Pregnancy After Fifth Month, J. A. M. A. **73**: 962 (Sept. 27) 1919.

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SATURDAY, OCTOBER 7, 1922

FUNCTIONS OF GALLBLADDER

The fact that some species of higher animals exist normally without a gallbladder, and the repeated observation that persons whose gallbladders have been removed may live in apparent health and comfort for many years, should not be interpreted to indicate that the gallbladder is utterly devoid of any physiologic purpose. Despite the large amount of research devoted to the biliary passages, the output of definite information has been small, and current knowledge of the functions of the bile itself far from satisfactory. There is no doubt any longer, however, that the bile has an important part in the normal processes of digestion and absorption in the intestinal canal; to what extent it may be regarded as an excretory product, as well as a secretion useful in alimentation, remains to be ascertained. One physiologist[1] has contrasted the factors referred to by pointing out that as an excretion the production of bile should be continuous and related, not to the processes of digestion but to the metabolic changes for which it removes certain waste products. On the other hand, bile as a digestive fluid is needed in the intestine only while digestion is going on. The exigencies of the body, he argues, therefore require a continuous excretion of bile by the liver, but a discontinuous entry of this fluid into the lumen of the bowel. This discontinuity is secured in the majority of species by the existence of a gallbladder, a diverticulum from the biliary ducts in which bile can be stored.

How the storage of bile can be further facilitated has been emphasized by recent studies of Rous and McMaster.[2] Water is readily abstracted from bile in the gallbladder so that the bulk of this fluid can be greatly reduced. The "stasis" bile is subsequently diluted by a watery secretion from the ducts as the inspissated product passes through them. These facts help to explain how a reservoir so small that it cannot contain more than a minor fraction of the bile secreted in the daily routine nevertheless serves a useful purpose.

An added use of the gallbladder has been emphasized by Jacobson and Gydesen.[3] Pointing out the lack of inherent propulsive power in the gallbladder, they believe that this organ is mechanically placed as a distensible pouch or bag interposed in a system of biliary tubes for the purpose of minimizing extremes of pressure within that system, as when bile comes too rapidly from the liver or when its passage into the duodenum is prevented by the sphincter of Oddi. It is doubtful whether, under normal conditions, the intraductal or gallbladder pressure ever exceeds 350 mm. of water, the pressure required for obstructive symptoms. Forced movements of the abdominal muscles, diaphragm and contiguous organs produced by excessive respiratory movements, struggling, vomiting and violent peristalsis, Jacobson and Gydesen add, all undoubtedly produce fluctuations in pressure that are equalized by the gallbladder.

IS PARENTAGE DETERMINABLE BY BLOOD TESTS?

Study of the reactions of the body to microbes, microbic products and other protein materials has given us several tests of great value. Agglutination, complement fixation, opsonification, the allergic phenomena and serum precipitation have all been put to practical use in more or less simple tests, some of which are in daily use in modern medical practice. In the case of blood and also certain other protein substances, the most practical method of identification is the precipitin test, which is used generally to determine the nature of blood stains for medicolegal purposes. This test rests on the fact that when a suitable animal, and that means usually the rabbit, is injected with the blood proteins of a different species, its serum forms a precipitate on contact with such proteins. In the course of the immunization, newly formed substances accumulate in the blood, and the action of these precipitins is limited to proteins of the same kind as those that were injected.

The ease with which human blood is identified by virtue of the species specificness of the precipitin test soon led to the thought that, haply, different human races and even individuals might be distinguishable by means of special precipitin reactions; but so far no progress in that direction is recorded, and the idea occasionally expressed that on account of its discriminating delicacy the precipitin test should be of value in the determination of questions of parentage has no foundation. Whether antigenic substances do exist that are peculiar to individuals and their offspring is a problem for the future; at present, certain hereditary characteristics seem to offer the better field for the study of parental identity.

The fact that the grouping of persons by isoagglutination—now become generally known since its importance in blood transfusion was stated[1]—appears to be hereditary in nature[2] has led Ottenberg[3] to advocate its use as a means of determining parentage. Without attempting to enter into details, the main point in Ottenberg's conclusion from studying 603 persons in 139 families is that if a child's blood group is in harmony with the blood grouping of the alleged parents, it may be their child; on the contrary, if the child's blood does not group itself in harmony with the parental groupings, it must have a parent other than one of those claimed. We see that, at best, the methods obviously would have marked limitations in practice, and that its results in a given case would fall far short of direct identification of any individual as the parent. And Buchanan[4] regards Ottenberg's criteria as unsafe, even if the grouping could be carried back for three generations, because of the possibility that the heterozygous status of a parent might result in the appearance in the offspring of an unexpected, yet legitimate, blood group. Evidently the last word has not been said as to the reliability of Ottenberg's method; and further observations will be necessary to bring it out of the realm of controversy. The conclusion is that at present science knows of no blood test by which parentage can be determined.

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[1] Starling, E. H.: Human Physiology, Philadelphia, Lea and Febiger, 1915, p. 714.

[2] Rous, Peyton, and McMaster, P. D.: Concentrating Activity of the Gallbladder, J. Exper. Med. **34**: 47 (July) 1921; Physiological Causes for the Varied Character of Stasis Bile, J. Exper. Med. **34**: 75 (July) 1921.

[3] Jacobson, Conrad, and Gydesen, Carl: The Function of the Gallbladder in Biliary Flow, Arch. Surg. **5**: 374 (Sept.) 1922.

PREVENTABLE DISEASE AND MAP-CHANGING MEDICINE

When huge armies were throwing every ounce of their energies against the opposing line, it was constantly realized that the spread of epidemic disease might mean defeat for the affected side. Preventive medicine, in thus being called on to keep every possible man at the front, came into unusual prominence. Foci of contagion existed in various parts of the globe, and the intermingling of peoples, and the crossing and recrossing of seas, invited contagion to spread; but with one exception, the major demons were kept confined to regions in which they commonly prevail in endemic form. With the World War ended, the sanitary organization was largely dismantled; but the urge for conservation of life and energy did not stop and is still going on. From an examination of developments in the world-wide warfare on disease now being waged by various institutions and agencies, Showalter, in an illustrated article in the *National Geographic Magazine* (September), predicts three announcements of almost unprecedented importance to mankind at no distant date: that (1) yellow fever has been banished from the face of the earth; (2) hookworm disease can be driven from any community which has the will to get rid of it, and (3) malaria can be eradicated from almost any community having enough vital force left to push a thorough yet inexpensive campaign for its extirpation. The widespread incidence of hookworm disease is revealed when it is known that three out of five persons examined in China, three out of four in Siam, and five out of eight in various parts of India are so afflicted. Similar conditions prevail in Brazil, Colombia, Central America, the West Indies and elsewhere. How successful a campaign against this disease may be was shown in Richmond County, Va., where the world-wide fight against hookworm had its inception. About thirteen years ago, when the eradication work began, 82 per cent. of the people of Richmond County had this disease. A survey a few years later showed that only 35 per cent. had the disease; a more recent survey reduced it to 2 per cent., and in 1922 there is apparently not a single person in the county with symptoms of hookworm disease.

Malaria, which, it has been claimed, was largely responsible for the passing of the "glory that was Greece and the grandeur that was Rome," today still lays a heavy hand on millions of people who dwell where it prevails; and yet it costs only one-fourth as much to eradicate the disease as to permit it to prevail. Simple drainage, filling pits and shallow pools, channeling streams, clearing the margins of streams and ponds, removing obstructions, turning in the sunlight, oiling, using top minnows, and quinin are the measures which, when applied with a will, produce astonishing results in malaria-infested regions. With these weapons, malaria was virtually driven from fifty-two towns in ten Southern states at an average cost of 78 cents per capita. Similar measures have been successful against yellow fever, and few foci of that disease now exist.

Sanitary science thus offers hope for freedom from three plagues of man. The plans of campaign for still broader work are well mapped out. They await the officers who will direct the forces in the fight. The number of public health leaders is inadequate now, and calls for trained sanitarians keep coming from all parts of the world. To meet this demand, eleven American universities, and schools in Canada, South America and Europe have established courses in public health and hygiene. Some few years must elapse before the effect of this training will be fully appreciated, but the forces are mobilizing now for the final, successful campaign against several transmissible diseases.

A Physician's Function.—My function as a physician is not discharged when I say to a solicitous client, "There is nothing the matter with you," unless that opinion is fully accepted. And if my patient continues to believe there is something the matter with him, there *is* something the matter with him, and my function has not been fulfilled until I have made him see, as I see, that he is not in jeopardy.—(Favill, Henry B., The Public and the Medical Profession, A Square Deal, *Penn. M. J.*, November, 1915.)

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[1] Hektoen, Ludvig: Iso-Agglutination of Human Corpuscles with Respect to Demonstration of Opsonic Index and to Transfusion of Blood, J. A. M. A. **48**: 1739 (May 25) 1907.

[2] Von Dungern, E., and Hirschfeld, D. L.: Ueber Vererbung gruppenspecifischer Strukturen des Blutes, Ztschr. f. Immunitätsforsch. u. exper. Therap. **6**: 284-292, 1910.

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Current Comment

THE "ALKALINE TIDE" IN URINE

It has long been known that after ingestion of a liberal meal the urine, ordinarily acid in reaction, may become alkaline. Not infrequently, this change is sufficiently pronounced to lead to the deposition of phosphates in the fluid secreted by the kidneys at such times. The phenomenon is commonly designated as the "alkaline tide" in urinary secretion; and more than one physician has been deceived in his interpretation of the presence of protein in the urine because of the flocculent precipitate of phosphates that is readily secured by heating a specimen collected after a meal and showing an approximately neutral reaction. The fact that many foods, notably certain fruits and vegetables, are now recognized to be potentially basic, so that they may lead to a reduction of the acidity of the urine,[1] has raised the question as to whether such factors may not help to explain the "alkaline tide" in many instances. The customary interpretation has been that the secretion of acid into the stomach after meals tends to leave a preponderance of bases in the blood which are quickly disposed of by the kidneys in the interest of neutrality regulation. This hypothesis has lately been substantiated by Hubbard and Munford[2] through a comparison of the alkaline tide in urine with the results of fractional gastric analysis. Those cases which showed free hydrochloric acid in the stomach showed the "alkaline tide" in the morning, and usually in the afternoon as well, while the cases which did not show hydrochloric acid almost without exception did not show the tide. As the determination of the alkaline tide has furnished a method for checking the findings in the gastric juice, it may be that a consideration of the urinary reaction will be found useful in establishing a possible gastric anacidity when satisfactory analyses of stomach contents cannot be secured.

VASOCONSTRICTION AND RESISTANCE TO INFECTION

The multiplicity of contacts of the human body with its environment makes it peculiarly liable to attack by invading micro-organisms. The latter are, furthermore, often favored by a variety of conditions which they may meet in the higher organism. Moist mucous surfaces maintained at a constant temperature may facilitate rather than retard bacterial invasion; and, not infrequently, the circulation of the blood and lymph may promote the transfer of the objectionable invaders from one place to another in the body. The personal experience of mankind as well as the empiric observations of physicians for generations has shown that the resistance of the host may be decreased in general by bodily fatigue, exposure to extremes of temperature, poor hygienic surroundings, improper diet, and other less readily interpreted environmental factors. Zinsser[1] has pointed out how difficult it is to analyze the causes underlying such depression of resistance. For instance, he remarks, with fatigue or chilling there may be temporary congestion of mucous surfaces, due to vasomotor influences, which alter the secretions on mucous surfaces, or interfere with the normal mobilization of leukocytes, permitting penetration of bacteria when ordinarily they would have been held back. Our ignorance is nowhere more clearly illustrated than in the fact that we know almost nothing concerning the relation between a thorough chilling and the acquisition of what is spoken of as a common "cold." We can only assume, Zinsser adds, that there is interference in some way with the normal bactericidal and phagocytic mechanisms, making possible the penetration and lodgment of small quantities of bacteria, ordinarily destroyed immediately after entrance or prevented from entering at all. Sollmann and Brody[2] have recently shown the marked influence which even temporary ischemia may have on the local resistance to infection. If two wounds of equal size are produced on the skin of an experimental animal, if both are then subjected to the same sort of bacterial contact, and if one region is rendered anemic by local injections of epinephrin, marked differences in the healing process may arise. The ischemic spot will usually show retarded recovery and more marked infective reactions in contrast with the untreated areas. Sollmann and Brody therefore wisely warn against the indiscriminate local use of epinephrin in wounds and especially in catarrhs. Their demonstration also substantiates the current conception as to the origin of "colds" by increased susceptibility to infection, through the reflex vasoconstriction of "chills."

THE PATHOLOGY OF EXPERIMENTAL XEROPHTHALMIA

The association of certain types of eye disease with dietary deficiencies, to which attention has been directed by the more recent experimental studies in nutrition,[3] deserves the careful consideration of ophthalmologists. To what extent the phenomena recorded for the laboratory animals are also represented in the clinic of human disorders remains to be ascertained. The most conspicuous instance is the eye malady often observed to arise in young rats living on a diet poor in vitamin A. The diversity of names, such as ophthalmia, keratomalacia and xerophthalmia, applied to the manifestations is of itself an indication of the uncertainty or ignorance which exists with respect to the pathologic changes in such conditions. It is generally assumed that the lesions have their origin in the cornea, which, in the advanced stages of the condition, becomes markedly affected. The end-result is, indeed, a keratitis. Thus, Mori[4] has drawn a picture which is similar to that in certain cases in human beings, and is the result of the drying of the epithelium of the cornea.

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[1] The Potential Reactions of Foods, editorial, J. A. M. A. **79**: 1147 (Sept. 30) 1922.

[2] Hubbard, R. S., and Munford, S. A.: A Comparison of the Alkaline Tide in Urine with the Results of Fractional Gastric Analysis, Proc. Soc. Exper. Biol. & Med. **19**: 429 (May) 1922.

[1] Zinsser, Hans: Infection and Resistance, New York, the Macmillan Company, 1914, p. 59.

[2] Sollmann, Torald, and Brody, J. G.: Influence of Ischemia on Infection, Proc. Soc. Exper. Biol. & Med. **19**: 400 (May 20) 1922.

[3] Osborne, T. B., and Mendel, L. B.: Ophthalmia and Diet, J. A. M. A. **76**: 905 (April 2) 1921.

[4] Mori, Shinnosuke: Primary Changes in Eyes of Rats which Result from Deficiency of Fat-Soluble A in Diet, J. A. M. A. **79**: 197 (July 15) 1922.

Often in the course of the disease, he states, the rats' eyes show ulcers which perforate. But Yudkin and Lambert [5] have recently come to the conclusion that it is the eyelid rather than the cornea that is primarily affected. In all cases examined by them there were early focal lesions in the epithelial lining of the lids. The changes consisted of localized foci of degeneration of the epidermis with cellular infiltration, which, in some cases, extended into the subepidermal tissue. In all these early cases the cornea was uninvolved; that is, there were no degenerative changes that could be recognized, and no cellular or vascular reaction. A further novel finding of the same investigators [6] concerns the degenerative or inflammatory changes observed in the lacrimal glands of rats showing evidence of a lack of vitamin A. To what extent these manifestations are connected with or may be responsible for the xerosis remains to be seen. Heretofore the lacrimal glands have received scant attention in the experimental studies of ophthalmia. It will be interesting to learn the outcome of further investigations in this direction.

THE SALIVA OF INFANTS

It is obvious that digestion cannot be satisfactory in early infancy until the essential alimentary secretory functions become properly established. Not many years ago it was often stated that the amylolytic capacities of the infant are not completely developed t birth, and the allegation was used as an argument gainst the early feeding of any dietary component, such as cereals or cereal decoctions, which contain starch. As an indication of current opinion, one of the most ecent textbooks [7] may be quoted. It states that only he parotid of the new-born contains amylase, whereas he submaxillary lacks this enzyme. It appears in the ubmaxillary gland and in the pancreas only at the nd of the second month of life. Furthermore, it is lleged that at birth the amylolytic activity of the arotid is little more than that of many other tissues. owever, in a recent examination of the saliva of ore than eighty infants in London hospitals, Nicory [8] ound ptyalin present at least one and one-half months efore term, although only in small quantities. The mount of enzyme increases gradually to the age of ne year, when the composition of the child's saliva ecomes identical with that of the adult. At all ages the uantity of ptyalin present varies with the general condition of the child, being larger in strong than in weak fants. In view of the fact that an amylolytic enzyme present in the saliva of babies in appreciable quanties, and that a number of infants fed on milk plus archy foods manage to utilize a large quantity of the arch, Nicory argues that diastase is present in the paneatic secretion of infants. In any event, the amylotic equipment of the baby in early life is not, as a le, so deficient as has frequently been taught.

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[5] Yudkin, A. M., and Lambert, R. A.: Location of the Earliest anges in Experimental Xerophthalmia of Rats, Proc. Soc. Exper. ol. & Med. **19**: 375 (May) 1922.

[6] Yudkin, A. M., and Lambert, R. A.: Lesions in the Lacrimal ands of Rats in Experimental Xerophthalmia, Proc. Soc. Exper. Biol. Med. **19**: 376 (May) 1922.

[7] Mathews, A. P.: Physiological Chemistry, New York, William ood & Co., 1920, p. 334.

[8] Nicory, C.: Salivary Secretion in Infants, Biochem. J. **16**: 387, 22.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

State Medical Meeting.—The next annual convention of the Medical Society of the State of California will be held, June 21-23, in San Francisco, immediately preceding the annual session of the American Medical Association. Dr. Henry G. Brainerd, Los Angeles, will preside.

Fund for University.—A campaign is being conducted to raise $10,000,000 for the University of Southern California, Los Angeles. Plans provide for a large medical school and teaching hospital which will cost, on completion, approximately $3,500,000. A meeting of the university officials will be held in the near future, when the staff will be selected and the policy of the medical unit determined.

Hospital News.—It is reported that the Enloe Hospital at Chico has been temporarily closed following the sudden resignation of the three head nurses. A new staff of nurses will be engaged as soon as possible and until then physicians of the community are cooperating to keep the hospital in operation.——The Presbyterian Orphanage at San Anselmo was burned to the ground recently. The superintendent of the institution announced that the new organization will consist of cottage units.——Dr. W. C. Shipley has purchased property adjoining his hospital at Cloverdale and will shortly erect the first unit of a new and modern hospital building.——A hospital to be known as the Hermosa-Redondo Hospital will be erected in Hermosa shortly at a cost of $50,000.

COLORADO

Personal.—Dr. Josiah N. Hall, professor of medicine at the University of Colorado, gave an address before the San Diego (Calif.) Medical Society, September 10.

New County Health Unit.—The Trinidad district of the Colorado Tuberculosis Association organized, September 11, in Las Animas County. Dr. Ben Beshoar was named a director of the Las Animas County Health Association.

CONNECTICUT

Yale University News.—Dr. August Krogh, professor of zoophysiology in Copenhagen University, and winner of the Nobel prize in medicine in 1920, will deliver the Silliman lectures at Yale University, New Haven, October 5, 6, 7, 10, 11 and 12. Professor Krogh has taken, as his general topic, "The Anatomy and Physiology of Capillaries." Dr. Krogh made two trips to Greenland, the first to study the tension of carbon dioxid in ocean water and the second, to investigate the respiratory metabolism of the Eskimos.——At the corporation meeting, a letter was presented from Dr. Lawrason Brown, president of the National Tuberculosis Association, in which appreciation was expressed of the work of Prof. Treat B. Johnson and Elmer B. Brown, who have been associated with Esmond R. Long, Ph.D., of the University of Chicago, in research in the fundamental nutrition of the tubercle bacillus. The corporation passed a vote of thanks to the National Tuberculosis Association for its further appropriation for the work, in which Professor Johnson and Mr. Brown will continue to be associated.——The new four-story medical building, to be known as the Sterling Hall of Medicine, will be erected for Yale University at Cedar and Broad streets, New Haven, at a cost of $800,000. This institution will be built from the Sterling fund.——The Kent chemical laboratory will be used for other purposes when the Sterling laboratory is in use, but no decision has yet been reached as to the purposes to which the Sheffield chemical laboratory will be devoted. During the summer, rapid progress has been made on the construction of the Sterling chemical laboratory, on Prospect Street.

DISTRICT OF COLUMBIA

Physicians Plan Cancer Drive.—Forty physicians of Washington held a meeting in the medical society building, September 27, to outline plans for the campaign of education for the control of cancer, which will be conducted in Washington, culminating in "Cancer Week."

Lecture on Botulism.—K. F. Meyer, D.V.M., of the University of California, delivered an address on "Botulism" before a joint meeting of the Academy of Science, the medical society and the Society of Bacteriology, in Washington, September 20. The address was discussed by Charles Thom of the microbiologic laboratory of the Department of Agriculture; Dr. R. Eugene Dyer and Ida A. Gengston of the hygienic laboratory, U. S. Public Health Service, and Dr. Jacob C. Geiger, Chicago, epidemiologist of the U. S. Public Health Service.

FLORIDA

Personal.—Dr. George A. Dame, head of the bureau of communicable diseases of the state board of health, has resigned from that position, effective, October 1. His successor has not yet been named.

GEORGIA

Personal.—Dr. Jarret W. Palmer, Aidley, has been reappointed for four more years as a member of the state board of medical examiners by Governor Hardwick. Dr. Palmer was formerly president of the board.——Dr. Victor H. Bassett, for thirteen years city bacteriologist of Savannah, has resigned.

Open Air Schools Planned.—An open air school for children whose health might be impaired in indoor classrooms will be established in Atlanta, the school superintendent announces. This school will be part of the public school system. The young women of the Junior League have offered a substantial sum toward the erection and maintenance of the school.

ILLINOIS

Dr. Furstman's Successor Appointed.—Dr. Harold B. Wood, county health director of Dodge County, Kansas, has been appointed director of public health for the city of Bloomington, to succeed Dr. J. M. Furstman, who resigned some time ago.

Library for Medical Society.—At a meeting of the Peoria Medical Society, September 15, the establishment of a medical library was approved. The entire library of the late Dr. Charles W. Miller was given to the society by his widow, recently, and there have been several donations of medical books. The public library has offered a room for the use of the medical society. Drs. Jay H. Bacon, Rolland L. Green, Sumner M. Miller, Charles D. Thomas and Oliver J. Roskoten were appointed to supervise the new library.

New Board of Medical Examiners.—Dr. Malcolm L. Harris, Chicago, president of the Illinois Hospital Association; Dr. Gilbert Fitzpatrick and Dr. Arthur H. Geiger, Chicago; Dr. Lewis C. Taylor, Springfield, and Dr. Wilbur H. Gilmore, Benton, have been appointed members of the new state board of medical examiners by Addison M. Shelton, director of the state board of registration and education. Dr. Taylor and Dr. Fitzpatrick, formerly members of the board, were ousted during the Miller administration. These appointments are the first to be made by Mr. Shelton. The new director has also announced that he intends to revoke a number of licenses granted under the W. H. H. Miller régime to pharmacists and physicians. Licenses to be revoked will be those brought under fire at the grand jury investigation in Chicago, which resulted in the indictment of Miller on charges of selling examination questions to prospective applicants for various state licenses. Announcement was made that many valuable state records have been taken from the files in the department which would have an important bearing on the criminal proceedings against Miller in Chicago.

Personal.—Dr. Albert M. Earel, Hoopeston, suffered a fractured hip when he fell from a pear tree, September 15. The roentgen-ray examination indicated that Dr. Earel had suffered an intracapsular fracture of the right fibula.——Clarence H. Boswell, Rockford, has been reappointed county physician by the board of supervisors.——Dr. Harris J. Kaye, Waukegan, has returned to America after two months in Europe.——Dr. Darwin M. Keith, Rockford, has returned form Europe, where he attended the International Otology Congress.——Dr. Wilmot L. Ransom, Rockford, returned, September 19, from a tour of Europe.——Dr. John G. Henson, Wyoming, was injured in a motor accident, September 19. He sustained several serious lacerations of the head and of the right leg.

Public Health News.—The antimalaria mosquito campaign launched by the Lions' Club at Carbondale, which is being carried on under the supervision of a sanitary engineer from the state department of public health, is achieving desired results. The work of draining the swamp lands north of the city by the Illinois Central Railroad at a cost of $8,000 is nearing completion.——Dr. Edith Lowry Lambert, St. Charles, has been conducting a summer camp for girls ranging from 3 to 14 years of age. Weekly weighing of all girls in the camp and health lessons were among the features of the vacation. Dr. Lambert has given her time for many years to hygiene for children.——A total of 153 deaths in four years is the toll of tuberculosis in DuPage County, according to figures compiled by the DuPage County Tuberculosis Association.——In response to complaints from officials in Galva and Galesburg, a sanitary engineer from the state department of health is investigating the methods of sewage disposal in those cities.

Chicago

Bogus Physician Sentenced.—It is reported that Ludwig Augustinus of Chicago was sentenced to serve one year in the house of correction and to pay a fine of $1 on each of three charges of practicing medicine without a license, the sentences to run concurrently. He was also held to the grand jury on six charges for operating a confidence game. It was stated that he had obtained money from church members for Boy Scout activities which never developed.

Personal.—Dr. Herman L. Kretschmer gave an address before a joint meeting of the Wabash and Miami County Medical societies at Lafontaine, Ind., September 7.——Dr. Hugh A. Beam, Moline, recently underwent an operation at the Wesley Memorial Hospital, Chicago.——Dr. W. A. Evans gave a lecture at the annual meeting of the Indiana State Medical Association, September 28, in Indianapolis. The lecture was broadcasted by radio.——Dr. Robert H. Babcock delivered a lecture on "The Heart—Patients, Symptoms, Examination, Diagnosis, Treatment and Prognosis," before the Summitt County Medical Society of Ohio, October 3.

INDIANA

Tuberculosis Campaign.—The Fountain County Tuberculosis Association was recently reorganized with Dr. Charles C. Wert, Covington, as vice president.

Joint Medical Meeting.—The medical societies of Jackson, Bartholomew and Jennings counties held a meeting and banquet at the Hotel Metropole, North Vernon, September 20.

State Health Council.—A temporary organization of the Indiana State Health Council was effected, September 21, at a meeting of representatives of the health agencies and organizations having to do with the conservation of health in the state. Mrs. Edmondson, representing the Parent-Teachers' Association, was named chairman. Dr. Walter J. Clarke, New York, executive secretary of the National Health Council, outlined plans of the national council. Dr. Harry W. McKane represented the stated board of health.

State Medical Meeting.—At the annual meeting of the Indiana State Medical Association, held in Muncie, September 27-29, under the presidency of Dr. William R. Davidson, Evansville, the following officers were elected for the ensuing year: president, Dr. Charles H. Good, Huntingdon; vice presidents, Drs. Wilson T. Lawson, Danville, John H. Reed, Logansport, and Charles S. Bryan, Vincennes, and secretary-treasurer, Dr. Charles N. Combs, Terre Haute (reelected). The next annual session of the association will be held at Terre Haute, Sept. 26-28, 1923.

KANSAS

Joint Meeting.—A joint session of the Kansas Public Health Association, the Kansas State Tuberculosis Association and the Kansas Mental Hygiene Society was held at Wichita, September 19-21.

LOUISIANA

Dengue Fever Attacks Officials.—Mayor Mouton of Lafayette, several members of the police force and Deputy Clark Meaux of the courthouse have all fallen victims to the epidemic of dengue now prevalent in that vicinity.

Personal.—Dr. Rudolph Matas, head of the department of surgery at Tulane University, New Orleans, recently sailed for France where he attended the annual congress of French surgeons in Paris, October 2. Dr. Matas addressed the congress on "The Surgery of Blood Vessels."

MARYLAND

Physicians Added to Pension Staff.—Three salaried medical officers for the examination of applicants for the classified service of the municipal government of Baltimore are provided for in a new pension ordinance recently approved. The appointments are for a term of six years, the salaries yet to be fixed.

Semiannual Meeting of Faculty.—The semiannual meeting of the Medical and Chirurgical Faculty of Maryland was held, September 29-30, at Cumberland. The convention opened with a dinner given by the Tri-State Physicians' Club (Maryland, Pennsylvania and West Virginia). The general meeting followed, with an address of welcome by Dr. F. G. Cowherd, president of the Allegany-Garrett County Medical Society, responded to by Dr. A. H. Hawkins, president of the Medical and Chirurgical Faculty of Maryland. A meeting of the house of delegates and of the council was held on the morning of the 30th, followed by the scientific session.

Personal.—Dr. H. K. Hu, formerly associate professor of bacteriology at the Chinese government medical college at Peking and physician at the government hospital, and Dr. W. D. Oliveira of Brazil, both members of the International Health Board of the Rockefeller Foundation, are in Hagerstown, studying public health methods in that city. Dr. Oliveira and Dr. Hu are taking graduate courses at Johns Hopkins University, Baltimore.——Dr. Lewellys F. Barker of Johns Hopkins University, Baltimore, spoke on "Making Children Perfect" before the New York Medical Society, recently.——Dr. Bernard M. Berngartt, Baltimore, has returned from Germany.——Dr. Patrick F. Martin, Baltimore, has been selected by the Mount St. Mary's College at Emmitsburg as resident physician at that institution.

MASSACHUSETTS

Personal.—Dr. Irving R. Calkins, Springfield, is on the American team in the international shooting tournament at Milan, Italy.——Dr. Mabel A. Southard and Dr. Mary F. Dekruif, both of Boston, have been appointed physicians to he division of hygiene, to investigate maternal and infant hygiene work in the state.——Dr. Edward H. Trowbridge, chairman of the board of health, Worcester, spoke on "Medical Ethics" before the Franklin District Medical Society at Greenfield, September 12.——Dr. Thomas F. Kenney, director of hygiene of the Worcester public schools, has been ppointed medical director of the city of Worcester.

MINNESOTA

Hospital News.—Bids will be asked about November 1 elative to an addition for St. Luke's Hospital, Duluth, which will be erected at an approximate cost of $875,000. Dr. A. K. McRae is superintendent of the institution.——The new sixtory wing of St. Mary's Hospital building, Duluth, was pened the last part of August with appropriate ceremonies. This addition gives the hospital a capacity of 400 patients nd was erected at a cost of $300,000.

Personal.—Dr. Arthur B. Ancker recently completed his ortieth consecutive year of service as superintendent of the ity and County Hospital, St. Paul.——Dr. John A. McCuen, Duluth, at one time mayor of the city, suffered a cerebral emorrhage, September 1, while spending his vacation at ake Vermillion. He is at present convalescing at St. Luke's ospital.——Dr. William J. Eklund has been elected president of the Duluth National Bank to succeed his father, the te Dr. John J. Eklund.

MISSISSIPPI

Ant Fund Oversubscribed.—The Argentine ant campaign nd has been oversubscribed, more than $3,000 having been llected recently. The city of Laurel and Jones County gether appropriated $600, which will be used in the spring a nucleus for the extermination campaign.

Laurel Gets Health Unit.—The International Health Board the Rockefeller Foundation has chosen Laurel of all e places visited for the establishment of a health unit in e South. Tentative plans for this unit were mentioned in HE JOURNAL, August 19, page 668. Counties in several of e Southern states were inspected with a view to the establishment of the unit. A five-year program will be started once, with a view to stamping out malaria, and the unit ll also serve as a training ground for members of the ckefeller Foundation, preparatory to service in foreign btropical fields.

Health Officers' Meeting.—An institute for health officers will be held in Jackson, October 30 to November 2. Efforts are being made to make this institute a joint one between Mississippi and Louisiana, whose health problems are of such similar nature as to make cooperation advisable. The visiting speakers will include Dr. Henry H. Hazen, social disease expert of Washington, D. C.; Dr. William H. Park, bacteriologist for the city of New York; Dr. Leslie L. Lumsden, rural sanitation expert; Dr. Taliaferro Clark, chief of the bureau of child health of the U. S. Public Health Service; Dr. Oscar Dowling, state health officer of Louisiana, and Dr. William A. Evans, Chicago.

MISSOURI

Surgical Clinics a Success.—With a total of 262 patients examined in the two days, the general medical and surgical clinic held in St. Joseph under the auspices of the Buchanan County Medical Society, preceding the meeting of the Missouri Valley Medical Association, ended, September 20.

NEW JERSEY

Physician's License Revoked.—It is reported that at a meeting of the state board of medical examiners, September 5, the license of Dr. George W. Mueller, Newark, to practice medicine and surgery, was revoked. Dr. Mueller was convicted on a charge of performing a criminal abortion.

NORTH CAROLINA

Venereal Disease Clinics in All Counties.—Dr. A. S. Campbell of the state board of health recently assisted in a campaign in Durhan, Person, Granville and Vance counties, for the eradication of venereal disease. Clinics were opened in each county for free treatment. Many of the city and county prisoners received treatment through the clinics. The state board of health assisted the county clinics by giving blood tests free to those unable to pay for them.

NEW YORK

Fund Raised for Radium.—The campaign to raise $10,000 for the purchase of radium for Middletown has been successful. The Radium Society of Middletown has been formed, with Dr. J. B. Hulett, president, and Dr. Lillian Morgans, secretary-treasurer. After the election of officers Dr. Morgans, who personally gave $1,000 to the fund, presented 90 mg. of radium to the society. Any person who receives radium treatment from the society and who is financially able to contribute to the society for the purchase of additional radium insurance and equipment may do so. Dr. Redfield, a practicing physician, expert in the use of radium, will dispense the radium. Any practicing physician may have the use of the radium on application to the dispenser. Any person suffering from cancer or other disease requiring radium treatment, and who is unable to pay for it, may apply to the Radium Society for treatment.

Child Hygiene Campaign.—A child health campaign, with the slogan "Keep the babies well," is being conducted by the division of maternity, infancy and child hygiene of the state department of health. The enactment last March of the Davenport-Moore law, in accordance with the policy outlined by Governor Miller, has made it possible for the New York State Department of Health to double the forces of physicians and nurses attached to the health mobile unit and thus to double the number of children examined daily at the field consultations which are being held throughout the state in cooperation with local physicians. The results of the examination of infants and children at these consultations are reported to the family physician and the local public health nurse, so that parents may be properly advised as to the best measures to protect the health of their children.

New York City

Hospital News.—The 1,200 members of the Spanish Society, New York, are planning to erect a hospital for the 40,000 residents of the city and state who are of Spanish extraction. A movement to collect $200,000 for this purpose is under way, of which there has been already donated $12,000.——The contract has been awarded for an addition and alterations at the Lawrence Hospital, the Bronx.

A New Division in the Department of Health.—At a meeting of the board of health, August 10, a resolution was passed creating a new division of the department of health, to be known as the division of veterinary inspection. This division is charged with the duties of investigation and enforcement of all veterinary activities coming within the provisions of the Sanitary Code. It is to report directly and be responsible to the deputy commissioner and the sanitary superintendent. All veterinarians attached to other bureaus have been transferred to the division of veterinary inspection.

OHIO

Hanna Lecture.—Dr. Henry H. Dale, English scientist, director of the National Institute for Medical Research, London, gave a Hanna lecture at the Medical Library Auditorium, Cleveland, October 6.

OKLAHOMA

Hospital News.—The new municipal hospital at Cushing was opened, October 1. A drive is being conducted to purchase equipment and supplies for the institution.——The contract has been awarded for the erection of the $40,000 ward building for the General Oklahoma State Hospital, Norman.——The Bristow General Hospital, Bristow, has been purchased by Mrs. Bertha Shearin of Memphis, Tenn., who contemplates alterations and additions.

PENNSYLVANIA

Buys Hospital Site.—County commissioners have purchased a 40-acre site in Nether Providence Township, near Pine Ridge Station, for the erection of a hospital for the care of tuberculous patients. The property is splendidly situated for transportation facilities, being located along the Baltimore Pike and also having a front on Wallingford Road and the Plush Mill Road. Work on the building may be started early this winter. According to the county commissioners, the building will cost approximately $100,000 and have fifty beds.

State Hospitals Cut Free Patient Lists.—The state hospitals in Pottsville have begun rigidly enforcing the rule that all patients must pay for their care, and hereafter politicians' recommendations will not clear a patient of his duty of paying his way if it can be shown that he has any property or has any money in bank. Reports forwarded to Harrisburg, September 17, show that free lists have been greatly cut or almost entirely abolished among the patients as the result of the insistence of the Harrisburg officials that this shall be done.

Philadelphia

Heart Disease in Children.—Ten clinics for prevention of heart disease among children have been established in congested sections of the city by the health department of Philadelphia. The work will be conducted by physicians of the division of child hygiene under the direction of Health Director Furbush. Children who, having suffered from contagious diseases, are susceptible to heart trouble will be examined, and an educational campaign among schoolchildren and their parents will also be conducted.

Personal.—Dr. Alphonso N. Codd arrived in New York, September 3, from Europe.——Dr. Samuel Z. Shope is suffering from a fractured rib and bruises sustained in an automobile accident, September 14.——Dr. George D. Fussell has resigned as pathologist to the Misericordia Hospital and the Memorial Hospital of Philadelphia, to become pathologist to the Clearfield Hospital, Clearfield.——Dr. David Wright Wilson, who recently resigned as associate professor of physiologic chemistry at Johns Hopkins Medical School, Baltimore, has become head of the department of physiologic chemistry at the University of Pennsylvania.——Dr. Brooke M. Anspach, professor of gynecology, Jefferson Medical College, addressed the opening of the ninety-eighth annual session of the college, September 25, on the subject of "The Prospect of a Medical Career."

SOUTH DAKOTA

Physician Receives Decoration.—Dr. Oscar R. Wright, Huron, who served with the French Army Medical Corps during the World War, has received a distinguished service order from the French government, for services rendered while with the French Base Hospital No. 32. Dr. Wright received the decoration at the hands of General Pershing, September 29.

TENNESSEE

Physician Convicted.—Dr. George C. Paschall, Arrington, charged with killing his bride of three months, was found guilty of murder in the second degree, it is reported, the verdict carrying a term of from ten to twenty years. Dr. Paschall asked for a new trial and was allowed to go free under $25,000 bond.

TEXAS

Fund for Health Work.—The Young Men's Business League of Beaumont adopted a motion, September 20, to recommend to the various civic organizations of the city that they raise $1,000, required to continue Jefferson County's public health work until the new county commission comes into office.

Hospital News.—Construction work on the first of the five $150,000 units of the new Methodist Episcopal Hospital, Houston, started in August. The first unit will be a five-story structure with accommodations for 100 patients.——An eye, ear, nose and throat hospital will be erected at Temple by Dr. J. M. Woodson of that city. It will be a two-story, fireproof structure.——A new $50,000 hospital will be established at Harlingen by the Baptists there.

VIRGINIA

Physician Wins Verdict.—Judgment for the defendant, Dr. William Harmon Evans, Lynchburg, was entered, September 21, in the Tweedy vs. Evans case. The suit was brought several years ago for $10,000 damages for alleged malpractice. Two trials resulted in hung juries and at the third a verdict of 1 cent for the plaintiff was returned. This verdict was set aside by Judge Barksdale, thereby putting the court costs of the suit and of the three trials on the plaintiff.

Personal.—Dr. Marshall W. Sinclair, Newport News, following a graduate course at Johns Hopkins Hospital, Baltimore, has been appointed pathologist at the Anderson (S. C.) County Hospital.——Dr. Susan A. Price, physician at Eastern State Hospital, Williamsburg, has resigned and accepted the position as physician at Weston State Hospital, Weston, W. Va.——Dr. Charles P. M. Sheffey, Norfolk, sailed from New York in August for the Congo where he will work as a medical missionary. Dr. Sheffey is a graduate of Johns Hopkins University.——Dr. Joseph N. Barney has been reappointed city health officer of Fredericksburg.——Dr. Achille Murat Willis, Richmond, has been appointed professor of surgery at the Medical College of Virginia, to succeed Dr. Stuart McGuire, resigned.——At the annual meeting, Dr. John B. Stone, Churchville, was elected president of the Augusta County Medical Association.——Dr. Ward H. Cook, professor of pathology in the Medical College of Virginia, and Dr. Walter B. Cannon, professor of physiology at Harvard University, Boston, gave addresses before the Richmond Academy of Medicine and Surgery, September 26.

WASHINGTON

Personal.—Dr. William O'Shea, Spokane, sailed with his bride, August 31, on the Scandinavian-American liner *Heilig Olav* for Copenhagen. Dr. O'Shea will remain abroad for one year and will make a special study of obstetrics.—Dr. Francis B. West has resigned as health officer of Mount Vernon. Dr. George Shorkley will succeed him.——Dr. Claud H. Weir has returned to Yakima after spending considerable time abroad and making a short stay at his home in New York. Dr. Weir will again take up the practice of medicine in Yakima.

WISCONSIN

Traveling Chest Clinic.—More than 5,000 people were examined free of charge by the traveling chest clinic of the Wisconsin Anti-Tuberculosis Association in 1922, according to a report of the first six months' activity, this year. The clinic is not limited to tuberculosis, although discovering early cases is its main object. Since this traveling clinic started, three years ago, more than 16,000 Wisconsin people have been examined, and of this number 18 per cent. were found tuberculous. The state association, with the cooperation of local public health nurses, follows up all the clinic cases.

CANADA

Medical Meeting.—The first general session of the Western Ontario Academy of Medicine was held in London, Ont., September 20, under the presidency of Dr. Charles A. Harris. Dr. William Edward Gallie, University of Toronto, spoke on "The Use of Living Sutures in Operative Surgery," and Dr. William F. Banting on "Pancreatic Extracts in the Treatment of Diabetes."

Personal.—Dr. David Donald has been appointed school medical officer for Victoria. Dr. Donald was a colonel in the R. A. M. C. during the World War.——Dr. Henri Beland, minister of health for Canada, and Dr. William C. Arnold, director of medical services of the Department of Soldiers' Civil Reestablishment, were entertained to luncheon by the Vancouver Medical Association, August 3, on the occasion of their visit to that city.——Dr. Louis J. Hirschman, professor of proctology, Detroit, held a clinic at the Vancouver General Hospital, recently.——Dr. Robert H. Millwee, Dallas, Texas, spoke on "Deep Roentgen Therapy" before the Vancouver Medical Association, recently.——Dr. Osborne Morris, Vernon, B. C., was recently elected president of the Okanagan Medical Society.

PHILIPPINE ISLANDS

One Million Dollars for Lepers.—The Supreme Lodge, Knights of Pythias, has donated $1,000,000 for the lepers on Culion Island, it is announced from Manila. This money is to be used for the following purposes: 1. Permanent living quarters to be known as "Stevens Memorial Hall" for all white lepers at the colony. 2. Erection of an experimental laboratory with full equipment to carry on experiments in search of an absolute cure. 3. Establishment of an endowment fund amounting to approximately $900,000, to provide money for carrying on the experimental work and to further the benefit work at the colony among all lepers. These plans were included in the resolutions submitted to the grand lodge which held its sessions in San Francisco in August. The amount represents an assessment of $1 on every member of the lodge, which has a membership of nearly 1,000,000 men.

GENERAL

Annual Meeting of Oral Surgeons.—The second annual meeting of the American Association of Oral and Plastic Surgeons will be held at the Boston Library, October 20-21. All interested in these special fields of surgery are invited to be present. The secretary is Dr. Henry S. Dunning, New York, and the president, Dr. Truman W. Brophy, Chicago.

American Occupational Therapy Association. — At the annual meeting of the association held in Atlantic City, N. J., recently, Mr. T. B. Kidner was elected president of the association. Dr. G. Canby Robinson, Baltimore, was elected vice president, and Mrs. Elenor Clark Slagle, secretary-treasurer. Dr. William R. Dunton, Jr., Baltimore, is chairman of the committee on publicity and publications.

Health Survey of Printing Trades.—With the cooperation of the U. S. Bureau of Labor Statistics, the International Joint Conference Council of the allied printing industry, representing both employers and employees, has authorized a nation-wide health survey of the printing trades. It is expected to take about two years. It will include every phase of the industry bearing directly or indirectly on health, physique and physical efficiency.

British Commission to Study Milk Conditions.—A health commission, consisting of Ernest A. Evans and A. D. Raymond, representing the London Dairies, Ltd., is visiting this country to study the American milk pasteurization methods. Accompanied by Dr. Royal S. Copeland, the commissioners visited the child health stations in New York. They stated that the American methods were far ahead of those employed in London. The members of the commission will visit Philadelphia, Washington, Baltimore, Chicago and St. Paul.

American Society for the Control of Cancer.—In connection with the annual "Cancer Week," Postmaster-General Work was requested to give his consent for the use of dies on canceling machines in the postoffices of various states, bearing the legened "National Cancer Week, Nov. 12-18." Dr. Work complied with this request and stated that the dies would be engraved at the earliest date possible and forwarded to postmasters at the offices mentioned, who will be instructed to place them in operation immediately on their eceipt. Dr. Frank Billings, Chicago, has prepared a letter or special reading in churches, of which 500,000 will be printed.

Personal.—Surg. Richard H. Creel, Asst. Surg.-Gen. John D. Long and Surg. Lewis R. Thompson of the U. S. Public Health Service have been ordered to Norfolk, Va., to investigate methods of fumigation of vessels at quarantine stations in that vicinity.——Dr. B. E. Washburn, former director of the rural sanitation of the board of health of North Carolina, ecently visited Charlotte while on furlough. Dr. Washburn has been serving with the International Health Board in amaica, engaged in hookworm elimination programs. He will return to Jamaica in January.——Surg. James G. Townend of the U. S. Public Health Service has been directed to proceed to San Juan, Porto Rico, in connection with the tuberculosis situation on that island.——Dr. Oswald E. Denney, Washington, D. C., sailed, September 16, for Rio de Janeiro, to investigate smallpox, bubonic plague and leprosy.——Dr. Samuel J. Herman, Detroit, sailed, September 9, for Europe on the *Homeric*.——Dr. Achille Almerini, New York, sailed on the *Conte Rosso* for Italy, September 14.

Commission to study Medical Schools Here.—A delegation of members of the faculty of the University of Strasbourg, Alsace, arrived in New York on the *Paris*, September 30, as guests of the Rockefeller Foundation, for the purpose of studying the organization and methods of American medical schools. The visiting commission is made up of the dean, Dr. Georges Weiss, professor of biophysics; Drs. Léon Blum, professor of clinical medicine; Paul Bouin, professor of histology; Camille Duverger, professor of ophthalmology; Paul Masson, professor of pathologic anatomy; Maurice Nicloux, professor of physiologic chemistry, and Lucine Pautrier, professor of dermatology and head of the cutaneous diseases clinic. After a brief stay in New York, the members of the commission will visit Johns Hopkins Medical School, Baltimore; Harvard Medical School, Boston; University of Pennsylvania, Philadelphia; University of Michigan, Ann Arbor, and Washington University, St. Louis, as well as the hospitals affiliated with these institutions.

LATIN AMERICA

Plague in Mexico.—A death from bubonic plague occurred, September 25, at Salina, Vera Cruz.

New Mexican Society.—A new medical society has been formed in Jalapa, Vera Cruz. Dr. Luis Espinosa was appointed president and Dr. Julio F. Rebolledo, secretary. Meetings will take place weekly.

Vera Cruz State Hospitals.—The Civil Hospital of Jalapa, Vera Cruz, is to be reequipped. At Orizaba, Vera Cruz, a new sanatorium is about to be opened. In Vera Cruz City, a new ward has been added to the Spanish Hospital.

El Salvador Signs Opium Convention.—The *Boletín Sanitario*, the official organ of the national public health service in El Salvador, publishes the details of the international convention in regard to opium; also the decree of the legislature ratifying it for the country. The decree was signed by the governor, May 29, 1922.

Salvador Journals.—The *Archivos del Hospital Rosales* of El Salvador hereafter will be published only semiannually instead of monthly. Papers by the hospital staff will be published in *La Clínica*, the journal recently established in that country. The editors of the *Archivos* and *La Clínica* are Dr. Rafael V. Castro and Joaquín Soto, respectively. *La Clínica* is also the organ of the medical students of El Salvador.

Cuban Medical Fellowship.—The first traveling fellowship granted by the French-Cuban Medical Association "Joaquín Albarrán" was assigned to Dr. Emilio Fiterre, an intern of the Calixto García Hospital. The "Joaquín Albarrán" society was organized during the recent visit of French physicians to Cuba, in order to establish closer relations between the two countries. All fellowships will be for one year, and the studies are to be made in France.

The Argentine Medical Association.—At the recent annual meeting of this association Dr. E. V. Segura was elected president; Dr. Tulio Martini, secretary; Dr. E. Finanza, treasurer; Dr. F. R. Pasman, protreasurer, and Dr. C. A. Castaño, director of publicity. The *Semana Médica* relates that the last year has witnessed the doubling of the membership and the increasing of the scientific production by tenfold, while the leading medical societies of the country have affiliated with the association. It says also that the financial condition could scarcely be healthier or more solid. The *Revista*, published by the association, is always regularly reviewed in the Current Literature Department of The Journal. The *Revista* is now in its thirty-fifth year.

Prizes Offered.—The Sociedad Médica de Caracas has founded a prize in memory of Dr. E. Ochoa. It is to be awarded this year for the best work on tropical pathology or surgery by a physician of Venezuela. The prize is 500 bolivars and a special certificate. The competing articles must be sent in anonymously.——The prize founded by the will of Dr. J. M. Alvarez is to be the annual income from 10,000 pesos bequeathed to the faculty of medicine of the University of Cordoba for the purpose. It is to be given to the author of the best work on hygiene or affiliated subjects presented as a thesis for the degree. If none is presented, the prize can be given to the medical student who has distinguished himself by his work in hygiene.

Personal.—Dr. Carlos Chagas, director of the public health service in Brazil, has been appointed lieutenant-colonel in the medical reserve force of the Brazilian army.——A banquet was tendered recently to Dr. Larguía of Buenos Aires, on the ocasion of his appointment as medical chief of the Children's Hospital.——Dr. N. M. Caudino of Buenos Aires has completed the course in hygiene at the Paris medical school; his wife, Dr. Maria T. Ferrari, has been studying in the Schickelé clinic at Strasbourg.——Prof. P. Abrami of Paris has been lecturing at Buenos Aires on malaria. He has been associated with Widal in the latter's research on colloidoclasis, anaphylaxis, etc.——The students of the Buenos Aires medical school recently presented a gold tablet to the retiring dean of the medical faculty and his assistant, Prof. J. Méndez, and Prof. H. Dasso. The occasion was their election to membership in the Madrid Academia de Medicina.——The official delegation from Argentina to the Third American Child Welfare Congress at Rio de Janeiro comprised nine of the leading pediatricians of Buenos Aires.——Dr. José Arce and Dr. Herrera Vegas of the Buenos Aires faculty of medicine have been granted leave of absence for a brief trip to the United States.——Dr. F. Lemaitre of Paris recently spoke on cancer of the larynx at a meeting of the Sociedade de Medicina e Cirurgia of Rio.——Dr. P. Morsaline has been appointed *ad honorem* delegate of the Buenos Aires faculty of medicine to study radium therapy in foreign lands.——Dr. Miguel Couto and Dr. Aloyso de Castro of the chairs of clinical medicine and medical pathology in the Rio faculty of medicine, were recently given an honorary degree by the Buenos Aires faculty of medicine, in tribute to the Brazil centennial celebration.

FOREIGN

Second International Congress on Military Medicine and Pharmacy.—Our Italian exchanges give the details in regard to this congress, which has been appointed for May 28 to June 2, 1923, to meet at Rome. The first congress of the kind was held in July at Brussels. The *Giornale di medicina militare* has been appointed the official journal for the meeting.

Society of Serbian Medical Practitioners.—The fiftieth anniversary of the society was celebrated at the University of Belgrade, September 21. In the morning, there was a session in commemoration of medical men who died in the discharge of their duty during the World War. Visits were paid to various public health institutions in the city and in the evening a banquet was held.

Medical Appointments in Aeronautics.—The undersecretary of state in France, for aeronautics and aerial transportation, has appointed Dr. R. Cruchet as physician in charge of medical examinations in the Bordeaux district, and Dr. Garsaux for the Bourget district. Each of these centers has three or four specialists attached to them, Béhague, Rouget, Aubourg and Cantonnet at Bordeaux, and Moulinier, Portmann and Ginestous at Bourget.

Postgraduate Study in Paris.—The Collège des Etats Unis, Paris, which was founded to promote professional intercourse between the French and Americans, is answering its purpose most admirably, opening up to Americans the wonderful clinical opportunities and material of the Paris hospitals and lectures. We refer to it again as the address of the institution has been changed. It is now 24 rue Caumartin, Paris, and Dr. W. B. S. Richardson is in charge.

Sanitary Investigation in Japan.—In an effort to lower the infant mortality rate, Osaka has employed ten physicians, who will make a thorough investigation of sanitary conditions in that city. Lectures on the care and treatment of infants will be given throughout the city. The birth rate in Osaka is reported to be 100 a day, while the infant death rate is one of the highest in the world. Insanitary homes and the general unhealthiness of the city are said to be the cause of these conditions.

Plague in Australia.—An outbreak of plague which occurred in Sydney has been investigated. Infection was traced to a steamer which arrived from Brisbane on which there had been a fatal case of plague. Six dead rats were found on the ship, and one of these was found to be plague infected, but the others were too putrid for examination. Soon after the arrival of the ship infected rats were caught on the wharf and sixteen cases of plague subsequently developed among the civilian population near the docks.

Jubilee of the Copenhagen Medical Society.—On October 11, this year, the Copenhagen Medicinske Selskab completes its hundred and fiftieth year, and is planning to celebrate the anniversary. A historical pamphlet is being prepared, and there will be a banquet for members, a reception at the city hall and an exhibition of portraits. There is also to be a festival meeting, with a cantata and speeches, and election of honorary foreign members. The president of the society is Dr. Scheel.

World's Student Christian Federation.—The European Student Relief of the Christian Federation has appointed a committee to cooperate with the Universities' Library for Central Europe, coordinating the work of securing, by gifts, exchange and purchase, books, journals, and the like, for students and professors and for libraries in the universities of Central Europe. Donations of books, periodicals and money will be gratefully received by Mr. B. M. Headicar, Universities' Library and Student Relief for Europe, London School of Economics, Houghton Street, London, W. C. 2.

Neurology Congress of the Northland.—The first Inter-Scandinavian assembly of neurologists and psychiatrists was held, August 30-31, at Copenhagen, on the invitation of the Copenhagen Neurologic Society. The Nordiske Neurologiske Forening was founded, and the large attendance and number of papers presented at the congress demonstrated great interest. Epidemic encephalitis was the principal subject discussed, and Antoni and Kling of Sweden, and also Wimmer and Neel of Denmark, illustrated their remarks with moving pictures of the chronic sequelae and also of atypical acute forms of the disease.

Promotion of Race Renewal.—The National Council for the Promotion of Race Renewal, which established the National Birth Rate Commission, is organizing an international congress for the reaffirmation of the world's moral ideal, to be held in London, October 15-22. The Bishop of Southwark will preside. Dr. Mary Scharlieb will speak on "Marriage, Parenthood and the Relation of the Sexes." Prof. William Caldwell of McGill University, Montreal, and Sir Arthur Newsholme will discuss the economic, social and racial aspects of morality and the rise and fall of population, migration, etc. All communications regarding the congress should be addressed to the secretary, Sir James Marchant, 60 Gower Street, London, W. C. 1.

Texas to Finance Medical Station in China.—Following the visit of Dr. Nathaniel Bercovitz, head of the medical station at Kachek on the island of Hainan, China, the City Temple, Dallas, has assumed the financial responsibility of that station. The station will have a staff of ten missionaries carrying on work through the schools, the churches and the hospitals. The hospital which it is planned to erect there will cost $60,000 and will take about six years to complete, owing to the difficulty of obtaining materials. Pledges to the work by the City Temple amounted to $16,650. The station ministers to 750,000 people, and Dr. Bercovitz is the only physician in that district, it is stated. The organization which has been formed to promote the work of the hospital will be known as the Parish Abroad Association.

Fund for Chinese Universities.—The Rockefeller Foundation has given $125,000 each to the Southeastern University at Nanking and Nankai College at Tientsin for science buildings and equipment. Southeastern University is a government institution. Nankai College is in the north, and is a private institution receiving provincial aid. Both furnish examples of what the Chinese are now doing in science, and its application to medical education and programs of public health, financed with Chinese money and with the teaching and management entirely in Chinese hands. Appropriations have heretofore been made to the premedical work of five mission colleges, as well as to a large number of mission hospitals in China. The gifts to Southeastern University and Nankai College are the first for premedical teaching that have been made to institutions under purely Chinese auspices, the foundation states. A special investigation of premedical education in Chinese and foreign colleges in China was made for the Rockefeller Foundation in 1921 by Prof. Paul Monroe of Teachers' College, Columbia University.

Personal.—Dr. H. Cilento of the Australian Health Department recently arrived in America to study the methods used by the late General Gorgas in effecting sanitation in the Canal Zone. After two months, he will go to New Guinea to take charge of the medical administration of the island, now under Australian control.——Dr. Robert Bárány, professor of otolaryngology at the University of Upsala, Sweden, will give a private course of twenty lectures plus operative work, in Los Angeles, beginning, November 20.——Professor

Pirquet expects to come to America this fall to locate, on account of the economic conditions in Austria. As yet he has accepted no position.——Professor Schick of diphtheria test fame has accepted a position with one of the larger hospitals in New York.——Dr. Jean Guisez of Paris sailed, September 20, for London on the *President Monroe.*——Dr. Henry Roy Dean, since 1915, professor of pathology in Manchester University, and recently elected to the new university chair of bacteriology tenable at University College, London, has been appointed professor of pathology at Cambridge University to succeed the late Sir German Sims Woodhead.

Deaths in Other Countries

Sir **Charles Ryall,** senior surgeon of the Cancer Hospital, London; president of the section of proctology of the Royal Society of Medicine; member of the Council of the Royal College of Surgeons of England, suddenly, from angina pectoris, September 5, while on his vacation in Scotland, aged 53.——Dr. **T. Ichikawa,** president of the Momoyama Hospital, Japan, September 19, from typhoid fever, contracted while experimenting with typhoid serum.——Dr. **David Sharp,** entomologist. In 1892 he became editor of the *Zoological Record;* past president of the Entomological Society of London; died, August 27, aged 81.——Dr. **H. Kayser** of Frankfort-on-the-Main, aged 59.——Dr. **A. de Rijk,** chief of the medical service of the leading insurance company in the Netherlands, aged 48.——Dr. **Avelino Martín,** a well known otologist of Barcelona.——The *Vida Nueva* of Havana reports the death of Dr. **A. Frias Oñate.**

CORRECTION

Roentgen-Ray Equipment at Montefiore Hospital.—In The Journal, September 16, it was stated that this New York hospital had installed a portable roentgen-ray machine of 350,000 voltage. Such apparatus is not portable.

Government Services

Decreasing Number of Officers

Final action on the cases being considered by the elimination oard of the army of which Surgeon-General Ireland is a nember has been delayed in most instances by a reconsideraion of the lists, made necessary by the recent amendment to he law passed by Congress. This amendment has occasioned . large volume of work in a review of hundreds of cases, nost of them of officers of the grade of major or captain, vho would have been selected for retirement if the law had ıot been amended but who will now be demoted. Revision ıf the list of officers for this purpose has been slow and much orrespondence and preparation of records are involved. One actor in the situation pertains to the officers that have applied or discharge, with a year's pay. All of them are naturally nxious to know the action that has been taken on their equests and to avail themselves of accrued leave if their equests are granted. The elimination board's policy as to ıese applications for discharge is that, in most cases, they hould be granted on the theory that, regardless of an fficer's past record of efficiency and possible usefulness in ıe future, it is better to permit him to leave the army than retain him against his wishes. It is recognized also that fficers have opportunity for employment in civil life as well professional careers that they are anxious to enter with ıe least possible delay.

President Issues Order on Care of Disabled Soldiers

An order has been issued by the President to expedite ans to care for disabled soldiers in government-owned hostals. The action was taken as a result of a conference ld at the White House, attended by Col. A. A. Sprague, hicago, head of the hospitalization committee of the Amerin Legion; Dr. W. F. Lorenz, Madison, Wis., and Dr. T. W. lmon, New York, the latter two being specially experienced the treatment of neuropsychiatrics. Formal complaints re registered against the practice of placing shell-shocked terans in private institutions, and the President was ormed that these patients could get proper treatment only government-owned and operated hospitals.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Sept. 11, 1922.

Deaths from Hydrocyanic Poisoning in Fumigation of a Steamer

Two deaths from hydrocyanic poisoning have occurred during the fumigating of the Atlantic liner *Mauretania.* The shipping companies have asked the ministry of health to appoint experts to inquire into this method of fumigation. Dr. R. J. Reece, senior medical officer of the branch of the ministry which deals with sanitary administration in connection with infectious diseases, and one of his staff have gone to New York to inspect the arrangements there. The use of hydrocyanic acid for fumigation of ships was first adopted in this country last March under the supervision of the port sanitary officer of Liverpool, and was successfully performed without accident in two cases. Previously, sulphur dioxid was used for the destruction of rats and other vermin on ships. It has the disadvantage that it is a heavy gas and lingers for a long time. Moreover, it damages cargo and furniture, and attacks metal. At Liverpool, elaborate precautions were taken against accident. Ropes were attached to door handles, ventilator covers and tarpaulins on the hatches, so that all could be opened from a distance. Further, the health officer asked for certificates from the marine superintendent and the chief of the fumigating staff that every man had been accounted for before fumigation began. The ship was left for two hours under the influence of the gas, and then opened by the staff working from leeward to windward. After that, the assistant port health officer went below, wearing a breathing apparatus and carrying a cage of rats to test the atmosphere in all parts of the ship.

Diphtheria and Antitoxin

The persistent high morbidity and high mortality of diphtheria have led the ministry of health to issue a memorandum on the use of antitoxin. The local health authorities are required to make arrangements for the prompt supply of antitoxin to physicians and to educate public opinion regarding the insidious onset and grave danger of diphtheria. The present memorandum points out that early administration of antitoxin not only reduces the mortality from diphtheria but also causes the disease to run a milder and shorter course. Every physician, as soon as he has diagnosed diphtheria on clinical evidence, should have the patient forthwith removed to an infectious hospital, or should administer an adequate dose of antitoxin.

The Treatment of Dementia Praecox

In its twenty-sixth annual report, the board of the Scottish asylums pathologic scheme states that Dr. Ford Robinson Robertson has continued his important researches into the causation and treatment of dementia praecox. He believes that this frequent and progressive form of insanity is traceable to intestinal toxic processes, and that it can be effectively treated by vaccines in the early stages, before irreparable brain damage has been done.

Steinach's Disciple in London: The Elixir of Life Again

Some time ago (June 18, 1921), the sudden and dramatic death of Mr. Wilson on the night before he was to lecture in London on his rejuvenation by Steinach was described in The Journal. This brought to an end an attempt which was being made to introduce the operation into this country. But the check was only temporary. A newspaper now states that Dr. Steinach's treatment is to be brought to London. Dr. Conrad Burkhardi will begin the treatment in New Cavendish Street. So far, the medical press has not noticed the enterprise, and the medical profession has not shown any tendency to follow Steinach. We are also informed that "Dr. Burkhardi practiced in Vienna, where both English and Americans were among his patients. His decision to come to London was prompted by the appeals of his English patients."

The Health of London Children

Dr. Hamer, county health officer and school medical officer for London, has presented a report for 1921 which shows that efficient health administration has brought a better expectation of life and efficiency to the child population of London. The stringent notification of all cases of inflammation in the eyes of infants has reduced the loss of sight due to ophthalmia neonatorum in a remarkable degree. In spite of the high incidence of scarlet fever, which marked the closing months of 1920 and was intensified in 1921, the medical influence in the schools seems to have extended the interval between the periodic "major waves." Seventy years ago, the waves of throat epidemics swelled to their maximum in five or six years. In the last quarter of a century, the interval has been seven or even eight years. Further, the deaths due to them are not one-tenth what they were. Equally noteworthy is the steady improvement since 1913 in the general social and physical condition of London schoolchildren. This was brought about by the high wages and abundant employment during the war. That this artificial prosperity was due to the country living on its capital and must, therefore, be followed by a corresponding depression of wages, the report does not take into account. The percentage of rickets among entrant children fell from 22.6 to 14.1 per cent. Of 217,333 children examined by the school physicians in elementary schools, 85,687 were found to require treatment for one or more defects. Attendances at minor treatment centers reached the vast total of 1,274,613. Ten per cent. more children now leave school with sound teeth than was the case eight years ago. Of the boys, 60.3 per cent. have sound teeth at 12, and of the girls, 63.5 per cent. as against 50 and 52.4 per cent. in 1913.

Honor to American Pioneer of Dental Science

A bronze bust of Green Vardiman Black, founder of the Northwestern University School of Dentistry, Chicago, has been given by the school to the National Dental Hospital, being presented by the American consul-general, Mr. R. P. Skinner, in the absence of the ambassador. Dr. G. E. Maclean, director of the American University Union in Europe, who presided at the ceremony, said that this was the first time that such a presentation had been made from one university to another. Mr. A. Davenport Black, who is visiting Europe in connection with the conference of the American Dental Society in Europe, expressed his pleasure and that of his family at this commemoration of his father's memory in England.

The Treatment of Venereal Disease

Schemes of treatment on the lines laid down by the royal commission of 1916 have now been instituted by 142 local health authorities. The number of treatment centers is 194 (151 in voluntary hospitals, fifteen elsewhere and twenty-eight in special centers). In 120 clinics, there is provision for immediate treatment of gonorrhea. The medical staff of the clinics consists of 384 officers. At most of the hospital clinics some beds are available for inpatients. There are fifteen hostels which can receive 259 female patients; the number treated in 1921 was 770. Nine institutions take in pregnant women suffering from venereal disease, and valuable preventive results have been achieved in ophthalmia neonatorum and infantile syphilis. Difficulty is found in getting patients suffering from venereal disease to attend long enough, but much depends on the personality and efficiency of the medical director and on the adequacy of the premises, especially for the irrigation of gonorrhea. Special premises attached to hospitals have been found best. Most physicians fail to take advantage of the facilities provided at the clinics for the examination of pathologic specimens, and fewer qualify themselves for obtaining a free supply of arsphenamin, or attend with patients for consultation. There is a lack of collaboration between health officers and venereal disease officers. The statistics show a significant reduction in the new cases dealt with in 1921 (roughly, about 20 per cent.), and, on the other hand, persistence in treatment is greater. It is claimed that the clinics are proving centers of enlightenment and education and that the majority of cases of syphilis are rendered temporarily noninfectious. The reduction in new cases appears to be due to this cause. It is also claimed that a substantial proportion of cases of syphilis are cured.

Physicians Warned Off the Navy

The drastic reductions in the navy following the Washington agreement has led to a large number of naval surgeons finding themselves placed on the retired list at 50, when they had anticipated another five years. By the new regulation they are deprived not only of an increased rate of pay but of chances of promotion with increased pension. Officers in other branches of the service have been given compensation for the earlier age of retirement, increases of pension varying from 26 to 100 per cent. But surgeon-commanders are given only 10 per cent. For nearly two years the British Medical Association has been asking the admiralty to redress this grievance, but without result. Finally the council has issued a warning to young physicians as to the risks they run in placing the control of their careers in the hands of the admiralty.

Lead Poisoning from Beer

A considerable number of cases of lead poisoning due to contaminated beer have occurred in the county of Middlesex. A physician noticed that lead poisoning was occurring among his patients, and notified the health officer. The latter found that there was a widespread outbreak in his district, limited to persons using certain saloons in the cellars of which large iron tanks lined with white enamel had recently been installed for storing beer. Samples of the beer were found to contain about 1 grain of lead to the gallon; while the beer as it left the brewery contained none. A lead glaze had been used in the preparation of the enamel and, owing to the solvent power of its sugars, the beer had dissolved some of the lead. The use of the tanks was stopped, and the outbreak ceased. The affected persons had been drinking the beer for two or three weeks before the symptoms appeared. It is thought probable that cases of lead poisoning ascribed to unknown causes have occurred among persons residing in other districts who frequented the saloons in which the contaminated beer was sold. This occurrence shows the value of prompt action on the part of physicians in notifying of cases of illness which may be due to articles of food or drink.

PARIS

(From Our Regular Correspondent)

Sept. 15, 1922.

Identification of Dead Bodies by Means of Dental Records

Dr. Coffart of Paris was able to identify, by means of a dental record, a corpse that had lain buried for seven years (1914-1921) with fifteen other bodies in a common trench. Coffart studied successively the dentition of the bodies. That of the fourth cadaver examined corresponded exactly to the record on the dental card that he had brought. The extractions and fillings indicated on the card had their counterpart in the corpse. There could be no doubt, and the identification was furthermore confirmed by certain details of the clothing, which the mother of the soldier recognized without hesitation. Dr. Coffart concludes from his experience that denal records constitute a safe and reliable means of identifying dead bodies, provided no extensive traumatism has destroyed the jaws.

A Physiologic Agent for the Detection of Poisons

Claude Bernard, in one of his lectures, after referring to the spontaneous peristaltic movements that are observable in the intestine immediately after death, said: "It is a subject worthy of research in organs that are capable of functioning spontaneously and, to a certain extent, as if they were exempt from nervous control." Dr. S. Icard of Marseilles took up the subject recently, inquiring into the phenomena of life that characterize the tail of certain animals; more especially, the long survival of the tail in the gray izard and the wall lizard (*Lacerta muralis*). The observaions he has made not only possess a purely scientific interest, but also have a practical interest. *Lacerta muralis* is a valuable agent in detecting poisons. As such it can render imporant service in legal medicine for the determination of toxins, nd in experimental medicine for the study of certain drugs.

The results of Icard's researches may be thus summed up: When it is a question of a poison that has a paralyzing ffect on the nervous system, he noted that it had an exciting ffect on the movements of the tail of the lizard. If he was oncerned with a poison that paralyzes the muscular system, e observed no exciting effects on the movements of the tail. n case of a poison exerting a stimulative effect on the nerous system, without anesthesia, there were convulsive and pontaneous movements of the tail, these movements ceasing hen the tail was amputated; with anesthesia there are no pontaneous movements of the tail. If one is dealing with a oison that stimulates the muscular system, without aneshesia, there were convulsive and spontaneous movements of he tail, these movements persisting in the amputated tail; ith anesthesia, convulsive and spontaneous movements of e tail.

First Application of the New Law Pertaining to Toxic Substances

The new law of July 14, 1922, pertaining to toxic subances (The Journal, Aug. 12, 1922, p. 569), which imposes n delinquents an obligatory punishment of from five to ten ars *interdiction de séjour* (restricted residence), recently und its first application in the correctional court of Paris. man found with cocain on his person has been found guilty d sentenced to eight months in prison and five years of *erdiction de séjour*.

Rights of Herb Venders

According to French law, herb venders have the right to l certain simple drugs in common use, such as fresh or ied medicinal plants, a list of which is contained in the lex. But the court of cassation (the highest court of ance) has decided that the herb vender commits an illegal when he places on sale, under the name of a "tea," accomnied by indications of his own fancy, a mixture of plants h nothing to reveal their nature or the proportion of each, d recommends such tea as constituting a sovereign specific certain maladies.

Revision of the Pension Law

A law has just been promulgated which modifies the law March 31, 1919, in regard to the medical and surgical e of those ex-service men who have been granted a certain percentage of disability. As already mentioned (The Journal, April 23, 1921, p. 1183), the law of 1919 brought forth many protests from the medical profession, based chiefly on the fact that the law did not grant the men liberty of choice of a physician or surgeon, and that the ex-service man was compelled to return to the hospital from which he was originally discharged. The new law grants satisfaction to the medical profession in that it recognizes that the beneficiaries shall have the right of free choice of physician, surgeon and pharmacist.

An Appeal of the French Red Cross for Aid to the People of Russia

In previous letters, I mentioned a mission sent out by the French Red Cross to bring aid to the Russion people (The Journal, April 29, 1922, p. 1327, and July 29, 1922, p. 392). Six million francs had been appropriated, for the purpose, by parliament. Of this sum, five million francs was furnished in kind, and one million francs in cash, with which to defray the general expenses of the enterprise. In addition to these resources, there may be added smaller gifts in kind to the value of from 200,000 to 300,000 francs and about 200,000 francs in smaller cash gifts, 60,000 of which came from seventeen different general councils or departmental assemblies. The mission arrived in Petrograd, July 12, with the main portion of the aid, and the distributions have been carried out normally. There has been no pillage of goods or merchandise by the famished throngs, nor arbitrary diversion of funds by the soviet authorities, and the members of the mission state that they have been able, within the exact limitations of the agreement, to carry out the work entrusted to them. What interferes with the further prosecution of their task, now that they have reached the Ural zone, is that their resources for the handling and transport of stocks are exhausted. There are still stocks of goods to be transported, which should be placed as soon as possible at the disposal of the agents of the committee of the Red Cross, who wish to limit to a strict minimum the duration of their stay, by reason of the great expense that the mission will be put to in completing its formidable task. As the French Red Cross is not entitled to take the money needed for this purpose from the appropriations intended for its work in France, and since too long a time will elapse before parliament reconvenes, an appeal has been made to the general councils of the several departments. With this object in view, General Pau has addressed a letter to the presidents of these assemblies. He requests that they propose to the general councils, at the present session, that they make an additional contribution toward the work entrusted to the executive committee of the French Red Cross, thus following the example of the seventeen departmental assemblies that have already given evidence of their loyalty.

MEXICO CITY

(From Our Regular Correspondent)

Sept. 17, 1922.

Carbon Tetrachlorid and Hookworm Disease

The suggestion made in The Journal (Nov. 19, 1921, p. 1641) by Hall, as to trying carbon tetrachlorid in the treatment of hookworm disease in man has aroused much interest in this country, where the disease is prevalent. Results confirmatory of Hall's conclusion, namely, that the new remedy is harmless and therapeutically efficient, have already been published by Dr. Garcia Escobar, who tried carbon tetrachlorid in the army hospital at Vera Cruz, and Neftali Rodríguez, who chose this subject for his graduating thesis. Rodríguez' paper includes a report on animal experiments, pathologic studies and clinical trials in hookworm patients.

Personal

Dr. Carlos Govea died last month.——Dr. Rex Duncan, roentgenologist from Los Angeles, has arrived in Mexico, where he is a guest of the secretary of war.——Dr. Rafael Silva, a former pupil of Professor Fuchs, has left for Europe, where he will take some graduate medical courses.——After taking some courses in Germany during the year, Dr. Juan L. Torroella has returned to this country.——Dr. Adrián Correa has assumed charge of the medical department in a newspaper, *El Heraldo de México*. He intends to keep the public posted on the harm caused by quackery.——Dr. Ulises Valdés, former dean of the medical school and former president of the Academy of Medicine, has left for Boston.

BERLIN

(From Our Regular Correspondent)

Sept. 2, 1922.

The Therapeutic Value of Music

The daily press contains a report from New York that a surgeon has recommended the use of music in anesthesia. It is known that music exerts a soothing effect on nervous patients. This was the inspiring motive in the bestowal of the title of doctor of medicine *honoris causa* on the composer Reger on the occasion of the centennial of the University of Berlin, for in the diploma that was granted him at the time attention was called to the fact that his music had served to calm and comfort many patients. A short time after this honor was bestowed on Reger, a friend found him working on a new musical composition and inquired as to the theme. Reger, it is said, replied that he was working on his Opus 606 as evidence of his gratitude for the honorary doctor's title he had received. He of course had in mind that the arsphenamin of Ehrlich first became known as "606."

Personal

Prof. Hüppe, the hygienist, who was for many years director of the Hygienic Institute in Prague, celebrated, August 24, his seventieth birthday. Although he was a pupil and assistant of Robert Koch, he was able, at an early period, to emancipate himself from the one-sided conception of bacteria with reference to the causation of infectious diseases, and through his insight into the relationships between social conditions and disease he became one of the founders of social hygiene. He was the first to establish the frequent elimination of typhoid bacilli through the urine; he also observed the occasional pathogenic effect of *Bacterium coli.*

His researches on water hygiene, the decomposition of milk and other problems of every-day nutrition are also important. He has published also several valuable articles on the importance of physical exercise. His book "Hygiene der Körperübungen" appeared recently in a second edition. Since his retirement, ten years ago, from his position in Prague, Hüppe has been living in Dresden.

Geheimrat Uhlenhuth has received a call to the chair of hygiene in Bonn, as the successor of Professor Neumann, who has accepted the position left vacant in Hamburg by the death of Professor Dunbar. Uhlenhuth was offered the chair of hygiene in Berlin, as the successor of Geheimrat Flügge, but refused the call because the salary and appointments did not come up to his expectations. He accepted instead a position as director of the enlarged Behring Institute for Experimental Therapy in Marburg. However, his expectations do not seem to have been realized in Marburg, especially as regards his professorial activities at the university. Whether he will, on that account, accept the call to Bonn, remains to be seen.

Marriages

Joseph S. Mark, Woodbridge, N. J., to Miss Vivienne Mabel Delaney of South Orange, N. J., September 6, at New York.

Lieut. Emmett J. Brady, M. C., U. S. Navy, San Diego, Calif., to Miss Elsa Wolfram of Bremerton, Wash., recently.

William Dove Noble, Baltimore, to Miss Dorothy Belle Kleinfelter of Asbury Park, N. J., September 14.

Henry A. Meyers, Davenport, Iowa, to Miss Anastasia Mosier of St. Louis, September 18, at Chicago.

Charles B. McGlumphy, Iowa City, to Fraülein Elly Hiller of Vienna, Austria, at Vienna, July 31.

Donald B. Glezen, Cincinnatus, N. Y., to Miss Florence Emily Acker of Worthville, N. Y., August 8.

Charles Henry Remondino to Mrs. Lucille Blanche Redvine, both of San Diego, Calif., recently.

John P. Greaves, Sherwood, N. D., to Miss Adelaide Hamilton of Los Angeles, September 6.

Henry Vernon Sims, New Orleans, to Miss Katherine Roger of Thibodaux, La., September 7.

William Sperow, Carlisle, Iowa, to Miss Lola Rodger of Iowa City, at Newton, Iowa, recently.

John Roscoe McNutt, Two Harbors, Minn., to Miss Elsie Gerlach of Barnum, in August.

William Vernon Cone, Iowa City, to Miss Avis Ellen Wood, at Muscatine, recently.

Edwin O. Swanson, St. Paul, to Miss May Ludke of Amery, Wis., September 14.

T. Leroy Jacobson, Delavan, Wis., to Miss Bessie Ford of Fennimore, Wis., August 7.

Perry McDowell Tibbins, Beech Creek, Pa., to Miss Grace Bloom of Sunbury, recently.

Frederick L. Nelson to Miss Lorenza Ingraham, both of Ottumwa, Iowa, recently.

John E. Towohig to Miss Helen F. Murphy, both of Fond du Lac, Wis., August 22.

Fredolph H. Magney to Miss Ruth Taylor, both of Duluth, Minn., August 15.

Aura J. Miller to Miss Mamie Turnipseed, both of Iowa City, recently.

Deaths

William Sill Foster ⊕ Pittsburgh; Jefferson Medical College, Philadelphia, 1866; fourth vice president of the American Medical Association in 1907 and from 1902 to 1905 a delegate to that body from Pennsylvania. Dr. Foster was born in Pittsburgh in 1842 and enlisted in the Civil War while a student at Washington and Jefferson Colleges. During the Spanish-American War he saw home service and during the World War was appointed a captain in the reserve corps. He served on the staff of the Passavant Hospital, the Allegheny General Hospital, the Presbyterian Hospital and the Western Pennsylvania Hospital. Dr. Foster was a member of the Academy of Science and chairman of the committee on medical relief and of the war record committee of the Allegheny County Medical Society, of which he was president in 1890. At one time he served as select councilman under the Republican administration; died, September 17, aged 80.

Stuart Johnstone ⊕ Chicago; College of Physicians and Surgeons (University of Illinois College of Medicine) Chicago, 1886; member of the Chicago Society for the Prevention of Tuberculosis; formerly professor of gynecology Bennet Medical College; professor of gynecology and abdominal surgery, Jenner Medical College, and professor of diseases of the rectum, Post-Graduate Medical School; member of the staffs of the Cook County, the Chicago Postgraduate and of the Lakeside hospitals; died, September 28, aged 64 at the Lakeside Hospital, from carcinoma of the stomach.

Marco Luzzatto, New York; University of Turin, Italy 1880; formerly assistant professor of physiology at the Uni

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⊕ Indicates "Fellow" of the American Medical Association.

versity of Palermo; director of medical service for the board of health, Mantova, and coroner's physician for the town of Montelepre, Italy. On arrival in this country, Dr. Luzzatto became visiting physician to the Columbus, St. Mark's and the French hospitals; died, September 18, aged 67, at a sanatorium in New York.

Adam Szwajkart ⊕ Chicago; Bennett College of Eclectic Medicine and Surgery, Chicago, 1897; College of Physicians and Surgeons, Chicago, 1903; attending physician at the St. Mary of Nazareth Hospital; in 1913 he was appointed a member of the state medical board and in 1915 he was appointed Cook County physician and director of the Psychopathic Hospital; died, September 25, aged 61, from heart disease.

Henry Clay Munro ⊕ Pleasantville, N. J.; University of Pennsylvania School of Medicine, Philadelphia, 1909; member of the Philadelphia Psychiatric Society; for several years superintendent of the Atlantic County Hospital for the Insane, and the Atlantic County Hospital for Tuberculosis, Northfield; aged 42; died, September 16, in a hospital at Philadelphia, from tuberculosis.

Thomas Vaughan Crandall ⊕ Philadelphia; Medical Department of Columbia College, New York, 1865; member of the Obstetrical Society of Philadelphia, and the North-Western Medical Society; formerly on the staffs of Garretson, St. Joseph's and Samaritan hospitals; aged 82; died. September 22, at the home of his daughter.

Percy Trant Hickson Norcop, Tallulah Falls, Ga.; L.R.C.P., Edinburgh, 1877; F.R.C.S., Edinburgh, 1879; served for welve years in the British navy as physician and surgeon, nd made four trips around the world; died, September 14, ged 69, at St .Joseph's Infirmary, Atlanta.

John Alexander McGarry ⊕ Los Angeles; University of Southern California College of Medicine, Los Angeles, 1898; ormerly instructor of clinical gynecology, University of California; died, July 1, aged 46, from an overdose of luminal aken accidentally.

William M. Farr, Albuquerque, N. M.; Chicago Medical College, 1878; formerly mayor of Kenosha, Wis.; local sureon for the Chicago and Northwestern Railroad for twentyve years; died, September 10, aged 68, from cerebral emorrhage.

Daniel Swift Burr, Binghamton, N. Y.; Geneva Medical College, Geneva, N. Y., 1868; member of the Medical Society f the State of New York; formerly city health officer; died, ugust 23, aged 76, from carcinoma of the prostate and ladder.

Harold Staniford Warren, Yreka, Calif.; Cooper Medical ollege, San Francisco, 1905; member of the Medical Society the State of California; in charge of the Siskiyou County ospital; died, September 21, aged 39, following a long lness.

Andrew Edward Forster ⊕ Philadelphia; Jefferson Medical ollege, Philadelphia, 1904; member of the Michigan State edical Society; died, August 24, aged 46, at the Miserordia Hospital, following an operation for carcinoma of the ver.

Richard Norman Foster, Chicago; Hahnemann Medical ollege and Hospital of Chicago, 1869; emeritus professor obstetrics at his alma mater; practitioner in Chicago for ty years; aged 88, died, September 25, at Oceano, Calif.

John Harrison Bull ⊕ Indianapolis; Medical Department iversity of Indianapolis, Indianapolis, 1903; served in the C., U. S. Army, during the World War; aged 44; died, ptember 17, at a sanatorium in Battle Creek, Mich.

Henry Vose Reynolds ⊕ Brookline, Mass.; Boston Univery School of Medicine, Boston, 1883; aged 61; was shot d killed, September 23, when he went to the assistance of patrolman who was being fired at by a negro.

John A. Asher, Trenton, Mo.; Medical Department of the iversity of the City of New York, 1881; member of the ssouri State Medical Association; formerly county coroner; d, August 7, aged 68, from pernicious anemia.

Melancthon Hilbert, Le Mars, Iowa; Rush Medical Cole, Chicago, 1869; Civil War veteran; formerly mayor of Mars; county recorder; at one time justice of the peace; d 81, died recently, at Hot Springs, S. D.

Howard Locke Vail, Scranton, Pa.; Hahnemann Medical llege and Hospital of Philadelphia, 1903; served in the C., U. S. Army, during the World War; died, July 21, d 42, at Hawley, from uremia.

Robert G. Loyd, Royse City, Texas; Memphis Hospital dical College, Memphis, Tenn., 1893; member of the State Medical Association of Texas; died, July 23, aged 64, from cerebral hemorrhage.

J. B. Middleton, Grenada, Miss.; Memphis, Hospital Medical College, Memphis, 1893; member of the Tennessee State Medical Association; died suddenly, September 13, aged 62, from heart disease.

Robert Carson Kinnaman, Ashland, Ohio; Cincinnati College of Medicine and Surgery, 1873; member of the Ohio State Medical Association; died, September 7, aged 74, from septicemia.

Frederick William Kelley, Bridgewater, N. S.; Medical School of Maine, Portland, 1883; died recently, at the Victoria General Hospital, Halifax, following a short illness.

Max Symore Kahn, Houston, Texas; Medical Department of the Tulane University of Louisiana, New Orleans, 1904; aged 39; was shot and killed in the street, September 15.

Alfred G. Poppe, Adams, Wis. (licensed, Wisconsin, 1899); died, August 7, aged 64, at the Emergency Hospital, Milwaukee, from heart disease and chronic nephritis.

Frederic S. Sandborg, Seattle; Barnes Medical College, St. Louis, 1904; member of the Washington State Medical Association; died, September 11, aged 52.

David Markle McMasters, Russellton, Pa.; Bellevue Hospital Medical College, New York, 1871; died, August 5, aged 74, from carcinoma of the prostate.

Henry Herbert Stebbins, Thonotosossa, Fla.; Bellevue Hospital Medical College, New York, 1885; aged 75; died, August 29, at a hospital in Tampa.

George Milo Thomas, Adams Centre, N. Y.; Albany Medical College, Albany, N. Y., 1917; died, September 8, aged 39, following a long illness.

Robie Dugwell Bentley, Truro, N. S.; Dalhousie University Faculty of Medicine, Halifax, N. S., 1897; aged 53; was shot and killed, July 24.

Margaret L. Sabin, Lincoln, Neb.; Chicago Homeopathic Medical College, 1879; died, September 6, aged 87, from cerebral hemorrhage.

William A. Price ⊕ Hereford, Texas; Louisville Medical College, Louisville, 1893; died, July 10, aged 55, from chronic interstitial nephritis.

James G. Webster, Clinton, Ind.; Medical Department of the University of the City of New York, 1864; died, September 14, aged 93.

Alexander Hamilton, Toronto, Ont., Canada; University of Toronto Faculty of Medicine, Toronto, 1870; died suddenly, July 30, aged 78.

Patrick Charles Corrigan, Omaha; College of Physicians and Surgeons, Buffalo, 1880; died, August 5, aged 71, from heart disease.

Richard Stayner Graves, New Haven, Conn.; Yale University School of Medicine, New Haven, 1897; died, September 4, aged 50.

Edgar Mason Cook ⊕ Everett, Wash.; Pulte Medical College, Cincinnati, 1883; died, July 29, aged 63, from chronic nephritis.

Adoniram Judson Morse, Oakfield, Wis.; College of Physicians and Surgeons, Chicago, 1890; died, September 4, aged 58.

Francis A. Petty, Westford, Vt.; University of Vermont College of Medicine, Burlington, Vt., 1885; died, July 14, aged 66.

Thomas Fleming Lanham, Grafton, W. Va.; College of Physicians and Surgeons, Baltimore, 1880; died, August 25, aged 72.

William W. Esch, Chicago; Jenner Medical College, Chicago, 1906; died, September 23, aged 46, from heart disease.

Theophilus Sprague ⊕ Sheffield, Ill.; Rush Medical College, Chicago, 1870; Civil War veteran; died, September 21, aged 75.

John Hartman Matthews, Cottonwood, Ala. (licensed, Alabama, 1888); died, July 26, aged 64, from heart disease.

George W. Weaver, Tulsa, Okla.; Jefferson Medical College, Philadelphia, 1873; died, September 5, aged 72.

Correction.—A clipping recently received from the Tacoma (Wash) *Ledger* stated that Dr. P. L. Sanders of Bremerton had died suddenly. This item was published in The Journal, September 23. Dr. Sanders is still living.

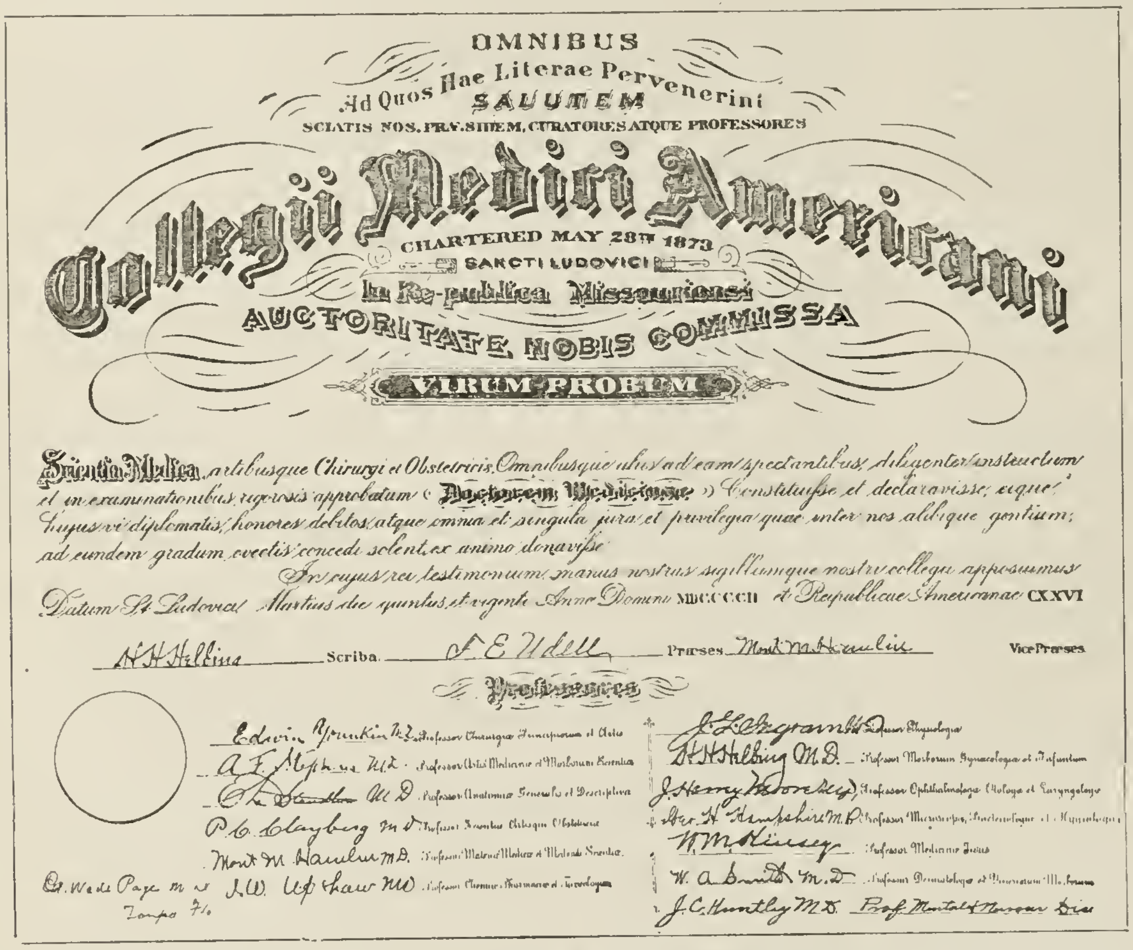
The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other General Material of an Informative Nature

ONE WAY OF GETTING A DIPLOMA

The Interesting Case of Charles Wade Page

Charles Wade Page is at present practicing in Tampa, Fla., on the basis of a license issued by the Eclectic Board of Medical Examiners of Florida in December, 1919. The state law of Florida at the time Page's license was issued, required as a pre-requisite to licensing, the possession of a diploma or a certificate of graduation from a medical college. So far as our records show, Page possesses no such diploma or certificate and has never been graduated by any medical college.



OMNIBUS
Ad Quos Hae Literae Pervenerint
SALUTEM
SCIATIS NOS, PRÆSIDEM, CURATORES ATQUE PROFESSORES
Collegii Medici Americani
CHARTERED MAY 28TH 1873
SANCTI LUDOVICI
In Re-publica Missouriensi
AUCTORITATE, NOBIS COMMISSA
VIRUM PROBUM

Scientia Medica, artibusque Chirurgi et Obstetricis, Omnibusque aliis ad eam spectantibus, diligenter instructum et in examinationibus rigorosis approbatum « Doctorem Medicinae » Constituisse et declaravisse, eique Cujus vi diplomatis, honores debitos atque omnia et singula jura et privilegia quae inter nos alibique gentium, ad eundem gradum evectis concedi solent, ex animo donavisse.

In cujus rei testimonium manus nostras sigillumque nostri collegii apposuimus.

Datum St. Ludovici Martius die quintus et vigente Anno Domini MDCCCCII et Republicae Americanae CXXVI

H H Helbing Scriba. F. E. Udell Præses Mont M. Hamlin VicePræses

Professores

Edwin Younkin M.D.
A. F. Stephens M.D.
M. D.
P. C. Clayberg M.D.
Mont M. Hamlin M.D.
C. Wade Page M.D. Tampa Fla.
J. W. Upshaw M.D.
J. L. Ingraham
H H Helbing M.D.
J. Henry Dorsey
Geo. H. Hampshire M.D.
W. M. Kinsey
W. A. Smith M.D.
J. C. Huntly M.D. Prof. Mental & Nervous Dis.

Photographic facsimile (greatly reduced) of the sample diploma sent by Page to the engraving house asking that six diplomas just like sample (including the signatures of the officers and professors) be made to his order. In the original that portion of the parchment which presumably had borne the name of the graduate had been crudely cut out, while around the cut area were evidences of a previous attempt to erase the name.

In August, 1919, the Biographical Department of the American Medical Association sent Page a personal information blank requesting him to give data regarding his graduation, licensure, etc. This was done because Page in submitting an advertisement for insertion in The Journal had signed himself "Dr." while the records failed to show any man of this name legally entitled to call himself a physician. In reply to this request for information, Page wrote in part:

> "I cannot fill out your card because I have a year to do before I graduate. I have a temporary license to practice medicine in Florida for 1919. This license was given me by the board so I could earn enough money to complete my education."

This, it should be borne in mind, was in August, 1919, when he had "a year to do" before he would be graduated; yet a license was issued in December, 1919. Either Page's statement that he was practicing on a temporary license was a falsehood or the law had been violated, as Florida makes no provision for the issuance of temporary licenses to any but graduates.

In 1920, when Page was practicing in Palatka, Fla., The Journal was informed that Page had been traveling for an optical house spending a day or two at various places fitting glasses. Prior to that he was said to have been connected in some capacity with an insurance concern.

In February, 1921, Page sent in a classified advertisement for insertion in The Journal. At this time he was living in Tampa. The advertisement read (spelling and composition as in the original) thus:

> "For sale complete office equippment, eye, ear, nose and throat $10,000 a year. Will except auto or real estate in Florida or Arkansis as part."

Page was notified that, as the records failed to show that he was a graduate physician and as particulars regarding the announcement that he wanted published were not given, the advertisement was not acceptable.

PAGE WOULD ENTER THE DIPLOMA BUSINESS

In August, 1922, Dr. E. J. Goodwin, Secretary-Editor of the Missouri State Medical Association, wrote to The Journal stating that C. Wade Page had written to a high-grade business concern in St. Louis asking it to print for him (Page), on parchment, six diplomas of the American Medical College of St. Louis, including the names of the professors and with the order, when done, to insert six different names of supposed graduates. The American Medical College, it should be stated, was an eclectic institution that ran for many years; it dropped eclecticism in 1910. It went out of existence under that name in 1912, when it became the Medical Department of the National University of Arts and Sciences, which in turn became extinct in 1918.

The letter Page had written bore a letterhead reading: "C. Wade Page, M. D., Eye, Ear, Nose and Throat, Tampa, Florida" and ran thus:

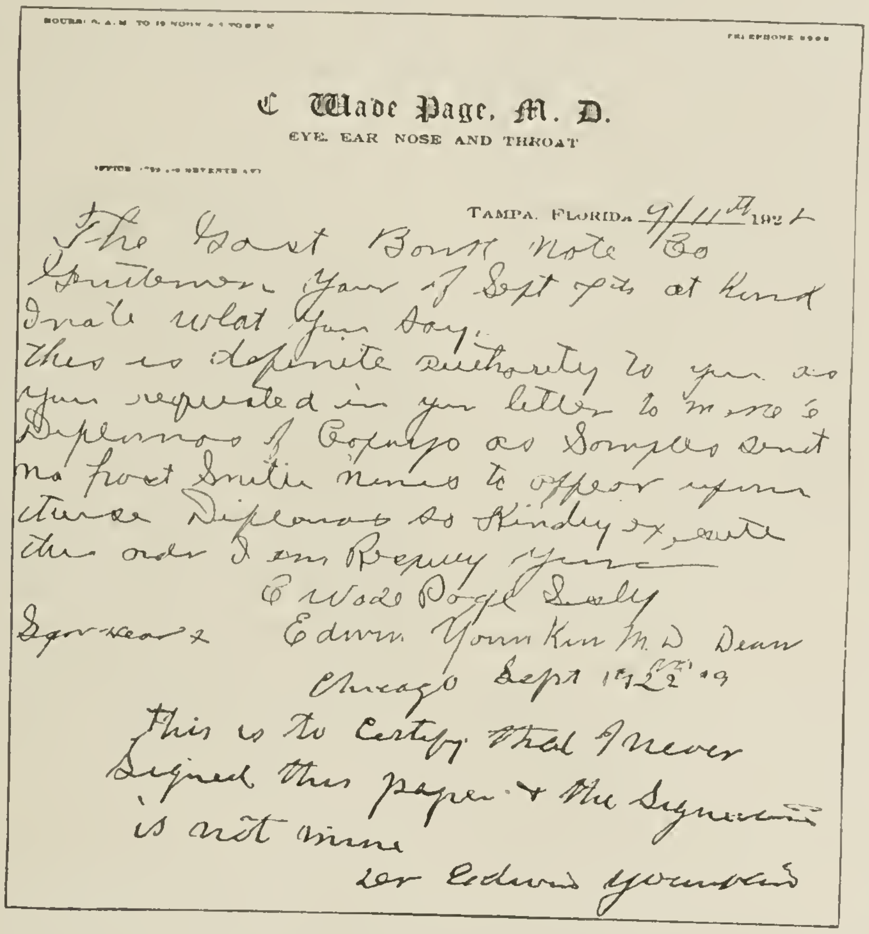
> "The Gast Litho Co., St. Louis, Mo.
>
> *Gentlemen:* I am authorized by the former officers of the American Medical College, St. Louis, Mo. to ask if you did thire Diploma engraving for them and if so if you still have this Plate and can you duplicate 6 copies of the engraving upon genuine Parchment for us and the cost of the same in case you do not have this engraving do you know the lithographer that has Could you Reproduce this from a specimen Diploma of the College & cost of same I await your reply.
>
> C. Wade Page, Secty."

It is worthy of note that Page signs himself "Secty." The Gast Bank Note Company took the matter up with some St. Louis physicians who immediately brought the case to the attention of Dr. Goodwin. In the meantime, the company wrote a noncommittal letter to Page stating that it could not advise him on the matter until a copy of what was desired had been submitted and suggesting that Page send a sample of the diplomas he wanted. A few days later there came from Page a diploma of the American Medical College signed by the college secretary, president and vice-president and by all the various professors and dated March 25, 1902. The diploma (which together with all the correspondence, was sent to The Journal office and photographed) showed evidence of an attempt to erase the name of the person for whom it was originally issued, and, the attempt failing, that part of the parchment containing the name had been crudely cut out. We reproduce the diploma in facsimile; the mutilation does not show in the reproduction as it does in the original photograph.

PAGE BECOMES "SECRETARY"

Accompanying this diploma was a letter from Page in which he signed himself "Secretary of the American Medical College." In it he stated "We desire 4 coppys so give me prices on 4 and 6." The Gast Bank Note Company immediately wrote Page that it had received the sample copy but that it did not have the plate from which the diploma was made and that the cost of making a new engraving would be approximately $75 with $25 additional for making the diploma. To this Page replied—still signing himself "Secty."—that he wanted six diplomas like sample and insisted that they "must be just like it with the names of all the Professors as some are now Dead and we cannot get an exact Duplicate unless you follow Instructions." Page stated further that he would furnish the company with the names that "we wish to Appear on these Diplomas" and enclosed a check for $25 part payment in advance.

In the meantime, Dr. Goodwin had written to Dr. J. J. Link of St. Louis apprising him of Page's action. Dr. Link was for some years treasurer and, for a period, both president and treasurer of the American Medical College. In reply, Dr. Link said that Page was not known to the Board of Trustees of the American Medical College and had no authority to have diplomas of the American Medical College engraved or printed. He pointed out that a duplicate diploma was rarely issued by that school and then only by a vote of the Board of Trustees on receipt of an affidavit from an applicant who was known to be a graduate of the school, to the effect that his diploma had been destroyed. In such cases the duplicate diploma was imprinted with the word "Duplicate."



C Wade Page, M. D.
EYE EAR NOSE AND THROAT

TAMPA, FLORIDA 9/11th 1921

The Gast Bank Note Co
Gentlemen Your of Sept 7th at hand
& note what You say.
this is definite authority to you as
you requested in your letter to make 6
Diplomas of Copys as Samples sent
no post Grad. names to appear upon
these Diplomas so Kindly execute
the order I am Respectfully Yours
C Wade Page Secty
Signed & Edwin Younkin M.D. Dean

Chicago Sept 1922
This is to Certify that I never
Signed this paper & the Signature
is not mine
Dr Edwin Younkin

Photographic facsimile (reduced) of a letter signed "C. Wade Page Secty." and "Edwin Younkin M.D. Dean." This letter was written by Page and, as alleged by Page, sent to Orlando, Fla., to be countersigned by Dr. Younkin. The facts are Dr. Younkin was not in Florida but in Chicago, and when the original letter was taken to him by a representative of THE JOURNAL, Dr. Younkin certified that he never signed the letter.

THE FORGED TELEGRAM

In answer to Page's letter accompanying the check the Gast Bank Note Company wrote that they would have to have authority from the president of the college before proceeding with the work. To this Page replied:

> *"Gentlemen:* I sent your letter of Sept. 1st to Dr. Younkin Dean at Orlando, Fla. he is confined there with Dengue fever asking him to Instruct you just what he wanted to appear upon these Diplomas. Kindly communicate with me upon advise from him."

The facts are Dr. Edwin Younkin, of the old American Medical College, was not at Orlando, Fla., but was in Chicago! Nevertheless, a Western Union "night letter" came to the Gast Bank Note Company from Orlando, Fla., signed "Edwin Younkin, M. D., Dean." It read:

> "Give authority to make six diplomas as specimen per Dr. Page. No facsimile wanted. Proceed with work. Write Dr. Page the secty."

The company again wrote Page stating that it had received a telegram purporting to be signed by "Edwin Younkin, M.D., Dean" but that it could not proceed on such an order but would need a written signed order. Page immediately replied that he had written a letter giving the company his (Page's) authority to make six diplomas and had sent the same to Dr. Younkin to be countersigned. In due time a letter came to the Gast Bank Note Company with the double signatures: "C. Wade Page, Secty., Edwin Younkin, M.D., Dean." We reproduce this letter in facsmile and it will be noted that below the letter, as sent to the Gast Bank Note Company, is a statement actually signed by Dr. Edwin Younkin, certifying that he never signed this letter. This statement was written by Dr. Younkin when a representative of THE JOURNAL laid the facts and the exhibits in the case before him.

Here the case rests so far as THE JOURNAL is concerned. What are the authorities in Florida going to do about it?

Science.—In science there are no secrets and no cults.—Wolbach, *New Growths and Cancer,* Harvard University Press, 1922.

Correspondence

SECTION REPRESENTATION IN THE HOUSE OF DELEGATES

To the Editor:—At the recent session of the Association at St. Louis, it was proposed to do away with the election of members of the House of Delegates from the sections of the Association. It was urged that each member of the Association had the right to be represented in the House of Delegates through his state medical society, and that for members of the sections also to choose delegates was "double representation," and therefore unfair.

That this claim of unfairness is entirely without foundation becomes evident when the facts are examined. Every member of the American Medical Association has the right through his state medical society to take what part an individual member can in choosing members of the House of Delegates. Every member may, if he wishes, become a Fellow of the Association, and aid directly in supporting the organization. Every Fellow has an equal right to attend the session of the American Medical Association, register in any one section he chooses, and take a similar part in the choosing of one delegate from that section. Every Fellow of the Association has, it is admitted, two opportunities to participate in the choice of delegates, and his support of the organization warrants it. Any suggestion that this kind of "double representation" is "unfair" is false and misleading.

It is difficult under universal suffrage to get voters always to exercise their rights of franchise. Some will go to one election, some to another; only a few will vote on every question or for every office placed on the ballot. But because many do not exercise their opportunities for voting to the full extent, it cannot be claimed that there is any injustice in the law that offers those opportunities freely and equally to all. Because some are not sufficiently interested in the Association to attend its annual sessions and take part in the proceedings of one of its sections, they are not unfairly treated because others do avail themselves of the opportunity open equally to every member.

The annual session of the American Medical Association was at first the whole of the Association. The scientific work of the Association has always been done in and through the annual sessions. From the annual sessions have come the impulse and the plans that have created and enormously extended the state and county medical societies. The annual session is now called the Scientific Assembly of the Association; its scientific work is done in the sections. So far as the sections are essential to the work of the Association, their proper interests should be safeguarded in the organic law and the governing body of the Association; and the earlier and later history of the Association shows how carefully the plan for doing this has been developed, and how well it is working.

In a general way, three plans of representation in the governing body of the American Medical Association have been tried. In the beginning, all sorts of medical organizations were invited to send delegates to form and govern the Association. When it met in Baltimore in 1848, there were Philadelphia delegates registered from the College of Physicians of Philadelphia, the Philadelphia Medical Society, five medical colleges, two quiz associations, three hospitals and dispensaries and a local society, besides a Philadelphia delegate from the Pennsylvania State Medical Society. One member of these organizations might well have participated in the selection of a half dozen or more of these groups of delegates, while another member belonging to but one represented body had only his single vote.

Thirty years later, the right to send delegates to the American Medical Association was narrowed to the state medical societies, and the medical organizations affiliated with them that had adopted the code of ethics of the American Medical Association. But still the state delegations were composed of double sets of delegates, as those from the Pennsylvania State Medical Society, Philadelphia County Medical Society and from the College of Physicians of Philadelphia; and of "permanent members" who held their membership independent of local societies. Exactly equal opportunity for representation in the American Medical Association for all its members was not secured until in 1901 the present plan was adopted, for a House of Delegates elected by the state medical societies and the scientific sections.

The actual government of the American Medical Association in its earlier years was farther removed from the influence of the mass of the profession, acting through state medical societies, than the foregoing summary of its "plan of organization" would indicate. All officers were selected by the Nominating Committee, composed of one from each state, who was chosen at a caucus of members from the state, consisting wholly of those who were in attendance at the American Medical Association annual session. At the close of the opening meeting, the members from each state were told to get together in a particular part of the hall. Here these state delegations, amid the confusion of surrounding delegations and the talk of renewed acquaintance, named their chairmen and secretaries and chose their members of the nominating committee, whose names were then reported to the Secretary of the Association and announced at the next session.

In the selection of this nominating committee, the two or three members present from California or Oregon had just as much influence as the two or three hundred in attendance from some nearby eastern state. And this committee named not only every officer of the general association, but every section officer as well. The choice of the officers of a section was made by members of this committee, who had never attended a meeting of the section, and felt no especial interest in the branch of medicine or surgery to which the section was devoted.

This situation became intolerable; and in 1891 the Section on Ophthalmology and other sections each chose an "Executive Committee" of three, "whose general duties shall be to look after all matters pertaining to the development of the section, not already in the hands of existing officers." Within three years every section in the Association had chosen a similar executive committee, and these committees had been united into the General Business or Executive Committee of the Association. This General Business Committee, constituted wholly by the sections, each section having three representatives therein, rapidly became the actual working body of the American Medical Association. Propositions for action were referred to it, and action taken on its recommendations. For ten years its functions developed rapidly in importance; and it worked most steadily and earnestly for the reorganization of the American Medical Association. Again and again the proposed amendments were laid on the table, or their reintroduction blocked for a year, until in 1901 success crowned the efforts of the reformers, who had continued to work in and through the sections, in spite of the parliamentary expedients of medical politicians and the confusion of the general meetings.

The reorganization thus effected gave the Association its House of Delegates, in which for the first time the state medical societies were accorded effective representation in the governing body of the Association. With other improved plans of organization and conduct of business, this brought the era of prosperity that the Association has enjoyed for twenty years. The plan of reorganization, the fruit of work in and through the sections, largely accomplished by the General Business Committee in which only the sections were represented, handed over to the state medical societies nine tenths of the representation in the governing body of the Association.

Edward Jackson, M.D., Denver.

SIXTH NATIONAL CONGRESS OF THE JAPAN MEDICAL ASSOCIATION

To the Editor:—A program consisting of more than 1,600 papers from an attendance of 3,000 delegates is the remarkable record of the Sixth National Congress of the Japan Medical Association, which was held at Kyoto, April 1 to 5, 1922. This record, which, allowing for the presentation of more than one paper by some delegates, represents the participation of nearly 50 per cent. of the delegates of the congress in its proceedings, illustrates the tremendous activity of the Japanese in the medical sciences.

Furthermore, the total number of papers presented is not swelled by the usual number which at most medical congresses are "read by title," for practically every one of the sixteen hundred papers at this congress was given its place on the program, and was delivered within its allotted time of ten minutes by its author.

The first and fifth days of the congress were occupied with formal meetings and long papers read to the general session; the other three days were devoted to the meetings of the seventeen sections, whose programs each day began at 8 a. m., allowed one hour for lunch, and continued until the papers for the day were finished. The rapid progress of the program, with the almost continual shifting of wall charts and figures, gave one the impression of being in a sort of medical mill, which was officially receiving and recording the results of Japan's medical activity, and grinding out Japan's medical literature.

As the representative of the Peking Union Medical College, I was the Caucasian member of the Chinese delegation to this quadrennial congress. And as China was the only foreign country invited to send delegates, I was the only Caucasian in attendance, except for one or two Europeans and Americans who were resident in Japan and who attended an occasional meeting. This fact illustrates the isolation of Japan from the rest of the medical world. But it does not indicate that there is an attitude of aloofness on the part of Japan in the field of medicine. On the other hand, I was impressed with the eagerness which was manifested for closer contact with the West, and particularly with America, in medical work. This attitude was emphasized by the fact that the *Japan Medical World*, the only Japanese medical monthly published in English, presented one of its numbers to each delegate at the congress, and enclosed within each copy a separate sheet with the English word "welcome" in large letters at the top, followed by an explanation of the aim of the periodical to encourage intimacy between the medical professions of Japan and the English-speaking world.

This welcome, as unintelligible to most of the delegates as the papers of the congress were to me, was the written expression of the attitude toward me of every one whom I met at the congress. The dependence on Germany, under whose tutelage Japan's medical profession received its early training, is rapidly passing away, and the English language is supplementing or replacing German in the medical curriculum.

In the twenty-five years of the existence of Japan's National Medical Association, this is the first time that any foreign delegates have been invited to attend a congress. Officers of the association assured me that to the next congress, in 1926, they expected to invite delegates from Europe and America.

The seventeen sections of the National Medical Congress were composed of the seventeen medical societies which make up the national association, and which meet separately in other years for the presentation of their own subjects. Each had its meeting place in some part of the Imperial University of Kyoto, while the general meetings on the first and last days of the congress were held in the new municipal auditorium, which accommodates more than 4,000 people. Except for two addresses, the program was conducted entirely in Japanese. The two exceptions were the addresses by Dr. S. H. Chuan, head of the Chinese delegation, surgeon-general of the Chinese army, and director of the Army Medical College in Peking. Educated in China and America, his address of greeting at the formal opening of the congress was in classical Chinese, while his later address before the Section of Military Medicine was delivered in excellent English.

The well-known hospitality of the Japanese was abundantly demonstrated during and after the congress. Railroad fares, hotel accommodations and automobile transportation about Kyoto were furnished by funds from various sources. Two Japanese physicians from Manchuria were the untiring guides of the party. Formal and informal luncheons and dinners crowded the unoccupied hours, and some of the delegation had the privilege of visiting in the homes of residents of Kyoto.

At the conclusion of the congress the Chinese delegation was invited by the physicians of Tokyo to visit that city, and there, for nearly a week, the entertainment was continued. All the scientific institutions in Tokyo were visited, and official and unofficial dinners were attended. No doubt was left in the minds of the visitors that Tokyo is a modern, progressive city, encouraging the highest quality of scientific equipment and endeavor.

Discounting entirely the favorable impression that unstinted iospitality is sure to make on one, I was highly pleased with he scientific attitude and the public-spirited point of view of the leaders of Japan's medical profession. Any country ould well be proud of these men, many of whom, though till active and scientifically productive, are the founders of nodern medicine in Japan. Japan's chief handicap is the anguage barrier between her and the western world. This s as detrimental to her medical progress as it is to her olitical intercourse with other nations. On all sides I was ssured of the eagerness of medical men for a closer contact ith the medical profession of the English-speaking world. t present much medical research is being done as original ork in Japan which has already been done in other counies. This is largely due to the fact that German medical terature is the only foreign literature available to most of e Japanese, since in the past German has been the only reign language required in the Japanese medical curriculum. ith the realization of the growing importance of American medical research, English as a scientific language is sure to displace, or at least to supplement, German to a large extent, and with this, the quality of Japanese medical research is bound to improve.

On the other hand, it must not be forgotten that much original medical research of the highest order has already been done in Japan. Witness Shiga's work on the dysentery bacillus, Inada's discovery of *Spirochaeta icterohemorrhagiae*, the work of Nagayo and his collaborators on the Japanese river fever, the numerous excellent contributions to the solution of the schistosome problem, and the discovery of the intermediate hosts of various other animal parasites. These and many other accomplishments point with great promise to the future efforts of the medical scientists of Japan.

Any attempt to summarize within reasonable space even the most important papers of this congress would fail to convey an adequate idea of the variety, extent and quality of the work presented. The only way in which one may approach a comprehension of this work is to read the titles of the papers, which are given, section by section, in the *Japan Medical World* for May and June, 1922. This list is a cross-section of the medical sciences in Japan today, and shows that in purpose and in method Japan is apace with Europe and America, and is doing pioneer work in many fields.

Henry Edmund Meleney, M.D., Peking, China.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

SPAHLINGER'S TREATMENT FOR TUBERCULOSIS

To the Editor:—Enclosed find newspaper clipping on "Spahlinger's Tuberculosis Treatment." Have you any information concerning it?

N. H. J., Knob Fork, W. Va.

To the Editor:—I have a patient who is very much interested in obtaining information in regard to the so-called Spahlinger discovery of vaccine treatment against tuberculosis. As I have never heard of it I am enclosing a clipping and would appreciate any information that you have about it and where it may be obtained — if worthy of trial. I have discouraged this patient as much as possible about this new discovery, and doubt whether it can be any better than the ordinary tuberculin in use.

R. L., New Orleans.

To the Editor:—Will you please publish a brief abstract of Spahlinger's Treatment for tuberculosis and the work that has been done on it? Demands to raise money in this country to support and use it are being put forward, and wholly unreliable data about it have appeared in the lay press. I can find very little in the medical press.

P. K. B., San Francisco.

Answer.—According to newspaper reports which appeared in 1921, Spahlinger was a lawyer who had abandoned his profession for research work. He now appears to be connected with the Bacterio-Therapeutic Institute, Geneva. According to an article in the *Lancet*, London, Jan. 7, 1922, by Spahlinger, the treatment utilizes either one or both of two therapeutic principles, depending on the nature of the infection. In acute or rapidly progressing cases, passive immunization with special serums is used. In chronic afebrile pulmonary cases, in nonpulmonary forms and in cases "predisposed to" tuberculosis, active immunization with various special antigens is employed. This article contains no definite information in regard to the preparation of his products.

Professor d'Arsonval, member of the Institute of the Academy of Medicine, appears to have presented a report of British physicians to the French Academy of Science on the Spahlinger treatment.

Recently the newspapers reported that the British Red Cross was to purchase the treatment. So far as we know, British medical journals have contained no confirmation of this statement.

Some time ago, newspapers stated that the Rockefeller Institute had made an offer to secure the right to dispense the Spahlinger "serum" in the United States. An inquiry sent to the Rockefeller Institute brought a denial of this newspaper statement: apparently the preparation had not been investigated by any one at the institute.

So far as we know, the sale of the Spahlinger treatment has not been authorized by the United States Treasury Department, which controls the importation and the sale of biologic products.

All that can be said for the Spahlinger treatment is that its exact nature does not appear to have been divulged, that it is in the experimental stage, and that the reported results lack confirmation.

PATHOLOGIC ANATOMIES — AFSAL

To the Editor:—1. Please let me know the author of the best and most recent pathologic anatomy? 2. What do you know regarding Afsal, a remedy for rheumatism?

A. J. Coley, M.D., Oklahoma City.

Answer.—1. Following is a list of references to recent books on pathologic anatomy:

Aschoff, Ludwig: Pathologische Anatomie (Vol. VIII, Handbuch der ärztlichen Erfahrungen im Weltkriege 1914-1918), Johann A. Barth, Dorrienstrasse 16, Leipzig.
Delafield, F., and Pruden, T. M.: Textbook of Pathology, with final section on postmortem examinations and methods of preserving and examining tissues. William Wood & Co., New York.
Ziegler: Special Pathological Anatomy, Vol. I, William Wood & Co., New York.
MacCallum, W. G.: Pathology, W. B. Saunders Company, Philadelphia.
Stengel and Fox: Pathology, W. B. Saunders Company, Philadelphia.

2. Afsal is being marketed by S. Lewis Summers. It is stated to be "diacetyl methylene disalicylic acid." This product was formerly marketed by the Organic Chemical Manufacturing Company (S. Lewis Summers, president) as Urasol. Urasol was one of a number of "Forma-Sol Compounds" marketed by the Organic Chemical Manufacturing Company. These were stated to be compounds of methylene-disalicylic acid. Sollmann, in an investigation of the value of "internal antiseptics" made for the Council on Pharmacy and Chemistry, reported (The Journal, Sept. 5, 1908, p. 818) that he had found Urasol pronouncedly and persistently nauseating. While the advertisements claimed that formaldehyd was gradually split off and acts as a urinary solvent, Sollmann found no evidence that formaldehyd was split off in the body or that the compounds had any discoverable antiseptic action on the urine. He could discover no ground for the claimed superiority over salicylates, and held the claim "they are the most valuable salicylic acid compounds known" a gross exaggeration. The manufacturer and a firm of commercial chemists having attacked the reliability of Sollmann's work, and a physician of standing having claimed that he had obtained good results with Urasol, the Council on Pharmacy and Chemistry appointed a referee. After an examination of the evidence, supplemented by independent work, the referee confirmed (The Journal, May 8, 1909, p. 1511) the findings of Sollmann, and held that the clinical results of the physician required confirmation.

BUSACCA'S GELATIN TEST FOR SYPHILIS

To the Editor:—What is Busacca's gelatin test for syphilis?

M. H.

Answer.—In the *Wiener klinische Wochenschrift* (**35:**523 [June 8] 1922), Dr. Attilio Busacca states that for his trials he used a 10 per cent. solution of sterilized gelatin (Merck brand). He made intracutaneous injections (usually into the forearm) of 0.1 c.c. of gelatin, after it had been rendered fluid by heating at a temperature of 37 C. He emphasizes that only solid gelatins, rendered fluid as needed, can be utilized for the test. Ordinary fluid gelatins seldom give a reaction. The local positive reaction in syphilis is identically the same as that which occurs in patients suffering from tuberculosis of the skin: At the site of the injection of gelatin there appears a reddening which varies in extent and is not sharply circumscribed; in the center, usually though not always, may be seen a small area of infiltration. When the reaction is intense, there is a swelling of the region concerned or of the reddened area, from which also lymphangitic streaks may radiate. The cutaneous reaction appears usually within six hours, but an absolutely definite interpretation is not possible until twenty hours have elapsed since the injection. The reaction disappears commonly in about thirty hours, leaving no trace, but occasionally it persists for forty-eight hours. A general reaction, such as fever, was never noted. The patients complain of a burning sensation immediately following the injection, but this soon disappears. In intensive reactions the patient feels a certain tension at the site of the injection. In 292 cases of syphilis in various stages of development, 208 (71 per cent.) were positive; forty-three (15 per cent.), negative, and forty-one (14 per cent.), uncertain. The Wassermann test applied to the same series of cases gave: positive, 240; negative, fifty-two. In other words, the Wassermann test proved positive in 82 per cent., the gelatin test in only 71 per cent., of the cases. The value of the gelatin test will be appreciated mainly by those practitioners who are practicing in places in which it is not possible to have an examination for spirochetes or a Wassermann test made. For such, it is claimed, it will be of great aid in the early diagnosis of the disease, which is today regarded as so important in connection with abortive treatment. The gelatin test cannot be used, as is the Wassermann test, for the control of therapeutic results.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Arkansas: Little Rock, Nov. 14-15. Sec., Reg. Bd., Dr. G. W. Walker, Fayetteville; Sec., Eclec Bd., Dr. C. E. Laws, 803½ Garrison Ave., Fort Smith; Sec., Homeo. Bd., Dr. George M. Love, Rogers.

California: Sacramento, Oct. 16-19. Sec., Dr. Charles B. Pinkham, 906 Forum Bldg., Sacramento.

Connecticut: Hartford, Nov. 14-15. Sec., Reg. Bd., Dr. Robert L. Rowley, 79 Elm St., Hartford.

Connecticut: New Haven, Nov. 14-15. Sec., Eclec. Bd., Dr. James E. Hair, 730 State St., Bridgeport; Sec., Homeo. Bd., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

District of Columbia: Washington, Oct. 10. Sec., Dr. Edgar P. Copeland, Stoneleigh Court, Washington.

Florida: Tallahassee, Oct. 10-11. Sec., Dr. W. M. Rowlett, Tampa.

Georgia: Atlanta, Oct. 10-12. Sec., Dr. C. T. Nolan, Marietta.

Hawaii: Honolulu, Oct. 9-12. Sec., Dr. G. C. Milnor, 401 Beretania St., Honolulu.

Illinois: Chicago, Oct. 10-12. Supt. of Registration, Mr. V. C. Michels, Springfield.

Iowa: Des Moines, Nov. 1-3. Sec., Dr. Rodney P. Fagen, State House, Des Moines.

Kansas: Topeka, Oct. 10. Sec., Dr. A. S. Ross, Sabetha.

Michigan: Lansing, Oct. 10-12. Sec., Dr. Beverly D. Harison, 504 Washington Arcade, Detroit.

Nevada: Carson City, Nov. 6. Sec., Dr. Simeon L. Lee, Carson City.

New Jersey: Trenton, Oct. 17-18. Sec., Dr. Alexander MacAlister, State House, Trenton.

New Mexico: Santa Fe, Oct. 9-10. Sec., Dr. R. E. McBride, Las Cruces.

Oklahoma: Oklahoma City, Oct. 10-11. Sec., Dr. J. M. Byrum, Shawnee.

West Virginia: Huntington, Oct. 10. State Health Commissioner, Dr. W. T. Henshaw, Charleston.

Wyoming: Cheyenne, Oct. 9-11. Sec., Dr. J. D. Shingle, Cheyenne.

ANNUAL HOSPITAL CONVENTION IN CALIFORNIA

The second annual convention of the hospitals of California was held under the auspices of the League for the Conservation of Public Health at Pasadena, September 5, 6, 7 and 8. More than 300 hospitals were represented by more than 800 delegates and other representatives.

In opening the convention, the chairman, Dr. W. E. Musgrave, presented some facts and figures to show the magnitude of the problems involved in the campaign of hospital betterment in California. The following is a summary of his address:

ANNUAL COST OF SICKNESS AND HEALTH

Totals of a few items of the annual cost of sickness and health to the people of California are given in the accompanying table. These conservative figures show that the people of California are annually contributing and paying in taxes more than $28 for each man, woman and child for a few of the services of health.

ANNUAL COST OF SICKNESS AND HEALTH IN CALIFORNIA

Maintenance of hospital beds	$ 60,000,000
Official public health	12,000,000
Laboratories, etc.	5,000,000
Nurses' fees and nurses' maintenance	5,000,000
Semitrained nurses' fees	1,000,000
Hospital upkeep	10,000,000
Physicians' fees	15,000,000
Collected and expended by voluntary medical, health and medical welfare organizations	5,000,000
Total	$113,000,000

PHYSICIANS

There are approximately 4,000,000 people in California; there are 8,000 physicians in the state; 7,000 of these are licensed to practice medicine; about 5,000 are in active practice; about 4,000 are members of the California Medical Society; there is one physician in active practice to each 800 of population; $3,000 is the estimated annual gross average income of physicians of the state, and $15,000,000 represents the aggregate annual gross income of all physicians of the state.

These statistics show that California has an adequate number of educated physicians. The number of physicians is increasing faster than the population.

Based on the law of averages and available statistics, it is conservatively estimated that there are 120,000 people ill all the time in California, and that 900,000 people are ill every year.

The expenses for physicians' fees for sick persons, therefore, average $15 a year for each person. This, of course, is only a minor fraction of the total cost of sickness. This does not include the more than $5,000,000 of free service rendered annually by the medical profession of the state.

NURSES

There are about 5,000 registered nurses in the state; about 3,000 nurses are on duty with the public, exclusive of those on salaries in hospitals; $1,500 is the estimated average annual income and maintenance of a nurse; $5,000,000 represents the aggregate gross income and maintenance of the nurses of the state; $100,000 represents the aggregate gross income of "practical nurses," etc.

HOSPITALS AND SANATORIUMS

There are 500 hospitals in the state, of all classes, kinds and conditions; 45,000 is the approximate number of hospital beds available for the sick; 35,000 is the approximate average number of hospital beds constantly occupied; $4.50 is the average cost of maintaining a hospital bed for one day; $160,000 is the estimated daily cost of maintaining all hospital beds of the state; $60,000,000 represents the estimated aggregate annual cost of maintenance of all hospital beds of the state; $5,000,000 represents the estimated cost of roentgenray, laboratory fees, drugs, dressings and other essentials of sickness, exclusive of those cared for in hospitals; $10,000,000 represents an estimate of the annual cost of upkeep for hospitals and sanatoriums; $160,000,000 represents the approximate amount invested in hospital buildings, equipment and real estate in California; from $1,000,000 to $5,000,000 is invested annually in new hospitals and enlarging old ones in the state. This is a constantly increasing amount; exclusive of physicians, some 25,000 people are constantly employed in the hospitals alone in day and night service for the sick; more than 90 per cent. of the hospitals are conducted at a financial sacrifice to their owners or supporters and to the medical profession that staffs them.

PUBLIC HEALTH

Twelve million dollars is a conservative estimate of the amount of money spent by state, county, municipal and other official health agencies controlling and preventing disease.

COST OF HEALTH NOT INCLUDED

Impressive as are the foregoing figures of the costs of health to the people of California, many of the most expensive items incident to diseases are not mentioned. Some of these are:

The millions wasted by loss of earning time by patients, because of illness. If we consider that only 20,000 of the 120,000 people ill in the state all the time are earners, and that they earn only an average of $5 a day, this item alone amounts to $37,000,000 a year for California. The unknown millions spent for services of people, exclusive of physicians and nurses, whose earning time is lost in serving the sick. Unknown millions spent for "patent medicines," cure-alls and other self-prescribed treatments. Unknown millions extracted by quacks, cultists and miscellaneous so-called doctors, healers, and the like, of various species. Unknown millions spent in visiting spas, mineral springs, health resorts and other sure-cures of disease and maintainers of health. Millions spent in mineral waters, health water, freak foods, physical culture and various other combinations opposed to medicine. Vast millions collected and spent by voluntary health organizations, legitimate and useful as well as illegitimate and vicious.

QUESTIONS FOR THE FUTURE

Stupendous as are these figures, they are not complete. They should, however, cause thinking people to consider how this constantly increasing cost of health is going to be maintained. New hospitals are being built and old ones being enlarged, and there is a constant cry for more hospital beds. In southern California alone, hospital projects amounting to millions of dollars are under consideration to meet the demands of a rapidly growing population.

Medical education costs the people of California for its legitimate schools and accessories more than $2,000,000 a year, and these costs are constantly increasing. Official public health activities are costing the state more than $12,000,000 a year now, and are increasing all the time.

So-called health and medical welfare agencies of the voluntary type are constantly increasing in number, and no one can even estimate the vast sums now being contributed to their support.

Already the cost of these polyglot methods is producing complaint from those who must pay the bills. There are now twenty-seven different kinds of so-called "doctors," healers and other agencies and fakers claiming their cult to be the best method of curing the sick. All claim to be doing a large business produced by alluring advertisements. New cults are continually being invented. It would indeed take a seer to predict what the future will be.

Maryland June Examination

Dr. J. McP. Scott, secretary, Maryland State Board of Medical Examiners, reports the oral and written examination held at Baltimore, June 20-23, 1922. The examination covered 9 subjects and included 90 questions. An average of 75 per cent. was required to pass. Of the 68 candidates examined, 66 passed and 2 failed. Sixteen candidates were licensed by reciprocity. The following colleges were represented:

College		Year Grad.	Per Cent.
	PASSED		
Johns Hopkins University	(1920) 82, (1921) 82, 84, 85, 85, 92, (1922) 75, 78, 81, 82, 83, 83, 84, 84, 84, 85, 85, 86, 86, 86, 86, 86, 86, 87, 87, 88, 88, 89, 89, 90, 91, 91, 91, 91, 92, 92, 93		
University of Maryland	(1920) 87, (1922) 76. 77, 78, 80, 81, 82, 83, 83, 83, 84, 84, 85, 85, 85, 87, 88, 88, 89, 89, 90, 90, 90, 91, 91		
Temple University		(1919)	79
McGill University		(1921)	75
University of Palermo		(1915)*	75
University of Odessa		(1919)*	†
	FAILED		
Howard University		(1919)	†
Medical College of Virginia		(1917)	74

College		Year Grad.	Reciprocity with
	LICENSED BY RECIPROCITY		
Rush Medical College		(1916)	Ohio
Baltimore Medical College		(1905)	Dist. Colum.
College of Physicians and Surgeons, Baltimore		(1903)	New Jersey
Johns Hopkins University		(1917)	Missouri
Maryland Medical College		(1905)	Delaware
University of Maryland	(1918) District of Columbia, North Carolina, (1920, 2) West Virginia		
University of Minnesota		(1919)	Minnesota
Bellevue Hospital Medical College		(1898)	New York
Ohio State University College of Medicine		(1915)	Ohio
University of Pennsylvania	1895) New Jersey,	(1921)	Virginia
Meharry Medical College	(1898) Louisiana,	(1918)	Tennessee

* Graduation not verified.

† No grade given.

New Mexico April Examination

Dr. R. E. McBride, secretary, New Mexico State Board of Medical Examiners, reports that five candidates were licensed on diploma at the meeting held at Santa Fe, April 10-11, 1922. The following colleges were represented:

College		Year Grad.	Number Licensed
	LICENSED ON CREDENTIALS		
College of Physicians and Surgeons, Chicago		(1899)	1
St. Louis University School of Medicine		(1907)	1
University of Missouri		(1904	1
Eclectic Medical Institute		(1892)	1
University of the South Medical Department		(1901)	1

Book Notices

New and Nonofficial Remedies, 1922. Containing descriptions of the Articles Which Stand Accepted by the Council on Pharmacy and Chemistry of the American Medical Association on January 1, 1922. Cloth. Price, $1.50. Pp. 453. Chicago: American Medical Association, 1922.

This is the official yearly publication of the Council on Pharmacy and Chemistry. In it the Council presents to the medical profession impartial, critical information concerning those proprietary medicines which the Council deems worthy of recognition. The book also contains descriptions of those nonofficial remedies rated by the Council as worthy of consideration by the profession.

Before a product is admitted to New and Nonofficial Remedies, these important requirements are stipulated: (1) a declaration of the quantitative composition of the article; (2) truthful therapeutic claims in marketing the article; (3) evident or potential therapeutic value.

As evidence of the disinterested character of the work, the descriptions of the preparations are based not only on the information submitted by the manufacturer or his agents, but also on investigations made by, or under the direction of, the Council. The statements made by the manufacturer or those interested in the marketing of the article are culled, and only those are accepted that are supported by substantiating evidence or conform to generally accepted facts. For the best interests of both the profession and the patients, physicians will safeguard all concerned by giving no consideration to a proprietary medicinal agent that has not been admitted to New and Nonofficial Remedies.

A feature that enhances the practical value of the book is the general discussion that introduces each group. For instance, the silver, the iodin, the arsenic and the animal organ preparations and the biologic products are each preceded by a general and thorough discussion of the group. These articles compare the value of the products included in the group with similar pharmacopeial and other established drugs which it is proposed that these proprietary preparations shall supplant.

Each year's edition of New and Nonofficial Remedies is so effectively revised as to be essentially a newly written book.

Physicians wishing to know why a given proprietary preparation is not described in New and Nonofficial Remedies will find at the end of the book "References to Proprietary and Unofficial Articles Not Described in N. N. R." In this chapter are given references to the published articles dealing with preparations that have not been accepted. These reports include references to the Reports of the Council, to reports of the American Medical Association Chemical Laboratory, and to articles that have appeared in The Journal.

New and Nonofficial Remedies should be in the hands of all physicians who prescribe drugs. The book contains authoritative information about the newer materia medica which cannot be found in any other publication.

Enfermedades de los Intestinos. Por Luis Urrutia. Paper. Price, 25 pesetas. Pp. 542. Madrid: Calpe, 1921.

This volume on intestinal diseases is a companion to the previous book by the author on "Diseases of the Stomach" (reviewed in The Journal, April 2, 1921, p. 956). In the thirty-three chapters there are taken up successively: examination, functional diagnosis and common and rare intestinal conditions, such as autointoxication, diarrhea, dyspepsia, constipation, Hirschsprung's disease, colitis, lithiasis, enteritis, ulcers, appendicitis, tuberculosis, cancer, syphilis, nervous disturbances and parasite infestations. The last chapter is devoted to diseases of the rectum and anus. In the new book the different subjects are discussed with thoroughness. In each disease medical and surgical treatment is set forth in detail, and the author usually illustrates his points by reference to cases in his own large practice. One of the most valuable parts of the book is the first chapter dealing with examination methods. The importance of securing a correct history is stressed, as it may furnish the diagnosis in fully 50 per cent. of cases. Chapter XV, on appendicitis, occupying seventy pages, is a complete and up-to-date review of this subject. Incidentally, the author denies the statement often made in English journals as to the rarity of appendicitis in Spain. The only thing really uncommon about the disease in his country is early surgical treatment, wherefore the mistaken conclusion that appendicitis is rare. Intestinal cancer seems rather scarce in Spain, the only available and incomplete statistics (1921) showing a prevalence of 6.6 per thousand deaths, compared with 11.8 per hundred deaths in the United States (1914). The author is fully conversant with foreign literature, and frequent mention is made of American writers, such as Einhorn, Mayo, Deaver, Rehfuss, Ochsner, Case, Lyon and Lynch. The discussions are short and to the point, and the writer has apparently succeeded in his appointed task of preparing a concise and useful handbook for Spanish-speaking physicians. The book contains an abundance of illustrations, many of them from Urrutia's own collection, and a number of them in colors.

Studies in the Aetiology of Epidemic Influenza. By James McIntosh, M.D. Medical Research Council. Special Report Series No. 63. Paper. Price, 2 shillings 6 pence net. Pp. 46, with 7 illustrations. London: His Majesty's Stationery Office, 1922.

The author's results lead him to conclude that the Pfeiffer bacillus is the etiologic agent in epidemic influenza. The evidence adduced in support of this position will not be generally regarded as conclusive.

Medicolegal

Not Unreasonable Refusal to Submit to Operation

(Bronson v. Harris Ice Cream Co., Inc. (La.), 90 So. R. 759)

The Supreme Court of Louisiana, in setting aside a judgment that was rendered for the defendant and decreeing instead one for the plaintiff, says that the latter suffered an injury to his knee in the course of his employment at the defendant's factory, and sued under the workmen's compensation act as for total disability. The disability was not contested, but was said not to be attributable to the accident but to the plaintiff's refusal to allow an operation to be performed, which would probably have cured him and would certainly have relieved him of all pain, and thus restored his ability to work. The operation, as the court understands, would have consisted in opening the knee and removing therefrom some broken parts. The plaintiff, being 59 years old, hesitated about having this done, and finally concluded not to, after consultation with several surgeons, who advised that the operation would not be dangerous to life or health and that the chances of success, in which event the use of the limb would be completely restored, and of nonsuccess, in which event the limb would become ankylosed and rigid, were about even. The plaintiff would have had to be anesthetized, and, being without means, would have had to enter the hospital as a charity patient, which appeared to him in the light of a humiliation.

For the legal action which the injured employee might have to recover full indemnification, the workmen's compensation act substitutes a right to partial indemnification, but seeks to facilitate and insure as far as possible the recovery of this indemnity. To that end, it takes away defenses, simplifies procedure and creates presumptions. That purpose would, in a large measure, be defeated if the door were opened for discussion as to whether the injured employee should or should not have recourse to an operation. This would be adding uncertainty, when the law clearly desires that there should be none. At the same time, it must be recognized that there might be an injury curable by an operation so simple and unattended by risk that plainly the real cause of the disability would be not so much the injury as the fact that the remedy at hand was not made use of. On this question as to whether under the workmen's compensation act an injured employee may have to submit to operation as a prerequisite to recovery of compensation for disability, and on the further and much more difficult question of under what circumstances he will be required to do so, there is much jurisprudence. Most of these cases are inapplicable under the Louisiana statute, except so far as they establish the proposition that the injured employee must not be entirely unreasonable in refraining from an operation however simple and harmless.

In view of the age of the plaintiff, and of the seriousness of the operation, requiring the administration of an anesthetic, and in view of the natural (though unreasoning, and the court may add, groundless) prejudice against resorting to a charity hospital, the court does not think that the plaintiff's unwillingness to submit to an operation was entirely unreasonable. It was not the result of caprice, but of the natural dread of a surgical operation, always attended with more or less risk, especially after a certain age.

Practice of Medicine by Keeper of Bathhouse—Definition

(People v. Sekelyn (Mich.), 186 N. W. R. 479)

The Supreme Court of Michigan, in affirming a judgment convicting the defendant of practicing medicine without a license, says that she kept a public bathhouse. A woman who, being ill, went there and remained three weeks testified that, on her going there, the defendant expressed an opinion respecting the cause of the illness; that she had a room and baths; also that she was getting tablets and a glass of medicine each night; that "she called it medicine." The witness paid $2 a day, $1 for room and $1 for baths. No separate charge was made to her for the medicine. Another witness testified that on going to the bathhouse the defendant stated that she could not tell his ailment until he had stayed a week. He stayed two weeks. He said: "At night, when we got to bed, a man would give us medicine in a bottle, and she gave us pills. She gave me that for medicine, and people drank it, and I drank it also." He paid $2 a day, $1 for room and $1 for baths. The eating, he said, was separate. On the outside of the bathhouse, there was a large sign: "Mary Selken, Bathhouse." The defendant denied furnishing or giving medicine of any kind. The court holds that there was evidence to support the verdict.

Error was assigned on a portion of the charge to the jury wherein the court defined "the practice of medicine." The statutory definition was given:

> The actual diagnosing, curing or relieving in any degree, or professing or attempting to diagnose, treat, cure or relieve any human disease, ailment, defect, or complaint, whether of physical or mental origin by attendance or by advice, or by prescribing or furnishing any drug, medicine, appliance, manipulation or method, or by any therapeutic agent whatsoever.—Section 6732, Compiled Laws of Michigan of 1915.

Of this it was said in *Locke* v. *Ionia Circuit Judge*, 184 Mich. 535, 151 N. W. 623:

> This sweeping effort at definition with all provisions "otherwise" taken nto account would render criminal numerous gratuitous and humane cts of relief and kindness to the suffering common amongst mankind n all ages and places.

Furthermore, it has been said that some things within this tatute category may be innocently done. (Compare *People v. Watson*, 196 Mich. 36, 162 N. W. 943.) For correct definiion, the exceptions made in the cases cited should be added o the language of the statute. But was the defendant rejudiced by the instruction? On the record stated there was no room for the exception above noted as to "gratuitous nd humane acts of relief and kindness." Therefore the ailure of the trial court to note such exception was not rejudicial to the defendant.

Evidence as to Father's Liability for Operation

(Cleveland v. Maddox (Ark.), 239 S. W. R. 370)

The Supreme Court of Arkansas says that the plaintiff nstituted this action to recover on an account for professional ervices. A portion of the account was undisputed, but there was an item of $180 for services in a surgical operation on he defendant's son for which the defendant denied liability. No testimony was adduced by the defendant, yet on that $180 tem the trial court directed a verdict against the plaintiff, on the ground that the latter's own testimony failed to make out a case not within the statute of frauds, which requires the assumption of the debt of another to be evidenced in writing. The plaintiff's testimony was that the defendant's son, who was a grown man with a family, was ill and a surgical operation became necessary; that the arrangements for the performance of the operation were made entirely by the defendant, and not by the son; and that the defendant agreed to pay the fee for the operation, and other expenses thereof. The plaintiff's statement was that the patient never consulted him at all about it; that the defendant "did all the consulting, made all the arrangements, and guaranteed to pay it; that is, he said he would pay the bill." In another part of his testimony, he stated that the defendant said: "Do what you think best for the boy, and I will pay the bill." He testified that, after the operation was over and proved to be successful, the defendant promised to borrow the money and pay the bill, but later stated that his wife refused to sign the mortgage, and subsequently denied liability on the bill. The plaintiff also offered to prove, by a nurse who attended the son at the time of the operation, that she was present at the time of the conference between the plaintiff and the defendant, and that the latter agreed to pay all the charges for the operation on his son. This testimony was excluded by the trial court from consideration by the jury. But the supreme court holds that the trial court erred in excluding this testimony and likewise erred in giving the peremptory instruction to the jury to return a verdict in favor of the defendant on this item of the account. The statute declaring physicians and trained nurses to be privileged from compulsion as witnesses concerning certain kinds of testimony had no application. The evidence was sufficient to show an original undertaking on the part of the defendant to pay the bill for surgical services rendered to his son. The plaintiff stated the agreement in different language, and it was for the jury to draw the inference from the language used as to whether the contract, if there was one entered into between the parties, was an original undertaking, or a collateral one within the statute of frauds. There being sufficient evidence to warrant a finding that there was an agreement on the defendant's part, in regard to the plaintiff's bill for services, and that it constituted an original undertaking, the issue should have been submitted to the jury under appropriate instructions. The judgment rendered was therefore reversed and the cause remanded for a new trial.

Society Proceedings

COMING MEETINGS

American Association of Railway Surgeons, Chicago, Oct. 18-20. Dr. Louis J. Mitchell, 29 E. Madison St., Chicago, Secretary.

American Child Hygiene Association, Washington, D. C., Oct. 12-14. Miss G. B. Knipp, 111 Cathedral St., Baltimore, Md., Secretary.

American Public Health Association, Cleveland, Ohio, Oct. 16-19. Mr. A. W. Hedrich, 370 Seventh Ave., New York, Secretary.

Association of Military Surgeons of the United States, Washington, D. C., Oct. 12-14. Col. James Robb Church, M. C., U. S. Army, Medical Museum and Library, Washington, D. C., Secretary.

Central States Pediatric Society, Cincinnati, Oct. 16-17. Dr. H. T. Price, Westinghouse Building, Pittsburgh, Secretary.

Delaware State Medical Society, Dover, Oct. 9-10. Dr. W. O. La Motte, Industrial Trust Building, Wilmington, Secretary.

Hawaii, Medical Society of, Honolulu, Nov. 19-21. Dr. F. J. Pinkerton, 45-46 Young Building, Honolulu, Secretary.

Kentucky State Medical Association, Paducah, Oct. 16-19. Dr. J. A. McCormack, 532 W. Main St., Louisville, Secretary.

Medical Association of the Southwest, Hot Springs, Ark., Oct. 16-1[illegible]. Dr. W. H. Bailey, 115 West 21st Street, Oklahoma City, Okla., Sec'y.

Minnesota State Medical Association, Minneapolis, Oct. 12-13. Dr. Carl B. Drake, Central Bank Building, St. Paul, Secretary.

Mississippi Valley Medical Association, Rochester, Minn., Oct. 10-12. Dr. Henry Enos Tuley, 244 Francis Bldg., Louisville, Ky., Secretary.

Southern Medical Association, Chattanooga, Tennessee, Nov. 13-16. Mr. C. P. Loranz, Empire Building, Birmingham, Alabama, Secretary.

Tri-State District Medical Society, Peoria, Ill., Oct. 30-Nov. 2. Dr William B. Peck, Freeport, Ill., Managing Director.

Vermont State Medical Society, Burlington, Oct. 12-13. Dr. W. G. Ricker, St. Johnsbury, Secretary.

Virginia, Medical Society of, Norfolk, Oct. 31-Nov. 3. Mr. G. H. Winfrey, 104½ W. Grace Street, Richmond, Secretary.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

September, 1922, **24**, No. 3

*Horse Serum (Foreign Protein) Treatment of Pyelitis and Pyuria. D. M. Cowie, Ann Arbor, Mich.—p. 179.
Dyskeratosis Diffusa Congenita. C. de Lange and J. C. Schippers, Amsterdam.—p. 186.
*Thymic Shadow in Infants. I. E. Liss, Scarsdale, N. Y.—p. 192.
*Inorganic Phosphate Content of Breast Milk of Mothers with Normal and with Rachitic Infants. L. Von Meysenbug, New Orleans.—p. 200.
Indications for Tonsillectomy in Infancy and Childhood. Is Modern Tendency Toward Universal Tonsillectomy Justified? H. Heiman, New York.—p. 204.
Applied Dietetics in Outpatient Departments. M. Ladd, Boston.—p. 211.
*Acute Infections of Urinary Tract in Infants and Children Subsiding without Appearance of Pus in Urine. W. R. Ramsey, St. Paul.—p. 218.
*Critical Study of Sixty-One Cases of Asthma and Eczema in Infancy and Childhood Controlled by Cutaneous Protein Sensitization Tests. H. Herman, New York.—p. 221.
Case of Myeloid Chloroma. O. W. Rowe and F. J. Hirschboeck, Duluth, Minn.—p. 239.
Allergic or Hypersensitive Condition. Review of Two Years' Progress. A. R. Cunningham, Boston.—p. 247.

Horse Serum Treatment of Pyelitis.—Having had difficulty in clearing up cases of pyelitis in infants and young children by the usual methods, it occurred to Cowie that if he could induce a hyperemia of the kidneys an infected pelvis might be cured. Horse serum brings about a hyperemia of the skin and joints and might induce a hyperemia of some of the internal organs. Cowie decided to induce hyperallergy in this patient with horse serum, and then produce an immediate reaction at will with the idea that during the reaction the kidneys might become engorged with blood and a result similar to that which occurs in arthritis after hyperemic stasis be produced. Nine cases are cited. The pus disappeared from the urine completely after the third subcutaneous injection with no recurrence to the present time.

Thymic Shadow in Infants.—The thymic shadow of 119 new-born infants was studied roentgenologically by Liss. The striking revelation in this study was the fact that in a group of average "normal" infants at birth, 42 per cent. showed the presence of a shadow suggesting a thymus measuring more than 3 cm., and this without gross symptoms. As the work progressed, retrogression in size of the shadow took place, the greatest change within the first few months, a steady change as the year went by, so that spontaneous disappearance of this shadow took place in the majority of cases. Some, however, persisted to the second year. As a rule, the children with large thymic shadows were well nourished, some were large chested, with thick and short neck, and without physical stigmata. The general impression was, that the larger thymic shadows were present in the thick and short necked infants.

Inorganic Phosphate Content of Breast Milk.—Inorganic phosphate determinations made by Von Meysenbug of serums of eight nonrachitic infants showed an average of 5 mg. per 100 c.c. Sixteen samples of breast milk of mothers whose infants showed no evidence of rickets contained an average of 4 mg. inorganic phosphate per hundred c.c. milk. The serums of seven rachitic infants were examined and the average value for the inorganic phosphate was 2.8 mg. per hundred c.c. The breast milk of mothers of rachitic infants was found to contain an average of 4.8 mg. inorganic phosphate per hundred c.c.—an average which falls within the "normal" range.

Obscure Fevers in Infants Due to Urinary Tract Infection.—Ramsey contends that many heretofore obscure fevers in infants and children are produced by infections with the colon bacillus, these infections may be local or perhaps systemic, and that they may be diagnosed by the characteristic general symptoms and by the elimination of an increased number of colon bacilli in the urine. Three cases are cited.

Protein Sensitization Tests in Children with Asthma and Eczema.—Thirty-one cases of bronchial asthma in children from 1 to 14 years of age, and thirty cases of eczema in children from 5 weeks to 7 years of age are described by Herman A total of 4,520 tests were performed, 979 of these being tests with the same proteins repeated. An average per patient of ninety-six different proteins (with twenty-eight repeated) were tried on the asthmatic group, and twenty-two different proteins (with five repeated) on the eczema group. Approximately one in every twenty-eight or twenty-nine tests performed gave a positive reaction, and one in every eleven or twelve tests was either positive or doubtful. As many as fourteen of the asthma cases and thirteen of the eczema cases gave no indication of hypersensitiveness as determined by skin tests. The proteins of egg, rabbit hair, cow's milk (especially the lactalbumin portion), mustard, chicken feathers and goose feathers, lamb, chicken, goose and duck, gave the most frequent positive reactions. A classification is given of the individual cases into sensitive and nonsensitive, and further into subgroups according to the type of proteins to which they were sensitive (i. e., whether food, animal epidermal, pollen, or bacterial), with the results secured in each subgroup. No cases were bacteria sensitive. The importance of focal infections as an etiologic factor in these children is stressed. Occasional findings which limit the usefulness of the protein sensitization test are mentioned.

American Journal of Psychiatry, Baltimore

July, 1922, **2**, No. 1

Broadened Interests of Psychiatry. A. M. Barrett, Ann Arbor, Mich.—p. 1.
New Evidence for Sympathetic Control of Some Internal Secretions. W. B. Cannon, Boston.—p. 15.
Habit Clinics for Children of Preschool Age. D. A. Thoms, Boston.—p. 31.
Recognition of Prepsychotic Children by Group Mental Tests. G. E. Hyde, Provo, Utah.—p. 43.
Costs of Social Service Department of State Hospital vs. Economies Effected Thereby. A. J. Rosanoff, Kings Park, N. Y.—p. 49.
Simple Reaction in Psychosis. F. L. Wells and C. M. Kelly.—p. 53.
Experiment with Simple Tests for Insane. M. Bates, Worcester, Mass.—p. 61.
*Defective Mental Make-up and Pernicious Forms of Torticollis, Tinnitus, Neuralgia and Pruritus. L. B. Alford, St. Louis.—p. 67.
Study of Institutional Escapes. C. F. Read and D. B. Rotman, Dunning, Ill.—p. 75.
Anhedonia. A. Myerson, Boston.—p. 87.

Defective Mental Make-Up and Tinnitus, Pruritus and Neuralgia.—The object of Alford's communication is to indicate that the pernicious forms of tinnitus aurium and pruritus of the anogenital region, spasmodic torticollis and trigeminal neuralgia may be similar in nature and to give the reason for this similarity. It is pointed out that with certain apparent exceptions, they are alike as to age and onset, course, resistance to treatment, predominance of one symptom in clinical picture, and central nervous origin. Tinnitus aurium is found not to be an exception if one accepts Gray's contention that the changes in otosclerosis must affect all parts of the biologic and physiologic unit subserving the function of hearing. Trifacial neuralgia is also not necessarily an exception, for the evidence commonly supposed to indicate a peripheral lesion is from another point of view equally in favor of a central disorder. The psychic deviations frequently associated with tinnitus do not seem to conform to classical types of mental disorder. Psychic deviations also are said to occur in the other forms but their nature cannot be ascertained. The nature of the patient's mental reaction to symptoms in these forms is indicative of something more than a peripheral disturbance.

Archives of Internal Medicine, Chicago

September, 1922, **30**, No. 3

*Interpretations of Initial Phases of Electrocardiogram with Special Reference to Theory of "Limited Potential Differences." T. Lewis, London.—p. 269.
*Case of Hodgkin's Disease Treated with Roentgen Rays for Six Years. K. R. McAlpin and W. C. Von Glahn, New York.—p. 286.
*Experimental Reproduction of Specific Histopathology of Influenza. G. Baehr and L. Loewe, New York.—p. 307.
Mechanism of Development of Non-Bacterial, Chronic Cardiovalvular Disease. W. Thalhimer, Milwaukee.—p. 321.
*Bronchospirochetosis in China. E. C. Faust, Peking, China.—p. 343.
*Tetany: Report of Cases with Acid-Base Disturbance. S. B. Grant, Boston.—p. 355.
*Blood Pressure of Normal Cantonese Students. W. W. Cadbury, Canton, China.—p. 362.

*Renal Function and Amount of Functioning Tissue. T. Addis. San Francisco.—p. 378.

Studies in Kottmann Reaction for Thyroid Activity. W. F. Petersen, F. T. H'Doubler, S. A. Levinson and J. E. F. Laibe. Chicago.—p. 386.

*Glucose Mobilization Rate in Hyperthyroidism. B. J. Sanger and E. G. Hun, New York.—p. 397.

Interpretation of Initial Phases of Electrocardiogram.—According to Lewis' theory of limited potential differences, relative negativity should appear, first of all, at the basal contact; secondly, when the wave of excitation reaches the apex, the apical contact should appear relatively negative; finally, when the wave returns to the base, the basal contact should again show relative negativity. The second and last suppositions are not in accord with the facts. But if, on the other hand, one arranges the potentials theoretically, using the hypothesis of limited potential differences, harmony exists. The hypothesis of limited potential differences, Lewis asserts, is in accord, so far as can be seen, with all present observations on heart muscle.

Roentgenotherapy of Hodgkin's Disease.—The diagnosis of Hodgkin's disease of the mesenteric lymph nodes in the case cited by McAlpin and Von Glahn was made six and one-half years before death. The patient was under observation from the time the diagnosis was made until she died. The temperature at times was of the recurrent type. The blood picture closely resembled that described by Bunting. The blood pressure was very low, even when the patient was first admitted. Although the spleen was thought to be very much enlarged during life, at necropsy it was found to be only a trifle larger than normal. Apparently, a mass of infiltrated fat and intestinal wall had been mistaken for the spleen. Because of the advanced stage of the disease when the diagnosis was made, it is safe to say that the roentgenotherapy slowed the process but in no sense cured the condition. Death was due to perforation of the intestine. This is believed to be very unusual in Hodgkin's disease. Unusual pathologic findings are: extensive involvement of the peritoneum and abdominal viscera; the tendency to regional invasiveness; atypical giant cells and the scarcity of eosinophils.

Experimental Reproduction of Histopathology of Influenza.—Baehr and Loewe describe the pulmonary lesions produced in rabbits by the intratracheal inoculation of Berkefeld filtrates of nasopharyngeal washings from early cases of influenza or of cultures of the filtrable punctiform bodies cultivated from such washings by Loewe and Zeman. These experimental lesions correspond with considerable accuracy to those of human influenza and they cannot be confused with the changes produced by any other pathogenic organism either in human beings or in animals. The unusual nature of the pathologic process in influenza is apparently due to the fact that the virus of this disease possesses a remarkable affinity for the vascular endothelium. The virus gains access via the respiratory passages, and is rapidly absorbed through the mucous membrane of the trachea, bronchi and bronchioles. Apparently, as a result of its peculiar endotheliotoxic property, it then rapidly calls forth a profuse outpouring of serum and red blood cells in patchy areas throughout the lungs. Further evidence of this vascular damage is to be seen in the complete loss of tonus in many capillary loops and in the early occlusion of many capillaries and minute arterioles by blood platelet thrombi.

Bronchospirochetosis in China.—A survey of the Chinese cases of bronchospirochetosis, Faust says, indicates two things. In the first place, a certain proportion of the subjects have pulmonary tuberculosis as a primary infection with a secondary spirochetosis. Secondly, cases of simple bronchospirochetosis are usually of the chronic type, giving a history of recurrent cough and hemoptysis for a period of from one to ten years. In acute bronchospirochetosis, arsenicals injected intravenously; give immediate relief. In tuberculous infections the administration of arsenicals eliminated spirochetes from the sputum but did not materially relieve the patient. The administration of potassium iodid, sodium cacodylate and other therapeutic agents has been found valuable in bronchospirochetosis, but per orem treatments do not have such specific properties as does the intravenous administration of arsenicals.

Acid Base Disturbance in Tetany.—The occurrence of tetany in various disorders of the body is discussed by Grant and six cases of tetany in adults are reported. These are all of the type in which there is an acid base disturbance. Three cases occurred in obstruction of the stomach. In two of these the plasma carbon dioxid capacity was determined, and found greatly increased. In one the blood chlorid was determined and found markedly decreased. Serum calcium, determined in this case, was in the upper limits of normal. These results corroborate in the human the experimental findings of investigators in animals. Two cases resulted from overdosage with sodium bicarbonate, and one occurred in hysterical hyperpnea.

Blood Pressure of Chinese Students.—A study of the blood pressure of 774 health, male, Cantonese youths made by Cadbury shows that their average systolic, diastolic and, to a less degree, pulse pressures, are lower than the standards for European and American youth of corresponding age, weight or height.

Excreting Capacity of Kidney Tissue.—Under certain special conditions, when the amount of secreting tissue in the kidney is constant, Addis says, the amount of urea excreted in the urine in one hour is directly proportional to the amount of urea in 100 c.c. of blood sampled during that period. Under certain special conditions, when the amount of secreting tissue in the kidney varies, the ratio:

$$\frac{\text{urea in one hour's urine}}{\text{urea in 100 c.c. of blood}}$$

is directly proportional to the amount of secreting tissue in the kidney. The conditions under which the ratio:

$$\frac{\text{urea in one hour's urine}}{\text{urea in 100 c.c. of blood}}$$

becomes a measure of the amount of secreting tissue in the kidney are, first, that the urea excreting capacity be placed under a strain so that all the secreting tissue is called to full activity, and second, that there be an absence of the effect of certain specific renal stimulants and depressants.

Glucose Mobilization Rate in Hyperthyroidism.—Ten normal persons and ten subjects with exophthalmic goiter were studied by Sanger and Hun under identical conditions. The blood sugar curves in the control cases were entirely normal, while those in the cases of hyperthyroidism, for the most part, showed the usual variation, i. e., an abnormally high peak maintained over a prolonged period. The respiratory quotients in the normal cases revealed normal carbohydrate storage and response while those in the cases of hyperthyroidism showed a greater and more rapid rise, which made for a striking increase in the carbohydrate utilization.

Boston Medical and Surgical Journal

Sept. 7, 1922, **187**, No. 10

*Blood Changes in Myelogenous Leukemia Following Radium Treatment. B. R. Whitcher, New York.—p. 349.

*Biochemical Studies in Ten Cases of Dementia Praecox. K. M. Bowman, Boston; J. P. Eidson, White Plains, N. Y., and S. P. Burladge, Ithaca, N. Y.—p. 358.

Blood Changes in Myelogenous Leukemia Following Radium Treatment.—Whitcher believes that his case shows that the application of radium in myelogenous leukemia does produce an apparently beneficial effect on the patient, if the amount of radium applied is regulated with caution, as the leukocyte count is reduced to nearly its normal level, the myelocytes are greatly decreased, and at times made to disappear altogether, the blood is brought to a more nearly normal appearance, and an apparent general improvement takes place in the patient's clinical condition. But the treatments needs to be given at regular intervals. On the other hand, the study of Whitcher's case indicates that radium is a factor fraught with danger, and that caution is necessary in regulating the amount to be applied, lest an excessive amount of radium or too frequent application may cause undue destruction of the leukocytes and so injure the reproductive powers of the bone marrow that a rapid leukopenia and anemia result.

Biochemistry of Dementia Praecox.—No constant findings were obtained by Bowman et al. which would serve to explain dementia praecox on the basis of a simple dysfunction of a single gland. There was found a tendency toward a low basal metabolism and an abnormally sustained blood sugar curve, but such findings were not constant. In no case was there an increased basal metabolism nor was there a subnormal (flat) blood sugar curve.

Colorado Medicine, Denver

September, 1922, **19**, No. 9

Consideration of Migraine Character. J. A. Buchanan, Pueblo.—p. 179.
Motion Study in Surgery. C. S. Elder, Denver.—p. 182.
Intravenous Use of Mercury Cyanid in Treatment of Syphilis. M. Q. Howard, Pueblo.—p. 184.
Contraindication to Use of Quinin and Salicylates in Treatment of Diseases of Middle Ear. C. E. Harner, Denver.—p. 185.
Accuracy in Diagnosis. E. D. Burkhard, Pueblo.—p. 188.

Kansas Medical Society Journal, Topeka

September, 1922, **22**, No. 9

Treatment of Pulmonary Tuberculosis. W. S. Hunter.—p. 263.
Diagnostic Surveys by Diagnostic Commissions for Asylum Populations. C. A. L. Reed, Cincinnati.—p. 267.

Michigan State Medical Society Journal, Grand Rapids

September, 1922, **21**, No. 9

Pathology of Hyperthyroidism. L. B. Wilson, Rochester, Minn.—p. 369.
Hyperthyroidism from Internist's Viewpoint. C. L. Mix, Chicago.—p. 373.
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Nebraska State Medical Journal, Norfolk

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Diphtheria Following Tonsillectomy. F. L. Secoy, Sioux City, Ia.—p. 318.
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New York Medical Journal and Medical Record

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Study of Unconscious Motivations in Suicides. L. P. Clark, New York.—p. 254.
Psychopathologic Disturbances from Avoidance of Parental Responsibility. G. Stragnell, New York.—p. 263.
Folie à Deux. J. H. W. Rhein, Philadelphia.—p. 269.
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Marked Atrophy in Early Tabes. H. L. Fossey, Philadelphia.—p. 282.

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Further Pathologic Studies in Dementia Praecox, Especially in Relation to Interstitial Cells of Leydig. F. W. Mott, London and M. Prados Y. Such, Madrid.—p. 315.
Cerebellar Manifestations of Epidemic Encephalitis. F. W. Heagey, Omaha.—p. 321.
Case of Epidemic Encephalitis with Papilledema Simulating Brain Tumor. S. Naccarati, New York.—p. 326.
*Acute Multiple Sclerosis: An Unusual Case. G. H. Hyslop, New York.—p. 328.
*Case of Dystonia Musculorum with Remarkable Familial History. H. Fossey, Philadelphia.—p. 329.
Endocrine Aspect of Feebleminded and Epileptic Child. H. Goldstein, New York.—p. 330.
Epileptic and Her Sixteen Children. N. S. Yawger, Philadelphia.—p. 334.
Treatment of Epilepsy with Special Reference to Use of Luminal. L. Wender and D. G. Sampson, Corozal, Canal Zone.—p. 336.
Eugenics Versus Epilepsy. J. T. Wright, Skillman, N. J.—p. 339.
Radium in Treatment of Diseases of Women. W. H. B. Aikins, Toronto.—p. 340.

Acute Multiple Sclerosis.—Hyslop reports the case of a man, aged 21, previously in good health, who within thirty months had three episodes suggesting acute cerebellar and pontine lesions. In the intervals he was free of symptoms, except for paresthesia in the hands and a little bladder difficulty. He worked as a laborer. The third episode lasted nearly two months. During the attack, nystagmus, diplopia, vertigo, impaired bladder control, speech difficulty, ataxic gait, bilateral pyramidal tract signs (more on the right) and a left sided diminution of pain and temperature sensibility were noted. These symptoms were the most prominent and persisted longest. The diagnosis in this case lies between tumor of the cerebellum or pons, thrombosis of the posterior inferior cerebellar artery (atypical), angioneurotic edema of the pons and cerebellum, and multiple sclerosis. Multiple sclerosis is the logical diagnosis.

Dystonia Musculorum with Remarkable Familial History.—Fossey's patient was a woman, 29 years of age. Her mother was living and in good health except for blindness due to cataracts. Her father died twenty-one years ago in the insane department of a hospital. An uncle died in a hospital for nervous diseases. An aunt died in the hospital with some "nervous" trouble. An uncle died in the insane department of a hospital. This uncle had four children, cousins of the patient as follows: J., who died in the insane department; I., who was insane at death; W., at present a patient in the insane department of this hospital; G., also a patient in the insane department. The diagnosis of the uncle, of the father, of the cousins W. and G. S., was that of the dementia of late chorea. There was also another patient, a brother of the patient. Thus the patient has six near relatives, including her father, afflicted with Huntington's chorea, and one brother with dystonia.

Oklahoma State Medical Association Journal, Muskogee

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Placenta; Management of Third Stage of Labor. J. W. Brown, Tulsa.—p. 239.
History, Examination and Antepartum Care in Pregnancy. D. Lowry, Oklahoma City.—p. 244.
Care of Premature Infants. A. L. Salmon, Oklahoma City.—p. 250.
Puerperal Sepsis. W. A. Fowler, Oklahoma City.—p. 253.
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Public Health Journal, Toronto

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Social Investigation and Follow-Up in Venereal Disease Cases. G. Bates.—p. 362.
Castine Summer School for Rural Leaders. J. Browne.—p. 369.

Southwestern Medicine, Phoenix, Ariz.

August, 1922, **6**, No. 8

Present Aspects of Etiology and Treatment of Bronchial Asthma. G. Piness, Los Angeles.—p. 289.
Treatment of Trachoma. J. D. Mulder, Reheboth, N. M.—p. 295.
Oxygen and Light in Their Relation to Incidence and Development of Cancer. E. C. Prentiss, El Paso, Tex.—p. 297.
Dietetic Treatment of Diarrhea in Babies. M. K. Wlyder, Albuquerque, N. M.—p. 301.
Prostatic Surgery and Some of Its Problems. A. R. Hatcher, Wellington, Kan.—p. 304.
Protein Desensitization and Food Addition Method in Asthma. O. H. Brown, Phoenix, Ariz.—p. 307.

September, 1922, **6**, No. 9

History of Diseases of Thyroid and Development of Its Surgery. E. C. Moore, Los Angeles.—p. 319.
Medicolegal Problems in Arizona. L. R. Anderson, Prescott.—p. 325.
Thoracoplasty in Treatment of Tuberculosis. W. Smith, Phoenix.—p. 334.
Observations from Clinical and Laboratory Findings in Pyelitis and Pyelonephritis. L. J. Roth, Los Angeles.—p. 337.
Experiences in Surgery of Prostate. H. A. Rosenkranz, Los Angeles.—p. 340.

*Ureter Implantation into Groin. H. A. Rosenkrantz, Los Angeles.—p. 343.
Kidney Function. C. S. Vivian, Phoenix.—p. 345.

Implantation of Ureter Into Groin.—In two cases in which one tuberculous kidney had been removed and later tuberculosis developed in the remaining kidney, Rosenkrantz transplanted the ureter of the remaining tuberculous kidney into the groin. These patients wear a soft rubber catheter extending up into the kidney. The catheter empties into a flat bottle attached in front of the pubic or inside the thigh. The patient is instructed how to irrigate his kidney every day or two, and to change his catheter about every three days. Both patients operated on are said to be in perfect health, one two years and the other four years after operation. Rosenkrantz claims for this operation that it is simple; the patient can take care of himself; there is no danger of obstruction to ureter due to adhesions, strictures or plugging with débris; there is immediate and thorough drainage for any infection which may develop; the kidney pelvis is readily accessible to the physician for adjustments, treatment and hygiene; the method is clean and free from leakage; it is a one stage operation; there is no shock; by having the patient's kidney and ureter readily accessible and under control, there is eliminated the chance that makes bowel implantation hazardous; it offers patient the longest tenure of life.

Surgery, Gynecology and Obstetrics, Chicago

September, 1922, **35**, No. 3

Further Notes on Diseases of Umbilicus. T. S. Cullen, Baltimore.—p. 257.
*Combined Transpleural and Transperitoneal Resection of Thoracic Esophagus and Cardia for Carcinoma. C. A. Hedblom, Rochester, Minn.—p. 284.
*Infection in Mediastinum in Fulminating Cases of Empyema. E. K. Dunham, New York.—p. 288.
Roentgent-Ray Diagnosis of More Important Tumors of Long Bones. B. H. Nichols, Cleveland.—p. 301.
Emphysema of Scrotum Result of Diverticulitis of Sigmoid with Perforation. F. W. Rankin and E. S. Judd, Rochester, Minn.—p. 310.
*Posttransfusion Reactions. E. C. Levine and H. N. Segall, Montreal, Can.—p. 313.
*Vomiting and Distention After Laparotomy Lessened by Substitution of Rubber Envelop Pads for Gauze. D. Bissell, New York.—p. 320.
*Cancer in Cervical Stump; Metastasis in Vermiform Appendix. R. T. Frank, Denver.—p. 334.
Associated Pathology of Gall-Bladder Disease with Further Plea for Cholecystectomy. F. D. Moore, Chicago.—p. 338.
Autogenous Versus Heterogenous Bone Pegs. G. de Tarnowsky, Chicago.—p. 342.
*Kineplastic Amputation of Forearm—Trimotor. G. B. Arana, Buenos Aires, Arg.—p. 347.
*Preservation of Motor Root of Gasserian Ganglion During Division of Sensory Root for Trifacial Neuralgia. A. W. Adson, Rochester, Minn.—p. 352.
Case of Primary Carcinoma of Female Urethra Treated with Radium. L. A. Pomeroy and F. W. Milward Cleveland.—p. 355.
Thiersch Graft in Radical Cure of Frontal Sinus and Maxillary Antrum Diseases. J. E. Sheehan, New York.—p. 358.

Resection of Esophagus for Carcinoma.—May 15, 1922, Hedblom resected the thoracic esophagus and the cardia for carcinoma involving both structures. The operation followed a preliminary resection of the fifth to the eleventh ribs and was performed under local anesthesia, and gas and oxygen analgesia. The left plueral cavity and the peritoneal cavity were opened widely, the diaphragm was split down to the hiatus, the esophageal stump was sutured to the skin edges in the middle axillary line, and the gastric stump was brought to the surface near the line. The patient recovered from the operation and is able to take food by mouth through a tube connecting stomata. This is said to be the second reported case in which operation was performed by this method.

Infection in Mediastinum in Empyema.—Figures are presented by Dunham which show that in exactly one quarter of the cases in which death occurred as a result of empyema following influenza during the first two weeks after the incidence of the empyema and in which a necropsy was performed there was an infection in the mediastinum. The proportion falls to a little less than 1 in 15, when the antecedent disease was measles, but shows the same constancy during the first two weeks. The relatively high incidence of mediastinitis in empyema following these two epidemic diseases Dunham believes supports the view that they impair the powers of defense against secondary infections.

Posttransfusion Reactions.—From observations and from an examination of the literature, Levine and Segall have come to the conclusion that inaccurate testing cannot account for all the reactions, but that they occur very frequently, even after the bloods have been properly matched and found suitable. Observations made in three cases cited point to a definite phenomenon, namely, that a long operation in which ether is used as the anesthetic alters the patient's serum as regards its hemoagglutinin properties. Furthermore, this change is not a permanent one but disappears during the first twenty-four hours after the operation, i. e., just about the time when the patient has recovered from the effects of the ether anesthesia. Reactions have also occurred after repeated transfusions. The authors urge, therefore, that the compatibility of the recipient's and donor's bloods must be determined prior to each and every transfusion. No transfusion must be done during or within twenty-four hours after prolonged ether anesthesia even when the donor has been found suitable previous to the beginning of anesthesia. Much depends on the accuracy of the test. It is, therefore, preferable to do both the indirect test (Moss) to determine the group of donor and recipient, and also the direct (Cooca) test, to coroborate the compatibility of the bloods, thus checking up one test by the other.

Prevention of Vomiting and Distention After Laparotomy.—A study was made by Bissell to find out what differences, if any, in postoperative emesis and intestinal distention existed between laparotomized cases in which rubber envelop pads were used and those in which gauze pads were used. In 400 successive laparatomized patients, the use of rubber envelop pads resulted in freedom from vomiting in practically the same proportion as in the nonlaparotomized patients. Comparing nearly equal numbers of laparotomized cases under approximately the same conditions thus, study demonstrates that to substitute the rubber envelop pads for gauze pads is to double the chance of escaping vomiting; to reduce two days vomiting by one third; to cut three days vomiting 60 per cent.; and to lessen distention by two thirds. The dominant factors in the causation of emesis in laparotomized cases, Bissell says, are ether and trauma of the peritoneum of the intestines and while the influence of ether is only twenty-four hours, the influence of intestinal peritoneal trauma may extend to three days or more. Less vomiting, less distention and less morphin shows less trauma to the peritoneum.

Cancer in Cervical Stump.—Frank cites a case in which a supravaginal hysterectomy for fibroids of the uterus had been performed one year before Frank saw the patient and a beginning cancer of the cervix was overlooked. The unique site of metastasis in the vermiform appendix is the main reason for putting the case on record. Secondary cancer of the appendix vermiformis has regularly resulted by continuity from the cecum, or by contiguity when the appendix has become adherent to malignant ovarian or other intraperitoneal neoplasms, or when a diffuse carcinosis of the peritoneum involved the appendix. None of these conditions obtained in Frank's case.

Kineplastic Amputation of Forearm.—Kinematization, or kineplasty, Arana asserts is a procedure which no operative method hitherto known can put into practice. By means of kineplasty there is constructed on the segment of the amputated limb, a kinetic element termed "motor" which has the property of transmitting a living, voluntary, natural force to the respective prothesis and by means of this force the prothesis is endowed with active motion, governed by the patient's will. There are stumps with one motor, unimotor; with two motors, bimotor, and with three motors, trimotor, by means of which an artificial hand may be worked. With three distinct, voluntary forces, independent of each other, the hand is capable of performing varied and even complementary movements resembling those of a normal hand. The reeducation of the disabled is facilitated by using in the construction of the motors, muscles which must continue to work in the fashion intended by nature. In order to bend the fingers of the artificial hand, the patient contracts the same muscles which he used for closing the hand lost by mutilation, and the new adaptation of the motor to the prothesis, will, therefore, be made easy because of its similar function.

Preservation of Motor Root of Gasserian Ganglion During Division.—Adson asserts that it is possible to preserve the motor root of the gasserian ganglion by anatomic dissection without the aid of faradization during the division of the sensory root for trifacial neuralgia. He described the technic employed in nine consecutive cases in which satisfactory results were obtained.

Tennessee State Medical Association Journal, Nashville

August, 1922, **15**, No. 4

Relation of Internist to Diseases of Eye, Ear, Nose and Throat. L. M. Scott, Jellico.—p. 169.
More Conservatism in Medicine and Surgery. V. E. Massey, Huntingdon.—p. 177.
Osteomyelitis. J. P. Baird, Dyersburg.—p. 180.
Diet of Child from Nine to Twenty-Four Months. O. Hill, Knoxville.—p. 185.
Case Report: Syphilitic Cervical Pachymeningitis. R. C. Bunting, Memphis.—p. 188.
Cancer of Lip. C. M. Hamilton, Nashville.—p. 190.
Radium in Cancer. W. S. Anderson, Memphis.—p. 193.
Hematocolpos Complicated with Ovarian Cyst and Appendicitis. W. D. Sumpter, Nashville.—p. 195.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

Aug. 26, 1922, **2**, No. 3217

Plea for Study of Biology in Relation to Public Health. A. K. Chalmers.—p. 333.
Port Sanitary Administration: Development and Relation to Public Health in England and Wales. R. J. Reece.—p. 335.
Economics of Public Health. F. E. Fremantle.—p. 338.
Interpretation of Death Statistics of Infancy and Childhood in Relation to Development and Environment. J. Brownlee.—p. 342.
*Puerperal Mortality in Scotland. T. F. Dewar.—p. 344.
*Defects in School Children. R. Bruce.—p. 346.
Maternity and Child Welfare in Scotland. M. J. Menzies.—p. 348.
Industrial Fatigue and Vocational Selection on Basis of Physical Inquiry. D. McKail.—p. 351.
Constituents of Fresh and Vitiated Air and Their Significance in Problems of Ventilation. J. P. Kinloch.—p. 356.
Wrong Turning in Public Health. F. E. Wynne.—p. 357.
Methods of Sewage Disposal in Tropics: Special Reference to Helminth Infection. M. Khalil.—p. 360.
Should We Longer Tolerate the Pollution of the Air? B. W. B. Smith.—p. 361.
Training for the D. P. J. and New Regulations. E. W. Hope.—p. 363.
Administrative Requirements of Various Types of Tuberculosis. A. S. M. MacGregor.—p. 365.
Importance of Teaching Medical Jurisprudence to Students of Medicine and Law. A. Allison.—p. 368.
Dangers to Health Arising from Use of Industrial Preparations of Arsenic. W. H. Willcox.—p. 371.

Sept. 2, 1922, **2**, No. 3218

Training of the Medical Student. C. Allbutt.—p. 407.
Place of Pharmacology in the Medical Curriculum. W. E. Dixon.—p. 410.

Puerperal Mortality in Scotland.—In Scotland, for 1919, the total death rate from puerperal conditions per thousand births was 6.21. That proportion is maintained with approximate equality in the various parts of the country. For the larger burghs it is 6.4, for the smaller burghs it is 5.9 and for the country districts it is 6.2. Among the cities and large burghs it ranged, in that year, from 4.6 in Paisley to 8.2 in Edinburgh. These figures deal with the total puerperal death rate; septic conditions accounted for 23 per cent. of the whole. In the city of Aberdeen since the beginning of 1917 a full inquiry has been made by Dewar, so far as practicable, regarding every death of a woman occurring within four weeks of confinement. During the five years in which such inquiry has been made, the total puerperal death rate and the septic puerperal death rate, per thousand births, have been respectively as follows:

Year	Total Puerperal Death Rate per 1.000 Births	Puerperal Sepsis Death Rate per 1,000 Births
1917	9.8	2.7
1918	7.9	2.1
1919	6.7	0.3
1920	6.0	1.0
1921	6.0	1.4

Defects in Schoolchildren.—At 5 years of age 58 per cent. of the crippling found by Bruce to exist in 15,605 schoolchildren was due to rickets, and to rickets of the most pronounced type. The next most frequent cause of crippling, he says, is tuberculosis, which caused 9 per cent. of the total crippling. Pulmonary tuberculosis is conspicuous by its absence. Routine medical inspection revealed no evidence of definite pulmonary tuberculosis and only seven suspected cases out of a total of 15,605 children examined. Chronic bronchitis is responsible for 6 per cent. of the whole crippling. Nervous diseases are responsible for 7.4 per cent. of the crippling found at this age. Mental deficiency comes next in the order of frequency, with a total percentage of 6.3. The cases of anemia and malnutrition, which account for 3.9 per cent. of the total crippling, are those which show no symptoms of other disease, debilitated conditions usually following on pneumonia or one of the infective fevers. In some of the cases a tuberculous family history can be elicited. The remaining 9 per cent. of crippling were due to eye conditions, mostly strumous ophthalmia, a few cases of heart disease—the acquired of those due to scarlet fever and rheumatism—and other miscellaneous conditions such as congenital and acquired deformities.

Indian Journal of Medical Research, Calcutta

July, 1922, **10**, No. 1

Bacteriologic and Laboratory Technic. W. F. Harvey.—p. 1.
Occurrence of Larvae of Philematomyia Crassirostris Stein in Human Intestine. W. S. Patton.—p. 57.
Two Cases of Cutaneous Myiasis Caused by Larvae of Sarcophaga Sp.? W. S. Patton.—p. 60.
Egg Laying Habits of Cobboldia Elephantis Cobbold. W. S. Patton.—p. 63.
Value of Tame Cow for Collecting Blood-Sucking Diptera of Locality. W. S. Patton.—p. 66.
New Indian Species of Genus Musca. W. S. Patton.—p. 69.
Relapsing Fever in United Provinces of Agra and Oudh. F. W. Cragg.—p. 78.
Retention of Virulence of Micro-Organism Kept in Sealed Culture. W. F. Harvey and K. R. K. Iyengar.—p. 190.
Influence of Age and Temperature on Bacterial Vaccines. W. F. Harvey and K. R. K. Iyengar.—p. 192.
*Simplified Method for Cultivation of Plasmodium Falciparum in Vitro. J. A. Sinton.—p. 203.
Further Remarks on Clinical Method for Cultivation of Subtertian Malaria Parasite in Vitro with Note on Its Use in Diagnosis. J. A. Sinton.—p. 210.
*Case of Malaria Due to Plasmodium Tenue (Stephens). J. A. Sinton.—p. 215.
Bodies Oserved in Cimex Rotundatus Linne Collected in Kala-Azar Infected Area in Assam. H. A. Adie.—p. 236.
*New Variety of Streptothrix Cultivated from Mycetoma of Leg. J. W. Cornwall and H. M. Lafrenais.—p. 239.
Synopsis of Adult Oriental Culicine (Including Megarhinine and Sabethine) Mosquitoes. F. W. Edwards.—p. 249.

Cultivation of Plasmodium Falciparum.—Sinton uses a medium consisting of ascitic or hydrocele fluid to which dextrose is added, and a special culture tube in which a few drops of blood from the finger of a malarial patient can be taken, defibrinated and cultured without any transference being necessary.

Malaria Due to Plasmodium Tenue.—Sinton has seen five cases of malaria due to *Plasmodium tenue.* He describes and pictures the organism in detail.

New Streptothrix from Mycetoma Lesion.—The organism described by Cornwall and Lafrenais, according to the Society of American Bacteriologists should be termed an "actinomyces," whereas according to Chalmers and his collaborators it should be "nocardia." Its morphology and biology are described.

Journal of State Medicine, London

August, 1922, **30**, No. 8

Points of Interest Respecting Preserved Food, More Particularly that Supplied to Fleet. T. J. Underhill.—p. 336.
Climate of Plymouth and Its Relation to Public Health. H. V. Prigg.—p. 356.

Journal of Tropical Medicine and Hygiene, London

Aug. 15, 1922, **25**, No. 16

Preventive Aspects of Endemics in Modern Times. W. J. Simpson.—p. 257.
Passages of Medical Interest from West Indian Note-Books of Dr. Louis Westenra Sambon. B. Dwellings.—p. 260.

Lancet, London

Aug. 26, 1922, **2**, No. 5165

Students' Guide—Session 1922-1923.—p. 425.

Sept. 2, 1922, **2**, No. 5166

Ambulatory Treatment of Fracture of Limbs; Tuberculous and Arthritic Disease of Joints. C. A. Hoefftcke.—p. 492.
*Treatment of Acute Pneumonia and Influenzal Bronchopneumonia. W. H. Wynn.—p. 493.
Malnutrition, or Infantile Dystrophies. C. Chisholm.—p. 497.
Blood Transfusion: Automatic Method of Citration at Body Temperature. W. B. Bell.—p. 501.
*Old Age and Blood Pressure Problems. R. J. C. Thompson and R. E. Todd.—p. 501.
Heterophyes Nocens: Distinct Species of Trematode Parasite. C. Lane.—p. 505.
*Priapism: Complicating Myelogenous Leukemia and Noted as First Symptom. G. W. Theobald.—p. 505.
Case of Impaction of Pharynx by Watch. P. E. Hill.—p. 508.
Unusual Local Effect (Skin Eruption) of Novarsenobillon. M. O'B. Beadon.—p. 508.

Treatment of Pneumonia.—Alcohol, Wynn says, is the most used of all drugs in pneumonia and influenza, and has the sanction of some distinguished authorities. There is no scientific reason for its use, which is mainly based on tradition and the popular idea that it is a stimulant. Apart from its very fleeting stimulating effect, produced reflexly by the irritation of mucous membranes, its chief actions are to depress the nervous system and to inhibit antibody formation, neither of which is desirable in diseases whose toxins are also nerve depressants. The clinical experience cited in its favor is met with equally distinguished evidence against it. The high mortality of pneumonia and bronchopneumonia will never be reduced by attempts to treat poisoned organs incapable of response, but by early diagnosis and prompt measures to prevent intoxication by immediate specific treatment and common sense nursing. Expectant treatment in the early stages is often followed by harmful drugging in the later. Wynn favors vaccine treatment. He uses a vaccine made from primary cultures or at most first subcultures. It should not be detoxicated or sensitized. For acute pneumonia the vaccine contains several strains of pneumococci, and for influenzal bronchopneumonia equal numbers of pneumococci, streptococci, and influenza bacilli. The important points are that it should be given early and in sufficient amount. In pneumonia Wynn gives 100 millions pneumococci to an adult and in influenzal bronchopneumonia 100 millions of each organism. For a child, aged 12 or 14, from 40 to 50 millions should be given, and to a child of 2 or 3, 10 to 20 millions. The only death among fifty-one patients injected within the first two days of their illness occurred in a young woman who was admitted on the second day with violent mania and extensive bronchopneumonia. Seven out of the ten deaths occurred in patients who were not injected until the fourth or fifth day. Four of these cases were complicated, respectively, by mitral stenosis, advanced pregnancy, meningitis and asthma, and in three other cases there was a considerable albuminuria. The ten deaths give a mortality rate of 9.1 per cent.

Blood Pressure in the Aged.—The net result of Thompson and Todd's clinical blood pressure observations on very old people is that the readings are more of theoretical interest than useful in diagnosis or treatment. A man over 80 with no subjective or objective signs whose mechanism has become adapted to a $^{200}/_{100}$ pressure is not a case of hypertension to be dosed with iodids and nitrites, to be carefully dieted and subjected to balneotherapy. His medical attendant may be thankful that the man has been fitted with what is probably a compensatory and beneficent high systolic pressure. He will be wise in not tampering with the individual in order to treat a diagnosis. We submit that his, or her, the authors emphasize, high or low blood pressure is not a subject to be discussed with the patient either directly or by suggestion. There are already too may people who quote their blood pressure figures. It is enough that such people regard their "nerves" and intimacies of metabolism as topics of general conversational interest. Freedom from anxiety, business, domestic and personal, is therapeutically most important for the subject of the hypertension which requires treatment. Patients who brood over their own blood pressure figures, or the fact that their doctor has told them that they "suffer from high blood pressure," are very prone to become the subjects of a vicious circle in which the processes revolve the faster the more introspective the patient becomes.

Priapism in Myelogenous Leukemia.—Priapism constituted the first symptom of myelogenous leukemia in Theobald's case. The patient, aged 31, never complained of bleeding from his nose or gums, nor was blood visible in his stools. The blood count was high, 1,020,000 leukocytes in 1 c.mm. of blood.

Medical Journal of Australia, Sydney

July 22, 1922, **2**, No. 4

Development of Human Dental Mechanism; Significance of Deciduous Teeth; Orthodontia as Aid to Pediatrics. W. S. Wilkinson.—p. 83.
Management of Diabetes Mellitus of Children. H. B. Graham.—p. 89.
Diphtheritic Vulvitis. F. A. Maguire.—p. 94.

July 29, 1922, **2**, No. 5

*Prognosis of Lobar Pneumonia and Influence of Serum in Treatment. S. W. Patterson.—p. 115.
*Action of Pneumococcus on Aromatic Amino-Bodies. W. J. Penfold.—p. 120.
*Case of Acute Syphilis of Central Nervous System. I. Morgan.—p. 129.

Serum Therapy of Lobar Pneumonia.—Sixty-six patients in the Melbourne Hospital series were treated with antipneumococcal serum, either polyvalent or monovalent. As a rule, serum was given only to patients who were severely ill or who were doing badly and for that reason was often given late in the disease. Thus three patients received serum only on the day before their death, which occurred on the tenth, eleventh and eighteenth day, respectively. Twelve other patients, of whom three died, may be excluded because serum was given in small doses and especially small single doses of from 5 to 10 c.c. subcutaneously. This leaves fifty-one patients treated with polyvalent or monovalent (Type I) serum administered subcutaneously or intravenously or both ways with eight deaths, i. e., a mortality of 15.7 per cent. Patterson is of the opinion that these figures are sufficiently striking to warrant a wider use of serum.

Action of Pneumococcus on Aromatic Amins.—All pneumococci and probably all streptococci, Penfold asserts, act on certain aromatic amins, notably, anilin, benzidin and the toluidins, producing pigment. The pigments are probably due to the oxidation of the amino bodies by the peroxid produced by these organisms. This anilin pigment production serves to separate the pneumococcus and streptococcus from the great majority of pathogenic organisms and may possibly be profitably applied in field work for the detection of both the anilin pigment forming and the anilin nonpigment forming bacteria. Benzidin is the best of the aromatic amins for the purposes of this test. Eighteen c.c. of nutrient agar, 1 c.c. of citrated horse blood and 1 c.c. of 0.5 per cent. benzidin solution constitute an excellent medium for obtaining this reaction.

Acute Syphilis of Central Nervous System.—Morgan's patient, aged 21, suddenly developed severe headache and double facial palsy. He vomited for three days. He became drowsy and "slept practically all the time, as if in a stupor." His pupils reacted to light and accommodation fairly well. The knee jerks were very feeble. A provisional diagnosis was made of (1) cerebral abscess, (2) syphilis of the central nervous system. (3) lethargic encephalitis. The patient rapidly became cyanosed and died on the third morning after admission of what seemed like a paralysis of the respiratory center. At the necropsy marked early atheroma was seen of the aortic wall just above the situation of the aortic valves. The presence of aortitis in a man, aged 21, strongly positive Wassermann reaction of the cerebrospinal fluid and the obvious infection of the central nervous system led to the diagnosis of acute syphilis of the central nervous system. No other pathologic lesion could be found. Morgan concludes that death was cause by the toxins of *Treponema pallida*.

South African Medical Record, Cape Town

Aug. 12, 1922, **20**, No. 15

Simple Device for Collecting Blood for Transmission to Laboratory at Distance for Subsequent Estimation. F. H. Joseph.—p. 282.

Archives des Maladies du Cœur, Etc., Paris

July, 1922, **15**, No. 7

*Forms of Gallop Rhythm. L. Bard.—p. 457.
*Aneurysm of Pulmonary Artery. G. Blechmann and A. Paulin.—p. 472.
*Pernicious Anemia. A. Thomas and G. Poix.—p. 481.
*Spread of Mitral Murmur. G. Turrettini.—p. 489.
*Comparative Blood Pressure in Arms and Legs. A. Dumas.—p. 495.

Forms of Gallop Rhythm.—Bard discusses gallop rhythm in relation to its synchronism. There are three forms of the gallop rhythm; protosystolic, presystolic and protodiastolic. They are all connected with the pathologic forms of the diastolic filling of the ventricles. On the other hand, they have no relation to the conditions controlling the period of evacuation.

Aneurysm of Pulmonary Artery.—Blechmann and Paulin publish what they believe to be the first observation of an aneurysm of the pulmonary artery in a child. It was due to acute endocarditis implanted on a congenital cardiopathy.

Pernicious Anemia.—Thomas and Poix publish a case of pernicious anemia with subacute evolution revealed by an ataxoparaplegic syndrome with rapid onset.

Mitral Insufficiency Murmur.—Turrettini reports three cases of the mitral insufficiency murmur spreading over the whole thorax and along the spine. Radioscopy in the oblique position revealed the close proximity of the posterior part of the heart to the vertebrae.

Comparative Blood Pressure in Arms and Legs.—Dumas' research was made in forty cases of high blood pressure in both sexes. In thirty-four the tension was higher in the legs than in the arms. Dumas asserts that this higher blood pressure and more pronounced oscillographic findings in the legs, in comparison to the arms, is an early sign of weakening of the heart.

Bulletin de l'Académie de Médecine, Paris

July 18, 1922, **88**, No. 29

*Undernourished Children. Méry.—p. 47.
Pregnancy and Tuberculosis. E. Sergent.—p. 50.
Variations in Prevalence of Scabies. G. Thibierge.—p. 52.
Means to Reduce Traffic in Cocain. Courtois-Suffit and R. Giroux.—p. 65.
Occupational Affection Due to Coleoptera. A. Loir and H. Legangneux.—p. 68.
Rural Welfare Center for Infants. R. Dubost, G. Blechmann and François.—p. 72.
*Aids to Gastric Digestion. F. Ramond.—p. 76.

Undernourished Children.—Méry comments on a recent study of the physical development of schoolchildren during the years of the war and since. He reiterates the conclusion that abundance of milk is indispensable for children who for any reason have had their growth retarded.

Aids to Gastric Digestion.—Ramond reports that addition of calcium chlorid or magnesium chlorid hastens artificial digestion of gelatin in the test tube. Phosphates retard it. Hence the chlorids may be found useful when gastric digestion is insufficient, while the phosphates may be indicated with excessive gastric secretion.

Bulletins de la Société Médicale des Hôpitaux, Paris

July 7, 1922, **46**, No. 24

Vaccine Therapy in Malta Fever. N. Fiessinger and G. Blum.—p. 1040.
*Paratyphoid Bacilli in Pneumonia. A. Lemierre and L. Lévesque.—p. 1045. Idem. Loeper and Marchal.—p. 1053.
*Acute Articular Typhoid. J. Thiroloix and Harmelin.—p. 1054.
*Ouabain in Heart Disease. C. Laubry and C. Pezzi.—p. 1061.
*Complications of Chronic Malaria. C. I. Urechia.—p. 1070.
*Autohypnosis. C. I. Urechia and N. Rusdea.—p. 1073.
Respiratory Disturbances in Epidemic Encephalitis. P. Marie, L. Binet and G. Lévy.—p. 1075.
Epidemic Erythema Nodosum. G. Caussade et al.—p. 1080.
*Radiotherapy of Lung Tumor. J. Thiroloix and Pierquin.—p. 1086.
Ascites Rupturing Umbilicus. Lemierre and Lévesque.—p. 1091.
*Digestive Hemoclasis in Leukemia. Dumitresco-Mante.—p. 1097.

Paratyphoid Bacilli in Blood in Pneumonia.—In the case reported by Lemierre, the paratyphoid B bacillus was cultivated from the blood the eighth day of pneumonia with pneumococci swarming in sputum. There was nothing to suggest that the paratyphoid bacillus was more than a casual saprophyte. Loeper reports a similar case.

Acute Articular Typhoid.—Necropsy failed to confirm the diagnosis of acute articular rheumatism made at first. The findings indicated typhoid septicemia of the "arthrotyphoid" type, with multiple hemorrhages. The onset had been with pains and effusion in the ankles and some of the joints in the feet, following an injury from a plank that had fallen on the feet the day before. The knees soon became swollen and painful. Treatment was with the salicylates at first, and then measures to control the hemorrhagic tendency. The typhoid bacillus was not found in the blood till the end of the third week, and the exsanguinated young man died in two months.

Ouabain in Heart Disease.—Laubry and Pezzi review their extensive experience with ouabain by the vein in more than five years. They discuss the indications for it, and describe three typical cases to show the valuable aid possible from this drug when all others have exhausted their usefulness. They reiterate that its field is only after the failure of others. After a course of ouabain, digitalis may regain its efficacy. In the discussion that followed, Fiessinger emphasized the surprising reactivation of digitalis that may occur when the digitalis is given by the vein after it has exhausted its usefulness by the mouth. It can be resumed later by the mouth with good effect.

Complications of Chronic Malaria.—In the case reported, multiple polyneuritis and paralysis were accompanied by transient mental confusion. Recovery followed quinin plus arsphenamin treatment.

Autohypnosis. — Urechia and Rusdea injected sodium cacodylate in a young man presenting what seemed to be a case of catatonia. Cocain had no influence on it, but the pain from the injections of the drug roused him from his trance, and a complete cure followed. The retrospective diagnosis was autohypnosis. The youth of 17 was a musician, and had been interested in hypnosis. He practiced it on his mates, and finally on himself as he stood in front of a mirror. The autohypnosis thus induced he was unable to throw off. The family and clinic, not knowing this, treated him on a mistaken basis until he was gradually recalled to normal by the pain from the five injections.

Lung Tumor Subsides Under Radiotherapy.—During the first phase the tumor in the hilum of the lung seemed to be an ordinary tuberculous process. After eight months of this, recurring hemoptysis and a rebellious cough were explained by the shadow of a tumor. The woman felt better for some time after the two roentgenoscopic examinations. This suggested that the tumor was exceptionally sensitive to the roentgen rays, and under deep roentgen-ray treatment the whole clinical picture subsided, and the lung shadow cleared up. The cross-fire roentgenization totaled nearly fifteen hours, in three weeks, with a 30 cm. spark; 12 mm. aluminum filter; 35 cm. distance; fifteen sittings.

Liver Insufficiency in Leukemia.—Mante found the hemoclastic crisis pronounced in four cases of leukemia.

Journal d'Urologie, Paris

July, 1922, **14**, No. 1

*Nephrectomies Based on the Ambard Index. J. Quénu.—p. 1.
Urethrocele in Women. Villemin.—p. 27.

Nephrectomies on Basis of Ambard's Formula.—Quénu relates that Legueu has done nephrectomy in 263 cases on the basis of the Ambard ureosecretory constant, without catheterization of the ureters. The outcome was the same or a trifle better than in a previous series of nephrectomies preceded by catheterizing the ureters: 3.8 per cent. of 367 with catheterization and 3.4 per cent. of 263 without. When the Ambard constant was below 0.100, the mortality was 3.6, while it was 10 per cent. in those with a constant above 0.100. The constant is an index of secretory conditions at the moment, and thus it varies from time to time. With renal tuberculosis conditions may improve so much under the influence of dieting or of a nephrostomy or simply under the influence of time so that the Ambard index may drop to normal range. This drop may be due to subsidence of the nephritis element or to compensating hypertrophy in the least pathologic kidney. Whatever the cause, the index drops enough to bring the case into the operable group. The excellent results in certain cases of renal tuberculosis with a high constant can be explained by assuming that the constant expressed not only the definite destructive lesions but also some transient inflammatory lesions, which subsided later. There is also a possibility that the lesions in the kidney that was removed had been maintaining the nephritis in the other kidney. This assumption is sustained by the progressive improvement in the index, paralleling the improvement in the general health after the nephrectomy. Consequently it is difficult to say what figure must be accepted as the limit for possible operative intervention. Some tuberculous cases proved successful with a constant of 0.122 up to 0.151; with hydronephrosis, of 0.140 up to 0.196; with a calculus, of 0.200, and in one fistula case, with an index of 0.204. But in all these cases the kidney that was removed had lost all secreting power. Its removal could not affect the total of renal functioning any more than the removal of a lipoma on the thigh.

Néoplasmes, Paris

May 15, 1922, **1**, No. 3

Leukocytes in Blood of Cancer Subjects. A. Robin.—p. 81.
*Radiotherapy. C. Schmitt.—p. 94. Conc'n.
*Origin and Genesis of Cancer. L. Bard.—p. 98.

Dangers of Radiotherapy for the Patient.—Schmitt has been analyzing the mishaps attributed to roentgen and radium rays. His conclusion is that in the majority of cases the progress of the disease, and not the irradiation, was responsible for the fistula or other mishap. The inadequacy of the treatment, not the treatment itself, must be incriminated. A febrile reaction with vomiting and headache may be observed from resorption of the disintegrated cancer masses, but this is another matter.

Origin of Cancer.—The editors of *Néoplasmes* appealed to their readers to send in a thirty-line summary of their views on the origin of cancer. Bard's article is the first response to be published. He recalls that as cancer does not seem to be limited to any special type of cells, any explanation of its origin must apply equally well to all kinds of tissues. His view is that some cell is born which lacks the receiving apparatus for the moderating influence exerted normally by the organism on cell proliferation. This cell and its descendants develop without regard to the rest of the organism, leading an anarchistic and parasitic existence. Malignant disease is thus a form of cell teratology.

Paris Médical

Aug. 12, 1922, **12**, No. 32

*Devices for Osteosynthesis. J. Tourneix.—p. 149.
Tin in Treatment of Staphylococcus Infection. H. Drouin.—p. 152.
Progressive Intratracheal Injections. G. Rosenthal.—p. 155.
Advantages of Deep Breathing Exercises. Joland.—p. 157.
*Ameba-Spirillum Dysentery. J. Dumont.—p. 161.

Improved Devices for Osteosynthesis.—Tourneix gives an illustrated description of instruments to apply force in buckling a metal band in reconstruction of the shaft of a fractured bone.

Ameba-Spirillum Dysentery.—Dumont has isolated a spirillum in cases of amebic dysentery, and he is inclined to attribute the tenacious persistence of the dysentery to this secondary infection in many cases. The dysentery is refractory to emetin in such cases. In one of two cases described, treatment with neo-arsphenamin was followed by recovery, bowel conditions returning to normal after two years of recurring dysentery. In another case the recurring dysentery seemed to be the work of the spirilla alone; no amebas were ever found on repeated examination. The patient was clinically cured by arsenical treatment, although in this and in the preceding case the spirilla were still numerous in the stools after recovery.

Presse Médicale, Paris

Aug. 5, 1922, **30**, No. 62

Eserin Test of Vegetative Nervous System. D. Daniélopolu and A. Carniol.—p. 665.
The Heart with High Blood Pressure. E. Donzelot.—p. 667.
*Eruptions Under Arsenicals. Desaux et al.—p. 668.
*Micro-Organisms in Stools of Diabetics. P. Pagniez.—p. 669.

Action of Physostigmin on Vegetative Nervous System.—This communication presents evidence that physostigmin acts on the entire vegetative nervous system and not on the vagus alone. Besides vagotonia and sympatheticotonia, there may be amphotonia, that is, of both vagus and sympathetic at once. Each gets the predominance at times and loses it again, so the functioning of the organs involved is extremely variable. This is especially noticeable in the heart action, and the test injection of 1 mg. of physostigmin throws light on various physiologic phenomena, the nature of muscular contraction, the effect of certain drugs, etc.

The Heart with Permanently High Blood Pressure.—Donzelot explains that the clinical picture which we are liable to label "mitral endocarditis with insufficiency of the right heart" may be in reality merely the effect on the heart of chronic hypertension and developing sclerosis. The exaggeration of the second aorta sound and the hypertrophy of the left ventricle testify to the permanent hypertension. This entails sclerosis in arteries, kidneys and heart, and treatment must aim to relieve these organs, and sustain in particular the relaxed myocardium, and combat the arrhythmia. This "camouflaged heart of hypertension" is the indication almost *par excellence*, he says, for ouabain. This tones up the heart, and then digitalis reenforces its action and tends to regulate the heart rhythm. Strict repose should be enforced, and only milk allowed, up to 1.5 liter. Quinidin is contraindicated on account of its depressing action on the myocardium.

Eruptions During Arsenical Treatment.—In six of ten cases of this kind, insufficiency of the liver was evident, and urobilinuria was pronounced in two of the others.

Micro-Organisms in Stools of Diabetics.—Pagniez relates that Berthelot has isolated from soil, manure, etc., 56 varieties of micro-organisms which produce acetone in attacking carbohydrates, but only 3 of them produced acetone in any appreciable amounts. No species producing acetone from starch were found in the stools of 32 normal subjects while acetone-producing micro-organisms were present in the stools of 17 out of 22 diabetics examined. Berthelot's further research demonstrated that rabbits fed mainly with carbohydrates and given daily a quantity of an acetone-producing micro-organism in the food, developed persisting glycosuria and a certain degree of acidosis. One rabbit ingesting the *microbe acétonogène* had a 7 gm. glycosuria by the twentieth day, and this has persisted for more than five months to date, with diaceturia; on one occasion acetonuria was found. These experiences and Renshaw's *Bacillus amyloclasticus*, which he reports finding in the stools of diabetics, are interesting to compare with the results of the research of others who succeeded in inducing diabetes in dogs and cats by feeding bacilli cultivated from the stools of diabetic patients. They bring up the old question of the possible microbian origin of diabetes.

Aug. 12, 1922, **30**, No. 64

*Chronic Cholecystitis. M. Chiray and G. Semelaigne.—p. 685.
*Obesity and Abnormal Leanness. Prével.—p. 688.
*Gastric and Duodenal Ulcer. L. Cheinisse.—p. 690.

Chronic Cholecystitis Without Gallstones.—All the evidence presented testifies that a chronically inflamed gallbladder should be removed as the routine procedure, regardless of whether or not there are gallstones.

Obesity and Abnormal Leanness.—Prével declares that most cases of obesity or leanness are due to an upset between the digestive functions—the receiving apparatus—and the respiratory and muscular functions—the disbursing apparatus. He explains that the liver and the lungs are the most active organs in the metabolism of fats. Analysis of 180 subjects has demonstrated by the general shape of the body and the laboratory and clinical findings that the respiratory function plays an important part, if not the preponderant one, in the regulation of the reserves of fat.

Gastric and Duodenal Ulcer.—Cheinisse reviews the papers and discussion of this subject at the recent annual session of the American Medical Association.

Aug. 16, 1922, **30**, No. 65

*Typhoid Perforations. Klippel and A. Feil.—p. 697.
Sacralization of Lumbar Vertebra. A. Zimmern et al.—p. 698.
Traumatic Pseudocysts of the Pancreas. R. Bonneau.—p. 701.

Aug. 19, 1922, **30**, No. 66

The Micro-Organism of Typhus. L. Nattan-Larrier.—p. 709.
Present Status of Measles. P. L. Marie.—p. 711.

Spontaneous Healing of Typhoid Perforations.—Klippel and Feil report a case of spontaneous healing of a typhoid perforation found at necropsy of a woman who had succumbed to pulmonary complications of the typhoid after symptoms indicating perforation seven days before. The rapid subsidence of the signs of peritonitis had suggested that the diagnosis of perforation had been a mistake, until necropsy disclosed the fibrinous deposit on the bowel, closing the small perforation in the center of a Peyer patch. Hartmann and Bucquoy have reported cases in which the peritonitis from a typhoid perforation had become encysted, with recovery.

Progrès Médical, Paris

Aug. 12, 1922, **37**, No. 32

Cytologic Examination of Stomach Content. M. Loeper and G. Marchal. —p. 373.
*Fourth Venereal Disease. L. Bory.—p. 373.
Autoserotherapy in Spasmodic Rhinitis. R. Landrieu.—p. 377.
Radium Therapy and Deep Roentgenotherapy in Rectum, Prostate and Bladder Cancers. R. Proust.—p. 378.
Syphilis in Relation to Diabetes. C. Pfeiffer.—p. 381.

Fourth Venereal Disease.—Bory comments on the number of new terms applied to this venereal disease, and states that a proper name for it has not yet been found. It was called by Nélaton "subacute adenitis with intraglandular purulent foci," which is the most fitting term for it so far. Clinically, it has been isolated from tuberculosis, syphilis and soft chancre, for which it is still sometimes mistaken, notwithstanding the absence of their specific germs. In supposing even that it was due to Ducrey's bacillus—although it has never been found—the duration of incubation would upset this hypothesis as the disease is contagious, and its incubation varies between ten and thirty days. The only affection impossible to differentiate from this fourth venereal disease is the tropical bubo, and the reason for this is that it is one and the same affection. If the *micro-chancre poradénique,* as Bory proposes to call it, constitutes a real morbid entity, different from any other venereal disease, its primary cause is yet unknown. Radiotherapy has given good results, especially at the onset; during the fistulous period the result is dubious. Ravaut found emetin by the vein effectual, but it failed with others. Bory extols excision or ignicauterization of the microchancre, and injection in the gland or abscesses of a few drops to 2 or 3 c.c. of iodized or iodoform oil (1 per cent. of iodin or iodoform to 10 per cent. xylene and 90 per cent. liquid petrolatum), repeating the instillation every two or three days. This method was effectual without general treatment. Immunity is not conferred by previous infection.

Revue de Chirurgie, Paris

1922, **60**, No. 4

*Grafts of Bone Tissue. R. Simon.—p. 207. Cont'd.

Grafts of Bone Tissue.—Simon's biologic research on bone grafts was done under Sencert's guidance. The experiments were made with living and dead grafts, and he reviews 147 cases published by different writers.

Revue de Médecine, Paris

June, 1922, **39**, No. 6

*False Pneumothorax. L. Caussade and E. Abel.—p. 321.
The Urine in Malaria. R. Chambelland.—p. 349.
Chronic Psychomotor Hallucinations. R. Benon.—p. 357.
Present Status of Treatment of Tuberculosis. H. Godlewski.—p. 368.

False Pneumothorax.—Among the cases described by Caussade and Abel is one in which diaphragmatic hernia induced symptoms simulating pneumothorax. In another case the whole set of symptoms had been induced by extreme distention of one loop of the colon. In another case pleurisy plus tympanism was responsible for the blunder in diagnosis, and in another case a hydropneumothorax. In some other cases pleurisy or pneumonia had induced the symptoms of pneumothorax. There is no pathognomonic symptom of pneumothorax, and before accepting it, all the organs in the vicinity should be examined for conditions inducing a false pneumothorax.

Revue Franç. de Gynécologie et d'Obstét., Paris

June, 1922, **17**, No. 6

*Conservative Cesarean Section. V. Cathala.—p. 321.
*Examination Through the Rectum. A. Perrola.—p. 330.

Conservative Cesarean Section.—Cathala asks whether the advantages of drawing out the uterus before making the incision for cesarean section counterbalance the drawbacks of this exteriorization. He proceeds to present arguments which denounce it as unnecessarily complicating the operation. It compels an incision nearly twice as long as when no attempt is made to draw out the uterus. It is allowable only when the amniotic fluid is suspected of being infected, and in this case the uterus is drawn out merely as the prelude to hysterectomy.

Examination of the Pregnant Through the Rectum.—Perrola writes from the gynecologic and obstetric clinic at Geneva in charge of Beuttner to extol the value of *le toucher rectal.* In 100 maternity cases in which no internal examination was made, only 16 per cent. had any temperature above normal in the twelve days following delivery; 21 per cent. of 100 others examined only through the rectum, and 22 per cent. of 100 given vaginal examination. The morbidity rate is thus about the same, but the temperature averaged much higher in the vagina cases. Interpretation of the findings of palpation through the rectum may sometimes be difficult, but practice will aid in this. One great advantage of rectal palpation is that it can be frequently repeated without harm, and medical and midwifery students should be thoroughly trained in it. Everything learned in this way is a help toward vaginal examination, if this finally becomes necessary. Folds in the rectal mucosa may prove misleading when the cervix is either still tightly closed or is wide open. In only 10 per cent. of his 100 cases was there any doubt in this line. In thirty-five cases the position of the head was dubious, and in 10 per cent. the deductions were incorrect. In 2 per cent. the head was mistaken for the breech. With a contracted pelvis, the diagonal conjugate can be measured through the rectum, deducting 1 or 1.5 cm. for the thickness of the perineum between the exploring finger and the vagina. None of his patients objected seriously to the rectal procedure, but some thought the explorer had mistaken the rectum for the vagina. He advocates rectal examination always to start with, at least, if examination is necessary.

Revue Médicale de la Suisse Romande, Geneva

July, 1922, **42**, No. 7

*Tuberculosis and Articular Rheumatism. N. Betchov.—p. 417.
Sodium Sulphate in Decoloration of Tubercle Bacilli. Bergen.—p. 429.
*Syndromes of the Central Gray Nuclei. G. Bickel.—p. 434.
Parkinsonism After Epidemic Encepehalitis. Piguet.—p. 448.
Reinfection with Syphilis; Two Cases. G. Cornaz.—p. 453.
Attempt at Suicide with Strychnia. Recovery. F. Loup.—p. 455.

Tuberculosis with Rheumatism.—Betchov states that 60 per cent. were cured of the tuberculous patients at the sanatorium in his charge who had rheumatism in their antecedents. The general average cured among all the 500 tuberculous patients was only 20 per cent. In those with rheumatism the tuberculosis seemed to be exceptionally mild and curable. Tuberculous rheumatism may be benefited by the salicylates like ordinary rheumatism. His experience has demonstrated that an attack of acute articular rheumatism may be an actual crisis of the tuberculous infection. In this case it represents an effectual immunization process. If it occurs during a latent phase of the tuberculosis, there may be nothing to distinguish it from ordinary acute articular rheumatism.

The Syndromes of the Central Gray Nuclei.—Bickel remarks in concluding his analysis that the symptoms for which the thalamus is responsible are essentially of a sensory nature, while the striatal syndromes are exclusively motor. The corpus striatum is an independent center, the supreme center of the automatic motor system independent of the cerebral cortex.

Schweizerische medizinische Wochenschrift, Basel

Aug. 3, 1922, **52**, No. 31

*Bile in Relation to Bacteriophagia. R. Doerr and Grüninger.—p. 761.
*Digestive Hemoclasis. J. E. Wolf.—p. 764.
*Argyria After Collargol Treatment. T. Tobler.—p. 774.
Sprains of Large Joints. C. Kaufmann.—p. 776. Conc'n.
"Gynecology and General Disease." F. Haeberlin.—p. 780. Reply. Walthard.—p. 781.

Relations Between Bile and Bacteriophagia. — Doerr and Grüninger injected colon bacilli directly into the gallbladder of rabbits. Then they injected a powerful bacteriophagic lysin for colon bacilli, making the injection by the vein and repeating it the fourth and seventh hour. Conditions were thus exceptionally favorable for ridding the rabbits of the colon bacilli if bacteriophagia is capable of accomplishing this. The outcome was constantly and entirely negative. The rabbits' blood showed the colon bacilli present along with the lysin.

Digestive Hemoclasis.—Wolf concludes from his tests of Widal's hemoclastic crisis that it is not only a constant sign of diffuse liver disease but is one of the most sensitive reactions known to date. He experimented with meat, white of egg and glucose, but found Widal's 200 gm. of milk most convenient. The drop in the number of leukocytes is the most constant and the most significant phenomenon of the hemoclastic crisis. It throws light on alimentary anaphylaxis, confirming Widal's assertion that insufficiency of the proteopexic function of the liver is the cause of all these disturbances. He tabulates the details from a large number of cases of various diseases, recording the various elements of the hemoclastic crisis, besides the leukopenia, and discusses the theoretical bases of the test. He offers another explanation for the phenomena observed, namely, that it is the function of synthesis in the liver that is modified, and thus the amino-acids pass unchanged through the diseased liver, and these are responsible for the hemoclastic crisis. Test ingestion of 15 or 30 gm. of amino-acids induced a very pronounced hemoclastic crisis in ten or fifteen minutes.

Chronic Argyria.—Tobler reports a very pronounced case of universal argyria in a woman of 54 who had been given in one month 84 collargol pills of 0.01 gm. each, plus 38 tablespoonfuls of a 1 per cent. solution of collargol, and 75 c.c. of a 2 per cent. solution by the vein. No effect on the disease of the biliary apparatus for which the treatment had been given was evident, and the silver salt was dropped. Necropsy ten years later showed the main deposits of silver in the kidneys, liver and blood vessels. He knows of only one other case of chronic argyria from collargol (Crispin). These experiences warn to be cautious in giving silver arsphenamin and similar preparations. Unwitting summation of several courses might induce chronic argyria. Lochte has already reported a suspicious case of the kind.

Policlinico, Rome

July 1, 1922, **29**, Medical Section No. **7**

*Glycemia and the Liver. P. Albertoni.—p. 349.
*Glycemia. S. Silvestri.—p. 362.
*Glycemia in Infectious Diseases. L. Dertil.—p. 391.
The Sugar in the Cerebrospinal Fluid. C. Maugeri.—p. 400.

Glycemia and the Liver.—Albertoni comments on the almost perfect protection afforded by the sound liver against excessive intake of sugar. Test ingestion of 50 or 100 gm. of glucose does not increase the sugar content of the blood in the healthy. With disease of the liver or pituitary, the hyperglycemia may reach a very high figure. In exophthalmic goiter and some cases of traumatic paraplegia, the sugar content was found high to start with, but it was not raised further by the test ingestion of sugar. Hyperglycemia without glycosuria after the sugar test was noted in some cases of cirrhosis or cystic degeneration of the liver, in organic nervous affections, in kidney disease, etc. The most reliable method for studying test glycemia, he says, is Allihn's mercury nitrate technic, although the micromethods are reliable enough for comparison and pointers for treatment.

Glycemia.—Silvestri reviews the history and present status of our knowledge of glycemia, and reports experiences with test ingestion of 20 gm. of glucose in 200 gm. of distilled water. Even this small amount alters the sugar content of the blood, and answers all the purposes of the test. He extols the practical information to be obtained by this means as to the course of diabetes. He regards hyperglycemia as a manifestation of some grave upset in the general metabolism and not merely of the carbohydrates. As the sugar content of the blood declines in fasting diabetics, the acetone bodies in the urine decline with it. Test injection of epinephrin throws light on the mechanism of diabetes, demonstrating that sympatheticotonia is responsible in some cases for the inhibiting of pancreas functioning. The work issues from Ascoli's service, and two groups of experiences are tabulated.

The Glycemia in Infectious Diseases.—Dertil's tables give the findings in from five to nine cases of pneumonia, typhoid and epidemic encephalitis, with smaller groups of other diseases. The different infections did not show much difference in respect to the height of the sugar content, but she found it higher in proportion to the height of the fever. She accepts therefore that the high temperature transforms into glucose the glycogen stored in the liver.

Rivista Critica di Clinica Medica, Florence

June 5, 1922, **23**, No. 16

*Sign of Meningitis. P. Pieraccini.—p. 181. Conc'n No. 17, p. 193.

June 15, 1922, **23**, No. 17

Unreliability of Chloroform Test for Syphilis. G. Lonero.—p. 197.

Chameleon Eye Sign of Meningitis.—Pieraccini calls attention anew to a sign of meningitis at the base which consists in involuntary slow movements of one eye. If both eyes are affected, the movements are not associated. He ascribes this phenomenon to irritation of trunk nerves, and states that when it is found it is absolutely pathognomonic, but it is not constant, not even in the same patient. He calls it the chameleon sign, because these lizards are said to move their eyes separately.

Repertorio de Medicina y Cirugía, Bogota

May, 1922, **13**, No. 8

*Asthma. Martín Méndez.—p. 406.
*The New-Born Child. J. Andrade.—p. 410.
Serotherapy of Typhoid. L. F. Buenaventura G.—p. 428. Cont'n.

Asthma.—Martín Méndez was one of the first to appreciate and apply epinephrin as a valuable symptomatic treatment for asthma. He reviews the progress realized in the last few years by Walker, Widal and others in the conception of asthma as an anaphylactic phenomenon, but he emphasizes that the soil on which the anaphylaxis develops has been overlooked. No one seems to have investigated the pathologic anatomy which must underlie the affection. There must be some lesion, he affirms, which attracts to the respiratory apparatus the syndrome which resembles the anaphylactic shock.

The New-Born Child.—There has been considerable discussion of late in Colombia of the alleged decadence of the race. As a contribution to sustain or refute this assumption, Andrade has been compiling data in regard to the normal standard of the new-born children at Bogota. He finds that they compare favorably with the standards in France, Spain and England, but are a little inferior to the United States standards. His data confirm anew the connection between hard work, poor food, and a low average weight and height of the newly born. The weight of the infants declines regularly in proportion to the income.

Semana Médica, Buenos Aires

June 15, 1922, **1**, No. 24

Progress in Treatment of Puerperal Infection. E. A. Boero.—p. 977.
Psychiatry Course at Buenos Aires. A. M. Sierra.—p. 981.
Differential Reactions of Ferrocyanids. J. A. Sánchez.—p. 984.
*Treatment of Puerperal Eclampsia. I. Peña and M. Oxilia.—p. 986.
Tuberculous Pyothorax. F. R. Torres.—p. 991.
*Headache of Ocular Origin. R. Argañaraz.—p. 994.
Anthrax. R. F. Vaccarezza, F. F. Inda and R. Posse.—p. 1013. Cont'n.

Puerperal Eclampsia.—Peña and Oxilia review ten years of systematic application of profuse venesection plus evacuation of the uterus in treatment of puerperal eclampsia. The mortality—omitting two deaths from intercurrent affections—was 18.66 per cent. of their seventy-five cases. The fetal mortality was 10.34 per cent. in the cases at term, and 35.29 per cent. in the prematurely born.

Headache of Ocular Origin.—Argañaraz devotes nearly twenty pages to study of functional cephalalgia, its differential diagnosis and treatment.

June 22, 1922, **1**, No. 25

*Adenolipomatosis. N. D. Rosso and R. Denis.—p. 1033.
*Disseminated Sclerosis. O. Wernicke.—p. 1042.
*Immobilization of Spine. G. Zorraquín.—p. 1049.
Lipochrome Sarcoma of Skin. C. Pinedo.—p. 1050.
A Sarcoma in the Small Intestine. G. García Díaz.—p. 1052.

Adenolipomatosis.—The illustrations of the case reported by Rosso and Denis show the diffuse symmetrical arrangement of the subcutaneous lumps in the man of 67. Syphilis, tuberculosis, alcoholism and tobacco poisoning were all prominent in the antecedents.

Multiple Sclerosis a Manifestation of "Chronic Rheumatism."—Wernicke's arguments to prove that keratoconus is merely one manifestation of disseminated sclerosis were mentioned in The Journal recently. He here presents evidence further to the effect that disseminated sclerosis is nothing more nor less than the localization in the brain of *reumatismo crónico.* Keratoconus is one of the extracerebral localizations of the same; there are undoubtedly other localizations which escape our methods of examination. The joints are the most vulnerable points in the limbs, and rheumatism attacks them first and foremost. Just as syphilis was long supposed to be merely a skin disease, we are regarding rheumatism as merely a disease of the joints and muscles. It affects the nervous system as well, but here it has been masquerading as disseminated sclerosis, a purely nervous disease. The character of the pathologic anatomy is the same in all these foci and in keratoconus where it can be studied directly.

Immobilization of the Spine.—Zorraquín uses a double T frame of wood. The cross-piece on top is as long as the distance between the shoulders, and the cross-piece at the bottom is as long as the distance from thigh to thigh. The boards are all of the same width, with a hole in the end of each cross-piece. Each shoulder and each thigh is tied to the corresponding hole, and immobilization and extension are thus complete, while access is free to all parts of the body. By raising the head end of the bed and omitting the groin straps, gravity aids in extension. The frame is held from slipping down by a third hole in the center of the upper cross-bar. A great advantage of this method is that the chest is expanded to the utmost by the fastening of the shoulders against the flat cross-bar, and this revolutionizes defective breathing habits and nutrition. It allows air-baths, sun-baths, massage and other physical measures, and the patient can even be turned face downward without affecting the immobilization and extension. The frame is like the Hawley splint for fracture of the clavicle. This improves breathing conditions so materially, he says, that the fracture of the clavicle has often proved a blessing for the victim.

Medizinische Klinik, Berlin

July 23, 1922, **18**, No. 30

*Action of Parenteral Protein Therapy. A. Schittenhelm.—p. 949.
Syphilitic Disease of the Eyes. R. Hessberg.—p. 954.
*Protein Therapy of Gastric Ulcer. B. O. Pribram.—p. 958.
*Epiphysis Anomalies in Children. B. Valentin.—p. 962.
Calcium Wards Off Certain By-Effects of Arsphenamin. G. Stümpke.—p. 965.
*Action of Tuberculin. H. Adler.—p. 967.
Vermin and Insects in Transmission of Disease. E. Martini.—p. 969.
Recent Progress in Roentgenology. E. Freund.—p. 972.

Protein Therapy in Theory and Practice.—Schittenhelm remarks that parenteral protein therapy has a many-sided action, and many different ways of realizing its effects. It has sprung into general practice before the scientific bases for it have been worked out. He reviews the pioneer publications on it, and emphasizes the remarkable results in certain cases of arthritis and neuralgia, although it is not always successful. His experience with it has been unfavorable in pernicious anemia, typhoid and other acute infections; there was always a pronounced reaction but it seemed to do harm here rather than good. In chronic diseases it can be only an adjuvant to the specific treatment. In tuberculosis, the effect is still dubious. Rapid improvement has been reported by a few pediatricians from protein therapy for atrophic infants with anergy. It is certainly worth a trial in such cases. The localized toxic and bacteriotoxic inflammatory processes seem to be most amenable to protein therapy. Osmotherapy, such as injection of a strong solution of sugar, acts in an entirely different way, as also injection of turpentine. The effect of the protein therapy is most pronounced on inflamed cells, and this effect is probably both chemical and physical. It cannot be explained by colloidoclasis alone. The extent of the effect is realized when we see how preliminary protein therapy transforms the response to epinephrin, pilocarpin, and other drugs. Starkenstein reports that after a preliminary parenteral injection of milk animals bore without harm otherwise fatal doses of strychnin, while phenol proved more rapidly fatal. Further research will reveal differences in the action of different proteins, and enable us to distinguish between the group and the individual reactions, as we have already learned in regard to vaccine therapy, which forms one branch of parenteral protein therapy.

Successful Protein Therapy of Gastric and Duodenal Ulcer.—After a year of careful study of 77 cases of this kind, Pribram announces that a prominent place will have to be made for parenteral protein therapy in the conservative management of gastric and duodenal ulcer. In 54.5 per cent. of his cases a complete cure was realized of all the patients' symptoms, in many instances of several years' standing. In 26 per cent. great improvement was realized, and only 19.5 per cent. failed to show benefit. The proportion improved would undoubtedly have been larger if he had not made a point of having the patients keep on with their usual occupations and ordinary diet. None was taken into the clinic, and no treatment other than the parenteral protein was given. The group of 15 refractory cases included 4 with an old gastro-enterostomy. The findings with serial roentgenography, with the stomach tube, and the change in weight were accepted as the criteria in addition to the subjective findings, and the ability to eat ordinary food. A footnote adds that the percentage of the improved has increased considerably since the date of writing. The results will naturally be much better when repose and an ulcer diet are enforced. He intentionally refrained from both in order to watch the effects of the exclusive protein therapy.

Disturbances in Epiphyses in Growth Period.—Valentin refers to the affections of the hip joint, of the scaphoid bone, etc., known as the Legg, Calvé, Perthes, Köhler or Schlatter affections, and emphasizes that they have nothing in common with rachitis, and trauma is only an occasional factor. There is a congenital development anomaly, but it persists latent until the period of most active growth and exercise. The anomaly is in the epiphyseal cartilage and its vicinity, especially toward the growth center of the epiphyses. The arrangement of the vessels at this center offers a predisposition to infection as well. The familial and symmetrical occurrence and the fact that boys are almost exclusively affected, while the similar developmental anomaly in the hip joint, which entails so-called congenital luxation when weight-bearing begins, affects mainly girls—all these facts point to a congenital disturbance in the normal process of ossification plus some endocrine influence. Demel's recent research on "hyperthymus-ized" animals showed a remarkable acceleration of the growth of the bones in length. In conclusion, Valentin remarks that these new data have rendered the prognosis of tuberculous disease of the hip joint much graver, as there can be no doubt that the cases which have been reported as "cured" were merely instances of this developmental anomaly, the prognosis of which is almost always favorable. It also explains "growing pains." The illustrations show the various types.

Action of Tuberculin.—Adler examined for production of antibodies the serum of sixty-two adults taking courses of tuberculin or roentgen treatment or parenteral protein therapy with milk. There was never any increase in the specific antibodies from the protein therapy. This disposes of the assumption that the effect of tuberculin is merely a parenteral protein action.

Mitteil. a. d. Grenzgeb. d. Med. u. Chir. Jena

1922, **35**, No. 1-2

*The Phrenic Nerve and the Diaphragm. P. Neuhöfer.—p. 1.
The Healing Process in a Duodenal Ulcer. M. Holzweissig.—p. 16.
Relations Between Goiter and Heart. Steiner.—p. 39.
*Dangers of Potassium Iodid Pyelography. K. v. Neergaard.—p. 67.
*Ligating the Hepatic Artery. A. Ritter.—p. 76.
*Surgery of Gastric and Duodenal Ulcers. A. Wydler.—p. 103.
*Neurotrophic Postoperative Colitis. E. Hesse.—p. 205.
*Gastric Ulcer. V. Orator.—p. 214.
*Protein Therapy. K. Dehio.—p. 241.

Influence of Injury of Phrenic Nerve on Diaphragm Functioning.—Neuhöfer reports a case of slight paresis of half of the diaphragm from a projectile, and one of paresis from pressure from a tumor. From these and other data cited, he thinks that we are justified in dividing the phrenic nerve as a therapeutic measure in certain conditions, and that the respiration will not suffer materially therefrom. One boy of 8 had phrenicotomy done on both sides, and over three years later the diaphragm was found still practically immovable. But the boy had developed normally, the thoracal respiration answering all purposes.

Fatality from Pyelography.—The woman of 44 died suddenly an hour and a half after 10 per cent. potassium iodid had been injected into each kidney pelvis. The necropsy findings seemed to indicate injury of the heart from the drug. A 20 per cent. solution of sodium bromid is now used for the contrast suspension, as safer and equally effectual.

Consequences of Ligating the Hepatic Artery.—Ritter adds three more to the list of cases in which the hepatic artery or one of its branches was ligated. This brings the total on record to twenty-nine. The mortality was from 50 to 100 per cent., being lowest when only the right branch had been ligated. Tests of liver functioning after the ligation will warn when the liver is suffering, and call for a flap resection. This procedure is justified by the long interval of from five to ten days after the ligation before the fatal outcome. This gives time for operative intervention when the liver is becoming insufficient.

Surgery of Gastric and Duodenal Ulcers.—Wydler reviews 247 operative cases, 1910 to 1920, in the 102 pages of this analysis of his experience. With resection, the mortality was only 9.6 per cent. while the early and late mortality of gastro-enterostomy totaled 8.3 per cent. The postoperative course and convalescence is incomparably better after resection than after gastro-enterostomy. It also does away with the danger of cancer; even during the operation it is not always possible to exclude malignant disease. He adds that gastro-enterostomy changes the shape and the physiology of the stomach.

Postoperative Gangrene of the Intestines.—Hesse describes 2 cases and gives retrospective histories of 3 others, in all of which a neurotrophic gangrenous inflammatory process in colon or ileum developed during convalescence from an operation. He ascribes it to irritation of the inhibiting nerves of the bowel and heart from traction or other injury during the operation. He regards improper food during convalescence as one factor; such experiences were never observed in his service (Petrograd) until the last few years.

Gastric Ulcer.—Orator discusses from the surgical clinic in charge of Eiselsberg the macroscopic findings with gastric ulcer.

Protein Therapy.—Dehio remarks that all forms of protein therapy represent a biologic reaction between the living cell and an alien protein. The alien protein whips up the cell to work harder, but the protein at the same time is liable to nduce other effects which militate against its usefulness. If he cell is overworked or whipped up too long, it gives up and becomes paralyzed. This hampers effectual action in chronic diseases. Different persons react differently both in he healthy group and among the sick. The infectious disease may render the cell more susceptible, and also more readily exhausted. The effect of parenteral injection of proteins in he healthy would well repay study. Also experiments with different proteins. The fact that bacterial proteins act in much smaller doses than other proteins, adapt them particularly for such research.

Münchener medizinische Wochenschrift, Munich

July 7, 1922, **69**, No. 27

*Systematic Physical Exercise. A. Bier.—p. 993.
The Conception of Inflammation. H. E. Hering.—p. 998.
*Own Blood for Parenteral Protein Therapy. B. Spiethoff.—p. 1003.
Intravenous Iodin Treatment. W. H. Jansen and H. Näher.—p. 1004.
The Defensive Ferments. G. Blunck.—p. 1005.
Silver Arsphenamin in General Paresis. L. Stern-Piper.—p. 1007.
*Smallpox in Monkeys. J. Clarke Bleyer.—p. 1009.
Syringe for Treatment of Gonorrhea in Women. T. Katz.—p. 1010.
Puerperal Tetanus; Two Cases. Rothschild.—p. 1011.
Appendicitis Simulated by Strangulated Omentum. Kircher.—p. 1012.
Ether in Treatment of Whooping Cough. Veltoni.—p. 1012.
The Kielland Forceps. Zimmermann.—p. 1013. Idem. Mathes.—p. 1013.
Goat's Milk Anemia. Dettweiler.—p. 1013.
To Ward Off Complications of Gonorrhea in Males. Zinsser.—p. 1016.

Systematic Physical Exercise.—Bier declares that we are far behind the ancient Greeks in the hygiene of the body. For over a thousand years in Greece gymnastics was regarded as of supreme importance for the welfare of the state as well as of the individual, from the hygienic, military and medical standpoints, for art and even for religion. But, Bier adds, it was the naked body that was trained. The word gymnasium is from *gymnos*, "naked." The importance of exposing the whole body is only just beginning to dawn on modern civilization, and physicians must be the leaders here. They cannot be leaders unless they have practical, first-hand knowledge, and he urges medical men to attend the graduate summer course in gymnastics offered to physicians by the German College for Physical Training. Bier adds that the fact that physicians are so ignorant of the first principles of gymnastics is demonstrated again and again by the certificates they sign to release from compulsory physical training the very young people who need it most. In the graduate course to which he refers, the physicians will be trained in running, jumping, swimming, massaging each other, etc. It will be a strenuous two weeks, he admits, but the science of systematic exercise needs scientific research. The study of physiology would be far more fruitful if done on young people systematically exercising instead of on frogs and rabbit. [The course of training was held as outlined and was attended by fifty-three physicians.]

Defibrinated Own Blood in Parenteral Protein Therapy.—Spiethoff asserts that the defibrination alters the blood in some way that materially enhances its potency when injected by the vein for shock treatment. Anaphylactic phenomena are common, but can be warded off by giving a sedative. He injected from 1 to 20 c.c. of own blood from one to three times a week. The details of eighteen cases are given, mostly skin diseases, chronic arthritis and prostatitis, which showed a decided turn for the better after the injection.

Smallpox in Monkeys.—Clarke Bleyer relates that during a recent mild epidemic of smallpox among the colonists and natives of the primeval forest of the headwaters of the Uruguay river, the monkeys of the region were also decimated by the disease. Dead monkeys covered with pustules hidden in their fur were found under the trees. In certain regions the ceboo species seemed to have been exterminated by the disease although it was exceptionally mild in the people.

Wiener klinische Wochenschrift, Vienna

July 6, 1922, **35**, No. 27

The Theory of Reticulated Cells. R. H. Jaffé.—p. 595.
Experimental Tar Carcinomas in Mice. B. Lipschütz.—p. 598.
Treatment of Febrile Abortion in Private Practice. R. Marek.—p. 600.
The Action of the Bacteriophagum in Staphylococcus Colonies. T. Watanabe.—p. 603.
Physiologic Regurgitation of Pancreatic Juice into the Stomach. W. Robitschek.—p. 604.
Carlo Moreschi's Share in the Development of the Complement Fixation Reaction. A. Ascoli.—p. 605.

Zentralblatt für Chirurgie, Leipzig

May 20, 1922, **49**, No. 20

*Operation for Prolapse of the Rectum. P. Sudeck.—p. 698.
*Acute Osteomyelitis and the Blood Vessels. A. Nussbaum.—p. 700.

Diffuse Peritonitis from Perforation of Tuberculous Gland. M. Molnár. —p. 701.
*Parathyroid Implantation in Paralysis Agitans. M. Madlener.—p. 703.

Operation for Prolapse of Rectum.—Sudeck lifts the sagging rectum up out of its bed in the pelvis and sutures the redundant portion to form a loop in the abdominal cavity. He fastens it with three stitches to the ligament of the promontory and then sutures the lengthwise incision in the peritoneum, obliterating the pouch of Douglas. The fixation to the promontory is reenforced by adhesion of the flat surface. The ampulla region then stretches straight down to the anus.

The Blood Vessels of the Bones in Relation to Osteomyelitis.—Nussbaum shows that the terminal arteries in the metaphysis admit emboli over 20 microns in diameter. This explains, he says, why large bacterial masses can find lodgment here while they are kept out of the arteries elsewhere in the bones. Smaller emboli are washed along as the arteries are not terminal in the epiphysis and diaphysis.

Implantation of Parathyroid Gland in Paralysis Agitans.—Madlener emphasizes that no parathyroid gland should ever be transplanted without establishing its identity beyond peradventure by means of the microscope. In a man, aged 52, who had had paralysis agitans seven years, he implanted in the internal oblique muscle a parathyroid gland taken from a woman, aged 32, operated on for goiter. Three days after the operation the patient declared he felt less stiff, and although the tremor showed no improvement there was a marked lessening of muscular rigidity, but there was no further improvement in this respect after three weeks. The patient was able to move about more and the masklike facial expression disappeared partly. Six weeks after the operation the condition of the patient had become the same as before the operation. Madlener thinks, however, that, in view of the prompt though temporary improvement, it is possible that there is some etiologic connection between the parathyroids and paralysis agitans. He thinks the problem should be studied further, utilizing less advanced cases.

Zentralblatt für Gynäkologie, Leipzig

May 13, 1922, **46**, No. 19

Carcinoma and Pregnancy. F. Wolff.—p. 743.
*Rapidity of Growth of Uterine Carcinoma. W. Forst.—p. 747.
Fifty Births under Hypnosis. H. Heberer.—p. 749.
*Enlargement of Nipple Areola During Pregnancy. P. Sfameni.—p. 752.
Etiology of Ectopic Pregnancy. G. Poorten.—p. 756.
"Is Effect of Collargol Due to Protective Colloids?" Böttner.—p. 760.
*Effect of Diet on Eclampsia and Albuminuria. J. M. Ruiz-Contreras. —p. 764.

Rapidity of Growth of Uterine Carcinoma.—Forst reports a case of carcinomatous tumor which developed to the size of a small fist inside of thirty-one days. The rapidity of the growth pointed to a high malignancy of the tumor, which was confirmed by the course of the disease.

Enlargement of the Areola of the Mamma During Pregnancy.—Sfameni states that his investigations lead him to conclude that the enlargement of the areola during pregnancy is not dependent on an edematous infiltration nor other analogous circumstances. The enlargement and the spreading out of the surface are, he thinks, dependent on the hypertrophy of the mammary glands. The diagnostic importance of the enlargement of the areola is considerable. There is also a prognostic significance, for if there is intensive hypertrophic activity of the mammary glands we may conclude that the functioning of the glands during the lactation period will be adequate.

Effect of Diet on Eclampsia and Albuminuria.—Ruiz-Contreras endeavors to show by the statistics of a policlinic that the diminished incidence of eclampsia during the war period was not due, as has been frequently assumed, to the decrease in the fat intake but rather to the reduced supply of meat and eggs.

Zentralblatt für innere Medizin, Leipzig

May 20, 1922, **43**, No. 20

*Injections of Epinephrin in Hypertonic Patients. E. Kylin.—p. 329.

Effect on High Blood Pressure of Injections of Epinephrin.—Kylin injects 1 mg. of epinephrin subcutaneously, and records the blood pressure before the injection and repeatedly during the next few hours. The reaction in acute nephritis proved to be the same as in healthy subjects. However, in benign nephrosclerosis there was a typical reaction different from normal, as was shown with but one exception in fourteen patients examined. Whereas normally the blood pressure rises as the result of the injected epinephrin, the blood pressure in these cases of nephrosclerosis dropped to from 40 to 50 mm. of mercury during a space of from fifteen to twenty minutes, after which it rose a little, as a rule. Palpitation, tremor and general nervousness were not noted. The patients seemed to be unaffected, otherwise, by the injection.

Polska Gazeta Lekarska, Warsaw

June 4, 1922, **1**, No. 23

Injuries of the Eye, Behind the Firing Lines, by the Explosion of Found Ammunition. E. Machek.—p. 463.
Artificial Feeding by Means of Physiologically Predigested Foods. K. Mayer.—p. 465.
Fat Embolism of the Lungs and Its Medicolegal Importance. J. Olbrycht. —p. 468.
Results in Bismuth Treatment of Syphilis. R. Bernhardt.—p. 473.
Ophthalmoscopy with the Aid of Green Light. W. H. Melanowski.—p. 475.
Epidemic of Trachoma in Insurrectionary Army of 1830. W. Reis.—p. 482.

Hygiea, Stockholm

June 30, 1922, **84**, No. 12

*The Thyroid in Diabetes. H. Bergstrand.—p. 481.
*Inoculation with Smallpox. I. Holmgren.—p. 494.

The Thyroid in Diabetes.—Bergstrand reports the discovery in three of six diabetics of distinct pathologic changes in the thyroid, analogous to those found in exophthalmic goiter. But there never had been any symptoms suggesting exophthalmic goiter. When diabetes and exophthalmic goiter are associated, the latter probably precedes the diabetes. In Bergstrand's diabetics, the changes in the thyroid were in different stages of development in the three cases, all evidently later than the onset of the diabetes. The thymus was not enlarged in any case. The six diabetics were between 12 and 50 years of age, and in two cases the diabetes had developed during a pregnancy.

Therapeutic Inoculation of Smallpox.—Holmgren gives a translation of Voltaire's "Letters on the English," dated 1727, in which he commented favorably on the inoculation against smallpox introduced into England not long before, which was regarded with horror throughout continental Europe. Voltaire states as an established fact that at least sixty out of every hundred persons are certain to contract smallpox.

July 16, 1922, **84**, No. 13

Tuberculosis of Urinary Apparatus. G. Ekehorn.—p. 513. Cont'd.
*Etiology and Pathogenesis of Rachitis. H. Kjerrulf.—p. 530.

Etiology and Pathogenesis of Rachitis.—Kjerrulf remarks that evidences of rachitis are common in the child skeletons of the stone age, found in Scandinavian countries, but the first full description of it dates from 1554. "About 1600 it became very common in England and spread over Europe almost in epidemic form." He reviews its history since, and remarks in conclusion, "The literature on rachitis shows that the necessity for sunlight and fresh air has always been emphasized by physicians in the treatment of rachitis. But it has taken nearly 300 years to supply the scientific proof of the reasons why sunlight and fresh air are so indispensable." He reviews in particular the work of Hess and Unger in this line, and the work of Lasch, who emphasized the rapidity with which the calcium and phosphorus metabolism was modified by the ultraviolet rays—in one case after only three exposures. Kjerrulf adds that no satisfactory explanation of the action of sunlight and ultraviolet rays on rachitis has yet been advanced. Huldschinsky suggests that the pigment in the tanned skin may be a mystic catalyzer for calcium. Jundell's starvation treatment of rachitis is based on the two undisputed facts that overfeeding may be an important factor in rachitis, and that the endocrine system is concerned in the metabolism of calcium. He assumes that some endocrine gland has become functionally incapable from overwork, and seeks to combat this by reducing the intake of food. He has obtained excellent results with this relative inanition, as mentioned in these columns, March 11, 1922, p. 772.

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NEW METHODS OF STUDYING GASTRIC PERISTALSIS *

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It is hard for a moment to realize that our knowledge as regards gastric physiology is today in much the same stage as it was as regards cardiac physiology back n the early seventies, before the sequence of the beat n sinus, auricles and ventricles had been studied by means of graphic records. In those days the research workers simply watched the slowly beating hearts of dying amphibians and tried to understand the movements which they saw, much as we, today, try to understand the sequence of the gastric waves as they appear before us on the fluorescent screen. To be sure, we obtain graphic records by taking plates, but such plates are snap shots which cannot help the physiologist very much. A few roentgenologists, notably Rieder in Europe and Cole in America, have secured interesting serial roentgenograms of the stomach; but the technic has been so difficult and the apparatus so expensive that, so far as I know, the method has not been used in any physiologic laboratory. Cannon did much of his epoch making work with the oentgen ray; but his records consisted mainly of racings of the shadows which he saw on the screen. Carlson and his students have done an enormous amount of work with balloons inserted into the stomchs of men and animals; but, as they admit, such balloons slip about; it is hard to say just where they re; and they certainly cannot give us information as o the way in which the waves travel over the organ. Recently, Wheelon and Thomas [1] have invented a type f anchored balloon with the help of which they have btained interesting records from the pyloric region.

It has always seemed to me that an exact knowledge f the movements of the stomach could be secured best y fastening light recorders very gently to the outer surface of the organ; and in 1914, with the help of a simple little enterograph, I was able to obtain simultaneous records from the middle region and the pyloric ntrum of a few rabbits and cats. Several years efore, Hofmeister and Schütz,[2] and Sick and Tedesko [3] obtained somewhat similar records by fastening light heart levers to two or three places on the excised stomachs of laboratory animals. Such stomachs, kept in warm, oxygenated Locke's solution, will often show considerable activity for hours; and I have secured a number of interesting kymographic and electrographic records from them. The technic is naturally much easier than that required when we try to record the small, weak contractions of the cardiac end of the intact stomach, situated as it is high up under the diaphragm and moving constantly with respiration. The results obtained with the organ in situ are so much more trustworthy, however, that we must continue to grapple with the technical difficulties which stand in our way.

A number of these difficulties have now been conquered sufficiently so that we can get simultaneous mechanical records from five or six parts of the stomach. I shall not attempt here to describe the apparatus, because it is still in the stage of constant change and improvement. Another way of attacking the problem is to detect and make records of the delicate action currents which can tell us so much about what is going on in the muscle. Should a study of these currents in the stomach yield but a tenth of the information which a similar study has yielded in the fields of heart physiology and pathology, the science of gastro-enterology will be put on a new footing. Much of the technic for getting electrogastrograms and enterograms has already been worked out, and two brief reports on the subject have been published.[4] One of them contains a reproduction of the first human electrogastrogram to be taken.

Naturally, in the first stages of such an investigation, the interpretation of the records is difficult, and it is quite essential that the electrical changes be compared with mechanograms made at the same time and at the same place. Although this need has added greatly to the technical difficulties which already were troublesome enough, we have during the last few months secured a number of records like those in Figure 1, which show simultaneous mechanograms and electrograms from two parts of the stomach or bowel. They show that in most cases the electrical wave looks very much like the corresponding mechanical one. The two run closely together; and after a while we shall probably be able to read the meaning of the electrical records so clearly that we can dispense with the mechanical ones and can continue with the less troublesome electrical technic.

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* From the George Williams Hooper Foundation for Medical Research nd the Department of Medicine, University of California Medical chool.

* Read before the Section on Gastro-Enterology and Proctology at e Seventy-Third Annual Session of the American Medical Association, t. Louis, May, 1922.

[1] Wheelon, H., and Thomas, J. E.: J. Lab. & Clin. Med. **6**: 124 Dec.) 1920; Am. J. Physiol. **59**: 72 (Feb.) 1922.

[2] Hofmeister and Schütz: Arch. f. exper. Path. u. Pharmakol. **20**: 1885.

[3] Sick and Tedesko: Deutsch. Arch. f. klin. Med. **92**: 416, 1908.

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WHAT CAN WE LEARN WITH THE NEW TECHNIC?

The next question is: What is being learned with these methods? In the first place, we are learning something about the place of origin of the gastric waves and how they travel over the stomach. As I pointed out in the previous articles, many of the records suggest strongly that the waves ordinarily arise at a point on the lesser curvature near the cardia. That may perhaps be the normal pacemaker, which sends out ripples which deepen into waves in the lower third of the stomach. Other records show signs of a shifting of the pacemaker, while others, again, show that two parts of the stomach are contracting with independent rhythms. Just as in the heart, so in the stomach, there appear to be gradations from transient blocks to complete dissociations. Such blocks have been found most frequently at the junction between the body of the stomach and the pyloric antrum; but a number of the records show that they can occur elsewhere. In the excised stomachs of rabbits, cats and dogs we can often see the lower end of the esophagus contracting powerfully and rhythmically, but only occasionally sending a wave over the adjacent stomach. Other records show what I have frequently observed on the fluorescent screen, and that is, a series of contractions which do not spread over the stomach, but spring up and apparently die away in the same place.

Another interesting observation is that a contraction near the cardia or in the preantrum may be followed almost instantly by a contraction of the pyloric antrum or of the stomach as a whole. This "systole" was seen years ago by Cole on his serial roentgenograms of human stomachs; but as the pacemaker seems often to give rise to a systole and peristaltic wave at the same time, the double nature of the contraction can hardly be recognized on the screen; and no one has felt inclined to pay much attention to Cole's observation. I admit that when Cole showed me his plates I thought that the phenomenon must be rare and of little significance. Now that I find it so commonly in my records, I am glad to express my apologies to Dr. Cole and my willingness to believe that many things appear on the fluorescent screen which we are not quick enough or prepared enough to see. For that matter, watching three waves going over the stomach at one time is like watching an expert at the shell game: it is not likely to yield exact or trustworthy information.

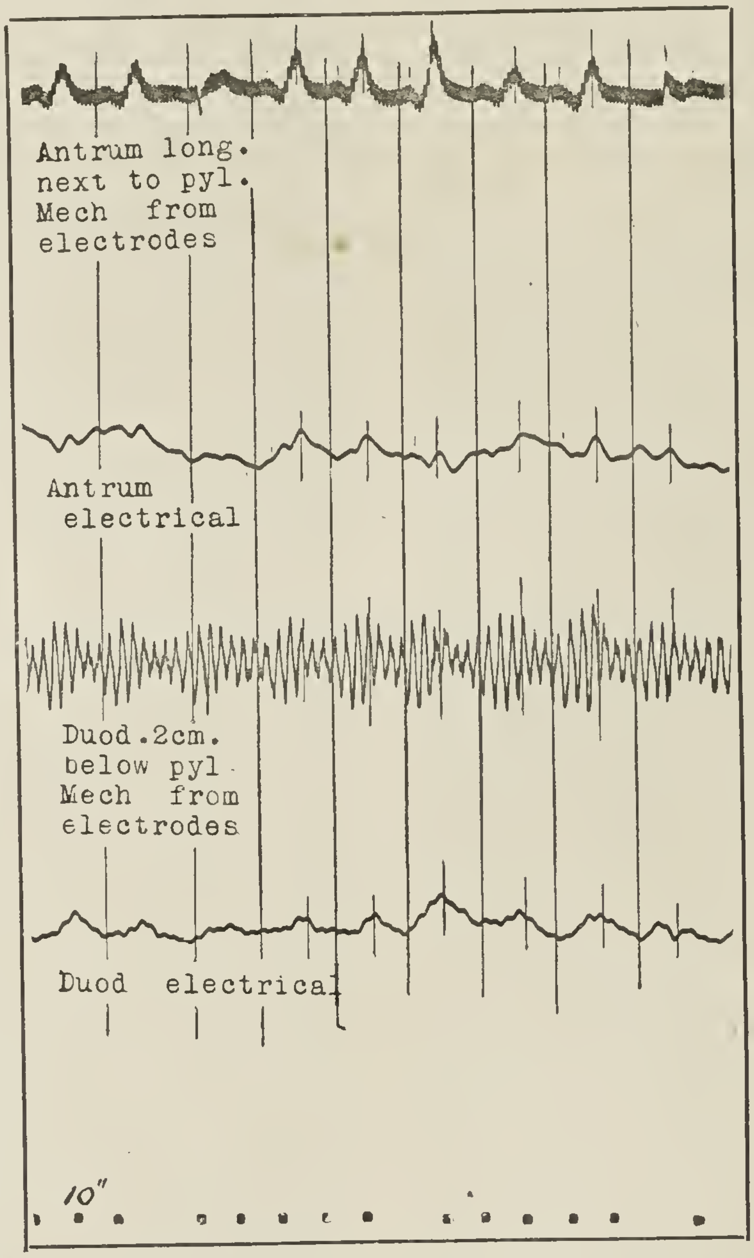

Fig. 1.—Electrograms from antrum next the pylorus, and from duodenum 2 cm. below, in a rabbit. The mechanograms, recorded simultaneously with the electrograms, represent the movements of the electrodes as the muscle contracted. An upward movement on the mechanical records signifies contraction, and in the electrical records it signifies a negativity of the orad electrode. The time record indicates intervals of ten seconds. The small waves on the first antral record are respiratory in origin. Note the increase in amplitude of the duodenal contractions with the arrival of each gastric wave at the pylorus. The vertical lines have been drawn to indicate synchronous points on the record.

But to return to the systoles: It may be that they interfere sometimes with the emptying of the stomach because, as can be seen from Figure 2, the waves marked *A, B* and *C*, which were seen to travel over the stomach, reached the pylorus while the muscle there was partly contracted. The record of the antral contraction often shows two components, and sometimes even three. The first one may represent the tendency of the muscle to contract with its own natural rhythm; the second may represent a systole, while the third represents the arrival of a peristaltic wave. These multiple activities sometimes make it almost impossible to interpret the electrograms. If we glance again at Figure 2, we see that in each set of contractions there is a second cardiac one which fails to give rise to any appreciable peristaltic wave. This second cardiac hump is so often synchronous with the arrival of the peristaltic wave at the pyloric antrum that I have often obtained the impression that a systolic type of impulse has shot backward. Hence, for convenience' sake, I have come to call this well defined and easily recognizable type of gastric activity "shuttle rhythm." Sometimes the impulse seems to shoot back so quickly that the two cardiac humps fuse to a greater or less degree.

In other records, we find a series of single gastric systoles with either the cardia or some other part of the stomach slightly in the lead. In some excised stomachs, we saw what appeared to be peristaltic waves; but the records showed that they were more like systoles. All parts of the stomach began to contract at the same time; but as it took the muscle in the lower end of the stomach a progressively longer time to get under way, the appearance was that of a wave spreading downward.

Figure 3 shows a common type of peristalsis in which some antral contractions are much more powerful than others. We see that commonly in man; and the frequency with which these large waves appear undoubtedly has much to do with the rate of emptying of the stomach, and perhaps a good deal to do with the production of pain and distress in diseased states. The graphs bring out the interesting fact that this increase in activity must often be purely a function of the pyloric antrum, because one can see no sign of corresponding differences in the size of the waves in the body of the stomach a centimeter above. There are some records which suggest strongly that the variation in the size of the antral contractions may be an interference phenomenon between the fundus rhythm and the inherent rhythm of the antral muscle. Previous experiments have shown me that the excised antral muscle will contract about three times a minute. If this should happen to be the rate of the waves coming down over the stomach, the antral contractions could easily be uniform in size and strength. When, however, there is a slight difference in rate, it might account for the presence of larger waves when the rhythms coincide and smaller ones when they conflict. Irregularities in the recurrence of these beats must be expected because other rhythmic components will come in by way of the duodenum.

This difference in the activities of the two functional parts of the stomach, the "crop" and the "gizzard," is brought out even more sharply in the records showing blocks and dissociations. A kymographic record of these blocks was shown in one of the preceding articles, and two electrograms depicting the same thing are shown now in Figure 4. Simultaneous mechanograms and electrograms made so far show that when the currents are absent from the antrum the contractions are also absent; but in one case when, for a short time, no contractions could be detected, weak action-currents still appeared at regular intervals. So far I have not seen anything in the records which looks like the common cardiac 2:1 or 3:1 block. The gastric blocks look more like those which we see in Stokes-Adams disease.

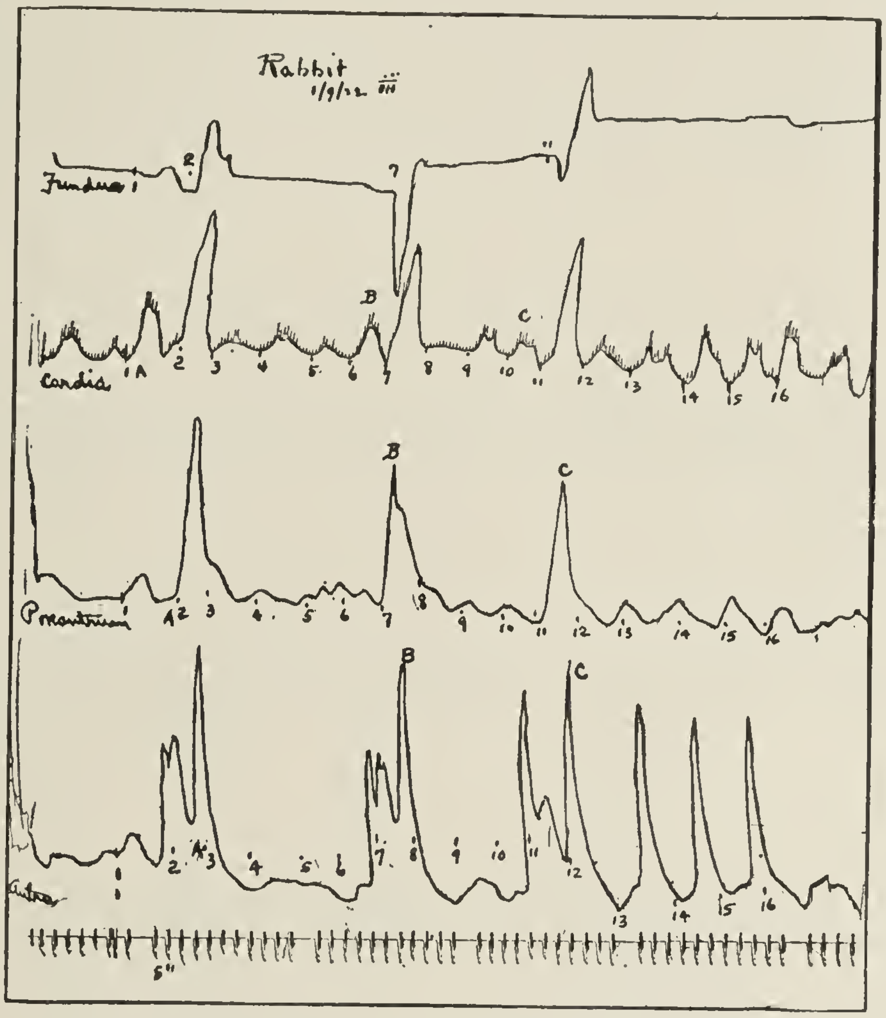

Fig. 2.—Mechanograms from the fundus, cardia, preantrum and antrum of a rabbit's stomach. The small waves just visible on the second record are respiratory in origin. The interval on the time record is five seconds. The figures represent corresponding points on the four records, while the letters *A*, *B* and *C* show that certain contractions were part of one peristaltic wave.

Another way in which the differences between the physiologic characteristics of the fundus and pyloric antrum can be brought out is by stimulating the vagus nerve. In a few such experiments done in my laboratory on rabbits, it was a striking thing to see the recording lever attached to the body of the stomach shoot upward (indicating contraction) while the lever on the antrum dropped. Other experiments have suggested that the pyloric antrum is more sensitive to all inhibitory influences than is the body of the stomach.

To me, one of the greatest surprises has been the discovery that any group of muscle fibers in the stomach wall may respond at the same time to two or more rhythmic activities. Thus, it may show small contractions perhaps every five seconds. These probably represent the local inherent rate, i. e., the rate at which the muscle contracts when excised and put into warm oxygenated Locke's solution. Besides the small contractions there may be slow tonus waves coming every minute or two. These tonus changes seem to be going on constantly throughout the digestive tract, and I believe that they must play a large part in regulating and directing peristalsis. The few records which we have obtained of these rhythms suggest that they can sometimes be captured and made to follow other regularly recurring impulses whose rate is not too widely different. This can be seen at the pyloric line where the duodenal tone rises shortly or immediately after the arrival of each gastric wave. The interesting point is that during intervals of complete gastric quiet, when even the action currents are absent, the duodenal tonus rhythm may continue unchanged, showing that it can be just as independent as the similar rhythms which can easily be demonstrated in the ileum and colon. Furthermore, when the stomach starts up again it does not always succeed immediately in capturing and dominating the duodenal tonus rhythm. As will be seen from Figure 1, this tonus wave shows itself sometimes only as a rhythmic increase in amplitude of contraction. It appears also in the electrograms as an increase in the strength of the action current.

But to return to multiple rhythms in the stomach: (1) There are small, frequent waves analogous probably to the rhythmic contractions of the bowel; (2) there are tone changes like those in the bowel; and (3) there are peristaltic waves corresponding probably to the peristaltic rushes in the small bowel and the mass movements in the colon. These compound movements are seen most often in the body of the stomach, but sometimes in the antral records. The electrograms from the fundus generally show a series of small respiratory deflections, while those from the antrum often show a small deflection synchronous with the duodenal contractions. These are probably transmitted by conduction through the tissue, although I have seen similar little humps on some of the mechanical records from the antrum. These, however, probably represented little pulls on the gastric recording appartus by the adjacent bowel.

One more observation requires comment at this time, and that is that many of the mechanical records from the fundus show relaxations corresponding to the passage of the peristaltic waves. The fundus has a little different embryologic development from the rest of the stomach, and there are a number of indications that the working out of its rhythmic activities will be quite a problem in itself. In many of the records (both mechanical and electrical) from the lower end of the stomach there are signs of a preliminary relaxation before the contraction; but it may be that this is due simply to a passive stretching of the muscle as it is pulled on by the contracted area just above.

Certainly a large proportion of the records show no sign of a preliminary relaxation such as we would expect if the "law of the intestine" were an important factor in regulating peristalsis.

Enough has been said, it seems to me, to show that large gaps exist in our knowledge of gastric peristalsis. It is this lack of exact information which has been such a handicap to the surgeons in their efforts to cure gastric and duodenal ulcers. They have had to learn by sad experience not to make such things as long loop gastro-enterostomies and V-shaped excisions on the lesser curvature, but just why they still do not know. I sometimes think of the troubles the surgeons would have fallen into if they had been able to cut out infarcted areas in the heart and to short-circuit stenosed valves as easily as they operate on the stomach; how many disturbances of conduction they would have produced and how many patients they would have sacrificed until they had learned empirically to keep away from the bundle of His and its important branches. This only emphasizes the fact that the physician is too often called on to attempt repairs on a structure the normal workings of which he has not yet been able to understand. Logically, we should learn all about the physiology of an organ before we attempt to repair a diseased one; but unfortunately the demands of the sick are too urgent; we must do our best with what little knowledge we have; but at all times we must keep our eyes fixed eagerly on the laboratories, from which must come some day the needed help and guidance.

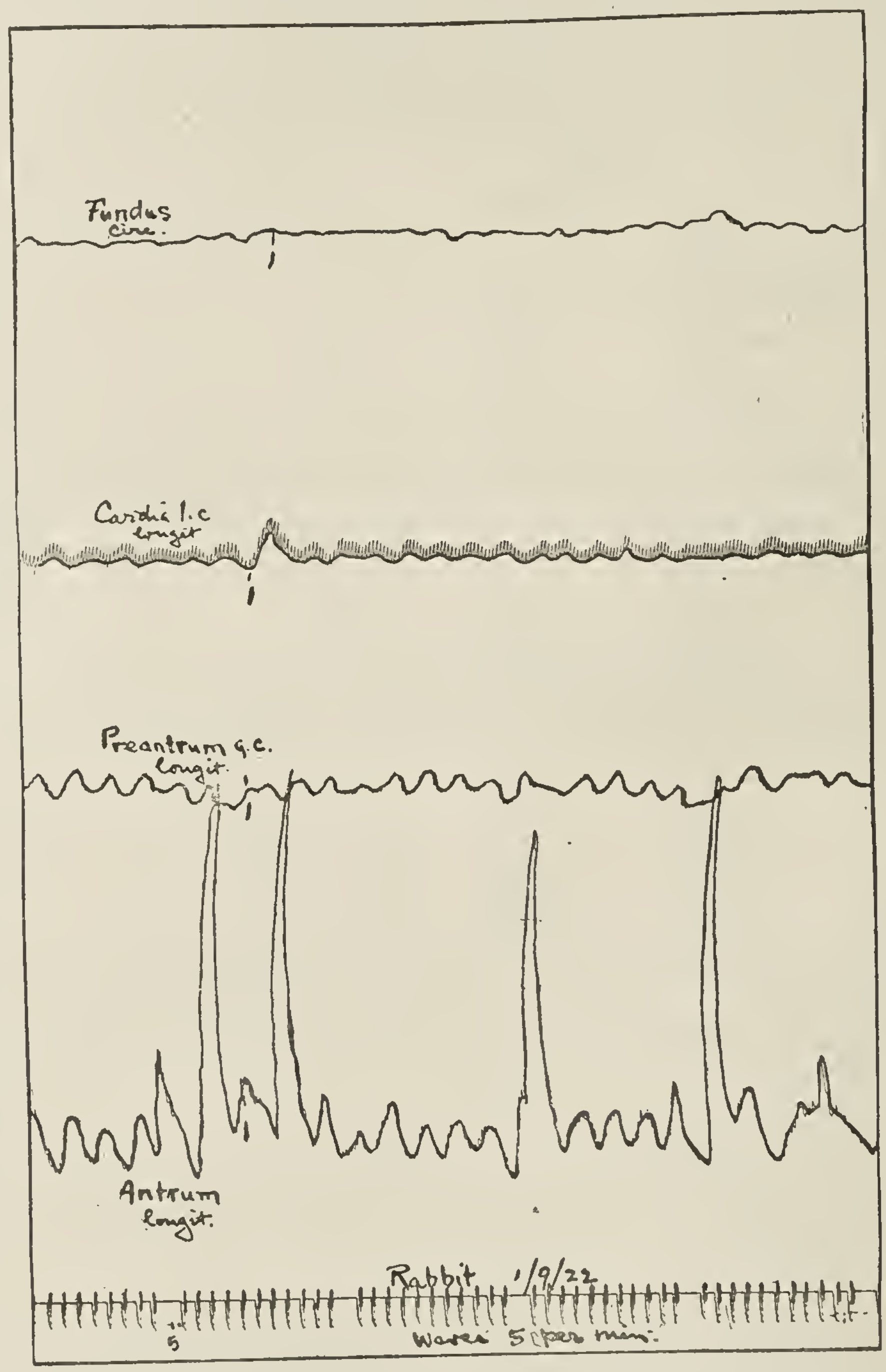

Fig. 3.—Mechanograms from the fundus, cardia, preantrum and antrum of a rabbit's stomach. The time interval represents five seconds. Note the large antral contractions which seem to arise locally.

SUMMARY

Knowledge of gastric physiology is still largely in the crude stage of purely visual observation.

The problem is now being attacked with methods for obtaining multiple and simultaneous mechanical and electrical records from the wall of the stomach.

Something has been learned about the gastric pacemaker; about different types of rhythmic activities; about gastric "systoles"; about "blocks" and dissociations of activity between the body of the stomach and the pyloric antrum.

Stimulation of the vagus produces quite different effects in the fundus and in the antrum.

It is surprising to find areas on the stomach in which the muscle is responding at one time to two or more sets of rhythmic impulses.

Some observations have been made on the influence of the stomach on the duodenum.

The records generally show little sign of the "law of the intestine."

The fundus sometimes appears to relax while the rest of the stomach is contracting.

The large gaps which exist in our knowledge must be filled if the surgeon is to operate safely on diseased stomachs.

177 Post Street.

ABSTRACT OF DISCUSSION

Dr. A. J. Carlson, Chicago: We will all agree in Dr. Alvarez' conclusions; namely, that this is the beginning of analysis of gastro-intestinal peristalsis by a new method. But we should keep in mind that we do a great deal of violence to the normal gastric mechanism the moment we put the animal under anesthesia or open the abdomen. I am not surprised at the irregularities which he describes. I should have been surprised if he had not found them. We must be very careful in ascribing physiologic significance to experimental contrivances that obviously are not physiologic. But I certainly wish Dr. Alvarez to go on and see what the method will yield, even if the results are mainly pathologic. If the method would work on the animal or person without anesthesia and without opening the abdomen, then we should have a measure equal to and, in the finer analysis, superior to the roentgen ray. But when we must induce anesthesia and open the abdomen, I am afraid the method is going to have very limited physiologic application. I believe Dr. Alvarez will agree with me in the view that the roentgen ray and the balloon methods have not as yet been exhausted in physiologic and pathologic investigations. It is, indeed, a curious thing that the great divergence in behavior of the different regions of the gastro-intestinal tract below the cardia have no gross anatomic basis for these differences. If we did not know what occurred under normal conditions, we could never infer it from gross or microscopic structure. I have recently been particularly interested in the lower esophagus and cardia, and it is a fact that, even in the normal animal with no anesthesia, by balloon methods we see conditions in which the cardia beats or contracts, apparently entirely independent of the stomach. Dr. Alvarez is the happy combination of physiologist and clinician, belonging in the same group as our late Dr. Samuel J. Meltzer. I say happy combination, because that gives a chance to carry over and use the exact criteria and critical control on clinical material, so far as these can be applied, that we use in the laboratory. It would be unfortunate if these persons who work both in the laboratory and in the clinic should reverse the process and carry over into the laboratory field some of the loose methods in observation and thought that unfortunately are not so uncommon in purely clinical work. But I must add that during the last fifteen or twenty years physiologists have also committed many sins and put obstacles in the way of broad physiologic progress, by drawing far-reaching physiologic conclusions on the basis of unphysiologic experiments.

Dr. Alfred A. Strauss, Chicago: It is true, as Dr. Alvarez has stated, that some of the interpretations of these contraction waves, as recorded by his electrical instrument, are difficult to understand. I have recently done some experimental work on the emptying time of the stomach, which is really a check up on an operative procedure which we have done clinically for about seven years. The procedure was the partial resection of the sphincter of the pylorus and pyloric antrum. When this is done in the human being, folowing a resection of an ulcer on the lesser curvature, the stomach will empty about twice as quickly as it will normally. We have followed this up clinically in a large series of cases. The animal experimental work checks up with his clinical observation in the minutest detail. After taking careful fluoroscopic readings and studying the emptying time of the individual animal, and then resecting the sphincter of he pylorus, we have found that the emptying time is from 30 to 50 per cent. quicker han in the normal animal; hat the contraction waves on he lesser and greater curvaure are so shallow that they can hardly be seen. Therefore, when the sphincter of he pylorus is paralyzed, here is very little resistance met by the contents in the stomach, and the intragastric pressure produced by the onic contraction of the cardia is sufficient to empty the tomach contents very readily hrough the paralyzed phincter. We have learned both from the clinical and he animal work that the ize of the peristaltic waves on the lesser and greater curvature is in direct proportion to the amount of reistance that they meet at he pyloric sphincter; for when we produce a partial obstruction at the pylorus by fascial transplant, the size of the waves is very large because they meet a great resistance. When the pyloric sphincter is ut away, the waves are hardly visible because of the little resistance that they meet at the sphincter of the pylorus.

Dr. W. C. Alvarez, San Francisco: I fully appreciate the angers and pitfalls Dr. Carlson points out. I worked out the method of using the electrogastrogram about two years ago, and I was so surprised at the things I saw that I practically dropped it for a year and developed a method of getting records of the actual contractions before daring to talk about the peculiar things I saw on the electrogastrograms. And since we cannot by any present known methods get records like this of the impacted stomach of a wide awake an, I feel that we must make the beginning, and make that beginning on animals. To my mind the hopeful element is is: We know that a dying heart, or a heart that has been andled too long, develops certain abnormalities of rhythm; any of those abnormalities of rhythm are found in disease, and study of them under abnormal conditions has helped in e understanding of disease. Therefore, I think that probably it will be the same way with this work.

Percentage of War Neuroses.—Analysis of the 170,000 cases scharged for disability in England showed that 20 per cent. ere due to war neuroses.—May, *Mental Diseases*, 1922.

SYPHILIS OF THE MOUTH

COMMON TENDENCY OF THE MOUTH AND SKIN TO THE SAME PATHOLOGIC PROCESSES *

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CHICAGO

There is a close relation between the tissues of the mouth and those of the skin. Their structures are very much alike, and they react to many pathologic processes in the same way. There are numerous systemic diseases which have eruptions on the oral mucous membrane as well as on the skin, and these oral eruptions are identical with those of the skin, except as they are altered by the peculiar local conditions to which they are subjected in the mouth. These facts are particularly well exemplified in syphilis. The skin and the mouth are the structures for which syphilis shows its greatest predilection, and the predilection is quite as great for the mouth as for the skin. Indeed, it is probably true that syphilis occurs with as great frequency in the mouth as on the whole surface of the skin. Its frequency in the mouth, then, would of itself make syphilis of the mouth a subject of great practical importance. When we remember in addition the peculiar danger to others of syphilis of the mouth in its early period, it becomes doubly important.

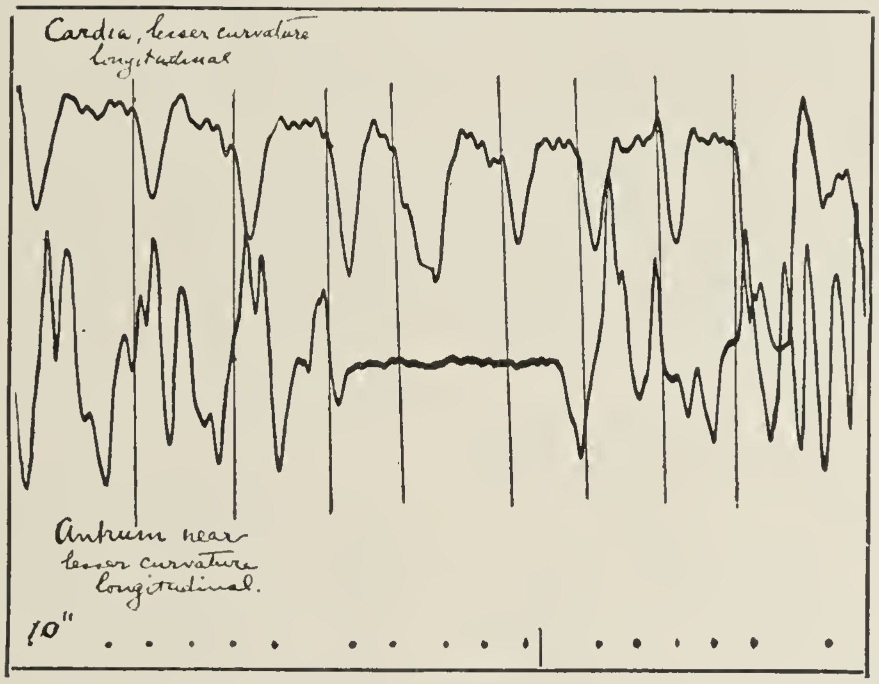

Fig. 4.—Electrograms from the cardia and antrum of a cat. The small deflections on both records are probably respiratory in origin. Note the blockage of two waves. The main deflection in the cardia's record is a positive one, suggesting that the pacemaker lay between the two electrodes placed on the lesser curvature next to the cardia.

One can get most easily a clear grasp of syphilis of the mouth if he will bear in mind that its lesions are those that occur on the surface of the skin, modified only by the peculiar influences to which their occurrence in the mouth exposes them. These are chiefly: exposure to moisture and warmth, causing the lesions to be macerated; irritation or injuries from eating, drinking and biting, from irregular, rough or sharp teeth or from tartar; and secondary infections in the mouth. Peculiarity of structure of the tissues involved accounts for some variations, but these are as a rule of little account except in late lesions of the tongue.

The special influence which is always active in modifying the appearance of syphilitic lesions in the mouth, and the one that does most to change their appearance, is the maceration to which the lesions of the mouth are, of course, always subjected. This factor produces little variation in the chancre or tertiary (true gummatous) lesions, but it causes distinct alteration from their cutaneous types in the lesions of secondary syphilis in the mouth. These early syphilids of the skin are mostly dry lesions. They are covered by a horny layer, which is imperfect, it is true, but sufficient to prevent free exudation from the lesions. In the mouth, this horny layer gives way, and these lesions become the classic excoriated mucous patches.

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* Read before the Section on Stomatology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

PRIMARY SYPHILIS OF THE MOUTH

Chancre.—Of all extragenital chancres—and extragenital chancres constitute about 5 per cent. of all chancres—about 75 per cent. occur on the head; and of these that occur on the head, more than 80 per cent. occur in the mouth. Thus, about 60 per cent. of all extragenital chancres are chancres of the mouth. In Fournier's statistics, covering 1,124 extragenital chancres, 849 occurred on the head; of these, 723 occurred in the mouth. Of these 723 cases occurring in the mouth, 567 occurred on the lips (usually the lower lip), seventy-five on the tongue, sixty-nine on the tonsils, eleven on the gums, and one on the buccal mucosa. Chancres of the mouth, therefore, occur with vastly greater frequency on the lips; after that, they occur with about equal frequency on the tongue and tonsils. They are very unusual on the gums, and excessively so on the buccal mucosa. The frequency of their appearance on the lips and tongue obviously depends on the great frequency of exposure of these parts and the common occurrence of breaks here in the epithelium which allow infection. The frequency of the involvement of the tonsil is not so obvious; it probably lies in the unusual susceptibility of the tonsil to infections in general. Of course, a chancre may occur on any tissue in the mouth, as it may appear on any living human tissue, but it is a fact established by experience that chancres occur frequently on the lips, tongue and tonsils, and with great rarity in other structures of the mouth.

The chancre is most frequently a superficial erosion or ulcer of pea or bean size on an indurated base; occasionally, it is a frank ulcer of thumb-nail size or larger. It may be a dry indurated papule or nodule, or an elevated moist nodule. Very rarely, the chancre is a dry indurated nodule; usually, it is an open lesion with an indolent surface covered by a thin yellowish exudate. This can be wiped off, leaving a red weeping surface, which does not bleed freely, but has a very free serous discharge full of spirochetes. It is practically painless. Chancres are more frequently multiple on the lips, I believe, than elsewhere, but even on the lips multiple chancres are exceedingly rare.

With all of their variations in unessential details, chancres of the mouth, as elsewhere, have a few common objective features which are distinctly characteristic. A chancre always means a dense, indolent, inflammatory infiltration in the tissues at its site; and density and indolence are the essential clinical features of the lesion. Its base has a peculiar solidity. It can be grasped between the fingers as a solid button from which, because of its density, the blood is easily pressed out, leaving between the fingers a distinct disk of yellowish cartilaginous color and cartilaginous feel. It is indolent in degree of activity and in course. The reaction is so sluggish that it is practically painless, and it persists almost without change for from one or two to four or five weeks. It is this indolence in particular which is most likely to call attention to an otherwise unsuspicious chancre about the mouth. Another and peculiar characteristic of the chancre about the mouth is the extraordinary enlargement of the contiguous glands which usually accompanies it. These are painless and hard, but the degree of enlargement is much greater than with other lesions in the mouth of similar size, and also usually much greater than occurs in the adjacent glands with chancre of the genitals.

Of course, many variations may occur in the chancre, but on the whole chancres are surprisingly true to type. This fact, while it should lead to the clinical recognition of chancres, should never justify us, in the present state of our knowledge, in making a diagnosis of an initial lesion of syphilis on clinical grounds alone, or in excluding syphilis on the same grounds, in the case of any excoriation, fissure, erosion, ulcer, or similar lesion which by any possibility might be a chancre. Except when facilities for examination are unavailable, the clinical diagnosis of chancre should immediately be confirmed by examination for *Spirochaetae pallidae.* They are present in abundance in the exudate of the chancre; and their demonstration is of excessive practical importance, because the presence of syphilis can be definitely established by their demonstration in the chancre; and experience has shown that, when the disease is thus early recognized, the prospect of aborting it by immediate intelligent specific treatment is good. In the old days, it was the rule of all conservative men never to make a positive diagnosis of syphilis on the chancre alone. The diagnosis was never made except when the character of the chancre was confirmed by the typical evolution of the disease up to the appearance of secondaries. Now we can make the diagnosis on *Spirochaetae pallidae* alone, even before the disease becomes systemic, and before the Wassermann reaction becomes positive. And when we can get patients at this stage, we can cure them; it is the golden opportunity in syphilis for which every practitioner should be alert.

SECONDARY SYPHILIS OF THE MOUTH

The manifestations of early systemic syphilis in the mouth are, as I have said, exactly analogous to the secondary eruptions that occur in the skin. We have all of the manifestations from the macular erythema, through the papular and nodular eruptions, up to the ulcerative secondary lesions. Corresponding to the faint macular syphilid on the skin, we may see an eruption of dry red spots on the inner surfaces of the lips or on the mucosa of the cheeks or soft palate. This is a very rare eruption and usually of short duration. More frequently, but still rarely, we see a dry hyperemic eruption on the soft palate or in the pharynx. This is sometimes a faint spotted erythema, but is more likely to be a diffuse bright red hyperemia. It is occasionally dry, but, as a rule, the epidermis is more or less excoriated, and the picture resembles a mild degree of catarrhal pharyngitis. It differs from this, as a rule, by presenting a mottled appearance due to the individual macules whose coalescence has caused the larger area.

Mucous Patches.—Vastly more frequent than any other eruption of secondary syphilis in the mouth are the several forms of mucous patches. They are the prototypes of the secondary eruptions on the skin and, like all of the secondary eruptions in the mouth, occur with them. They have a red, but not angry, base, which is usually covered by a thin pellicle of exudate and necrotic epidermis, around whose edge a narrow border of red shows. The pellicle can be wiped off, but it is fairly adherent. The lesions do not bleed easily, but, like the chancre, they have a free exudate of serum which contains many syphilitic spirochetes. They are, as a rule, almost or quite without discomfort; they are usually few in number, and thus they may escape even the patient's attention. It is this combination of insidious features which makes them so dangerous in the transmission of the disease; for they are highly contagious.

Mucous patches may be so superficial as to appear as small areas of necrotic epidermis, neither elevated nor depressed, surrounded by a narrow red collar. Usually, they are superficial erosions or very superficial small ulcers. Sometimes, they are deeper ulcers. Occasionally, they are elevated eroded nodules or plaques. They vary in size from that of a pin head to that of a small coin. Typically, they are round or oval, and from one-eighth to three-fourths inch (3 to 19 mm.) in diameter. They are, as a rule, multiple; and sometimes they are so numerous as to involve a large part of the surface of the mouth. The exaggerated lesions and the extensive distribution of the lesions occur only, as a rule, in careless, neglected patients.

They may occur on any part of the surface of the mouth or pharynx. They occur most frequently on the buccal mucosa, especially near the angles of the mouth, on the sides and tip of the tongue, on the under surface of the tongue, and on the floor of the mouth under the tip of the tongue.

On the surface of the tonsils, mucous patches are common, and in this location they are frequently angry, and accompanied by more reaction than is common elsewhere in the mouth. They occur here as discrete patches, either erosive or ulcerative, of the ordinary size. In some cases, they are larger than usual, or occur in numbers that coalesce into patches producing a severe ulcerative tonsillitis or pharyngitis.

Smooth Glossitis of Early Syphilis.—Mucous patches occur on the dorsum of the tongue in one form of lesion which is not included in this general description of the usual forms. This lesion is a superficial specific infiltration which produces a dry red patch. In these patches, the papillae of the tongue entirely disappear in the infiltration; the patch thus has a perfectly smooth surface, and is covered by a thin layer of glistening epidermis. The whole lesion is a smooth bright pink to red patch with a sharply defined border between it and the normal surface of the tongue. These patches are usually of finger-nail size, and several of them usually occur on the dorsum. They may coalesce and produce a smooth red tongue whose surface in front of the circumvallate papillae is, except for the extreme redness, much like that of the buccal mucosa. This is the smooth glossitis of early syphilis, and is a characteristic condition. It is quite painless.

Mucous patches are nearly always accompanied by other evidence of syphilis. They occur frequently and abundantly in early secondary syphilis, in the first six months after the chancre. At times, they will be seen when no other syphilitic eruption is to be found. But their connection with syphilis will be shown by the history or by the presence of other manifestations of syphilis; usually, by an indurated scar at the site of the chancre; or by indolent and enlarged inguinal, cubital or posterior cervical glands. When they are present, the Wassermann reaction is nearly always positive.

While they are distinctly an early lesion of syphilis, one of their dangerous characteristics is their tendency to relapse for a considerable time. They occur most frequently, and in the greatest abundance, during the first six or eight months of the disease. Even in untreated or poorly treated cases, they occur less frequently in the second year, and rarely after that. But the recurrence of the mucous patches has been recorded a surprising number of years—even eight or nine years—after infection. I confess that I have seen no such late manifestations of the lesions, and that the occurrence at these late dates is so inconsistent with the recognized course of syphilis that I, personally, am compelled to question the accuracy of the observations which attribute these lesions to infections so old.

Condylomas.—Condylomas are vegetating secondary lesions of syphilis. They are exactly analogous to the secondary macular and papular lesions, and their only peculiarity is the fungoid hyperplasia. This is due to the fact that the warmth and moisture at the orifices of the body furnish conditions so favorable that unusual overgrowth of certain infectious lesions occur at these sites. This happens not only with the lesions of syphilis but also with other inflammatory processes of indolent degree. The condylomas of syphilis, however, differ from other and similar vegetating lesions in that they are liable to be less active. The lesions form flat elevated nodules or, from coalescence, plaques, which are usually raw and covered by a dirty yellowish exudate. They are not the exaggerated exuberant granulations or the accumulate warty growths of other infections, so that their recognition can be made on their clinical features alone. They abound in spirochetes, and the clinical diagnosis in doubtful cases should be confirmed by dark-field examination. Condylomas are rare lesions about the mouth. They occur occasionally at the angles and very exceptionally in the floor of the mouth.

TERTIARY SYPHILIS OF THE MOUTH

Late syphilis of the mouth is frequent; for the disease in the tertiary stage shows as great a predilection for the mouth as does early syphilis.

Gummas.—Gummas may occur in any of the tissues of the mouth. Their sites of predilection are the tongue, especially the dorsum; the hard and soft palate; and the tonsils and walls of the pharynx. They invade the bone structures as they do the soft parts. Periosteal gummas in the mouth occur most frequently in the hard palate. They also occur, with less frequency, in the upper and lower mandibles.

Gummas in the mouth, as elsewhere, vary from small pea size tumors to tumors the size of an olive, or larger, and develop as solid painless and oval or round elevated tumors. They may undergo solution and disappear without ulceration, either spontaneously or as the result of treatment. As a rule, if a gumma is untreated, the center becomes necrotic, and an opening forms on the surface. The ulcer resulting is relatively deep, with rather irregular, precipitate borders, and with a base made up of irregular red granulations having a thin purulent discharge. When gummas occur as small nodules—pea size to hazelnut size—they are usually multiple and have a characteristic arrangement in the arc of a circle or as an archipeligo-like group. As they break down, the ulcers coalesce and form crescent-shaped ulcers or a group of small ulcers that look like a map of a group of small islands. These small group gummas are not their usual manifestation in the mouth. As a rule, in the mouth, they occur as isolated, deep, destructive oval ulcers. They are usually painless, except as a result of secondary infection. On the tongue, they occur usually on the dorsum. On the hard palate they appear in the periosteum, and by breaking down cause often a characteristic perforation into the nose. On the soft palate, they appear as disk-shaped gummas which are liable to break down with great rapidity and cause extensive destruction, which may temporarily cause great difficulty in eating and drinking. Gummas of the tonsil are likewise liable to be rapid and destructive. The amount of destruction produced by rapidly breaking down gummas of the soft and hard palate and tonsil produce, at times, destruction which is temporarily appalling. Fortunately, a surprising amount of repair occurs in the healing of these lesions. Cases in which apparently irremedial defects are occurring may end with relatively little deformity. The posterior wall of the pharynx, as well as the posterior nares, is a frequent site of gumma. As a rule, on the posterior wall of the pharynx the lesion is relatively indolent and produces less destruction.

Interstitial Infiltrations.—The tongue, in addition to being a frequent site of gummas, is attacked even more frequently by an interstitial syphilitic infiltration, which is analogous to the sheetlike interstitial infiltrations of syphilis that occur in the viscera, and in connective tissue and muscular structures such as the aorta. In this condition we do not find circumscribed gummas but diffuse gummatous infiltrations. This interstitial syphilitic glossitis may be superficial or may extend deep into the tongue. It is not an ulcerative form of syphilis, but it is a form which is followed by scar tissue formation and sclerosis. Its clinical appearances vary with the extent, and particularly with the depth of the involvement.

Smooth Atrophy of the Tongue.—This condition is a result of interstitial glossitis. It may occur in superficial discrete patches, but it usually occurs diffusely over the entire dorsum of the tongue. Early in the course of the condition, the tongue may be red and swollen; usually, this early condition is not seen. As a rule, when the cases first come under observation, the dorsum of the tongue shows either several patches or a diffuse surface covered by smooth, glistening, dull red epidermis, the small papillae of the tongue having been destroyed in the process. With this, there is more or less superficial furrowing of the tongue. As the syphilitic infiltration is replaced by scar tissue, these furrows become deeper and the tongue is slightly distorted.

This smooth atrophy of the tongue occurs also at its base, producing a smooth even surface behind the circumvallate papillae. It occurs often without similar involvement of the tongue in front of the circumvallate papillae. It is one of the characteristic, but most frequently overlooked, lesions of syphilis.

Sclerosis of Tongue.—A deep interstitial glossitis produces a picture like that of the superficial glossitis, except that the distortion of the tongue is exaggerated. As a result of this condition, the tongue is hard and smaller from the presence of scar tissue; when sclerosis is established, the fissures are deeper, and it is nodular or lobulated, or otherwise distorted.

Leukoplakia.—Patches of leukoplakia occur on the scars of gummas, but they develop much more commonly after superficial or deep interstitial syphilitic glossitis. Superficial glossitis is probably the most frequent cause of syphilitic leukoplakia.

Syphilitic leukoplakia characteristically occurs on the dorsum of the tongue. It is likely to occur extensively over the tongue, showing in whitish patches which mottle the tongue, but between which a lesser degree of leukoplakia extends. It is usually of moderate degree until it has persisted for several years. Gradually, it may show much greater horn formation, and it then becomes a dangerous precursor of cancer. Syphilitic leukoplakia also occurs frequently on the buccal mucosa, but, except as it occurs on the tongue, I am not sure that it has any characteristics that distinguish it from nonsyphilitic leukoplakia. And nonsyphilitic leukoplakia is much more frequent than is leukoplakia due to syphilis. I wish to emphasize this fact because there is a widespread impression that leukoplakia is usually, or always, the result of syphilis. That undoubtedly is not the fact. Leukoplakia is simply a symptom. It is a manifestation of increased cornification of the epidermis, and it is the result of a subacute or chronic inflammatory reaction at the site. It thus may be produced by any sort of chronic inflammation from any source of chronic irritation. Very frequently this source is chronic irritation of external origin. Even in syphilis, leukoplakia is rarely a manifestation of the disease itself; it is so only in rare cases in which there is a proliferation of the epithelium over an area of active syphilic manifestation which has not yet disappeared. In these cases only, it is influenced by specific treatment. As a rule, in syphilis it occurs at the sites of previous active syphilitic lesions, where the mucosa has been damaged in a sclerotic process that followed the active lesions. In these cases, specific treatment is of little or no use.

Macroglossia and Macrocheilia.—As a result of diffuse syphilitic glossitis, the tongue not infrequently is reduced in size. In distinction to this, we occasionally see a hypertrophy of the tongue resulting from syphilis. This macroglossia is an elephantiasis due to lymphatic obstruction. This may be either the result of syphilitic lymphangitis or of a lymphangitis from a secondary infection occurring in open syphilids.

A similar macrocheilia occurs even more often from syphilis. In this connection, the lips, or either of them, may be moderately or enormously thickened. Both with syphilitic hypertrophy of the tongue and that of the lips, specific treatment causes improvement, but rarely does it cause entire disappearance of the enlargement.

CONGENITAL SYPHILIS

Congenital syphilis of the mouth differs in no essential feature from the acquired disease. It is very likely to produce an exaggeration of the picture. The mucous patches of congenital syphilis are liable to be abundant and more ulcerative than usual. They occur in greater abundance on the lips, particularly at the commissures, where they commonly leave pathognomonic radiating linear scars. The gummatous lesions produce all degrees of destruction of the soft and hard parts of the mouth which I have outlined as occurring in acquired syphilis.

TREATMENT OF SYPHILIS OF THE MOUTH

The treatment of syphilis of the mouth is the treatment of the disease in general. As a matter of fact, probably because of the simplicity of the structures of the mucous membrane as compared with those of the skin, the lesions of syphilis in the mouth heal with greater rapidity under specific treatment than do those of the skin surfaces. There are no lesions of early syphilis which yield to arsphenamin with more rapidity than do chancres and mucous patches of the mouth. The late lesions of syphilis of the mouth yield promptly under specific treatment, whether arsphenamin, or mercury and the iodids, or both. For their healing, mercury and the iodids are all sufficient, although healing is somewhat more rapid when they are combined with arsphenamin. No local treatment of either early or late syphilids of the mouth is necessary beyond cleanliness and obvious rational measures. The only lesions that will not heal under specific treatment are those in which there is dead bone whose removal is necessary before cure can occur.

7 West Madison Street.

ABSTRACT OF DISCUSSION

Dr. W. S. Bainbridge, New York: We should keep in mind the points which Dr. Pusey emphasized and put them into practice. The one point in which I am especially interested is that syphilis may occur with many other conditions. The mouth often represents a multiplex pathology, and it is not often easy to make a diagnosis. Even the microscopic findings are not always to be depended on.

THE CAUSES OF SURGICAL FAILURE IN HYPERTHYROIDISM *

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A review of the literature shows that from 65 to 75 per cent. of the patients operated on for exophthalmic goiter make a complete recovery. The majority of the remaining 25 to 35 per cent. are benefited; but some show no improvement, and death occurs in from 1 to 4 per cent. In the cardiovascular group of goiters, including the toxic adenomas, adenomatosis and compensatory hyperplasia, better results are obtained. During the last two and a half years, approximately 300 cases of goiter of various types have been studied. In this group have been several cases in which the patients had been previously operated on without complete relief. These cases were studied in conjunction with unoperated cases of similar types in order to determine, if possible, the causes of the incomplete results or failure. These causes have been classified thus: (1) errors in diagnosis; (2) overestimation of the patient's resistance; (3) persistent symptoms due to delayed operation; (4) recurrence of symptoms due to insufficient operation; (5) improper or insufficient after-care.

ERRORS IN DIAGNOSIS

As was pointed out by Plummer, a number of years ago, other etiologic factors, usually mild toxemias, produce a chain of symptoms similar to those of mild hyperthyroidism. When this chain of symptoms occurs in patients having nontoxic thyroid lesions, it is often very difficult or even impossible to differentiate between the lesions that may produce these symptoms and hyperthyroidism, without a determination of the basal metabolic rate. These patients complain of various nervous manifestations; tachycardia of varying degree is usually present; often there is a tremor; the patients are frequently undernourished, and have, as a rule, a poor appetite, contrasting them with the majority of patients suffering from hyperthyroidism. In this series of cases, there have been several of this group that have been previously diagnosed as hyperthyroidism and two in which the patients had been operated on. The symptoms, in the majority of cases, were due to chronic infected tonsils. There were two cases of incipient tuberculosis; one of asthenia with ptosis, and in one, the patient, a woman ten years previously, at the age of 30, had had a double oophorectomy, followed by nervous instability. Other than the nervous manifestations, and the presence of a small goiter, there was no evidence of hyperthyroidism. The basal metabolic rate was normal.

OVERESTIMATION OF THE PATIENT'S RESISTANCE

Operative procedure more radical than the resistance of the patient will stand is the principal cause of unduly severe reaction or death following operation. There is no one method by which the resistance of the patient can be accurately estimated. The basal metabolic rate and the clinical manifestations must both be considered. Disregarding either one is certain to be followed sometimes by disastrous results. The basal metabolic rate indicates more accurately the activity of the thyroid gland, while the clinical manifestations indicate the resistance of the patient to the thyroxin absorbed.

Hyperplastic or exophthalmic goiter is a disease that occurs in cycles, each cycle consisting of four stages: (1) the stage of development; (2) the stage of maximum intensity; (3) the stage of retrogression, and (4) the stage of remission. In the first stage, the basal metabolic rate increases more rapidly than do the symptoms, and is higher than the symptoms would indicate. In the second stage, the basal metabolic rate and the symptoms have reached their height, and run about parallel. In the third stage, there is improvement both in the basal metabolic rate and in the symptoms; but the basal metabolic rate drops more rapidly than the symptoms, and is lower than the symptoms would indicate. During the first stage, the basal metabolic rate is of greater importance than the symptoms in determining the operative procedure. Either a rapidly rising rate or a high rate is a danger signal. During the second stage, the basal metabolic rate and the symptoms are about equal in importance. Except in mild cases, the radical operation should never be performed in this stage. Ligation of the superior thyroid poles brings on the third stage. In this stage, the metabolic rate is lower than the symptoms would indicate, and the symptoms are the more accurate guide. As a rule, patients do well when operated on in the third stage.

In the stage of remission, the basal metabolic rate is usually about normal. The presence and severity of the symptoms depend on the severity of the cycle or cycles through which the patient has passed and on the damage done by the thyroxin. In this stage, operation is usually safe; yet in some cases, in which there have been severe permanent lesions produced by the thyroxin, especially in the heart muscle, it is fraught with danger. If the basal metabolic rate is high, the radical operation should not be performed without preliminary ligation, even though the symptoms are mild; and, conversely, if the symptoms are severe, the radical operation should never be done without preliminary

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ligation of the superior thyroid arteries, even if the basal metabolic rate is low. It is often preferable to make the ligations one at a time. This procedure reduces the mortality rate to that of the ordinary abdominal operation. In this series of cases, there were no operative deaths. We attribute this to strict observance of the indications as shown by basal metabolic studies in conjunction with the symptoms.

PERSISTENT SYMPTOMS DUE TO DELAYED OPERATION

In cases presenting this group of etiologic factors are included those in which the patients have been previously operated on, and in which the activity of the thyroid gland is normal or subnormal, as shown by the basal metabolic rate, yet the patients have peristent symptoms due to permanent lesions produced by the thyroxin previous to the operation. With one exception, each of these patients gave a history covering a considerable period of time. In that one exception, the patient was having a very severe primary attack, and had been sick several weeks when seen. We have seen no patients who were operated on early in the primary attack who did not completely recover; so we have regarded persistent symptoms as due to delayed operation. Several of these patients reported previous medical treatment, with what was thought at the time to be beneficial results. In the light of the subsequent history, we believe that the medical treatment merely carried the patient over the height of the disease into the stage of remission. Medical treatment will not always carry a patient over the stage of maximum intensity. One patient was seen who had been previously treated medically for three months by a very competent physician. Her basal metabolic rate was 95 per cent. above the average and her condition not good for even a ligation, which had to be done at once, as she was getting progressively worse. The first ligation was followed by a very severe reaction, the second by a moderate reaction, and the operation by very little.

The most serious, persistent symptoms were those due to cardiac injury. Tachycardia was frequently present. Irregularity of the heart beat was less common. A mitral systolic mumur was present in one case. In two cases, fluoroscopic examination revealed that the heart was increased in size. Albert Kocher first called attention to the frequency of cardiac symptoms with exophthalmic goiter. Fahr, in 1916, showed that there was an interstitial myocarditis consisting of an accumulation of round cells between the muscle fibers, and degenerative changes, fragmentation, and destruction of muscle fibers in the neighborhood of the small vessels. Goodpasture regards this condition as a toxic myocarditis. When an extensive myocarditis of this type has once been produced, even though the patient is cured of the goiter, the heart remains an impaired heart.

One patient who gave a history of repeated severe attacks of hyperplastic goiter over a period of fifteen years had a marked hypertrophied and dilated heart, with very rapid, irregular action and pronounced mitral regurgitation. After a period of rest, one superior pole was ligated, and later the other. Following the second ligation, the patient showed marked improvement but, about one month later, died suddenly, following an attack of severe pain in the region of the heart. We regarded this as being a cardiac death due to delayed operation.

Exophthalmos improves following operation, but in the more severe cases does not completely disappear. Tremor persists sometimes. A distressing persistent feature in two cases was that of nervous instability. One of the patients had had attacks of hyperthyroidism over a period of years, and the other was seen during a very acute attack. She was mentally deranged at times. Both patients were operated on after preliminary ligation, and both showed marked improvement. The patient with the acute attack gave a history of having previously had a mild disposition; but, since the attack, she had been irritable and quarrelsome. The other patient was quite irritable.

RECURRENCE OF SYMPTOMS DUE TO INSUFFICIENT OPERATION

Recurrences from four different causes were noted:

1. *Simple Ligation.*—The ligation of the superior thyroid pole does four things: (*a*) shuts off the arterial supply; (*b*) prevents the return of venous blood through the superior thyroid vein; (*c*) stops impulses coming over the nerve, and (*d*) blocks the lymphatics that accompany the superior thyroid vessels. The first two are most important, as the ligation of the superior thyroid artery temporarily diminishes or entirely stops the function of a considerable portion of the lobe, and the obstruction to the vein delays the development of the collateral circulation. Eventually, function is restored; and when the recurrence takes place, the condition is more serious, because the blood supply, coming through an anastomosis within the gland, cannot be shut off from the superior pole.

Ligation of the inferior thyroid arteries should never be performed because of the danger of tetany, the parathyroids being supplied by branches of this artery. It has been our custom, in the severe cases, to ligate one pole, observe the metabolic rate until it has dropped as low as it will go, then ligate the other pole, follow the rate as it drops, until it reaches its level, and then remove the gland. In some cases, the rate will begin to rise after eight or ten weeks. It is always necessary to caution the patient before the ligation that, although there will be marked improvement, recurrence is the rule; and, the superior poles having been ligated, it is much more difficult to carry the patient over the crisis to a point where the radical operation is safe, if he waits until the disease again becomes severe.

2. *Lobectomy.*—One patient, who had had a single lobe removed several years before, was seen in an acute attack of hyperthyroidism.

3. *Insufficient, Double, Partial Lobectomy.*—One patient was seen in which there was a recurrence in one lobe.

4. *Removal of Only a Part of the Toxic Adenomas Present.*—Two cases were seen that come under this group. One of the patients weighed 286 pounds (130 kg.) and had a metabolic rate 54 per cent. above the average. She had a large adenoma in the isthmus and a smaller one in the left lobe. We regarded this patient as a poor surgical risk; and, as it has been our experience that ligation of the superior thyroid arteries in adenomas, especially in the isthmus, is of practically no value, we enucleated the adenoma in the isthmus without disturbing the rest of the gland. The patient made a satisfactory recovery, and has been in fairly good physical condition since for one of her weight; yet her basal metabolic rate is still 37 per cent. above the average.

As stated above, the small adenoma was deliberately left because this patient was a poor risk; yet a study of this case convinces us that small adenomas could be easily overlooked, and probably are, and later, developing, produce a recurrence of the symptoms. The other patient gave a history of having been operated on for an exophthalmic goiter eleven years before. She had recently noticed an enlargement in her neck, and showed the evidences of hyperthyroidism. The basal metabolic rate was 17 per cent. above the average. On examination, an adenoma measuring 5 cm. in diameter was found in the isthmus of the gland. Pathologic examination of the adenoma after removal showed it to be of the mixed type. In this last case, the adenoma may not have been present at the time of the operation, developing later. In the first case, we are certain of its having been present.

IMPROPER OR INSUFFICIENT AFTER-CARE

Ochsner states that the most important point in the surgical consideration of hyperthyroidism is the after-treatment. In severe cases of hyperthyroidism, the patients are irritable, excitable and sometimes mentally deranged. The heart often undergoes hypertrophy and dilatation, and myocardial degeneration may be present. These patients are often very much undernourished. The removal of the major portion of the thyroid gland reduces the thyroxin supplied to the patient to normal amounts; but, following the operation, the damage previously produced by the oversecretion of thyroxin must be repaired, if possible. It is easy to bring the patient back to normal weight, because the ravenous appetite continues; but it is not so easy to develop the injured heart muscle or to repair the disordered nervous state. This may take weeks or months of careful hospital or sanatorium treatment. If this is not done, the patient may come to an early death, because of the cardiac lesion; or a neurotic state may develop that will make life miserable for the patient and relatives. Some patients develop mild hypothyroidism shortly after operation. In these cases, desiccated thyroid should be administered until the gland recovers from the trauma of the operation. Carefully following up cases of hyperthyroidism following operation will greatly reduce the morbidity.

CONCLUSIONS

1. The determination of the basal metabolic rate is very important in differentiating between mild toxemias in the presence of nontoxic goiters and mild hyperthyroidism.
2. Deaths or severe reactions following operation are for the most part due to avoidable errors.
3. Incomplete results following operation on patients with hyperthyroidism are due to delayed operation, insufficient operation, or insufficient after-care.
4. Patients with hyperthyroidism must be operated on early if permanent lesions are to be prevented.
5. Medical treatment will usually carry a patient over the crisis into the stage of remission, but beyond its use in preparing patients in a precarious condition for operation, it has no place in the treatment of toxic goiter. Hyperthyroidism is a surgical disease.
6. After-treatment is as important as the operation. A surgeon's responsibility does not end until the patient is in the best possible physical condition.
7. A surgeon is not justified in operating in, or treating, a case of hyperthyroidism without frequent determinations of the basal metabolic rate.

THE DESPERATE RISK GOITER *

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During the last few years the treatment of the average case of goiter has been quite satisfactorily standardized as the result of the management of many thousands of cases, mostly in the hands of relatively few surgeons. However, every one interested in these cases, no matter how experienced he may be, occasionally faces conditions involving the thyroid alone, or complicated with other pathologic conditions, which are of sufficient gravity to tax his judgment to the utmost. A too high mortality, even in desperate risk cases, brings discredit on surgery and influences many, who might safely obtain relief, not to have a timely operation. On the other hand, careful study and elimination of some cases, with greater experience and improvement in methods of dealing with these cases, has made it possible each year to extend the range of operability to other cases which at first sight were apparently regarded as hopeless. Every observer brings to the study of his problem an individuality in judgment and method which should be of help in solving the difficult problems which concern us all. This report is based on 1,000 cases selected from a series of 1,318 records of recent cases, under observation since May 31, 1914, and studied in detail up to May 31, 1921, representing, for the most part, five years' work with a deduction of two years, during service in the United States Army.

DETERMINATION OF DESPERATE RISK CASES

What cases should be considered as desperate risks? It seems to me that any case in which the patient is apparently faced with almost certain death unless relieved within a relatively short time might be so classed. We have records of forty-two patients that have died without operation either while under observation in the hospital or at their homes. The causes of death in these cases that have come under my observation may be grouped as follows: hyperthyroidism with extreme toxemia; hyperthyroidism in association with diabetes; goiter with extremely high blood pressure; goiter causing death by obstruction to breathing, and thyroid malignancy.

Three questions especially concern us with regard to each of these five groups of cases:

1. What are the indications of desperate risk to life?
2. How may these cases be most safely managed?
3. What results, both immediate and permanent, may be expected?

In my experience with the hyperthyroid cases, those patients with obstinate gastro-intestinal symptoms, very high blood pressure and myocardial insufficiency have seemed especially desperate risks.

When nausea and vomiting or diarrhea have apparently resulted from thyroid toxemia alone, uninfluenced by diet, medication or other causes, and have persisted in spite of treatment, the patients, without exception, have died. Fortunately, these cases are relatively rare; but at least four instances have come under my observation. Early experience convinced me of the gravity of gastro-intestinal symptoms, and I have not operated in any such case for ten years.

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Hypertension in combination with hyperthyroidism has also, in my experience, proved of decided gravity. For some time the results were so discouraging that I refused to take patients for operation with a blood pressure of 200 or over; but within the last two years we have taken fourteen such patients, most of whom have had preliminary treatment under the direction of the professor of dietetics of the department of home economics, Cornell University. The essentials have been salt-free, low protein diet, frequent saline purges, attention to elimination generally and rest in bed. These patients have improved so satisfactorily that operation has seemed justified, and the results thus far promise well. We have not considered as suitable for operation any patient whose blood pressure has not dropped at least thirty points, nor have we operated on any patient with a blood pressure of more than 190, and generally the pressure has dropped to 170, or lower. These patients, we believe, are most safely operated on under local anesthesia. Of course, they must give life-long attention to their habits of living, and postoperative supervision involving a good deal of correspondence is usually essential in order to get the patients to persevere with general health measures. In some instances the blood pressure has dropped to 170, or lower, under preliminary treatment, and, in a number of instances, to normal, following thyroidectomy. There has been no immediate mortality. But not all of these patients do well, and, up to the present, we have been unable to select the ones who will show permanent improvement from those who will not. Several of our patients are living, but are not so well as they should be, and one died of apoplexy several months after thyroidectomy.

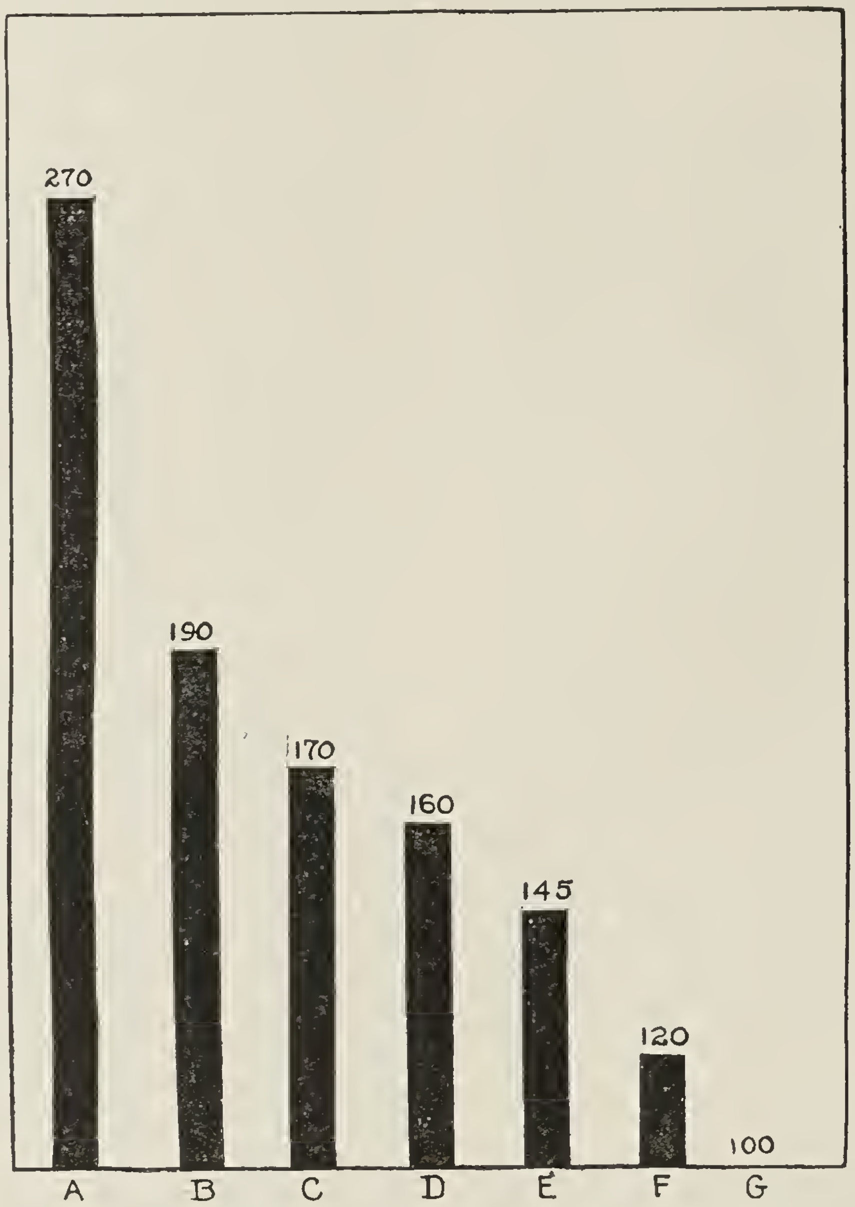

Chart 1.—Blood pressure in toxic goiter: *A*, upper level at which patients have been accepted for treatment; *B*, upper level following preliminary treatment; *C*, average after preliminary treatment; *D*, relatively safe level; *E*, average after thyroidectomy; *F*, low normal; *G*, normal.

Myocardial insufficiency, whether from poisoning of heart muscle or because of weakening from long continued tachycardia, also puts some patients in the desperate risk class. On first observation these patients, with their weak, rapid, irregular and intermittent heart action, their general muscular weakness, shortness of breath and edema, look most unpromising as to both immediate and permanent results. The persistent use of digitalis, pushed, regardless of dose, until results have been obtained, clears up the auricular fibrillation in many cases, and, with general care, brings such improvement that most of them become good operative risks. The pulse deficiency, which can be readily charted by my intelligent nurse with a little instruction, we have found a helpful index to the gravity of the situation. A large proportion of these patients with gastro-intestinal disturbances, high blood pressure and myocardial insufficiency are best sent back to their home physicians for a considerable part of their preliminary treatment. Cooperation on the part of the attending physician is absolutely essential in such cases. Many have not had much experience in dealing with thyroid cases, and it is necessary that the consultant should have clearly in his own mind what he wishes the home physician to accomplish, and to give specific instructions to both physician and patient. Reports as to the patient's progress at frequent intervals are essential, for it is difficult for them to appreciate the importance of the long, tedious, modified rest cure necessary to build up the crippled, dilated heart, and, without constant encouragement, many will give up the fight.

Among the cases of hyperthyroidism are many patients without gastro-intestinal symptoms, extreme hypertension or pulse deficiency that directs attention to the gravity of their condition, but who, because of extreme toxemias, are in desperate condition. In these cases the extreme unrest, tremor, insomnia, emaciation, dyspnea, edema and very rapid heart—most, or all, of these symptoms — are sufficient indication of the gravity of the condition. Of course, the laboratory tests are used as a routine and frequently give us some help, particularly the differential blood count and basal metabolism estimation. Many years ago Kocher called attention to relative lymphocytosis as an index of thyroid toxicity. Cabot mentioned the high percentage of lymphocytes with exophthalmic goiter, and experience indicates that this test has more significance than is usually credited to it. Patients in extremely bad condition sometimes do not have sufficient vitality to show any blood reaction. This is as true as in patients with general peritonitis whose leukocyte count falls as death approaches. However, taking metabolic rate, lymphocytes and tachycardia in any doubtful case, if any two out of three are favorable, we have not found the risk too bad, while if two out of three are very high the outcome is doubtful. In order to secure uniform conditions the blood is taken after twelve hours' fasting, at the time the patients are sent for metabolism determination, the lymphocytes being influenced, as is the metabolic rate, by taking food.

MANAGEMENT OF DESPERATE RISK CASES

When the patient's condition justifies intervention, preliminary ligation is usually all that can be performed safely. Almost without exception, those who make good recoveries following ligations improve still further with a prolonged rest cure and do well after excision. In extremely toxic cases in which the patients come to operation wide-awake and apprehensive, in spite of the preliminary administration of morphin and scopolamin, I believe that it is best to eliminate the psychic element by the administration of light gas and oxygen anesthesia, although it is the local anesthesia that relieves the pain. The many-stage operation (stopping at any time that there is doubt whether the operation can be safely completed and packing the wound with gauze) is not the ideal method; but it saves the lives of some patients who otherwise would not recover. This method of dealing with desperate cases I reported at the Los Angeles session, eleven years ago; and while, with suitable preliminary treatment I now use it infrequently, there can be no question of its value in some cases, especially when I have failed before operation to estimate the gravity of the case.

Some will ask why we do not use the roentgen ray or radium. In the first place, we surgeons not only see the failures from these and other measures of treatment, but we see patients that are actually worse or badly burned, although treated by supposedly experienced operators. In the second place, I do not believe dosage can be accurately enough controlled to avert myxedema. In the third place, having lived long enough to see the passing of various serums, injections and other cures in the hands of good men, I am willing to await permanent results. Thus far, since Kocher's series of the early nineties, no method but surgery has stood the test of time.

Obstruction to Respiration.—The possible dangers of difficult breathing are shown by our records of six patients that have choked to death without even consulting a surgeon. At least an equal number whom we have operated on seemed doomed to die in the same way unless relieved; for two were referred by family physicians who stated that they had not expected to see the patients live through attacks of choking which they had witnessed. Three had not been able to breathe lying down, but had slept partly sitting up for some months. One nearly choked to death in the hospital while waiting for operation. With this experience in mind it does not seem superfluous to urge early intervention for all patients with obstructive symptoms. The history of the case is usually all that is necessary to indicate what is needed, and the roentgen ray may help to show the location and best method of attack. Most of the obstructive goiters are more or less deeply intrathoracic, crowding the structures within the bony ring formed by the vertebra, the ribs and the sternum, so that there is little room to work, and I have found local anesthesia almost indispensable for their safe removal. Even a light gas analgesia has greatly embarrassed the breathing in some of our cases, besides materially increasing the hemorrhage, as any general anesthetic always does. Fortunately, the vessels find their main trunk in the neck, as embryologically the thyroid originates as an outpocketing from the esophagus, and, in most instances, even the deeply located growths can be dragged up and out without tearing off the vessels. It seems surprising that in these enlightened days so many goiters should be allowed to reach the size at which serious obstructive symptoms develop.

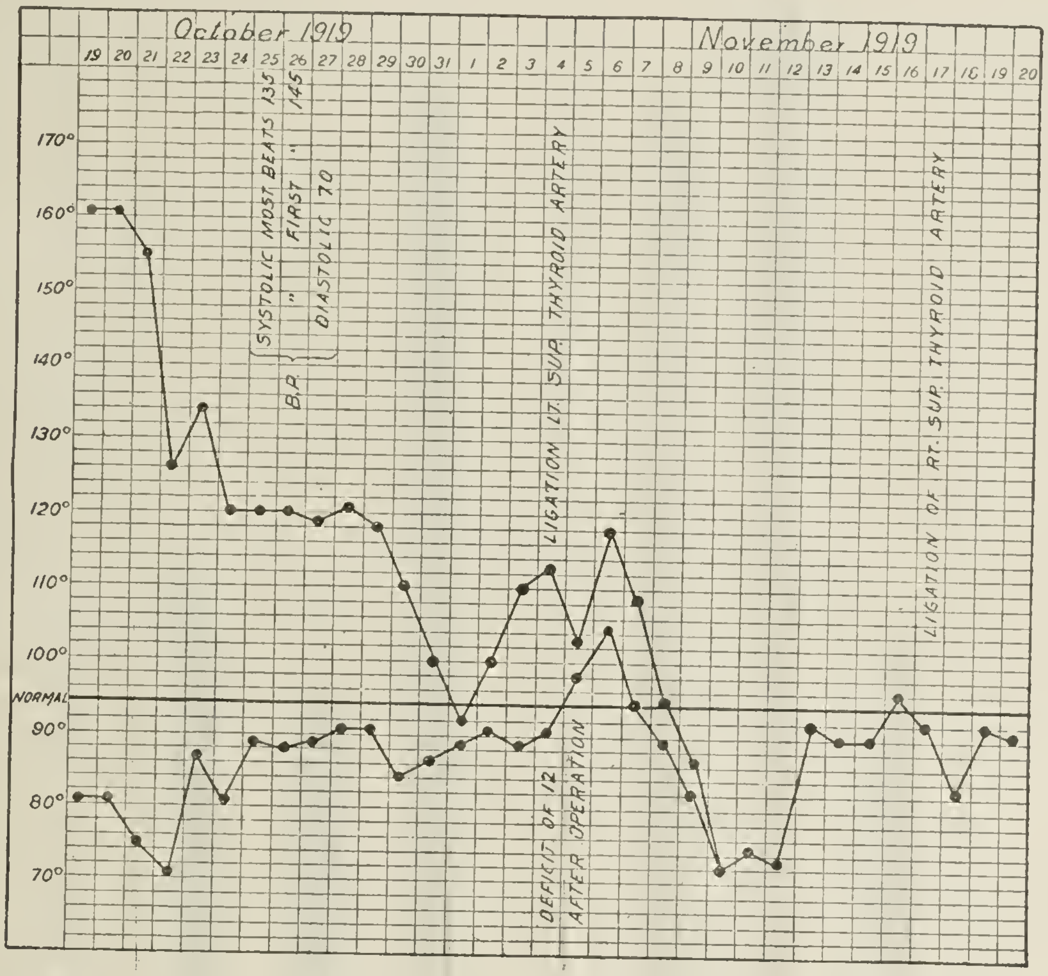

Chart 2.—Rapid improvement in a patient with a deficit in pulse rate of 80. Operation is not usually advisable until the deficit disappears: lower line, radial pulse; upper line, heart rate (by stethoscope).

Glycosuria.— This condition, associated with hyperthyroidism, makes a combination, the gravity of which seems entirely out of proportion to that of either condition alone. Even a small or transient percentage of sugar in the urine and blood puts many patients in the desperate risk class. Two of these patients have died in the hospital within a year, without surgical intervention and with every effort to improve their condition. We try to keep these patients under skilled medical care until they remain sugar free for several weeks, but the anticipation of surgery has precipitated acute thyroidism in some apparently favorable cases. In case it is possible to get the patients sugar free by careful attention to diet, they do relatively well after thyroidectomy, and frequently remain sugar free without very strict diet.

Malignancy of the Thyroid.—It is scarcely necessary to emphasize the desperate situation of these patients; yet the statement which has been made by a good authority that any case far enough advanced to enable a diagnosis to be made before operation is hopeless, I believe, should be revised. Crile's decompression case, several unpublished personal reports to me and my own experience demonstrate that, even when there is extensive involvement outside the gland capsule, the patients may remain well after operation for a long time. Most of these patients have been treated postoperatively with radium or roentgen ray. Two of my patients have remained well; one eight years, one more than ten years, following the excision of extensive malignant processes involving not only the thyroid but also the great vessel sheath, trachea and larynx. In one of these cases, previously reported elsewhere, the growth took its original form from a branchial cleft remnant. Both patients received postoperative radium treatment by Dr. Howard A. Kelly. The risk to life is great not only because of the character of the growth but also because of great vascularity in certain instances. I myself have never encountered greater difficulty in controlling hemorrhage than in certain of these cases of malignancy of the thyroid. The results are far from discouraging, however. Of ten cases with evident malignancy, three were evidently inoperable and the patients died within a few weeks; five lived to return home, but died a few weeks or months after operation (two of these also received postoperative radium treatment); only two (20 per cent.) are living eight or more years after operation. The relatively frequent cases in which malignancy is found by pathologic examination after operation are not included, as the difficulty of operation and chances of recurrence are not great.

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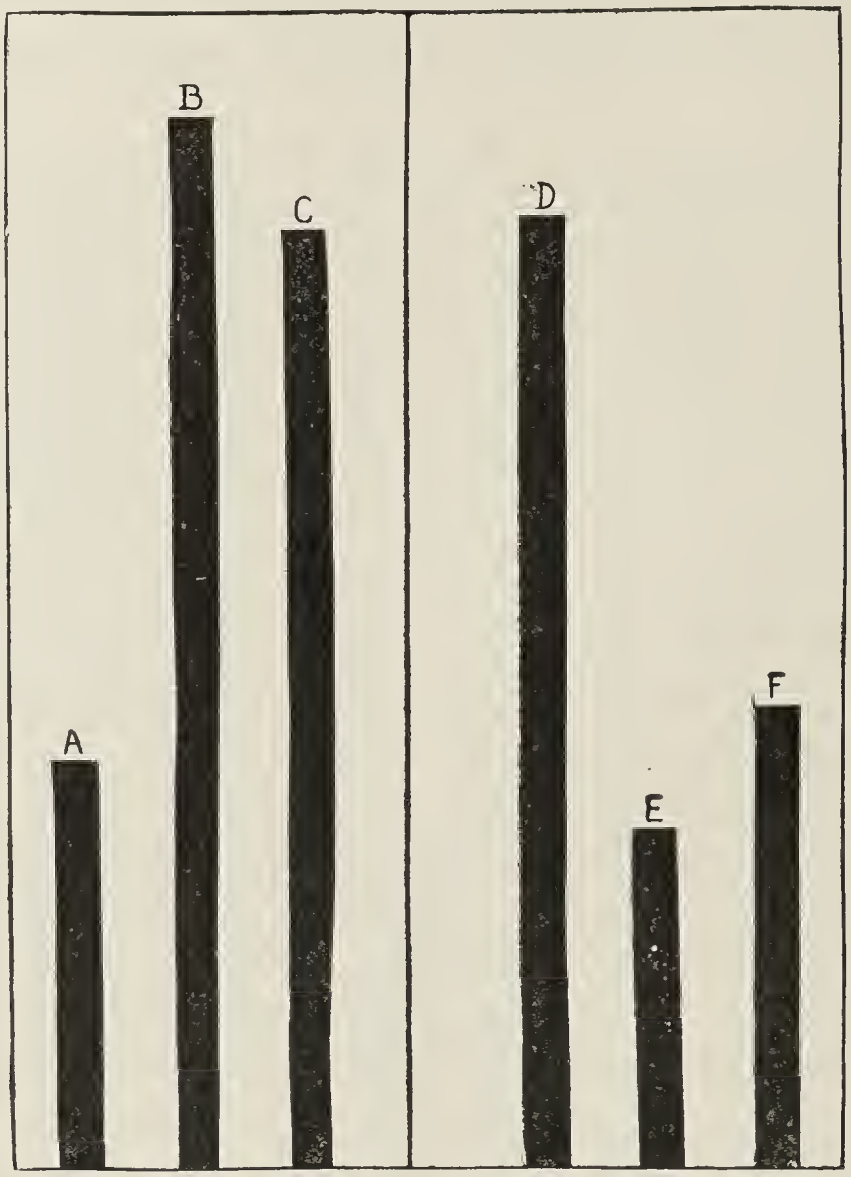

Chart 3.—Relation of apex beat, metabolic rate and lymphocyte count: Case 1, *A*, lymphocyte count; *B*, metabolic rate; *C*, apex beat: Case 2, *D*, lymphocyte count; *E*, metabolic rate; *F*, apex beat. Base line: lymphocytes, 20; metabolic rate, 100, and apex beat, 80; upper line, lymphocytes, 50; metabolic rate, 200; apex beat, 200. Two out of three laboratory tests low are favorable for operation.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. ELSE AND IRVINE, AND TINKER

Dr. George W. Crile, Cleveland: If I am correct in my understanding, Dr. Tinker means that the diagnosis of hyperthyroidism is an indication for operation; that the earlier the patient comes to operation, the better the result will be; that the patient should be relieved of all the things that produce increased metabolism; and that the patient should be followed through, as particularly emphasized by Dr. Else. I feel that almost any patient may endure the operation, provided the operator has a variety of operations to offer, fitting to his patient the type and degree of operation that he can stand safely. The first point to consider is the preparation for the operation. It is necessary to restore the internal respiration of mass tissues of the body by giving large amounts of water, 2,000 or 3,000 c.c. or more in twenty-four hours, by Bartlett's method. If the patient is vomiting, the amount of saline should be increased to 5,000, 6,000 or 7,000 c.c., to overcome the intracellular acidosis, which is the most common cause of so-called acute crises. If the myocardium has failed, or the legs are swollen, or there is ascites, we give 2 c.c. of tincture of digitalis, every four hours, until ten doses are given. If the patient is very ill, we add a blood transfusion, if for no other reason than to increase the internal respiration—to increase oxidation within the cells. Since the introduction of these methods, the average stay in the hospital before thyroidectomy has been three and one-half days. No rules can be laid down for operative management. There are principles, but no rules. We are doing thyroidectomies more often in bad risks under analgesia, in the patient's room. If the risk is bad, we stop the operation at a certain point, dress the wound with flavine gauze, and complete the operation the next morning if conditions are favorable. When a bilateral partial thyroidectomy is performed, the wound is left open and dressed the next day. The wound should be left open in bad risks because the absorption of wound secretion produces septic wound fever, which may elevate the temperature 6 or 7 degrees in a hypersensitized patient. The postoperative period is also important. Patients rarely show any marked reaction requiring any considerable treatment, if the preliminary steps mentioned are made properly. Should the temperature require controlling, the patient is packed in ice. If we are a little uncertain about the patient's course after operation, or if the risk is bad and the patient is not doing well, we make blood transfusions and give large quantities of water, repeating the preliminary preparation for the operation in order to control and maintain the internal respiration. Exophthalmic goiter is becoming more and more a surgical disease. The analogy to acute appendicitis is very good. It is wrong to delay operation. The time to remove the gland is on diagnosis, when the heart and nervous system are intact. As essential as the removal of the gland is the attention of a cooperative physician who will carry the patient through the postoperative period to a complete restoration.

Dr. Walter M. Boothby, Rochester, Minn.: In the metabolism laboratory of the Mayo Clinic, approximately 25,000 basal metabolic rate determinations have been made on more than 8,000 persons. Of 2,332 patients on whom the final diagnosis was exophthalmic goiter, 94 per cent. had basal metabolic rates about + 20 per cent.; 5 per cent. had rates between + 11 and + 20 per cent., and 1 per cent. had rates within the normal limits of — 10 and + 10 per cent.; approximately one half of the latter group were operated on under the diagnosis of exophthalmic goiter in a stage of remission with the pathologic findings of diffuse parenchymatous hypertrophy, while the remainder were considered as probably belonging to the same group, but the diagnosis was not sufficiently certain to justify operation. Of 1,425 patients with the diagnosis of adenoma with hyperthyroidism, 68 per cent. had basal metabolic rates above + 20 per cent. and 32 per cent. had rates between + 11 and + 20 per cent. Of 1,111 patients with adenoma without hyperthyroidism, the basal metabolic rates in all were within the normal limits of + 10 and — 10 per cent. The value of the basal metabolic rate in the determination of hyperthyroidism due to either exophthalmic or adenomatous goiter is best illustrated by the determinations made on 2,417 persons having all sorts of diseases other than thyroid disease; of these patients, 3 per cent. had basal metabolic rates above + 20 per cent.; 3 per cent. had rates between + 16 and + 20 per cent.; 8 per cent. had rates between + 11 and + 15 per cent.; 9 per cent. had rates below — 10 per cent.; while 77 per cent. had normal rates between + 10 and — 10 per cent., and 90 per cent. had rates between + 15 and — 15 per cent. It is obvious that the basal metabolism is fully as accurate as any, and of greater accuracy than most other laboratory procedures in use at the present time as an aid in general diagnosis; it has apparently about the same value for hyperthyroid conditions as the Wassermann reaction has for syphilis. The present lack of confidence by surgeons in the value of the basal metabolic rate is due largely to the fact that, generally speaking, the tests have not been carried out with sufficient care and accuracy as to render a high percentage correct.

Dr. Frank H. Lahey, Boston: We have been very much disturbed in the past by cardiac complications and have derived a great deal of comfort and considerable knowledge by the association of a cardiologist. We were in the beginning very doubtful as to the question of operation in cases of auricular fibrillation, but have found that this group of cases when thoroughly digitalized are on the whole very good risks. Furthermore, Dr. Hamilton, who has had charge of the cardiology in connection with these cases at Deaconess Hospital, has found that more than 30 per cent. of the patients having auricular fibrillation with thyroid diseases when digitalized and operated on never had fibrillation again. The matter of glycosuria in connection with thyroid disease is interesting. It undoubtedly does increase the risk of operation. We turn over all diabetic cases to Dr. Joslin and leave the question of operation to him, as far as the diabetes goes. The intrathoracic goiter question, I believe, is becoming prominent and rightly so, because there are doubtless a great number of intrathoracic goiters which are unrecognized. We have twice had occasion to resect the upper part of the sternum, once for an intrathoracic goiter, so large that it could not be delivered, and the other time for a superior mediastinal tumor. This is an operative measure which those who are dealing with deep lying intrathoracic growths should have in mind. The danger point with these cases is during delivery of the gland. While it is being delivered through the superior thoracic strait, the patient must not breathe. The danger of prolonging this period can be overcome by thoracic decompression. By resecting the upper part of the sternum the upper strait can be widened, so that this obstruction does not occur. I think that almost every one has come to accept ligation. We believe that ligation should be and really is a major surgical operation. I believe it is often considered too lightly. It is possible to get into all kinds of difficulties with the superior pole ligation and ever so much more with inferior thyroid artery ligation. The incision should be sufficiently wide to insure that the blood supply is completely shut off, together with the sympathetic nerve which comes down from the superior cervical sympathetic ganglion. Dr. Cannon has shown beyond question that innervation of the gland comes from the superior sympathetic ganglion, and there is no doubt that ligation does more than interrupt the blood supply. These have two things which make it valuable: for one thing, it gives certain prognostic evidence as to how patients are going to stand the operation. If they stand the ligation or two ligations, and have maintained a relatively level pulse rate during these procedures, it is probable that they will withstand the later operations. It is also certain that they do acquire a psychic tolerance to operation. The multiple stage operation is a life-saving operation, so far as surgical operation goes in thyroid disease. An important thing to do is to make the anesthetist as capable of interpreting the state of the patient as is the surgeon, since, after the operation is started, he has the question of condition entirely in his hands. At each one of these stages, when each step is completed, we stop and decide whether the patient can be carried through the next step; if not, we stop, and if there is any doubt, we do not approach the higher step, but send the patient back to bed and conduct further operative procedures later.

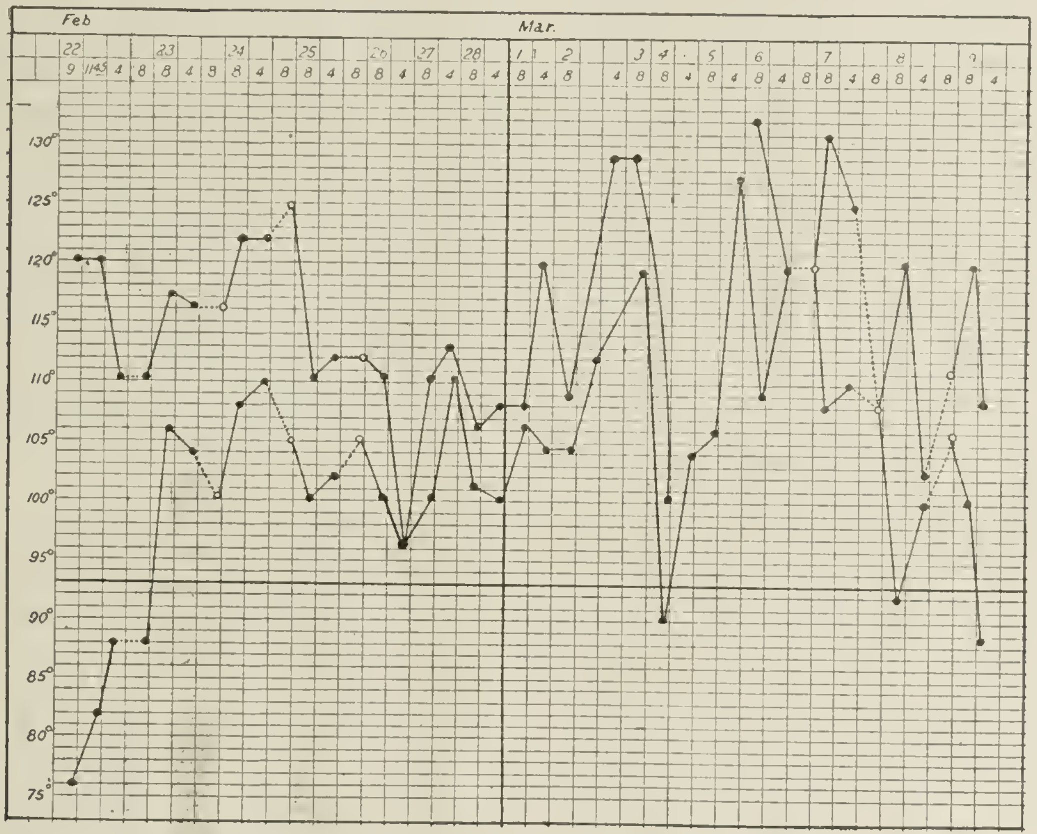

Chart 4.—Deficit chart, showing great irregularity in heart's action. The deficit and irregularity eventually disappeared under preliminary treatment and the patient made a satisfactory recovery following ligations.

Dr. W. W. Grant, Denver: Percentages and statistics are always conclusive to the man who does not know anything about the subject, and they are often confusing, as well as instructive, to the one who thinks he knows something about it. After all, it comes to one proposition. Dr. Crile has well said that the judgment of the surgeon must prevail. In reference to these cases of unusual risk, I may relate two recent experiences — one a case of hyperthyroidism and the other a large adenoma of long standing. The former patient, the wife of a doctor, had lost 56 pounds in sixty days from hyperthyroidism. Patients of this kind are very dangerous risks and, as a rule, unless you put them to bed, keep them quiet long enough to regulate heart action, promote nutrition and stabilize the nervous system, they will die under a radical operation. This patient was operated on after being kept in bed three or four weeks. She had a stormy convalescence, but had one thing which has not been stressed sufficiently—that is, trouble in phonation, even before operation, which lasted for one year after operation. She is today in splendid health and her voice is normal. Whether the recurrent laryngeal nerve was damaged I do not know, but these patients generally, but gradually, recover. This difficulty has been encountered by many good surgeons. The other patient, a woman, aged 60, had been in bed six weeks. She had suffered more than thirty-five years from goiter. She was very much emaciated and was kept in bed ten days before her heart was all right; but she was also suffering from toxic conditions and severe pains in the chest and legs. In operating, it was noticeable that compression or tension in mass, in manipulation of the solid tumor, produced disturbances of breathing and phonation before ligation of a single vessel. When the poles of the gland were lifted up from between trachea and esophagus, the patient breathed badly, and on relaxation the breathing became normal. After a week she began to improve rapidly in voice, strength, and freedom from pain; and she made a satisfactory recovery.

Dr. Willard Bartlett, St. Louis: The most important point brought out is in reference to the fragmentary operation. There is nothing new about it, but I want to clinch that about a man having at his disposal a number of procedures and not simply having a given method for thyroidectomy. Yesterday, we dismissed from the hospital a woman who came there a year ago in as bad a condition as we ever see exophthalmic goiter patients who get well. That woman, I think, had seven different surgical attacks before she was discharged practically well, as well as such a patient ever is. The operations were: 1. Ligation of one superior thyroid group of vessels at one time, in bed. 2. Then, at the second ligation, we entered thyroid tissue and got what always occurs when thyroid tissue is stirred up, a real reaction. We left the wound open and packed it with a little rubber strip. 3. A third attack was made with gas, with the patient in bed; we got enough anesthesia to prepare the field. Her pulse rate increased and she became so uncontrollable even under gas that we had to refrain. 4. A few days later it was possible to raise the skin flaps and pull the sternomastoid muscle back as we do in making one-sided attacks. 5. At the fifth attack, half of the thyroid was gotten out, the wound being left wide open. 6. The sixth attack was made in the operating room, because the patient was then considered a splendid risk. On the opposite side, the same operation was done as on the first side, skin flaps made up and down, sternomastoid pulled back and ribbons split; then the lobe was removed. 7. The seventh attack consisted of putting a couple of clips on the skin. Two days later, the patient went home in really first-class condition, after seven surgical operations; which theoretically is pretty bad, and practically absolutely ideal.

Dr. John J. Gilbride, Philadelphia: Bedfast patients suffering from chronic disease are practically always poor surgical risks. Dr. Crile and Dr. Tinker told us about the patients that should be avoided. Some years ago, I was called to the western part of our state to operate in a case of exophthalmic goiter in a woman, aged 60. I refused to operate. The family and the two attending physicians were very much disappointed. However, I yielded to their importunities and consented to ligate the structures of one of the poles of the thyroid. The psychic effect was such that this woman died while we were preparing for the operation. My own experience does not coincide with that of the Japanese physicians in Vienna, as quoted by Dr. Else, in which, it was stated, the superior parathyroid bodies are frequently absent. In an extensive experience in the dissecting room and in making examinations for the parathyroid bodies, I have seen many instances in which the parathyroid bodies were misplaced, but I never saw a cadaver in which the parathyroids were absent.

Dr. Harry G. Sloan, Cleveland: There is one point I would like to stress in regard to recurrences following operation for exophthalmic goiter. Recently, after two thirds of thyroid substance had been removed, we have seen the gland hypertrophy right under our eyes in the next three or four months. The explanation is that the original match that has set the powder going is still lighted. In two cases there were chronically infected tonsils. The hypertrophy ceased, then regressed, on taking out the tonsils under local anesthesia. The third patient had an infected sinus that escaped our attention. The head seems to be the principal focus of chronic infection influencing the thyroid. In cases of hypertrophy, before we dismiss patients, we are always very anxious to see that any chronic focus of infection is eliminated.

Dr. W. D. Haggard, Nashville, Tenn.: The discussion has brought out the very great frequency with which ligations have to be done. In our experience, two out of three thyroids have to be ligated before the radical operation can be done. I do not like Dr. Bartlett's word "attack." I think that the less we "attack" these patients the better. We are indebted to Dr. Crile for teaching us how to operate with infinite care and dexterity. Let us try not to operate in these bad cases under local anesthesia. We must make distinction between frank exophthalmic goiter and adenomas. We have not put it clearly to the profession that hyperthyroidism is a very insidious and very deadly disease that should be recognized as a surgical malady and treated as such from the beginning. As we have not been able to get that satisfactorily before the profession, we have not been able to make them realize the significance of toxic adenoma. The patient has had twelve or fourteen years of toxemia. On her quest for health, somebody gives iodin and that adds fuel to the flame; and the mortality is a little higher than from exophthalmic goiter. Roentgen ray and radium are helpful in preparation, but I do not believe they cure or are debatable as valued remedies. I believe in the splendid work Dr. Mayo has done in performing graduated operations. It ought to make us mindful of the adage "Be ye wise as serpents and harmless as doves."

Dr. John B. Haeberlin, Chicago: The crux of the whole situation is early diagnosis. The longer we wait before operating the higher the mortality climbs. The borderline cases are very important ones to recognize, and here we make use of a number of reactions—the basal metabolism test, the Goetsch reaction, and the Kottmann test. If we can find a reaction that has value in detecting these early borderline cases, it will be a great find. Petersen says that the Kottmann reaction failed in three out of seventy cases of hyperthyroidism. So there is some element of value in that reaction. In January of this year, at our staff meeting, I presented eleven borderline cases of probable thyrotoxicosis, or beginning thyroid involvement. On these eleven cases we did metabolism and Goetsch tests and found that four of them were not cases of genuine thyrotoxicosis. Of these four, one was an infection and one an incipient tuberculosis, and two cases were classified as neuroses. All of the borderline cases had symptoms of beginning thyrotoxicosis. One more point that is really important is the prevention of simple colloid goiter in the young adolescent, or schoolchildren. It is of great import to know that we can prevent probably 90 or 95 per cent. of the simple goiters that develop during adolescence by the administration of sodium iodid twice a year.

Dr. Charles H. Mayo, Rochester, Minn.: I fully agree with what has been presented. Dr. Crile called attention to a very important point: that all of the bad cases had been under somebody's treatment while they were getting bad and that they would have been very safe cases if operation had been performed earlier. When we consider the very high mortality of the past, we see what has been accomplished surgically by discussions such as we have had here this morning. There is some danger of going home from these meetings overenthusiastic. I always feel, after listening to Dr. Coffey and Dr. Crile, that I will do something, and I have been led to try to do something I could not do; but, nevertheless, we have accomplished a great deal in the treatment of goiter. I want to say a word about metabolism. Some say "What good is it to the surgeon?" I would rather operate on a patient with a metabolic rate of + 65 in the remission period, who has been worse and is getting better, than to operate on one with a rate of + 40 per cent. who is getting worse. If you follow Crile's methods in operating in cases of goiter and have a poor result, you may know it is due to two reasons: one, poor operating and the other, poor surgical judgment. If you have failed in your judgment of the complication, it will be shown at the necropsy.

Dr. Martin B. Tinker, Ithaca, N. Y.: Twenty years ago, we used to apologize for local anesthesia. Now it seems unnecessary to apologize for the use of local anesthesia in certain selected cases. When I presented the many stage operation at Los Angeles years ago, I felt like a boy being pelted with stones when I got through. It is gratifying to see that some men have come to my way of thinking. I appreciate very much the discussion and agree to all that has been said, and I would have said some of it myself if there had been time. There is one point that has been emphasized by others and that deserves more emphasis: these are not surgical cases alone, are not medical cases alone, but when they have reached the advanced stage that has been spoken of, they do require preoperative and postoperative medical treatment. At least three of the men present who are doing a large number of goiter operations have a printed outline as to follow-up treatment of patients after they return to their homes. Follow-up care of these people with hearts more or less crippled, and who always will be more or less crippled, is of special importance, in order to put them in the best condition possible. They feel well enough, but unless they are taken care of and take care of themselves, they do not get along very well. Dr. Crile and Dr. Mayo emphasized the fact that goiter is a surgical disease. A very distinguished physician, Dr. Osler, emphasized this point twenty years ago when he said that, after the patient has been unsuccessfully handled for three months, he should be referred to the surgeon. Another point which deserves to be mentioned in this connection is that no matter how simple and how safe the proposition may seem, a man must be prepared to handle almost anything, when he goes into the neck of a patient with goiter. We are not able to tell always when we are going to encounter malignancy, or deep thoracic goiter, or when the toxemia may be a very much graver element than seems at first.

Dr. J. Earl Else, Portland, Ore.: I want to emphasize two things: first, I hope that no one goes away with the idea that all goiter cases are surgical cases. The majority of cases do not require surgical treatment. Colloid goiters, for the most part, are not surgical cases, and only rarely does a goiter patient in the adolescent age require operation. Goiter accompanied by hyperthyroidism, however, is another matter. The toxic exophthalmic goiters are practically all surgical. The other thing I wish to mention is the relationship of tonsillitis to goiter. If tonsillitis is a direct etiologic factor in goiter, I do not understand why the majority of cases appear in females, because there are probably more cases of infected tonsils in the male than in the female. In view of this fact, it would appear that the relationship, if there be one, is an indirect one. Personally, I am inclined to think that at least in the majority of cases, the relationship is merely coincidental.

PROGRESS IN CARE AND EDUCATION OF CRIPPLED CHILDREN IN OHIO UNDER NEW LAWS *

BURT G. CHOLLETT, M.D.

TOLEDO, OHIO

The present movement for the care and education of crippled children in Ohio had its beginning six years ago in a very small way in one clinic. A recently formed Rotary Club was looking for some worthwhile work, and its attention was drawn to a particularly sad cripple with prenatal amputation of both arms at the elbow, one leg above the knee, and the other leg and ankle very much distorted, with some bones missing. He was then 12 years old and had never been to school. Following the suggestion of an orthopedic surgeon that the boy would eventually need some surgery, but at the present time it would be better to start his education, he was sent to another city in which his education was started. Later an operation was performed, the patient was given artificial limbs, and now he is self-supporting.

In this locality there was a small dispensary maintained by a district nurses' association. The Rotary Club became very much interested in the orthopedic clinic at the dispensary, and secured for us a brace fund. Interest in this work grew from year to year, the local club furnished a special fund of several thousand dollars each year for the care of cripples and later a special school was started for children unable to attend the regular school. Transportation was furnished, and later a warm lunch was served each day.

A great deal of publicity was given this work throughout the state, and as a direct outcome there was a bill passed by the legislature and an appropriation made to establish a state hospital school for cripples; but the actual starting of building was delayed by the war. In the meantime, several Rotary clubs became interested in the crippled work in their community, and in order to interest other Rotary clubs in Ohio in this work a society was formed, originally of Rotarians, to help crippled children, as a special phase of Rotary work. This society was called the Ohio Society for Crippled Children.

"The object of this society is to create state-wide interest and, by cooperation, aid the state-wide survey and holding of clinics, aiding in adding beds to the present hospital facilities and to aid in the passage of legislation to provide for physical, mental and vocational education and publicity."

One of the first things done was the ascertaining of what was being accomplished in other states. It was found that the majority of state hospital schools for cripples were politically dominated, that they were inadequate in bed space, that their chief field of usefulness was in the immediate surrounding area of the hospital, and that very few cases came from a radius of more than 40 or 50 miles.

Ohio, with a population of 6,000,000, had approximately, according to the figures of other surveys, more than 12,000 crippled children, and one central institution would be a very inefficient approach to the problem.

Ohio had, at that time, three orthopedic clinics organized and functioning in the northern part of the state, one in the center of the state, and two in the south. It soon became evident that the building of a central hospital school, such as exists in many other states, would not meet the problem. So a plan was suggested to enlarge the existing six orthopedic clinics in the state and probably organize two or three new areas, making eight or nine in all. By this method several communities would have centers, smaller than a large central hospital, locally controlled, with much local interest, and the facilities for the care of crippled children would be brought near to the child, avoiding the taking of the child a great distance and out of contact with relatives and home, and the responsibility for the care of cripples would be borne, to a great extent, locally. This plan also offered a more speedy solution to the problem. After a survey of all existing laws for the care of cripples in all of the states had been made by the Department of Labor at Washington, a new law, with the aid of several of the leading attorneys and law makers, was formed and passed about two years ago and is known as House Bill 174.

It was apparent very early in this work that a large number of the neglected deformities were in isolated areas or in the rural districts, and many parents would be financially unable to bear the burden of cure and education and they would be unwilling to allow these children to go any great distance from home. The law was so worded that it permitted the state to take as wards dependent children requiring surgical care. It also made mandatory their care, if necessary. As no state funds were available for this purpose and probably would not be appropriated in large amounts, the law was so worded that it allowed the division of charities to pay the current bills in the care of these children from a special fund for this purpose, and to charge this amount back to the county from which these children came.

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* Read before the Section on Orthopedic Surgery at the Seventy-third Annual Session of the American Medical Association, St. Louis, May, 1922.

About the same time, the state department of education was given power, by a new bill known as House Bill 200, to establish special schools in any locality in which eight cripples could be assembled. The local board of education is obliged to provide the school room and spend a per capita amount equal to the amount spent on normal children, to which the state department of education is to add an amount up to $300 for each child each year. To this may be added $250 per capita for boarding if a child is outside the jurisdiction of the local board of education. With this fund available, transportation and hot lunches can be supplied and a special teacher can be provided for any such school. This law further provides for instruction in the home of children who cannot be transported to a school.

As the enforcement of laws depends on the popularity of the law and the wishes of the community, a regular campaign to care for and educate cripples was begun and has been carried on for the last three years by all the Rotary clubs in Ohio, numbering forty-eight, with a membership of more than 4,000 composed of representative business and professional men in their respective communities, and the influence of this body of representative citizens has been great.

It was early apparent that there were many agencies, both official and private, having some contact with this work, and that some sort of representative committee must be established to coordinate the activities and to get the cooperation of all, with the result that an advisory state council for the handicapped was formed, composed of a representative from these official agencies: the state board of health, state department of public welfare, state department of education, state department of vocational education and department of industrial relations; also a representative from these private agencies: Ohio Medical Association, Ohio Hospital Association, Ohio Society for Crippled Children, Ohio Institute for Public Efficiency, Ohio Public Health Association and Ohio Red Cross.

The purpose of this council was "to serve as a clearing house among the public and private state-wide agencies in Ohio concerned with the welfare of the handicapped and by discussion and advice to develop cooperation among them."

The Ohio Institute for Public Efficiency effected the organization of all these interested agencies, and has since been most helpful in supporting the individual agencies and coordinating and directing the combined effort of all these varied activities as they pertain to crippled children.

The next important step was the formation of the professional advisory committee, composed of five orthopedic surgeons, attached to the division of charities of the department of welfare. The function of this committee is to assist in passing on the qualifications of surgeons and hospitals caring for this type of case. It was realized that it was most important to have the helpful cooperation of all medical men, especially of all the orthopedic surgeons and agencies interested in this particular work, and to fix high standards and to help safeguard the patient, hospital and surgeon.

The popularization and the spread of this work over the state was very rapid, and the number of beds offered was as great as could be efficiently handled, so that an effort has been made to keep the difficult surgical cases in the hands of orthopedic surgeons of known experience and judgment.

Instead of making a social service survey per se, it was decided that a survey be made in the form of a diagnostic clinic similar to the tuberculosis clinics that have previously been held, and a number of clinics have been held following the suggestion that the facilities be taken to the child. Forty-four clinics were held during the first nineteen months, and about 2,500 children were examined. Most of these clinics, following the suggestion of the board of health, were held in rural counties rather than in the already established orthopedic centers, these counties having no special hospital facilities or specialized medical men.

The rules for handling the clinics and the departments interested are:

1. Supervision of the clinic is under the bureau of child hygiene of the state health department, and cripples of all ages and all social classes are examined, through the local health commissioner and the county medical society with the help of known orthopedists as consultants.

2. The division of special classes of the state department of education handles children aged from 6 to 18, and organizes and advises special public school classes for crippled children, admitting children not now in school and those who would be better off in special rooms—those with crutches, braces, casts, bone tuberculosis, etc.

3. The division of civilian rehabilitation handles adults over 16, places in training handicapped adults over 16 and through the seventh grade, injured from birth, by disease, by accident or by injury. "Such adults must have ambition, and their physical condition and employment object justify the training." Funds for this department are supplied by special federal act which grants an amount equal to the amount raised in the state for this purpose.

4. The children under 18 who can be benefited by treatment and whose parents cannot or will not furnish such treatment may be committed by the judge of the juvenile court to the child's bureau of the department of welfare, which assumes guardianship and supervises the child's care in whatever hospital of the state it sees fit to place the child. Hospital bills, surgeons' fees and bills for special examinations, braces, etc., are paid for and charged back to the county from which the child came.

Most diagnostic clinics, following the suggestion of the board of health, have been organized through the local health commissioner and the county medical society, private agencies, Rotary, Kiwanis and Exchange clubs, the Red Cross, the federation of charities, judge of the juvenile court, county school superintendents and county commissioners affiliating, to support and aid in the actual holding of the clinic, together with representatives from the foregoing departments.

Since the first object of the clinic is to furnish an expert diagnosis, the medical agencies are the primary ones interested; but it seems logical to make the clinic also a clearing house for all the problems in the educational and vocational training and treatment of cripples.

A survey of cripples is sometimes made before holding the clinic, but this is not necessary, as experience has indicated that proper advertising brings in more cases heretofore unknown than the number so laboriously hunted out. Such individual efforts would be better spent after the clinic in the follow-up work. Cripples of all ages should be invited, as vocational training is available for the adults. The clinic is usually held in the courthouse and, if possible, on the regular meeting day of the county medical society, with the consulting orthopedist available to address the meeting. Records are taken of the diagnosis in each case and given at the time to the parents; copies are also made for the medical authorities and the medical members of the private agencies which are to help in the follow-up work.

The people able to pay for services plan with their own physician for the treatment, but indigent cases will be followed by the county nurse to see that state provisions or private relief are made available. After the clinic, the work is carried on locally. The clinic is of little value without intelligent follow-up work, and here is the great field for the private agencies, chief among which is the Ohio Society for Cripples.

One of the striking results from some of the early clinics held in rural districts was a strengthening of the position of the health officer, health nurse and school nurse, the establishment of local clinics and the enlarging of the local health activities.

The special schools for cripples in the state have grown until there are, at present, special schools in eleven cities with an attendance of 400; ten other cities are in the process of such organization. Approximately 300 indigent cases have been cared for through the state departments; the exact number of private cases is not available, but is probably greater. In one clinic that was held, 120 children were examined, and the condition of nose, throat, chest, teeth, nervous system and deformities was recorded, with diagnosis and outline of treatment. Every member of the local Rotatry Club of 100 either drove his own car or furnished a driver for the day, was made responsible for at least one child to and from the clinic, and agreed to hold himself ready to transport the same child, at any time during the year, to the hospital for after-treatment.

The influence of private agencies in aiding in the formation and organization of the present plan in carrying out the follow-up work has been of inestimable value. The most active single agency is the Ohio Society for Crippled Children, composed of representatives from forty-eight Rotary clubs in forty-eight separate communities with a membership of more than 4,000. It has sponsored this work from the beginning, and has made it the chief work of the organization in Ohio.

Similar agencies have been formed in the Rotary clubs of New York and Michigan, with Kentucky, Tennessee, Indiana, Illinois and Ontario making inquiry and anticipating organization.

The interest and enthusiasm shown in these states led to the formation of the National Society for Crippled Children in December of last year; and, by the admission of the Province of Ontario, Canada, an international society has now been organized. The object of this society is to interest the 1,000 Rotary clubs, with more than 76,000 members, in twenty countries, in this work.

The week of May 8, the birthday of Mr. Edgar Allen, the active organizer of this crippled children's work in Ohio and president of the Ohio Society for Crippled Children, was set aside by proclamation of the governor of Ohio, to be designated as Crippled Children's Week; every Rotary club gave a special program featuring the work of crippled children and much newspaper publicity was given this work.

The main activity of the future will, of necessity, be the care of convalescent cripples, the carrying out of treatment, education and vocational and occupational training. The establishment of convalescent homes, rather than the enlargement of hospital facilities, is being planned. An effort is being made now to combine with the present facilities at hand all interested agencies, and to centralize and aid in the distribution of all bequests, legacies and special fraternal funds, to the end that the smallest amount of money may be spent for monumental edifices and that the greatest ultimate good to the child may be accomplished.

Another recent innovation has been the establishment of a liaison office in Columbus by the Ohio Society for Crippled Children, so that the private agencies can have closer contact with the state departments.

I feel that the success of this movement, which may eventually circle the globe, depends on medical guidance and, specifically, on the guidance and energy of the orthopedic surgeons. This paper was written that orthopedic surgeons may have first hand information of the present status of the movement and, by their criticism and suggestions, aid in constructing, perfecting and directing this movement, as it spreads, so that it may remain nonpolitical, nonsectarian and medically controlled, to accomplish the greatest good to the greatest number of cripples; also to stimulate more widespread interest in the scientific cure of deformities.

421 Michigan Street.

ABSTRACT OF DISCUSSION

Dr. Robert B. Cofield, Cincinnati: The principal feature of the work done in Ohio has been bringing facilities to the child. Of course, that is not possible in the less thickly populated states or where clinics and hospital treatment are not as plentiful as they are in Ohio. We have a number of good hospitals in our state and a number of good orthopedic surgeons to do the work. It seems to me that we can cure many more of these children by going to them instead of having them come to us or leaving them in state hospitals. Another thing is a state-wide survey. As Dr. Chollett says, it is very nearly impossible to hunt out these cases, but if diagnostic clinics are held and if they are advertised in the local papers, the parents will bring in the children for diagnosis and to ascertain what can be done. These diagnostic clinics are held in towns in which there are no orthopedic clinics, in the smaller towns or in the county seats. The Rotary Club is usually the prime mover in this affair, seeing to it that the children come. A record is made of the diagnosis, and the work is followed up through the Red Cross and other agencies. I think an advisory committee is very important in directing these cases into the hands of competent orthopedists. There is a tendency for every man who has ever seen an orthopedic operation to say, "Yes, I can do that; send the case to me." Most practitioners are willing to attempt any kind of work, whether they can do it or not. The work of the advisory committee is to look into the qualifications of every man doing this work in the state, and the various state agencies refer the child to the proper man to do the work.

MILK-BORNE DIPHTHERIA

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AND
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An unusual epidemic of diphtheria occurred in Austin, Texas, in the spring of 1922. Austin has about 40,000 inhabitants, including 4,200 students at the University of Texas. During January and February, ten cases of diphtheria in all were reported; eleven new cases developed by March 20, and twenty-three more by March 30. The disease was of extraordinary virulence, and laymen early called it black diphtheria. Very early in the disease, the appearance of the throat was peculiar. Both tonsils were covered with a thin, milky-looking membrane that shaded gradually into tissue that appeared normal without any sharp line of demarcation. The mucous membrane was not of the usual vivid red. The membrane which appeared in several parts of the throat simultaneously involved an unusual area, and it quickly developed a dirty, black appearance. In cases appearing early in the epidemic, repeated large doses of antitoxin were required, which in many instances was given intravenously. The epiglottis was involved in one case, and the larynx in two others.

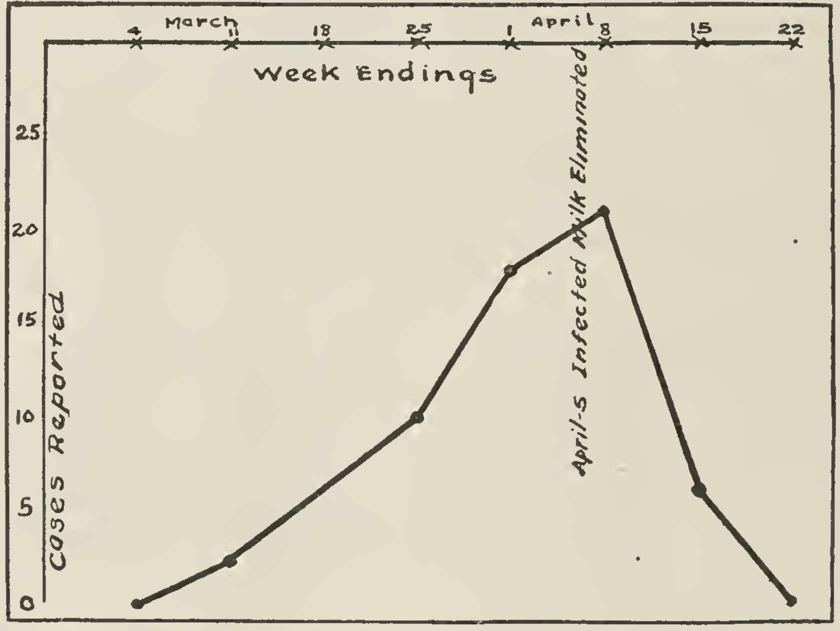

Chart 1.—Reported cases of diphtheria by weeks, March and April, 1922, at Austin, Texas.

In seven of twenty-three cases reported late in March, the patients were university students who took their meals at the same boarding house. The cook and her baby had had diphtheria a month before, and the baby died of the disease. Search for the cook was fruitless, as she had been discharged when sick and had left the city. The interval between her departure and the first appearance of the disease was too long to fix the responsibility on her, and the epidemic was too explosive to be due to ordinary carriers. Except for the students, the cases were scattered irregularly in different parts of the city. The situation grew worse, and the medical authorities at the university requested aid from the state health department, suggesting that the milk supply at the students' boarding house be investigated.

Accordingly, representatives of the state health department inspected the responsible dairy. It was found that the milk came from a creamery in the city owned by B., who had two dairies, B and H, several miles apart. Milk from Dairy B, which was about 5 miles outside the city limits, was carried in 5 and 10 gallon cans to the creamery, where it was bottled and distributed to customers. While the containers were sterilized, the milk sold was all raw milk. The herd consisted of fifty-one graded Jersey cows. A large percentage of the animals had cuts and abrasions of the teats and udder due to the barbed wire fences, so common in this state. The milking was done by Mr. S., his wife, and their son.

Cultures were made from the nose and throat of the milkers, and from the four other children in this family, none of whom gave any history of illness or recent sore throat. Examination of this family disclosed apparently normal throats and noses. Other employees of the dairy were likewise examined; cultures were taken, but a history of illness was not obtained from any one. However, the proprietor informed us that his grandchild had been ill with throat trouble for some time, and that she had had "several injections of some kind of medicine." The child lived on the premises with the proprietor about 100 yards from the dairy proper. Examination disclosed an extensive, dark, necrotic membrane, occupying both tonsillar fossae and extending posteriorly on the pharyngeal wall. The child was markedly toxic and prostrate. She had been seriously ill since March 29, but had not been near the dairy, nor had she handled any containers or utensils in that time.

Humpy, a cow, had three teats with sores covered with thick, black scabs, which, when removed, left a ragged, ulcerated surface that exuded a mucopurulent fluid. The teats and udder were tender, and only Mr. S. could milk this cow. He said that the sores had existed since about February 1, that they had been much worse, and that they did not heal like the sores on other cows. Cultures were made from the teats and udder of this cow, and from all other cows having abrasions on the teats or udders. In view of these findings, and without awaiting the results of the cultures, we ordered B. to sell no more milk until further notice, and to notify all customers to destroy what milk they had on hand. This was done, but some milk had been resold through other dealers, and it was not possible to trace it all.

The cultures from the throat of Mr. S., milker at Dairy B, was a pure culture of *B. diphtheriae*, although, as noted before, examination gave no evidence of infection. The sick grandchild gave a positive culture, also, of the same granular type of bacillus as was found in S. Cultures from Humpy were all positive and similar to the organisms in Mr. S. and the child. All other cultures of employees and cows were negative. The cultures were all repeated with the same result. At this stage of the investigation, we believed that S. was a chronic carrier who in some way had infected the cow Humpy, and that the grandchild was infected secondarily through the milk. Subsequently, this was proved incorrect.

The dairyman's route through the city could be traced by diphtheria cases. Twelve cases had developed from the boarding house near the university, and seven had developed from a down-town boarding house, also supplied by this dairy. Scattered between these places were many other customers, sick or convalescent from diphtheria. Two members of a college ball team that had stopped at the down-town boarding house developed diphtheria after leaving Austin. Another case was traced to a hotel using milk from Dairy B. Virtually every case that developed after March 15 could be traced to this dairy. Most of the patients were milk drinkers, but two had taken no milk, and were infected by butter made from the infected milk.

Dairy B was inspected again. New cultures were taken. All utensils were sterilized. Arrangements were made to pasteurize the milk for thirty minutes at 145 C., and Humpy and her milker were quarantined. Cultures were taken of all contacts at the two boarding houses, and among the well boarders eight throats were found teeming with diphtheria bacilli. Of the eight, one developed diphtheria three days later, six had negative cultures one week after quitting the milk, and one remained a carrier until his tonsils were removed.

A sharp drop in new cases followed the stopping of the distribution of this milk. The dairy was closed, April 5. In the week ending April 8, twenty-one cases of diphtheria were reported, the next week six cases were reported, and the following week two cases. S., whose culture was positive at the first dairy inspection, had a negative culture four days after he quit drinking this milk.

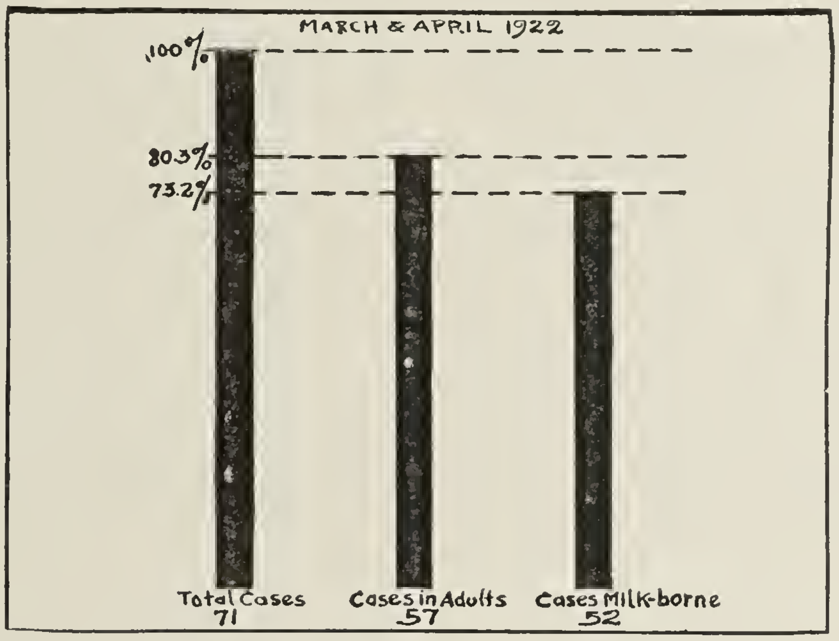

Chart 2.—Percentage of cases in adults and percentage of milk-borne cases.

But the original focus of infection was not discovered yet. S. insisted that Humpy had peculiar sores on her teats when he first came to work for the dairy, January 10, and that before January 1 this herd had been milked by Mr. M., his wife and child, who were now milking for Dairy Z. Simultaneous with this disclosure, two new cases of diphtheria were reported among the customers of Dairy Z, and an inspection there was made at once.

The herd at Dairy Z was in excellent condition, the surroundings were sanitary, and the methods of handling the milk were good. Close questioning of M., the milker, and his family, gave no history of illness for several years. Cultures were taken from the nose and throat of each one, however, as well as from all abrasions on the udders and teats of the cows. These were all negative except the culture from M.'s nose, which gave a luxuriant growth of typical diphtheria bacilli.

Closer examination now revealed a perforating ulcer of the septum, which was covered with a white, membranous deposit. We learned that the perforation had existed four years, that it had been diagnosed syphilitic, and that several treatments had been administered. M. had had difficulty at times for a year breathing through his nose, and would relieve himself by blowing violently to force from the nostrils a mass of whitish material.

Repeated cultures that were taken from this ulcer were positive, and the organism was powerful enough to kill a 350 gm. guinea-pig in thirty-six hours. Another pig injected but protected by antitoxin had no ill effects. M. was quarantined, and even with intensive treatment, his ulcer remained positive for many weeks for the diphtheria bacillus. In this connection, it is interesting to note that Humpy, with no treatment, was entirely free from lesions and gave negative cultures within a week.

It was now reasonable to believe that M. had infected Humpy when he worked for Dairy B before January 1. The cow was dry around the new year, and was not milked until February 1, shortly after which date diphtheria appeared among the dairy customers. It is puzzling to explain the explosion of new cases late in March. The milk fairly teemed with diphtheria bacilli, and the majority of susceptible persons using this milk contracted diphtheria. Twelve out of ninety-five at the university boarding house were taken sick, and that is about the percentage of adults not immune to the disease.

Seventy-one cases of diphtheria were reported in February, March and April. Fifty-two of these used milk from Dairy B. From March 22 to April 10, of fifty cases reported, forty-three were traced to this milk. Seven could not be traced, and of these, five were children. During the epidemic stage, more than 80 per cent. of the cases were in adults. Stress of work prevented additional virulence and Schick tests. The cases were much milder late in the epidemic, and the membranes appeared more like the usual type.

Milk-borne diphtheria is probably more common than is generally supposed. The importance of cultures from both the nose and the throat in such outbreaks is apparent. Cultures from M.'s throat were negative.

SUMMARY AND CONCLUSIONS

The following facts are worthy of note:

1. Fifty-two cases of a total of seventy-one were traced to infected milk.
2. More than 80 per cent. of the cases were in adults.
3. The membrane was atypical, and the infection was unusually virulent.
4. Nose cultures should always be taken as well as throat cultures.
5. Dairy animals should be carefully inspected in all milk-borne epidemics.

Increasing Virulence of Smallpox.—Reports from twenty-four states, and from 190 cities, including all the larger ones, show that the smallpox prevailing during the first six months of this year was of far more virulent type than that prevailing during the period of 1921. The number of cases was 72 per cent. less this year in twenty-four states combined, and 74 per cent. less in 190 cities. In these cities, however, the number of deaths during the first six months of 1922 was nearly four times the number reported in the same period of 1921.

HEMATURIAS OF OBSCURE ORIGIN *

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The causes, medical and surgical, of blood in the urine are so manifold that the more one studies the subject the more is one inclined to the belief that a thorough understanding of hematuria means a comprehensive knowledge of diseases of the whole body. Although hematuria brings to mind, first, neoplasm, tuberculosis and calculus, and then trauma, acute inflammation and nephritis, there is finally a long series of rarer causes of this common finding of medical examination.

The literature is enormous. Since the war, numerous articles have appeared presenting illuminating reports of unusual cases with a proved etiology, or offering new points of view concerning old problems. The general tendency marks a growing reaction against the use of the words essential and idiopathic as applied to hematuria. Most urologists will agree that essential or idiopathic hematuria does not exist, if one considers sharply the real meaning of the words, and that the expressions as commonly used merely denote hematuria of unknown or obscure origin. But, if used at all, we should restrict such phrases to negative necropsy cases only. We should not include cases depending on the negative findings in one kidney removed at operation. Far less should we be willing to base a diagnosis of "essential hematuria" on clinical observation alone. Reports of obscure hematurias not diagnosed and not supported by a careful necropsy may be interesting, but they have not a fraction of the value of cases carefully observed and examined and reexamined until the problem is finally solved. The plea is made to content oneself with an anatomic diagnosis only, and to continue the search by repeated observations to attain this desideratum.

The following case reports illustrate the ultimate explanation of certain obscure hematurias.

REPORT OF CASES

Case 1.—A man, aged 37, was referred to me last fall because of blood in the urine. His general health had been excellent. Fourteen years previously, he had passed blood in the urine off and on for six months or more. Treatment received at that time was evidently aimed at prostatic disease. For the last ten years, there had been occasional abdominal pain radiating from the left lower abdomen to the penis. Blood had been seen a second time twelve years previously; but no hematuria had been noted for more than ten years prior to April, 1921, when blood reappeared in the urine, and a diagnosis of left renal calculus was made on the history and a supposedly positive roentgen-ray examination.

Blood recurred in the urine in September, 1921, without any associated symptoms. Cystoscopy by the patient's physician revealed a small ulcer on the right bladder wall. I confirmed this, and also obtained normal urine from the right ureter. But the region of the left ureteral orifice was edematous, and no catheter could be made to enter this side, although an attempt was made on several occasions. The phenolsulphonephthalein and indigocarmin tests were employed at different times. These indicated good function of the right kidney, but no dye was obtained from the left side. The bladder urine contained blood and a little pus, but no tubercle bacilli on many examinations.

A piece of tissue, removed from the ulcer, was reported by the pathologist as "suspicious of tuberculosis"; and, later, typical tubercles appeared about the left ureteral orifice. Left nephrectomy was performed. The kidney was small and markedly sclerosed; and, microscopically, typical tuberculosis was found at various sites. The case is reported because of the long period which elapsed without hematuria, during which time the patient regarded himself as cured; and as an example of obscure hematuria which ultimately fell into one of the more commonly recognized groups.

Strauss[1] reports a similar case, which had been previously diagnosed essential hematuria.

Case 2.—A physician, aged 32, whose mother had died of tuberculosis, was seen in May, 1918, for hematuria. He recalled having passed bloody urine in 1910 and 1912. Later in 1912, he had a severe attack of left abdominal pain thought due to acute indigestion. In May, 1918, he noted abdominal discomfort, chiefly on the left side, followed in a few hours by the passage of bloody urine. Cystoscopy that day disclosed blood coming from the left ureter. Urine obtained from both ureters contained neither pus nor casts, and urea percentage and phenolsulphonephthalein output were the same from the two kidneys. Roentgenograms on two occasions did not show calculi of the urinary tract. In various consultations, some of the opinions were strongly in favor of tuberculosis, as both family and personal history pointed that way.

The patient suffered no further inconvenvience and, taking matters in his own hands, went on with his accustomed active life. Frequent urine examinations the ensuing year invariably disclosed microscopic blood. All went well until November, 1921, when an attack of severe left renal colic came on. Roentgenograms a few days later showed a shadow along the course of the left ureter. Sharp pain in the left lower quadrant was experienced the following day, and a stone passed through the urethra five days later.

Case 3.—A physician, aged 34, had had remarkably good health, marred only by an attack of right renal colic followed by the passage of a calculus ten years prior to the present illness. At the close of a year's service in France, and while he was feeling entirely well, the patient noted, Oct. 26, 1918, that his urine was bright red. Roentgenograms taken the next day were negative. Bladder papilloma was strongly suspected. Circumstances precluded cystoscopic examination at that time. For the next three months, there were many attacks of marked hematuria, apparently induced by even moderate exercise, such as climbing several flights of stairs. There was absolutely no pain or discomfort anywhere during all this time of marked bleeding, until Feb. 4, 1919, when a typical attack of severe right renal colic came on. Roentgenograms were reported negative, but after I had proved ureteral calculus by means of a wax-tipped catheter, a reexamination of the plates disclosed a suspicious shadow. Six weeks later, after more ureteral colic, the stone was passed through the urethra. Curiously, after the onset of pain, no macroscopic blood was ever seen.

Case 4.—Another patient with calculus is worthy of mention. For five months, he had had cloudy urine, with an occasional tinge of blood, and once, after a long walk, a large amount of blood appeared. There had been no pain in the back or abdomen, and no discomfort of any description, except a varying degree of pain in the right testicle and cord. This tended to distract attention from the true source of the blood, and in fact the patient was given a thorough overhauling by a well-known urologist without obtaining a diagnosis. Fortunately, at the time of my cystoscopy, blood was seen issuing from the right ureter. A renal calculus was indicated by roentgen ray, and was removed by a pyelotomy incision. After operation, the urine became entirely clear.

The last two cases clearly refute the view held by many that gross hematuria due to stone is always preceded or accompanied by pain. Escudié[2] reported four similar cases, in patients who had had hematuria refractory to medical measures for weeks or even months, without associated pain, which eventually was proved due to calculus.

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* Read before the Section on Urology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] Strauss: Berl. klin. Wchnschr. **55**: 97, 1918.

[2] Escudié: J. d'urol. méd. et chir. **10**: 381 (Dec.) 1919.

However, in many instances of obscure hematuria, no such satisfactory outcome as in the cases reported will be attained. There may never be enough blood in the urine to permit even localization of its origin; nor may there be evident any abnormality or deficient function to give indication of the condition. Hematuria is often intermittent or, indeed, may not be repeated at all; and many such cases will never be explained. But we are learning more and more of these transient conditions. Blood in the urine has been reported many times as the result of physical exercise and fatigue in athletes, and latterly in soldiers, with cold as an added factor.[3] These are convincing reports; but in considering an individual patient, one must be guarded in offering such an explanation as final, remembering especially the liability of exercise to initiate bleeding in renal calculus.

Gross hematuria is found in acute fevers, and microscopic blood may be present during convalescence.[1] Cardiovascular disease, various purpuras (including scurvy), syphilis, nephritis, malaria and many other conditions may cause transient or intermittent hematuria, as may certain drugs (hexamethylenamin, phenol, barbital, etc.). The therapeutic test may permit strong convictions regarding probable relationship between the supposed cause and the symptom. Such causes of hematuria as appendicitis [4] and other extrarenal conditions, varices of the bladder,[5] hydronephrosis, especially with mobility of the kidney, and polycystic kidneys one may diagnose with reasonable certainty from the findings of routine examination. But certain conditions of the renal pelvis, such as varicosities and angiomas,[6] we can scarcely expect to prove without exploratory operation.

Interesting group cases of hematuria occurring over a long period of time in many members of a family, without apparent specific cause, are found in the literature.[7] The etiology of these conditions remains theoretical.

Perhaps our most interesting problems concern cases of bleeding of renal origin, unilateral or bilateral, with or without pain, in which our complete modern scheme of investigation fails to establish a diagnosis. More than twenty years ago, Israel [8] pointed out that nephritis may exist in an advanced stage without the usual urinary findings; that nephritis may be unilateral; that it may be accompanied by unilateral pain though bilateral disease is present, and that nephritis may cause massive hemorrhage suggesting neoplasm. These conclusions are commonly accepted, except that divergence of opinion exists regarding the frequency of unilateral nephritis.[9] O'Neil [10] believes that the confusion is due to failure to differentiate between nephritis of toxic origin (usually if not always bilateral) and that of infectious origin (often unilateral, and even confined to a part of the kidney).

Hunner,[11] on the basis of his stricture work, offers a new explanation of many known facts concerning renal hematurias of obscure origin. He thinks the increased intrapelvic pressure due to partial obstruction explains many facts, without frequent resort to the theories of renal congestion and increased intracapsular tension, suggested by Israel, Harrison, Strauss and others. The presence of nephritis with certain stricture cases, Hunner explains on the basis of his convictions concerning the focal infections as the origin of both lesions. He urges the need of elimination of such foci before permanent relief can be obtained from local treatment, in certain instances.

The frequency of gross hematuria occurring with typical toxic nephritis is hardly appreciated by the urologist, as he is seldom asked to see the typical cases. In making a study of hematurias during the war, Peters and I had no trouble in finding for cystoscopy thirty clinically typical cases with gross blood in the urine.

Both German and French writers, in explanation of certain obscure hematurias, refer to "disturbed renal vasomotor system" and to "angioneurotic" and "neuropathic" origin of hemorrhages,[12] but in practice we must be slow to apply such explanations to hematuria, and should persist in the search for an anatomic diagnosis.

Beer [13] warns against the possibility of error in accepting a plausible cause of bleeding as the true and only one. He operated on a bleeding kidney, found granular nephritis, removed tissue for examination and sewed up the wound. The pathologist confirmed the diagnosis of nephritis. Later, a second operation was performed, the kidney was removed and a papilloma of the pelvis found. Acute nephritis and renal calculus may coexist, as in a case reported by Strauss.

The following reports illustrate a similar multiplicity of conditions, but in the bladder:

Case 5.—One of my patients had an adenomatous prostate removed by another surgeon, chiefly because of profuse hematuria thought to be prostatic in origin. The blood persisted after operation, and cystoscopy revealed on the floor of the bladder several small papillomas, to which a blood clot adhered. The diagnosis seemed clear, and these growths were readily removed by high frequency current. But no improvement followed; and, on further examination, with great depression of the handle of the cystoscope, there was found on the anterior bladder wall, just above the symphasis, a small carcinomatous growth, which was subsequently removed by operation.

Case 6.—A case seen in December, 1920, with a history of urinary frequency and burning and occasional hematuria for a period of eight weeks, was diagnosed by me as nongonorrheal infection of the prostate and lower urinary tract. Cysto-urethroscopy was performed, and no tumor was seen. A report received three months later stated that the symptoms had all disappeared under treatment for the infection. However, they recurred in another five months, and I was much chagrined to learn recently from a colleague that he had removed a large tumor from the patient's bladder fifteen months after my examination.

Such reports as those made by Thomas,[14] and more recently by Quinby,[15] of renal varices, with the diagnosis supported by careful examinations of the removed kidney, make for progress. I wish to put on record a case very similar to one of Quinby's.

Case 7.—A negro, aged 28, was admitted to a base hospital in France in November, 1918, complaining of hematuria. The past history was unimportant. Beyond a slight backache, the patient had had no symptoms, urinary or otherwise, except blood in the urine; this had been noted constantly for four or five weeks. The urine contained albumin and red blood cells, but no pus nor casts, on seven or eight examinations. Cystoscopy disclosed a normal bladder mucosa, and bloody urine coming from the left ureter and clear from the right. Cystoscopy repeated in a week gave the same findings. Roentgenograms were negative for stone, and a pyelogram was normal. Left nephrectomy was performed, November 26. The kidney was not enlarged; the pelvis was normal; about two thirds of the papillae contained fine hemorrhagic spots, and a few showed dilated veins. The specimen was examined carefully by Dr. David Marine, who found a normal cortex, no evidence of nephritis or inflammation, but dilated veins with many small hemorrhages in the substance of the papillae, and free blood in some of the tubules. Convalescence was rapid and uneventful. The urine was free from blood during the time of subsequent observation (one month).

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[3] Nassau: Ztschr. f. Kinderh. **29:** 133 (June) 1921. Ztschr. f. klin. Med. **84,** Nos. 1 and 2, 1917. Feigel and Querner: Ztschr. f. Klin. Med. **83,** Nos. 3 and 4, 1916.

[4] Hunner, G. L.: Acute Pyelitis Due to Acute Appendicitis, J. A. M. A. **50:** 1328 (April 25) 1908. Speed, Kellogg: Surg. Clinics, Chicago **1:** 1097 (Oct.) 1917.

[5] Marion: J. d'urol. méd. et chir. **12:** 417 (Dec.) 1921.

[6] Hyman: Am. J. Surg. **34:** 312 (Dec.) 1920.

[7] Pearson: Lancet **1:** 91, 1904. Aiken: Lancet **2:** 444, 1909. Neave: St. Bartholomew's Hosp. J., London **13:** 123, 1905-1906.

[8] Israel: Chir. Klin. d. Nierenkrankheit, 1901.

[9] Strauss (Footnote 1). Kotzenberg: Ztschr. f. Urol. **2,** 1908. Kuemmel: Med. Klin. **35,** 1916.

[10] O'Neil: Internat. J. Surg. **33:** 72, 1920.

[11] Hunner, G. L.: To be published.

[12] Strauss (Footnote 1). Jacquett: Progrès méd., July 8, 1911, p. 325. Casper: Med. Klin. **16:** 169 (Feb. 15) 1920. Lancereaux: Gaz. d. hôp. **73:** 1075 (Aug. 23) 1900.

[13] Beer: Personal communication to the author.

[14] Thomas: Proc. Path. Soc., Philadelphia, 1910, New Series 3, p. 256

[15] Quinby, W. C.: J. Urology **4:** 209 (June) 1920.

This case bore some resemblance to the group described as "urinary tract purpura" by Peters and me,[16] but the history was not typical, and purpuric spots were not present in the bladder.

CONCLUSION

It is hoped, by citing from personal experience and from the literature, instances of hematuria baffling at onset and sometimes continuing so for months or years, but ultimately falling into one of the well-recognized groups, to encourage not only thorough but also repeated examination and observation of obscure cases over long periods of time. The rôle of nephritis, toxic and infectious, in the etiology of hematuria, has been mentioned and attention called to the possibility of an entire absence of other signs of the disease. The possibility of two or more existing causes of hematuria giving rise to error has been illustrated. Some of the established rarer causes of bleeding (without an attempt at a complete cataloguing) and the newer ideas regarding obscure hematurias have been referred to.

Considering hematuria cases by and large, with either microscopic or gross evidence of blood, one must be prepared for many failures to establish a diagnosis. Clinically, it seems safer to regard all bleeding as due to some tangible anatomic lesion or a less evident one of toxic origin, and saner to discard the notion of idiopathic hematuria. The latter diagnosis cannot reasonably be made until after death, and when a complete necropsy has failed to assign a cause for blood in the urine; and only then should we resort to vasomotor or neuropathic theories in final explanation. But remembering the frequent irregularity of hematuria due to serious lesions and its proneness to cease for long periods (with or without treatment and whether the treatment be manipulative or surgical), it would seem that the best interests of the patient and of medicine will be served by thorough and repeated examinations and insistence on observation over a period of months or years, if this can be done tactfully, without upsetting the patient's morale.

ABSTRACT OF DISCUSSION

Dr. Herman L. Kretschmer, Chicago: The loose use of the terms essential hematuria and idiopathic hematuria is fast disappearing from the literature. This is due to the modern methods of diagnosis and intensive study devoted to all cases showing blood in the urine. The group of cases presenting gross blood in the urine, and in which all of the findings are negative, form a very small number, to be sure, yet all of us meet with this situation at various times; and it is this group of cases that give me the greatest concern, for fear of overlooking some important lesion. While our attention is so often focused on the kidney or bladder, it may be possible that the lesion producing the bleeding is located in the ureter and is overlooked. I have in mind ureteral calculi which do not show in the roentgenogram, and papillomas of the ureter. Secondly, there are certain rare lesions of the kidney which produce hematuria. I think that Dr. Stevens referred to the so-called angioma of the renal papillae, a lesion first described by Fenwick of London and later by Cabot. If this condition is recognized, the angioma can be resected and the kidney saved. In cases in which the kidney was removed for profuse bleeding, and in which the laboratory reports "nothing found to cause or explain the bleeding," careful personal examination may reveal small lesions which have been overlooked. I refer to the presence of small areas of infarction. I have seen kidneys removed for severe hemorrhage that were reported as normal kidneys, in which I believe small areas of infarction were present. In certain other cases, careful microscopic study discloses vascular changes, such as thickening of the intima, and fibrillation of the elastica, so that changes are found, and these cases are not really normal. The importance of careful microscopic study of these kidneys is to be noted, not of one section but from many pieces of tissue cut from various parts of the kidney. There are also certain lesions of the renal pelvis that produce severe hemorrhage. I refer to cases of pyelitis granulosa, a lesion that it is almost impossible to diagnose clinically. Among the general causes, I should like to mention cases of infected tonsils in which there is no evidence of infection, but very often the hemorrhage disappears after removal. Then, another group must be considered, in which the first symptom of nephritis may be a profuse bleeding; and if one watches these cases it will be seen that they run the typical clinical course of nephritis, but at the onset of the bleeding there are no clinical symptoms of nephritis present.

Dr. Louis E. Schmidt, Chicago: I should like to know whether, after careful examination, the hematuria continues to such an extent that operative interference becomes necessary. If so, an exploratory operation is indicated. Then, if after delivery of the kidney and exploration of the pelvis, one cannot find any pathologic condition, and if the hemorrhage has not been dangerous to life, I do not believe that the kidney should be removed. I have seen cases in which the kidney has been removed for rather severe hemorrhage and no pathologic lesions were found. I am inclined to believe that in these cases the operation of decapsulation is indicated. Dr. Kretschmer omitted one of the most important conditions that can really and actually be the cause of these so-called hematurias, when no cause can be found clinically —slight injuries, often not sufficient to produce hematuria but sufficient to cause slight hemorrhages and not sufficient to cause formation of a hemotoma, which involves either the true or fatty capsule or both, which in time may become organized and then permit of intracapsular pressure. I have operated in cases undoubtedly of this type, and after decapsulation the patients have been free from further hematuria. Some of these cases have been observed for more than fifteen years.

Dr. Hugh Cabot, Ann Arbor, Mich.: I want to introduce into this discussion a group of cases which have interested me for a long time and in which I believe that infection is the basis, but the infection is slight, and the most common evidences of infection, pus and bladder changes, are not present. Some years ago, I saw two patients with acute hematuria and fever. Since then, I have seen a few others, and I have now succeeded in collecting and putting together a group of seven cases of relatively young adults with acute and painless hematuria, whose urine showed little or no pus, but in whom infection was, by careful examination, always to be found. I wish to correlate these clinical findings with a paper recently published by Quimby, with a very interesting report on the removal of a kidney by Goodpasture, who made the suggestion that the lesion was due to chronic infection. The changes in the kidney were those of chronic infection but not of any typical, well known infection. I think there is a distinct group of hematurias of obscure origin which are quite definitely due to infection; in my series the colon bacillus has been found in five cases and the streptococcus in one. In these cases the lesion is primarily of the renal pelvis, and the treatment, therefore, is of the pelvis itself. My own experience is altogether too small to warrant conclusions, but it seems that the pathologic picture described by Goodpasture might be the fundamental lesion.

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[16] Stevens, A. R., and Peters, J. P. Jr.: J. Urology **4**: 1 (Feb.) 1920.

Dr. G. R. Satterlee, New York: In work on focal infection we run across cases of hematuria. A more complete study of focal infection is essential. A woman, with a severe oral infection due to hemolytic streptococcus, shortly after a dental operation developed very severe hemorrhage and anuria on the right side. No cultures were obtained and nephrectomy was performed by a very conservative surgeon, who, because of nodular appearance, thought it was not safe to leave the kidney. On dissection, several large and many small abscesses were found, cultures from which showed pure colon bacillus. Since then we have used an autogenous vaccine made from the colon bacilli obtained from the urine, and the patient has improved. Another case was that of hematuria of twenty years' standing. The patient had had an infection in a tooth of the upper jaw. Its removal improved his general condition. We catheterized the ureters and obtained pure cultures of the colon bacillus from which a vaccine was prepared. Much to our surprise the hematuria ceased entirely; the man gained several pounds in weight and is able to carry on. In the year, he has had several relapses but they were of short duration. Similar infections have been caused in animals by injecting cultures made from infected teeth of patients with kidney infections. It is a question whether the streptococcus may or may not have been responsible. It is difficult to say which type of organism is hemolytic and which is not, as they are called hemolytic simply for convenience. It is a question whether or not they are responsible for nephritis of the hemorrhagic type, and so the problem of obscure hematuria is of great importance.

Dr. A. I. Folsom, Dallas, Texas: A patient under my observation a few years ago had the most extensive varicose veins I have ever seen. His lower limbs, lower abdomen, scrotum and penis were the sites of marked varicosities. We ocated the hemorrhage as coming from the right kidney. We watched him carefully and after the bleeding had shown no evidence of stopping we operated to check the hemorrhage, and found one of the most beautiful examples of varicose condition of the pelvis and ureter that I have ever seen. One of the ureters had ruptured into the pelvis and was bleeding profusely at that time. Two other cases of obscure hemorrhage confused me for a while. Two women had a mild bladder irritation and hemorrhage that had lasted or several days. Cystoscopic examination revealed nothing wrong in the bladder. The ureters were both normal, and clear urine was seen coming from both. They were catheterized, and perfectly normal urine was obtained, except for an occasional red cell. Later on, I made a urethroscopic examination at different times, within three or four months, and found inflammatory lesion in the urethra and the hemorrhage coming from this location. I was unable to explain how a hemorrhage originating in the urethra in the female would find its way back into the bladder; but after, a study of the anatomy of the female urethra, I am convinced that it is possible, and I am sure that I am right in my assumption hat we have practically the same mechanical contrivance in he female as in the male. There are two very well defined phincters of the female urethra, as in the male, and blood originating between those sphincters will flow back into the bladder and be voided with the urine.

Dr. A. Raymond Stevens, New York: I was prompted to offer a paper on this subject by the interesting group of cases, which impressed me with the fact that obscure hematuria is often proved ultimately to be due to one of the usual causes. t seemed to me that we should discourage a diagnosis of ssential or idiopathic hematuria as it might give one some egree of smug confidence and deter the proper continuance f examination aimed at an anatomic diagnosis. When I egan looking the subject up more carefully, I was simply verwhelmed by the number of etiologic factors one could suspect; many of these have been mentioned but the paper is too long to read completely. For that reason I could not refer to all the things spoken of in the discussion; for instance, whether one should use ureteral catheterization and various forms of irrigation of the pelvis. I do not see why we should not; and if we give relief in that way, very well. But do not give the patients a definite diagnosis; keep them under observation. As to when we should do an exploratory operation, that is a question of individual judgment. It is hard to decide without referring to a special case. We know very well that in many operations in which nothing more is done than exposure of the kidney, patients have been relieved for a long time, but their cases have not been diagnosed. Two or three years ago Strauss discussed thoroughly the etiology of renal bleeding. He was so convinced of the importance of congestion and increased tension that he used the title "Congestive Pain and Congestive Hemorrhage of the Kidneys." He thinks these factors explain why many renal hematuria patients have apparently recovered after the capsule has been stripped from the kidney; he believes there is a small bleeding point which ceases bleeding on relief of the pressure. Dr. Quimby's paper I mentioned. I regard it as a very important contribution. The case Dr. Thomas reported some years ago was along this same line; and I have just added one more. All of these cases had had the offending kidney removed and gone over very carefully, grossly and microscopically.

BLINDNESS IN MISSOURI

AS REVEALED BY EXAMINATIONS UNDER THE STATE BLIND-PENSION LAW OF 1921 *

H. D. LAMB, M.D.
ST. LOUIS

A constitutional amendment, "providing pensions for the deserving blind in Missouri," was passed by popular vote in the general election of November, 1920. The working details of the act were drawn up and passed by the state legislature and approved by the governor in March, 1921. It was required that each pensioner should be 21 years of age or over, that he or she should have been a resident of Missouri for at least ten years or have lost his or her sight while a bona fide resident of Missouri, that he or she have an income from all sources of not more than $780 per annum and that the vision in either eye must not be better than 20/450, with or without correcting lenses.

The supervision and direction of working this act was very wisely put into the hands of the well-organized and most efficient Missouri Commission for the Blind, which accordingly prepared a two-sheeted application form, on the third page of which the oculist was requested to set down the vision of the applicant, the cause of blindness and whether or not there was any probability of curing the blindness by treatment.

On the consulting staff of the Missouri Commission for the Blind, there are 104 specialists, scattered over the state, either engaged exclusively in eye work or in eye, ear, nose and throat work. Of this number, 60, or 58 per cent., practice in the five towns, St. Louis, Kansas City, St. Joseph, Springfield and Joplin, the population of each of which is greater than 30,000. In other words, we have 58 per cent. of the eye specialists practicing in the midst of 37 per cent. of the population of the state, and it was not long until this state of conditions made itself felt. Complaints began to increase in number and intensity that, in certain cases, the blind

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* Read before the Section on Ophthalmology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

did not possess sufficient means to travel long distances, with a guide, to an oculist; others again were badly crippled or bedridden. In consequence of this, an amendment was added to the Blind-Pension Law, at an extra session of the legislature in July, 1921, wherein it was specified that the commission for the blind should appoint a general physician to examine pension applicants in each county where there was no eye specialist. Needless to say, this procedure was carried out under protest by the commission. Of course, this examination of eyes by the general physician invalidates the value of the pension-roll for statistical purposes, at least in regard to the causes of blindness.

We have to report the cause of blindness, vision, age and sex in 3,910 persons, which was the number of applicants granted the pension of $25 a month, up to about February 1, 1922. Of this number, 347, or 9 per cent., were examined as to their ocular condition and vision by general physicians. In spite of this rather small proportion, the record of the causes of blindness in those examined by general physicians is kept separate in this census from the record of the remainder, examined by eye specialists.

No accuracy is claimed for the following statistics; for obvious reasons, they can serve but as indicators of the causes of blindness in Missouri. At their worst, however, they are superior to the federal census of the blind (those with vision of about 20/100 or less), which, in 1920, gave 2,500 as the number of blind of all ages in this state. How much discrepancy there is in the government census is realized when we remember that in the present statistics only those persons are included whose age is 21 years or more and whose vision is 20/450 or less. Of these, there were at least 4,000 in Missouri, in 1921. Therefore, we claim that the present statistics of blindness are the best that we have to date for this state.

The present statistics were collected and summarized by counties. Missouri, with a population of 3,400,000, is divided into 114 counties and the city of St. Louis. The latter, with a population of 773,000, and Kansas City, with 324,000, make up a fairly large urban community. The amount of blindness to the population varies in the different counties from one blind person among 2,960 persons to one blind among 307 persons. In the city of St. Louis, the ratio is 1 to 1,393 and in Kansas City, 1 to 1,754.

Since in many cases the cause of blindness in one eye is different from that of the other eye, it is necessary, in order to avoid using fractions of ½, to keep account of the cases in terms of single eyes. The percentages in Table 1 (that of the causes of blindness) represent the relation of cases of one cause of blindness examined by eye specialists to all the cases in the census examined by eye specialists. The latter number is 3,910 minus 347, equaling 3,563 cases; or, in terms of eyes, 7,126—the total number of eyes examined by eye specialists.

In addition, there are two eyes each with nodular keratitis, proliferating retinitis, retrobulbar neuritis, embolism of the central artery, postocular amaurosis, wood alcohol poisoning and blastomycosis, and lastly three eyes reported blinded by cancerous growth.

It is deplorable that the most frequent cause of blindness in Missouri is trachoma, a disease that is curable, at least when treatment can be started at all early. It is significant that trachoma was the cause of blindness in about 3.6 per cent. of the blind-pensioners in St. Louis and 3.2 per cent. of those in Kansas City, while in several of the counties trachoma as the cause of blindness ran as high as 50 per cent. If the state is divided into north and south halves equal in population, the southern half is found to contain 64 per cent. of the cases blinded by trachoma, leaving the northern half with the remaining 36 per cent. This is computed only from cases examined by eye specialists.

In the case of those blinded by cataract, there at once arises the question whether many of these are not operable. Undoubtedly, in many, operation should be performed, but unfortunately there was no provision in the pension law making it compulsory to submit to operation before receiving the pension. The reason, however, why many of both trachoma and cataract cases were not remedied is probably that, living in the country or in small towns at long distances from a specialist, those persons so afflicted did not possess sufficient means to obtain the proper attention. This is where the prevention of blindness, if it is to count for anything, will have to begin. In St. Louis and Kansas City, the percentage of blindness caused primarily by cataract is found to be 7.8 and 9 per cent., respectively; there were certainly some persons in these two places who refused operation, although conditions were altogether favorable for it.

TABLE 1.—CAUSES OF BLINDNESS

	Eyes Examined by Oculist Number	Eyes Examined by General Physician Number	Cause of Blindness Per Cent.
Trachoma	1,406	140	19.7
Cataract	1,131	190	15.9
Optic atrophy	976	36	13.7
Corneal ulceration	785	96	11.0
Glaucoma	741	70	10.4
Uveitis	462	21	6.5
Simple trauma	330	21	4.6
Trauma with sympathetic ophthalmia	132	2	1.8
Chorioretinitis	204	..	2.8
Ophthalmia neonatorum	163	11	2.3
Pigment degen. retina	119	6	1.7
Progressive myopia	78	2	1.1
Optic neuritis	82	14	1.2
Congenital malformations	59	..	0.8
Congenital cataract	43	2	0.6
Retinal detachment	30	1	0.4
Acid, lime and lye burns	30	2	0.4
Parenchymatous keratitis	14	..	0.2
Miscellaneous burns	11	..	0.2
Keratoconus	15	2	0.2
Pterygium	9	2	0.1
Essent. shrink. conjunct	8	..	0.1
Amblyopia ex anopsia	8	..	0.1
Hemorrhagic retinitis	7	2	0.1
Albino	6	..	0.1
Albuminuric retinitis	6	2	0.1
Fundus condition (obscured by lens changes)	82	3	1.2
No diagnosis	179	68	2.5

Optic atrophy in contradistinction to trachoma is a disease most frequent in the cities. Accordingly, in St. Louis, we find 22.6 per cent. of the blindness due to optic atrophy, and in Kansas City, the percentage is 24.8. This was by far the most frequent cause of blindness in these two cities. The care of the specialist, though easily obtained in the cities, evidently did not prevent the amount of blindness there from glaucoma being greater than in the rural districts. Perhaps there is more glaucoma in the cities. In St. Louis, 14.7 per cent. of blindness was caused by glaucoma; and, in Kansas City, it accounted for 15.7 per cent. of the blindness.

Among the traumatic causes of blindness, there are recorded 137 eyes blinded by explosions, almost all of which were industrial accidents. Here we find also gun shot, accounting for seventy-six blind eyes. Seventeen ocular injuries from knife wounds appear, hirteen of which were attended with the loss of the ninjured eye from sympathetic ophthalmia. Among ifteen injuries to the eye from nails, there are eight ases of sympathetic disease; a stick was the destrucive agent in sixteen accidents to eyes, in seven of which sympathetic disease occurred.

Earnest efforts were made to get accurate diagnoses n many of the cases summarized in the last two laces (that of evident "fundus disturbance obscured y lens changes" and "no diagnosis"). That many of uch attempts were without avail is strikingly evident.

The total number of blind pensioners, 3,910, divided ccording to vision, is presented in Table 2. This table vould rather indicate that there were but few of the lind not entitled to the pension from the standpoint f sight.

TABLE 2.—VISION

Vision	Number of Cases	Percentage of Cases
and light perception	2,578	65.9
ight perception to 10/450	972	24.9
0/450 to 20/450	360	9.2

The 3,910 blind adults are divided according to age n Table 3. We see from this table that the majority f blindness in Missouri occurred in individuals past 60 ears of age, for the number of blind past 60 years are 8 per cent. of the whole. This, of course, is no surrise, since cataract and glaucoma are principally conined to the years of later life, not to speak of many ther causes not confined to any age.

TABLE 3.—AGE

Age	Number of Cases	Percentage of Cases
rom 20 to 30 years	193	4.9
rom 30 to 40 years	329	8.4
rom 40 to 50 years	493	12.6
rom 50 to 60 years	626	16.0
rom 60 to 70 years	920	23.5
rom 70 to 80 years	835	21.4
rom 80 to 90 years	438	11.2
rom 90 to 100 years	66	1.7
00 and over	10	0.3

Lastly, the 3,910 subjects of our study are arranged ccording to sex, in Table 4.

TABLE 4.—SEX

ex	Number of Cases	Percentage of Cases
ale	2,161	55.3
emale	1,749	44.7

The greater number of males is doubtless accounted or by the fact that syphilitic optic atrophy and injuries re much more prevalent among those of the male sex.

It is earnestly hoped that this brief outline of statiscs of the blind will be of some value in helping with hat we are all interested in—the prevention of lindness.

Is it too much to expect that these figures may have ore than local value? In this country, we have praccally no statistics on large numbers of blind in which e causes of blindness were determined by eye pecialists.

Applicants for the Missouri blind-pension are still March 10) appearing at the rate of about ten a day, we hope in the near future to add to the foregoing atistics.

826 Metropolitan Building.

ABSTRACT OF DISCUSSION

Dr. John Green, Jr., St. Louis: An applicant for a pension must first make out a statement relative to his financial condition, and inquiries of various kinds have to be answered. After certification by a probate judge the patient is submitted to the oculist. The vision cannot be better than 20/450. How that arbitrary figure was arrived at no one seems to know. The cause of blindness must also be stated. That this has not been done invariably is unfortunate from a statistical point of view. The oculist must also state whether there is possibility of curing the condition. When this law was first passed, the Missouri Commission for the Blind selected a number of oculists to form the nucleus of a consulting staff. These men met and decided that the staff must be greatly enlarged in order to cover the entire state. In order that the examiners should be qualified, it was decided that new members should be required to have membership in the Section on Ophthalmology of the American Medical Association, in the American Academy of Ophthalmology and Oto-Laryngology, in the American College of Surgeons, or in the American Ophthalmological Society, or should hold a certificate from the American Board of Ophthalmic Examiners. Thus most cases examined by oculists have been properly diagnosed. Unfortunately, for political reasons and also because of the fact that some of the counties contained no oculist, the legislature later authorized the appointment of some general practitioners to examine. The evils of this practice have already come to light. For instance, you will find that oculists determined the cause of blindness to be chorioretinitis in 204 cases. In no case examined by a general practitioner was the cause so designated. It is very evident that the general practitioner often guessed at the diagnosis, and consequently such diagnoses are worthless for statistical purposes. Furthermore, the general practitioner is often unable to differentiate a malingerer from one genuinely blind, and hence the taxpayer does not get a fair deal. At the present time nearly 5,000 blind are on the rolls, and that means that practically twice as many blind persons reside in the state of Missouri as were supposed to live here on the basis of the 1920 census. This indicates that federal statistics on blindness all over the country are at fault. This is not surprising. When the census enumerator comes to a house, the family try to conceal the fact that there is a blind person in the family. On the other hand, when there is a chance to increase the family income the tendency is the other way—to magnify the degree of blindness. It is interesting to note that trachoma heads the list of the causes of blindness. It is well known that in southern Missouri and northern Arkansas trachoma is very prevalent. Cataract comes second on the list. Of course, a vast majority of senile cataracts are operable and vision can be restored, but the patient is under no compulsion to submit to operation, and it seems rather unfair to the taxpayer to compensate a person whose blindness is remediable. I am not surprised at the large incidence of optic atrophy. It has been my experience that among negroes especially optic atrophy is a common cause of blindness. In Missouri there is a large negro population largely concentrated in St. Louis and Kansas City. It is gratifying to find that ophthalmia neonatorum is tenth on the list, and that the incidence is far below the 10 per cent. which we were formerly told was the incidence throughout the country. No doubt this is due to the widespread propaganda in relation to the prevention of blindness from this cause.

Dr. E. C. Ellett, Memphis, Tenn.: It seems to me that the point in this paper that ought to impress us most is the fact that the diseases at the top of the list are preventable causes of blindness. My sphere of activity overlaps that of the physicians of this city, and I can corroborate from my own experience what has been said in regard to the prevalence of trachoma in northern Arkansas and southern Missouri. The main thing, however, that I would like to emphasize is glaucoma as a cause of blindness. As far as my experience goes, I see many more cases of blindness from glaucoma than from any other cause. The most useful work we can do is to increase our efforts along the line of educating the people in regard to these preventable causes of blindness, especially trachoma and glaucoma. Simple glaucoma is a disease of insidious onset and has frequently developed to a very disastrous point before the patient comes for consultation in regard to his sight. That is not so liable to be true of trachoma, except when the person is in a remote part of the county, because his trouble is painful and it causes symptoms which would lead him to seek advice. In glaucoma, however, people are not disposed to seek advice at a time when anything can be done. I have been much impressed with the number of people who have lost one eye from glaucoma and yet who let the other one go before they ever think of trying to find out whether anything can be done. It seems to me that education would bear excellent results.

DR. HAROLD BAILEY, Springfield, Mo.: I want to emphasize the point Dr. Ellett made about glaucoma. There is another side to which I would call attention. Many of our pension applicants who were blind from simple glaucoma have had a diagnosis of cataract made by the optician or family physician. They had been told that they must wait until totally blind before their sight could be restored by operation. Some of them have come to us prepared to have the operation done. Another thing that has impressed me strongly in our pension work has been the apparent ignorance of some of these applicants. So many persons with mature uncomplicated cataract who could be operated on with every prospect of success refuse operation absolutely. I have observed the same thing in many cases of corneal opacity in which useful vision could be obtained by an optical iridectomy. With one exception these patients have all refused operation, notwithstanding the fact that they have been told that no expense attached to the operation other than a moderate hospital bill and in some instances we have offered to pay that. It is a question of educating many of these people before we can do very much for them. One or two points regarding the law. I do not know how much jurisdiction the examiner has. A person came to me the other day with a retinitis pigmentosa—vision of 20/70 in each eye. He had vision in his central fields only and was practically blind. Under the strict interpretation of the law this man was unable to get a pension. I would like to ask Dr. Lamb whether in such a case the applicant might not secure a pension, for he is certainly deserving of it.

DR. NELSON MILES BLACK, Milwaukee: In making the statistical tables, was any attempt made to determine the number of blind people who support themselves, and if so, what occupations did they follow?

DR. H. D. LAMB, St. Louis: The present blind-pension law was drawn up very hastily and a great many points were left unmentioned. In fact, what has been made into a law is but an outline. The questions of Dr. Bailey and of Dr. Black are being discussed by the Missouri Commission for the Blind and its consulting staff. The law simply stated that the income must not exceed $780 yearly for an applicant to receive a pension. There was nothing said in regard to the financial ability of other members of the family to take care of the applicant. I think the husband might have an income of a considerable sum and yet the wife with little or no income might receive a pension. That will be remedied by legislation; and also the question in regard to persons with good central sight with narrow fields. These cases have been passed when the field was 15 degrees or less, whatever the vision might have been. Effective work on the prevention of blindness depends on at least fairly accurate statistics. We have practically no statistics on blindness of any value in this country. The government census is determined by the enumerator asking as he or she goes from house to house "Are there any blind in this home?" Figures based on such methods are worth nothing, and yet the figures of the government census are referred to frequently by writers and speakers on blindness. This, of course, is because they are virtually the only statistics on blindness we have in this country. Ophthalmologists desiring accurate statistics on blindness refer back to the tables of Magnus, published in 1883, for since that time we have nothing accurate.

HEALTH CENTERS OF THE MASSACHUSETTS-HALIFAX HEALTH COMMISSION

WITH SPECIAL REFERENCE TO PRESCHOOL-AGE DENTAL CLINICS AND NUTRITION CLASSES *

B. FRANKLIN ROYER, M.D.
Executive Officer, Massachusetts-Halifax Health Commission
HALIFAX, N. S.

Health center work in Halifax and Dartmouth came about as a direct result of the ship disaster occurring in Halifax harbor, Dec. 6, 1917, when the *Mont Blanc* and the *Imo* collided. The *Mont Blanc* was loaded with trinitrotoluene, and a great explosion resulted, destroying the lives of 1,635 citizens, and wrecking several thousand dwelling houses. Practically all buildings in the two communities were severely damaged, the property loss alone amounting to $30,000,000. Immediately after the news reached Boston, citizens of Massachusetts hurried physicians and nurses to Halifax with relief and supplies. A very generous contribution of funds and supplies followed, the collection reaching almost $750,000. In addition, several shiploads and several trainloads of supplies and the personal assistance of many citizens of Massachusetts were contributed. As soon as the governments of Canada and England could visualize the disaster, and make plans to give permanent relief, a commission was formed to handle relief in an official way and pay for all loss of life, limb and property.

With the formation of the government organization, and its establishment on the ground, outside philanthropy was no longer needed. A quarter of a million dollars of the Massachusetts money remained unexpended at this time, and at the suggestion of the committee in Massachusetts, Dr. Victor G. Heiser studied local needs to determine how this large balance might be expended within the spirit of the donations, and for a need having some direct relation to the disaster. Dr. Heiser recommended that the money be employed in a campaign of public health education and preventive medicine, on condition that the government relief commission supplement it at the rate of $15,000 a year for a period of five years, and that the city of Halifax and the province of Nova Scotia each make contributions in facilities or money to the sum of $5,000 a year, the Massachusetts money to be apportioned as needed over approximately a five-year period. This was agreed to by all organizations, and a new commission, known as the Massachusetts-Halifax Health Commission, was created under a special act of the Nova Scotia legislature in May, 1919.

Dr. Heiser recommended the establishment of health centers as a part of the constructive educational health campaign. It has been my privilege to work out on the grounds the details of this supplemental health program in cooperation with the chief nurse of the commission, subject, of course, to the approval of the commission itself.

The child welfare clinics, the prenatal clinics, the ear, nose and throat services, the posture clinics, the enereal clinics and the tuberculosis services are organzed very much along the lines now obtaining in the est health centers in other parts of the United States. ome medical advice is given and much public health ounsel is offered both by physicians and by dentists, s well as by specially trained public health nurses and utrition workers.

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* Read before the Section on Preventive and Industrial Medicine and Public Health at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

* Owing to lack of space, this article is abbreviated in THE JOURNAL by the omission of two illustrations. The complete article appears in the Transactions of the Section and in the author's reprints.

Some new features, however, have been introduced n the preschool-age dental clinics, and in the nutrition linics, that are worthy of special discussion at this ime.

In making preliminary plans for a preschool-age ental clinic, we first submitted our views to the Haliax Dental Society. The Dental Committee on Public Iealth of this society agreed to the suggestion that e proper place for, and the place most likely to give esults in, preventive dentistry was in the preschool-age roup, that is, up to 6 years. This committee agreed lso with my suggestion that tooth nourishment should e featured out of all proportion to what has been one in health work in other places, and that prophyictic dentistry should be practiced in cooperation with uch an instructional service. While the matter was nder discussion, a subcommittee secured approval of e Canadian Dental Society, and a delegate secured pproval of the American Dental Association.

It is the teaching plan of these health center reschool-age dental clinics to begin featuring tooth ourishment in the prenatal period. We try to make the xpectant mother appreciate that unless she takes food rom which sound bone and good teeth may be built, er baby will not grow a sound, strong, well-enameled t of temporary teeth, likely to remain sound and free rom decay during the period of their natural use. Ve teach the mother to appreciate that the first set f teeth, even to the enamel, is pretty well finished hen the child is born, although the teeth are under e gums in the jaw. We preach the use of liberal uantities of whole milk, the use of all leafy vegeables, even to raw cabbage, especially during the last x months of pregnancy. We aim to have the dentist charge of this service advise with expectant mothers d the public health nurses, as well as the physician this prenatal service and nursing period.

We begin dentistry with the baby at 6 months, whether ottle-fed or breast-fed, and try to control the health f the baby from then until he is 6 years of age, by king him to the preschool-age dental clinic for guiance, and to impress on the mother essential food ssons. The dentist in the clinic, and the public health urse subsequently in the home, constantly keep before e mother the thought that, in this important period, e second teeth are being built and enameled. We rge that, unless the child is given through these ars also the kind of food from which sound teeth ay be built, the permanent teeth may decay at any me after complete eruption or in the early teens. We ach continuously and constantly that unless the right nd of food is taken—chiefly mother's milk the first ar, and modified milk or good whole milk later and, soon as possible, leafy vegetables, oatmeal porridge d whole wheat bread— one cannot lay the foundation r strong teeth or good lasting enamel. We emphaze in the clinic and through the health nurse and siting housekeeper that tooth-feeding is of greater alue than tooth-cleansing, but, at the same time, we ach oral hygiene.

The dentist teaches the use of the tooth brush in prophylactic work, and mechanically cleanses when necessary. With children coming to the clinic who have been improperly fed and whose mouths have been neglected, much repair work naturally is done, the sort dentists refer to as patchwork. Silver may be deposited by precipitation, both in shallow cavities that have been previously cleaned, and as a coating to teeth losing their enamel, with the hope of preserving them and keeping their value in the development of the jaw. Fillings may otherwise be put in. Sinuses and diseased gums are treated.

The whole of this dental clinic service, however, is educational rather than reparative. We teach that tooth-feeding must begin with the expectant mother and must be continued during the prenatal period. One of our slogans is: "A sanitary mouth with good oral habits at 6 is likely to remain a clean, healthy mouth at 60." We are fortunate in having a woman dentist, Dr. Arabelle Mackenzie, who has had a year of postgraduate training in the Forsythe Clinic at Boston. She is tactful in handling children, and fits in well in coordinating her work with that of the medical staff. We have given her the title of pedodontist. She now has more than 300 babies and children less than 6 years of age coming to this clinic four times a year for dental advice. The nurse during the latter half of the first year visits the baby fortnightly, and once a month, or oftener if required, during the entire preschool period.

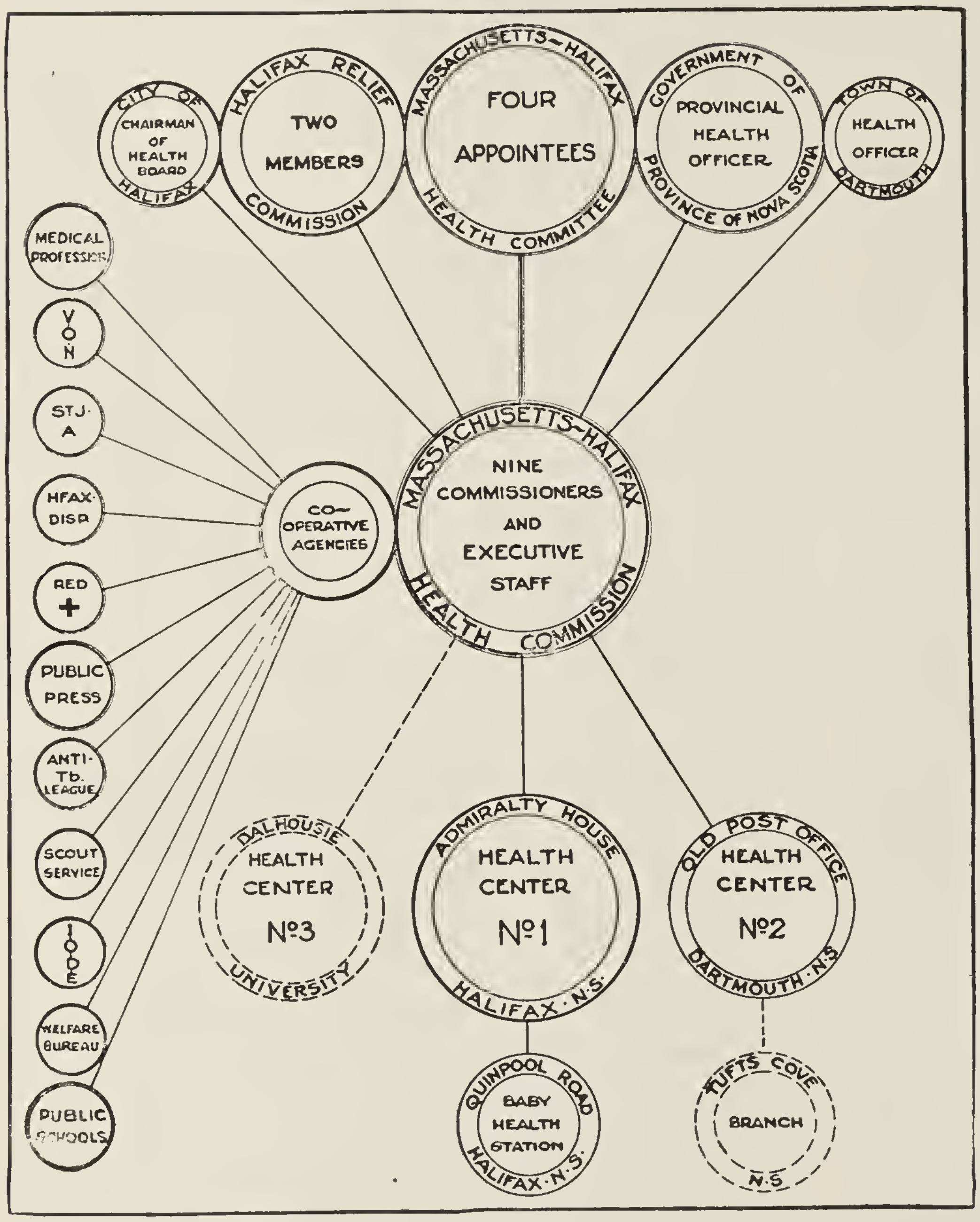
The school dentists of Halifax have already voluntarily made special report to the school authorities of the notable changes observed by them in children entering school during the last session, who have had from one year to eighteen months in the preschool dental clinic.

The nutrition services of the health center are organized much along the lines of Emerson's clinic in Boston, with some features of other clinics added. We have the additional advantage that the nurses', physicians' and consulting clinics, including the ear, nose, throat, posture and tuberculosis services, are operated from the same building. During summer months, adenoid and tonsil clinics are also conducted. In this way, we are able to do much as Dr. Wile does at the Mount Sinai clinic, viz., ask that handicaps be removed so that, as Dr. Emerson says, the child may be free to gain. Tonsils and adenoids must often be removed before a child may make great headway in a nutrition class.

We are fortunate in the nutrition service in having Dr. F. W. Tidmarsh in charge, a man with an excellent overseas record and a period of study in Emerson's clinic. The physician is supported by the public health nurses and visiting housekeepers (nutrition workers), who aim to correct any home environment that may be detrimental to health. When nutrition problems are paramount, the visiting housekeeper does the bulk of the home teaching, the nurse going occasionally. The visiting housekeeper is trained to go into the home and teach the housewife the kind of food the child needs in order that it may gain. Not only does she explain the kind of food that is needed, but she goes with the mother into the shop or market and teaches her how to buy economically the kind of food the family needs, and the kind the particularly undernourished child needs.

The aim in the health center is to develop only one class of the undernourished of school age, recruiting this class chiefly from homes with open tuberculosis. This class is used for feature purposes and educational publicity. We recognize that the largest and the most desirable places for nutrition classes must be, for some years at least, in the public schools. At present there are three such classes in the Halifax public schools.

Our larger aim is to give nutrition advice to undernourished children of the preschool age. In that period, children are not so commonly 7, 10 or 15 per cent. underweight, but there is quite as much need of nutrition advice alone, or combined with the advice of a pedodontist, as in the older groups. With these classes we aim to prevent gross malnutrition.



Massachusetts-Halifax Health Commission scheme of cooperation.

I have more fully described the larger health program in other articles.[1] It will suffice here to have elaborated somewhat on the special services of preschool-age dentistry, a service hardly started in health circles, and on nutrition classes running parallel with them, an innovation in health work until recently largely limited to the school-age period.

One fully organized health center is now operating in the northern part of Halifax with a summer substation for weighing and measuring babies. A second health center, suited to the needs of a population of 8,000, is operating in Dartmouth.

The work of the first health center, when reviewed by representatives of the International Health Board of the Rockefeller Foundation, influenced them to "earmark" $200,000 for building a Dalhousie health center for the south end of Halifax. This new health center is being planned for the university as an integral teaching unit of the medical school, and will serve as an outpatient department to the group of hospitals now growing up in the immediate vicinity of the medical school. With health center service for the southern half of Halifax conducted by the medical faculty from a university building, with public health nurses on the staff, students of medicine will be given great clinical opportunities and will here for the first time be given ample opportunity to study domiciliary causes of diseases, and a chance to acquire a better fundamental groundwork for preventive medicine.

The general scheme of organization and the general plan of operation can perhaps be set forth best diagrammatically. It would be described about as follows: The commission consists of nine men, three of them being members by virtue of their offices: the provincial health officer, the chairman of the Halifax City Health Board and the health officer of the town of Dartmouth. Two are appointed by the Halifax Relief Commission and four by the Massachusetts-Halifax Relief Committee of Boston. The commission acts under a special provincial law, and meets semimonthly. Policies are determined by the commission, and work is directed through the executive officer and staff. The provincial and local health authorities are members of the commission for the purpose of coordinating the established work of each with the new work undertaken by the commission. It is the aim and object of the commission to do such lines of health work as should properly come under the local health officials in each community, and to work in the closest cooperation with all privately endowed philanthropic and charitable agencies, so that a minimum amount of overlapping will occur and waste will be avoided.

The public health nursing program is wholly constructive in character, and is a very large feature of the work. Each nurse is responsible for the entire public health program in the district assigned to her, and for the health of every member of each family with whom she comes in contact. She seeks to remove as far as possible domiciliary causes of diseases, and to train and reeducate the family in right methods of living. Bedside nursing is done in emergency only, or for family demonstrations. The Victorian Order of Nurses does the routine bedside work in homes of both communities, and gives general family instruction during such intervals.

ABSTRACT OF DISCUSSION

Dr. Isaac D. Rawlings, Springfield, Ill.: The establishment of the Massachusetts-Halifax Health Commission is somewhat unique in that it did not just happen but was the result of the mature deliberation of experts, and with all the facts furnished by a thorough survey of the needs and problems requiring solution to guide them. This commission is somewhat different from most health centers in that a

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[1] Royer, B. F.; Am. J. Pub. Health **12**: 195-201 (March) 1922; M. J. Australia **1**: 451-456 (April 29) 1922.

finite plan is mapped out for a five-year period with experts
charge, no politics, adequate finances, a constructive pro-
ram in all its features, with no duplication of efforts or
nflict of authority, and with the entire personnel having
it one goal, the lessening of the sick rate and the saving
lives. While the scope and standard of the Massachusetts-
alifax commission are, perhaps, the best yet established,
ere are many so-called "health centers" which are attempt-
g some or all of the activities carried on by the Massachu-
tts-Halifax commission. In England such institutions
ive been quite common. The agency through which the
alth center operates may be public officials, it may be vol-
iteer organizations, or it may be a combination of the two.
he scope of the services performed varies with each health
nter. At the end of 1917, there were only about a dozen
alth centers in the United States. Three years later this
imber had increased to 385, and at present there are still
ore. Binghamton, N. Y., has established a health center
hich is producing excellent results. Altogether, eleven
tivities are brought into close contact, with the result that
uch lost motion and a great deal of overlapping of activi-
s have been eliminated. In New Haven, Conn., a health
nter has been in operation for some time which deserves
ecial mention. The center depends largely on private
nations to carry on its work. The New York County
apter of the American Red Cross has affiliated all existing
alth agencies and opened health centers in various parts
New York City. A rather unique experiment in health
nter work has been established in New York City by the
ternational Lady Garment Workers Union. This consists
a joint board of sanitary control, a medical division, a
ntal division and an educational division. Every worker
ining the union is required to undergo a complete physical
amination. When treatment is required, this is advised
d administered. In 1909 the legislature of Illinois passed
"enabling act" permitting the people of any county by
ferendum to impose on themselves a tax for the care of
e dependent tuberculous patients in the community. At
esent, more than forty counties of the 102 in the state
ve taken advantage of this act. The extension of this prin-
le to include the prevention and treatment of all diseases,
sabilities and injuries of a community has not been
vanced in Illinois. In several other states, notably Iowa,
ch county has the right to establish a hospital for the care
residents of the county. The highest type of county
ganization has been reached in New York State, where the
ard of supervisors of the county was allowed to establish
mmunity or health centers. The board of supervisors
ovides the funds for these centers, and appoints a board
managers who supervise and control the health center. A
spital in such a health center may be constructed, the state
ying half of its cost, with provision that the hospital shall
t be greater than one bed to each 500 of population. In
inois, a unique health center has been in existence for some
e in La Salle, Peru and Oglesby. In 1914, at the township
h school of these three cities, a social center was estab-
hed for welfare and community work. Included was a
gienic institute to cooperate with the departments of health
the three cities. At the head of the hygienic institute was
ealth officer, under whom served, in each of the cities, an
istant health officer appointed by the mayor of the respec-
e city. This gave the organization a legal standing. The
pe of work consisted of enforcement of all local and state
s pertaining to the health of the people.

R. ANNA RUDE, Washington, D. C.: The two outstanding
nts for emphasis in this are, first, the small number of
ldren considered as "malnourished" in the preschool period
ording to our present standards. These findings cor-
orate a report on the physical status of the preschool
ld which the Children's Bureau will soon publish, in which
have not drawn conclusions but have indicated that
ther a 7 nor a 10 per cent. weight deviation from the
ight-height ratio is a standard applicable to the preschool
child. The second point is the importance of prophylac-
dentistry during the preschool age. As one observes
tal corrections in the schools throughout the country, one
st be impressed with the futility of beginning dental repair
work during the school age. Of fundamental importance is research in nutritional problems beginning with the mother during pregnancy and followed throughout infancy, and with prophylactic work in the preschool age, if we are going to make any improvement in dental defects in the children of this country.

BRONCHOLITHIASIS

REPORT OF CASE *

ARTHUR R. ELLIOTT, M.D.
CHICAGO

Broncholithiasis is described in the literature under various designations. It has been called pulmonary lithiasis, and the concretions which are its characteristic product are referred to as lung calculi, pneumoliths, lung stones and broncholiths. The clinical manifestations accompanying the expulsion of these concretions constitute what is known as stone asthma or bronchial colic.

The literature is surprisingly meager, in view of the fact that the condition has been recognized for centuries and is probably not so rare as might appear from the infrequent references. Casual testimony of its occurrence as a clinical incident is not uncommon in discussions on the subject.

Roentgenograms of the chest frequently reveal more or less circumscribed nodular shadows, usually located at the hilum of the lung, which are considered to be calcified peribronchial glands. Calcified nodules in the lungs and adjacent structures are also encountered at necropsy. In interpreting the presence of these nodules, it is considered that glands and circumscribed areas of lung tissue have at one time been involved in an inflammatory process, and on this becoming quiescent, they were subsequently infiltrated with calcium salts as a terminal event. Tuberculosis, abscesses, bronchopneumonia, infarcts, foreign bodies or pleuritic infections may have initiated the process leading to calcification. It often happens that no definite primary infective or inflammatory process can be traced in the clinical history. The presence of these calcific areas is a sign of chronic disease; but, strictly speaking, no other diagnostic value can be assigned to them. So long as they remain quiescent, they do not give rise to symptoms, and their discovery is usually an accidental finding.

In the more chronic ulcerative forms of tuberculosis, small particles of calcareous matter may become loosened in the process of cavitation, or form in the stagnant mucoid contents of bronchiectatic bulgings and be coughed up from time to time. These particles are ordinarily not sufficiently gross to be detected without careful inspection of the sputum.

Calcified tracheobronchial lymph nodes, because of their size and proximity to the air passages, most frequently give rise to clinical manifestations leading to a diagnosis, since they may perforate the bronchial wall by ulceration and gain access to the lumen of a bronchus and be coughed up. Besides these glandular concretions, ulcerative processes in the air passages may result in the sloughing off of cartilages of the bronchi or of the trachea which, becoming free, may act as foreign bodies and be expelled by coughing. In like manner, enchondromas may form in the lungs or pleura and become free. Hydatids, inspired foreign

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* Read before the Society of Internal Medicine, May 29, 1922.

bodies and fragments of soft tissue, after resting a time in the bronchial tract, may become more or less calcified and be finally expelled in the form of small concretions.

The stone surface may be smooth, rough or slightly mammillated. Their size may vary from that of a small bead to that of a cherry, and their consistency from hard to soft and friable. They may be white or yellowish-gray. On section, layers have been noted and also fluid in the center, as in gallstones. Foreign bodies have been demonstrated as forming the nucleus. Chemical analysis proves them to be composed principally of calcium phosphate and carbonate. On microscopic examination, bone corpuscles and lamellae have been observed. In some persons the tendency to calcareous lung deposits may be very great. This is a frequent observation during routine chest examination with the roentgen ray. It is possible that a certain constitutional anomaly never satisfactorily explained may play a part in their formation.

Morbid calcification has been generally believed to be brought about as a result of chronic inflammation. It may be assumed that a chemical process occurs in tissue, the vitality of which is reduced in this manner, whereby lime salts are deposited from the blood stream into their structure. According to Wells, the essential differences between calcification and ossification seem to be chiefly morphologic. In calcification, we have deposited in dead tissue or in tissues of low vitality a considerable quantity of inorganic calcium salts which appear at first in granular form, although later there may be more or less fusion and resulting areas of homogeneity. Within such deposits there are usually no living cells, and, so far as we know, no further changes take place unless it be absorption or addition of more calcium salts. In calcification and ossification alike the insoluble lime salts are laid down in a matrix especially prepared to receive them: in bone formation, the homogeneous acellular matrix of the cartilage; in calcification, some acellular necrotic tissue.

Chemically, the resemblance is very close, for with few exceptions the proportion of the different inorganic salts in pathologic calcific deposits has been found to be quite the same as that characteristic of normal bone. Furthermore, Wells states it to be the rule that when areas of calcified pathologic tissues remain long enough in the body, ossification will take place in a certain proportion of cases, irrespective of any proximity or relation to bone tissue. Numerous observations are on record in which true bone has been found in calcified nodules from the lungs and in similar areas in liver, eye, mesenteric glands, etc. The composition of bone and of most pathologic deposits of calcium exhibits an almost constant ratio of from 85 to 90 per cent. of phosphate and from 10 to 15 per cent. of carbonate. Calcium is carried in the blood in amounts not far from the saturation point, being held in solution by the colloids and carbon dioxid. The same blood that furnishes the calcium salts to the calcifying tissues is also passing and repassing through great areas of capillaries within true bone tissue where there are large amounts of calcium phosphate and carbonate that are in practically constant proportion. In both the normal and the pathologic tissues,. calcium is being given off or taken up from the surrounding fluids according to the laws of solution tension and of chemical and osmotic equilibrium. It is inconceivable that a mass of calcium salts anywhere in the body can for long possess a chemical composition essentially different from that of bone, with which it is in constant exchange through the medium of the circulating blood.

Pathologic calcification is not to be confused with metastatic calcification. In the former process, some devitalizing tissue injury leads to the deposition of calcium at the point affected. In metastatic calcification there is a widespread deposition of calcium salts occurring independently of any specially prepared abnormal tissue matrix, but in consequence of bone disease, such as osteomalacia, osteosarcoma or myeloid leukemia. As a result of bone destruction from such causes there is an excessive liberation of calcium, with oversaturation of the blood and deposit in the soft tissues. One of the striking features of pathologic and metastatic calcification is the predilection of the lungs for lime deposits. An explanation for this, according to Wells, may lie in the fact that the lungs constitute one of the three chief places (the others being the stomach and kidneys) where acids are excreted and where, in consequence, the tissue fluids become most alkaline and least capable of holding calcium in solution.

Apart from and apparently independent of this implication of the lungs in metastatic calcification, these organs have been found diffusely infiltrated with lime so that they cut with difficulty, and feel like porous bone, as in a case reported by Harbitz. No satisfactory explanation for this rare condition is forthcoming. It appears to result from an obscure constitutional anomaly or metabolic disturbance of the same order as myositis ossificans progressiva and calcinosis universalis.

Much more common than any other form of lung concretion is the variety resulting from calcified tracheobronchial lymph nodes, which, because of their proximity to the air passages, may perforate the bronchial wall by ulceration, and so gaining access to the lumen of a bronchus, be discharged by coughing. This is the variety which most frequently gives rise to clinical manifestations leading to a diagnosis of broncholithiasis. Only one stone may be expelled, or successive discharges at variable periods may eventually produce large numbers, constituting a clinical syndrome fully justifying the designation. Calculi originating in this manner are more likely to be branched and ragged in outline and of larger size than when formed in cavities or in the lung tissue.

The clinical aspects of lung concretions possess no characteristic feature except the expulsion of the stone and the disturbances that accompany its discharge. So long as the stone remains quiescent no symptoms due to its presence arise, just as in calculus elsewhere in the body. When the calculus becomes the center of active irritation or inflammation, symptoms of more or less severe character appear resembling those produced by a foreign body in the bronchus. There are cough, frequently severely paroxysmal in type, asthma-like wheezing, profuse bronchorrhea, dyspnea, chest discomforts varying from a sense of pressure to intolerable burning and scratching sensations, and even severe localized pain. Finally, following a severe fit of coughing, with rending pain or a sense of tearing within the chest, the stone is expelled and great relief is experienced at once. This has been called "stone asthma," and by the French "colique bronchique." Such attacks pass very quickly or may last a day or two. Hemoptysis results from the ulcerating through of glandular concretions, and usually precedes and accompanies the expulsion of a stone of any size.

Some of the cases assume from the first a chronic form which may suggest tuberculosis. The earlier writers aptly described this form as "pseudophthisis calculosa." In most chronic cases, bronchiectasis forms, or lung abscess with all the attendant possibilities. Repeated expulsion of stones may occur, or their presence may not come to light until accidentally discovered at necropsy.

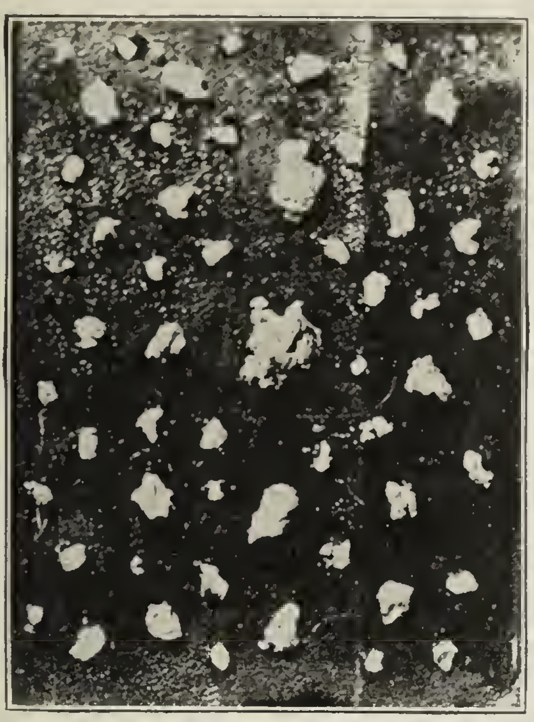

Fig. 1.—Fifty-six of largest-sized bronchial concretions expelled in the case reported. Reproduction is about half the actual size.

The physical signs arising from broncholithiasis are not such as to lead to a correct diagnosis. They are usually unilateral, and resemble those arising from bronchiectasis, lung abscess or a foreign body. In no case so far recorded has the roentgen ray succeeded in revealing the presence of free stones in the bronchi. The true diagnosis becomes apparent only when a stone has been expelled. Should this occur, the only question to be decided is where it has come from. Calcareous masses have been known to collect about the teeth or form in the tonsillar crypts and pouches of Morgagni, to be subsequently spat up. If coryza is present, one must think of a rhinolith which, coming from the nasal cavity, may enter the mouth and be expectorated during a fit of coughing.

Broncholithiasis is probably more frequently present than is appreciated, and may account for certain obstinate cases of chronic cough. Were bronchoscopy more frequently employed in diagnosis of obscure chest conditions, it might more frequently be brought to light.

The following case history illustrates the clinical aspects of this disease. The case constitutes an instance of multiple glandular ulcerative broncholithiasis.

REPORT OF CASE

History.—A structural engineer, aged 35, whose normal weight in health was 178 pounds (80 kg.) and who, since the beginning of the present illness, had lost 20 pounds (9 kg.), had had pneumonia at the age of 8 years, epidemic influenza in 1918, and bronchopneumonia in February, 1920, resulting in confinement lasting three weeks. His present illness began in August, 1920, with loss of weight and decline of endurance. This was attributed by the patient to loss of sleep and irregularities of living incidental to severe professional demands. Increasing weakness presently compelled him to stop work. His digestion became much upset, and for a period of eleven weeks he was confined indoors. About midway of this period of confinement he developed a cough. This developed without fever and was productive from the start. After it had lasted with increasing severity for one month, he coughed up a small concretion about the size of a grain of wheat, the sputum being purulent and tinged with blood. Following this he coughed up similar concretions almost daily for several days, and thereafter every three to seven days until they numbered in all fifteen, of about uniform size. Gradually the cough became less persistent and stone expulsion less frequent, although they were of larger size. The cough has continued with abundant mucopurulent expectoration, and until the present date stone expulsion has occurred about once from every two to four weeks until they now number sixty in all (Fig. 1). Their combined weight is 2.4 gm. The largest concretion is irregular, somewhat porous, ragged and branched, measures 1.3 by 1.1 by 0.7 cm., and weighs 0.52 gm. There is distinct clubbing of the finger tips.

Laboratory Findings.—Repeated sputum examinations have in all instances failed to reveal tubercle bacilli. The bacterial flora consists of pneumococcus, staphylococcus and *Micrococcus catarrhalis.* Many pus cells are present. No elastic tissue has been found in any sample. Blood counts reveal a moderate grade simple anemia. The blood Wassermann reaction is negative. Urine analysis is normal in all respects. Estimation of blood calcium reveals a percentage of 0.0094, which is slightly below the normal figures of from 0.0110 to 0.0131 given by Abderhalden.

Cough and Phenomena Attending Expulsion of Stones.—Cough is persistent, although somewhat paroxysmal, with maximum severity during the early morning hours. When at its worst, there is much wheezing and annoying mucus rattling in the chest. Seldom is the patient free from sensations of discomfort in his chest, and he refers to a point inside the lower third of the right scapula, where there is a burning pain. For several days before a stone is expelled, he experiences at this point a very annoying tickling and itching sensation, and he appears to be able to trace the movement upward of the stone along the right side of the spine and neck until, in a final paroxysm of convulsive coughing, it appears in the sputum. There is always a slight fever and repeated mild chills during the periods of stone asthma. The cough is at all times productive, and the sputum is purulent and often blood tinged. During the exacerbations attending stone expulsion, the sputum is markedly increased in amount and frankly bloody. At no time has it become malodorous or putrid. A single twenty-four hour measurement yielded 6 ounces of heavy, purulent sputum.

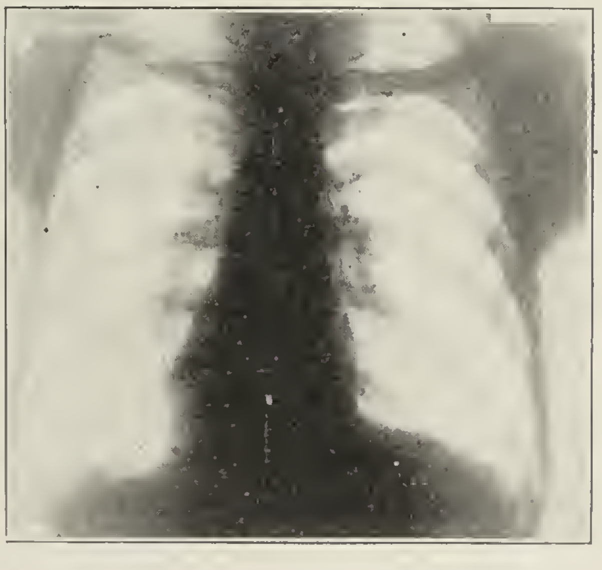

Fig. 2.—Appearance of chest two weeks before expulsion of largest concretion.

Physical Signs.—The chest is well formed and symmetrical, and expansion is equal on the two sides. On deep breathing, the palpating hand detects coarse mucous fremitus over the right chest, maximal over the right scapular region. Percussion resonance is exaggerated throughout. Auscultation reveals many coarse, vibrating, snoring mucous râles, most numerous and intense over the lower right chest behind. Mucous sounds over the left side seem muffled, as if mainly transmitted from the opposite lung. Toward the inferior margin of the right lung there are fine, crackling râles which clear on coughing. The breath sounds are coarse, but otherwise unchanged.

Roentgen-ray examination does not detect any upper lobe consolidation; toward the bases there is only a moderate thickening in the distribution of the structures emanating downward from the hilum. On each side the hilum structures are definitely increased. The radiations from the hilum outward and upward are not thickened. There are a few rather insignificant nodules of calcification in relation to the right hilum, but certainly less than might be expected from the history of frequent stone expulsions. From the standpoint of bronchiectasis, the roentgen ray discloses less pulmonary consolidation than might be expected from the quantity of expectoration. No real cavities are shown.

Within two weeks after the plate reproduced in Figure 2 was made, the patient coughed up the largest stone expelled. It weighed 0.52 gm., was rough and was somewhat branched. It will be seen that the roentgen ray failed to detect this concretion, although it undoubtedly was present in the chest at the time of examination.

Progress of Case.—During the ten months since the patient came under observation, twelve calculi of varying size have been expelled. The cough is persistent and unabated, and the character of the sputum unchanged. The body weight has increased by 8 pounds (3.6 kg.), with some improvement in general health and endurance, enabling the patient to pursue his professional activities without interruption.

The physical signs remain unchanged in character, and a roentgenogram, made later, gave no additional information.

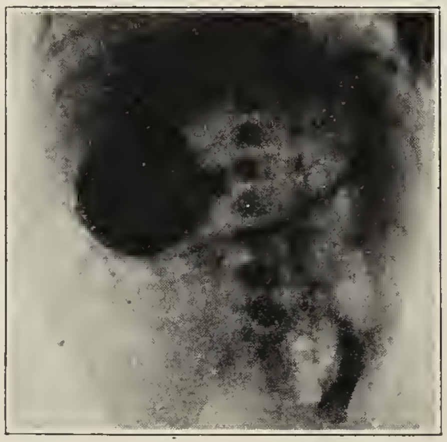

Fig. 1.—One hour after the meal. Figures 1, 2 and 3 are reproductions of roentgenograms of the stomach and pylorus taken, Oct. 25, 1921, before atropin had been administered.

COMMENT

This case of broncholithiasis appears to constitute an instance of multiple calculi of glandular origin which penetrate the bronchi by ulceration and are expelled singly with characteristic phenomena of stone asthma or bronchial colic. Chills, fever, hemoptysis and chest pain accompany each expulsion. There appears to be no bone disease present; tuberculosis is excluded, and blood calcium concentration does not exist. The primary etiologic factor remains a matter of doubt. Pneumonia at the age of 8 and "influenzal bronchopneumonia" seven months before the first stone expulsion may be concerned in the pathogenesis. There appears to be in this case, as in other chronic forms of pathologic calcification reported, a morbid constitutional tendency to the laying down of calcium salts at a point least capable of holding them in solution.

30 North Michigan Avenue.

Cinchona Bark in the British Empire.—The special committee on cinchona bark of the Imperial Institute Committee for India in a recent report stated that during the five years ending 1916-1917, Indian exports of cinchona bark averaged 600,000 pounds per annum; in 1917-1918, they fell to 40,000 pounds, and in the following two years were 27,000 and 198,000 pounds, respectively. These exports consist chiefly of druggists' bark, that is, barks of cinchona succirubra, officinalis and robusta. The annual requirements are 8,000,000 pounds, of which nearly 7,000,000 pounds are now derived from foreign sources, principally from Java.

CONGENITAL HYPERTROPHIC PYLORIC STENOSIS AND ITS TREATMENT BY ATROPIN *

SIDNEY V. HAAS, M.D.
NEW YORK

When the etiology of a disease is uncertain, the treatment of that disease is bound to be in question. So it is that pyloric stenosis has had different forms of treatment advocated for its cure, depending on the point of view held at the time.

Recently medical treatment alone was practiced, until the brilliant results of Downes and those following him, by means of the Rammstedt operation, showed the cures which could be obtained by surgery, with the result that now operation alone is advocated, and medical treatment is supposed to have no place. Such a state of affairs must prevail so long as the results of treatment are the only criteria on which judgment can be founded.

To have seen and felt a pyloric tumor such as exists in this condition is sufficient excuse for any one to hold that nothing short of surgery can possibly relieve the existing stenosis. When added to this the histologic picture shows such great hypertrophy of muscular tissue, especially of the circular layer, it is difficult to give any other view credence.

I shall endeavor to show that this attitude is incorrect; that the etiology of this disease is one which makes it a medical problem, and that we possess in atropin a drug which may be properly termed a specific in its curative action.

I hold as my thesis that so-called hypertrophic pyloric stenosis is merely an advanced degree of pylorospasm, and is only a single manifestation of a general state whose etiologic factor is an overaction of the vagus portion of the autonomic nervous system, and usually a hyperexcitability of all the motor functions.

Somewhat more than six years ago my attention became attracted to a condition in infants which manifests itself by hyperexcitability of the entire muscular system, not only the striated but also the unstriated. The chief symptoms are those of muscle spasm, as seen most characteristically in tetany, including in severe cases marked opisthotonos. When these infants are lifted by the hands, the forearms remain at right angles to the arms instead of being raised above the head. They stand on their feet, requiring only enough support to balance them. Colic, visible peristalsis, both gastric and intestinal, constipation, vomiting, sleeplessness and constant crying make up the picture, to which is added, in some cases, instability of the vasomotor system, as shown by cyanosis of the circumoral region, cold, clammy hands and feet and subnormal temperature, and inability to make progress on any form of feeding. Atropin corrects the condition. I[1] described this in 1918 under the title of "The Hypertonic Infant." Included in this group were cases of pylorospasm. There was nothing new in either the description of the condition or its treatment by means of atropin. It had been variously spoken of as myotonia, myotonia spastica perstans, arthrogryposis, essential contractures, pseudotetanus, tetanoid conditions, infantile tetany, spasmophilia, vagotonia, etc. But, curiously, no one carried these ideas to their logical conclusion until Eppinger and Hess[2] tried to do this and attained a high degree of success. Their failure to use atropin in sufficient doses, however, interfered with their success.

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* From the Pediatric Department of Lebanon Hospital.

* Read before the Medical Society of the Greater City of New York, April 20, 1922.

[1] Haas, S. V.: The Hypertonic Infant, Am. J. Dis. Chil. **15**: 323-335 (May) 1918.

Experimental work in this field has always added proof that the etiology of this state lies in an unbalance of the autonomic nervous system.

Let us now take up the problem of congenital hypertrophic pyloric stenosis, which henceforth in this paper will be referred to as pylorospasm. This will be considered under two heads: (1) etiology; (2) treatment.

ETIOLOGY

This, as previously stated, is held to be a disturbance in balance of the autonomic nervous system; specifically, an overaction of the vagus portion.

The following facts are offered in support of this point of view:

1. These cases can be cured by means of atropin. There may be exceptions. If there are, I myself have not encountered them.[3]

2. The tumor that exists contains no foreign tissue, nor is there any fault in the arrangement of the cells; there is only hypertrophy of the muscular fibers, especially of the circular layer.

3. Necropsy months after cure by means of the Rammstedt operation has shown complete absence of the tumor that existed and was palpated and measured at the time of operation.[4]

4. Herczel,[5] in experimental occlusion of the bowel, found that hypertrophy of the muscular coat becomes manifest histologically as early as the fourth or fifth day, and that on the ninth day the hypertrophy of the muscular coat is distinctly pronounced and easily recognized.

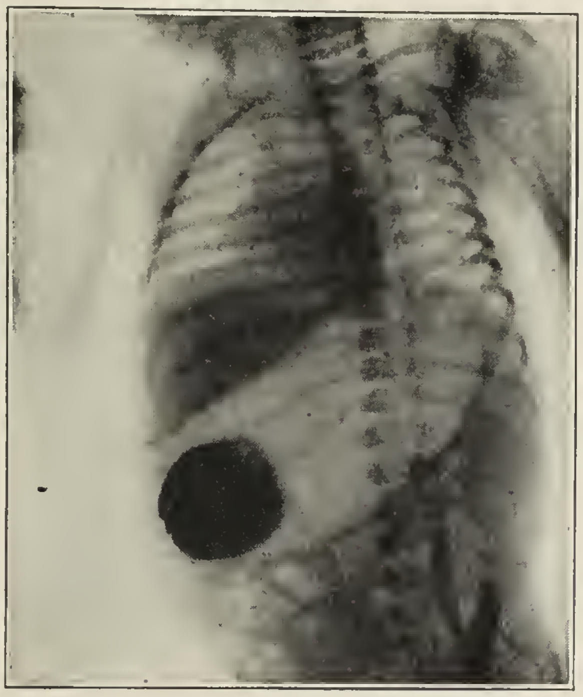
Fig. 2.—Two hours after the meal.

5. Patel[6] found that in many cases in which the lumen of the intestine is narrowed by pressure from without or by innocent tumors, such as multiple polypi, from within, the bowel above the point of stricture is dilated but not hypertrophied unless there is ulceration, showing that there is some element in the intestinal wall which must be attacked before hypertrophy can occur.

6. When the serous coat of the intestine was irritated by means of a crystal of sodium chlorid, the lumen of the intestine disappeared completely and the bowel was converted into a hard, round, solid cord, pale in color, showing entire change in appearance and form from disturbance of function, by irritation alone.[7]

7. Lead colic is rapidly and completely relieved by atropin. Mosse[8] produced symptoms corresponding to lead colic by injections hypodermically of lead acetate and found marked changes in the ganglion cells of the abdominal sympathetic ganglions.

8. Pfaundler[9] found that an entirely normal pylorus may remain contracted postmortem, assuming the consistency of an annular tumor with apparently hyperplastic walls, narrowing the lumen almost to obliteration.

9. Strauss[10] reports that at operation on patients with pyloric stenosis the size of the tumor bore a direct relation to the length of time the condition had existed.

10. I have produced by means of atropin administered to infants for pylorospasm a spasm of the sigmoidorectal sphincter in all respects analogous to the pyloric spasm, causing complete obstipation and severe tenesmus, with expulsive efforts so violent as to produce distention of the perineum, making it resemble the perineum in labor when the oncoming head presses on it. Examination at this time reveals an empty rectum and a tight sigmoidorectal sphincter, resembling with its sharp edges nothing so much as the circular diaphragm shutter of a camera. This and the obstipation are promptly relieved by omission of the atropin. I have also seen this condition in two cases in which atropin had never been used.

Since in this region the controlling innervation is the sympathetic, this may account for the condition arising when the vagus function is abolished by atropin.

As further proof that the obstruction in this condition is not organic is offered: (*a*) the reports of spontaneous cures; (*b*) cures by various forms of feeding, such as thick gruel feeding; (*c*) gastric lavage; (*d*) subcutaneous saline transfusion; (*e*) rectal instillation of Ringer's solution; (*f*) various sedatives, such as atropin, papaverin or benzyl benzoate; (*g*) alkalis, and (*h*) nonoperative divulsion of the pyloric sphincter.

The differential diagnosis between spasm and hypertrophic pyloric stenosis presents such hopeless difficulties that this fact alone may justifiably be adduced as proof that the two are merely phases of one condition. Until the present moment there has been no single sign that will permit of a differential diagnosis, not even a complete four hour gastric retention, diagnosis resting entirely on the clinical course.

The symptoms of pylorospasm with stenosis as usually given in textbooks are too well known to warrant more than a recapitulation: projectile vomiting, visible gastric peristalsis, constipation with starvation stools, rapid loss of weight and often pyloric tumor. A closer investigation will, however, reveal many of the symptoms previously referred to: pallor, lividity, loss of turgor, circumoral cyanosis with cold, clammy, cyanotic hands and feet, subnormal temperature unless obscured by the starvation temperature; spasm not only of the pylorus but also of the larynx, pharynx, esophagus, cardia and various portions of the intestine, and hypertonicity and spasm of the skeletal musculature even to the degree of opisthotonos, often presenting the classical picture of infantile tetany. The general rigidity is often so great that the infants can be raised by head or heels while the opposite extremity rests on a table without the body being bent.

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[2] Eppinger and Hess: Vagotonia, Nervous and Mental Diseases Monograph 20, Ed. 2, New York, Nervous and Mental Diseases Publishing Company.

[3] Haas, S. V.: The Atropine Treatment of Pylorospasm and Pyloric Stenosis, Arch. Pediat. **36**: 516 (Oct.) 1919.

[4] Ransohoff, J. L., and Wooley, P. G.: Operative Cure of Congenital Pyloric Stenosis; Thymic Death After Seven Months; Necropsy, J. A. M. A. **68**: 1543 (May 26) 1917.

[5] Herczel: Experimentelle und histologische Untersuchungen über compensatorische Muskelhypertrophie bei Darmstenosen, Ztschr. f. klin. Med. **11**, 1886.

[6] Patel: Lyon méd. **93**: 73.

[7] Diseases of the Intestines and Peritoneum, in Nothnagel's Encyclopedia of Practical Medicine, American edition, 1904, p. 312.

[8] Mosse: Centralbl. f. inn. Med., 1902, p. 281.

[9] Pfaundler: Wien. klin. Wchnschr., 1898, No. 45.

[10] Strauss, A. A.: Clinical Observations of Congenital Pyloric Stenosis, J. A. M. A. **71**: 810 (Sept. 7) 1918.

It is only necessary to recall a well known fact regarding the nervous system of the infant, to bring the entire picture into focus. This is that irritation of the infant nervous system produces an effect predominantly stimulating, the inhibiting effect being virtually absent.

TREATMENT

The treatment of this condition is the treatment of the individual infant. Atropin will overcome the underlying fault. But errors in diet and hygiene must also be corrected and all possible assistance rendered to the weakened organism. In every advanced case, saline solution should be used subcutaneously at frequent intervals until enough fluid can be taken by mouth to supply the body needs.

The atropin, to be effective, like digitalis, must be active. A fresh solution must be used. This means freshly prepared from the crystals, as deterioration in therapeutic efficiency is rapid when once in solution. Thus, in using a fresh preparation, 1 minim of a 1 : 1,000 solution has the effect not to be obtained by 5 minims of the same solution ten days later. In writing for a solution of 1 : 1,000, which is the strength recommended as lending itself best to easy manipulation, not more than 1 ounce should be ordered at a time, and the supply should be renewed, preferably at weekly intervals.

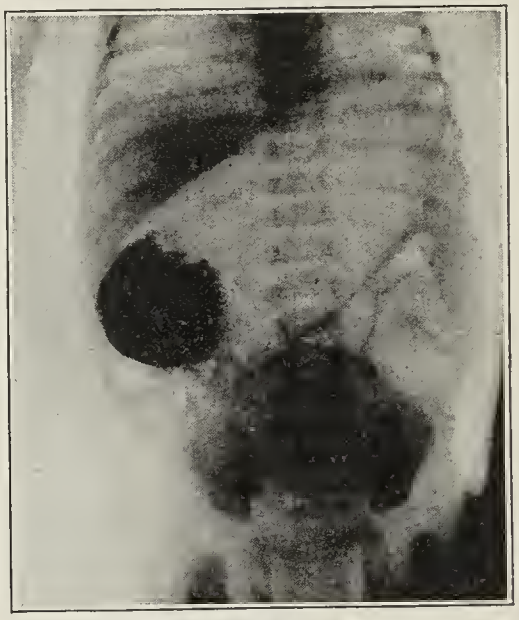

Fig. 3.—Four hours after the meal: no trace of the barium beyond the pylorus; complete obstruction of the pylorus.

The method of administration in the milder cases may be by mouth, the atropin to be put into the bottle, or, if the child is breast fed, in a teaspoonful of water before the feeding. In the more severe cases or after a barium meal given for roentgenologic examination, the hypodermic method is essential.

The dose, strangely enough, by the two routes is the same. The hypodermic administration need rarely be persisted in beyond the stage of the control of vomiting, after which the drug may be administered orally.

The dose to be used is variable and cannot be foretold. One one-thousandth grain with each feeding may suffice, or even one two-thousandth grain in rare instances, from this small dose to any maximum necessary to give relief or until the physiologic effect is obtained. The largest dose I have ever used was sixteen thousandths grain at each feeding (one-eighth grain [0.008 gm.] in twenty-four hours). Usually the result is obtained with half this dose or less.

Whenever a fresh supply of atropin is obtained, the first dose taken from the bottle should be a minimum one, regardless of what the previous supply of the drug had shown to be necessary to control the symptoms. When the strength has been tested, the previous dose is rapidly resumed. One drop of a 1 : 1,000 solution of atropin is given at the first feeding, increased by 1 drop in each succeeding or each alternate feeding as the exigencies of the case may demand until either the symptoms are relieved or flushing of the face occurs. On relief of symptoms the dose is maintained at this point, and rarely later requires to be increased unless the strength of the atropin solution is diminished.

The duration of treatment is also an individual matter. In some severe cases after two weeks it can be discontinued; in others it may be required for most of the first year. Usually, however, it is only a matter of a few months.

To know when it is no longer required it is only necessary gradually to reduce the dose or omit it from several feedings; if there is no recurrence of symptoms, the drug is no longer necessary. This should, however, not be tested until the infant has been doing well for some time.

Special points in the application of this treatment require mention. Occasionally, but exceedingly rarely, a child of this type is sensitive to atropin and requires at the beginning doses much smaller than $\frac{1}{1000}$ grain and much slower increase than previously advised. Among the hypertonic infants I have seen a few who were intolerant of the drug, and instead of obtaining a sedative effect, became excited by it, requiring its discontinuance. This I have never seen when pylorospasm existed, but possibly the number in which it has been used is too small to show it. I can offer no explanation for this, excepting perhaps that the disturbance lies on the sympathetic side of the autonomic system instead of the vagal.

Constipation, as previously mentioned, sometimes occurs as the result of a sigmoidorectal spasm. The omission of one, two or three doses of the drug usually results in an evacuation, when the atropin may be resumed as before, to be interrupted, perhaps, daily until the nervous system is in balance, which requires rarely more than a few days.

The type of child under discussion, although the physiologic effects as shown by the flushing, dryness, dilatation of pupils, rise of temperature, restlessness, and occasionally a mild delirium may occur, is practically immune to the harmful effects of atropin. I have now used this drug for more than six years in huge doses in many hundreds of cases, and know of several instances in which one teaspoonful of the 1 : 1,000 solution was used through ignorance, instead of 1 drop. I know of no case nor have I heard of one in which harm or death resulted. As a matter of fact, a few hours without the drug causes all toxic symptoms to disappear.

My experience with pylorospasm comprises more than forty cases, ranging from a mild spasm in which the projectile vomiting and failure to make progress were the chief symptoms, to cases of complete stenosis, in which the condition was so bad that death seemed imminent. One of these patients died suddenly during the night, although the vomiting had already been controlled. Another in my absence from the city refused to continue treatment, and was operated on with success by Dr. Downes.

With these exceptions, all recovered completely under atropin treatment, although at least 20 per cent. had been advised that operation would be required.

In comparing medical and surgical treatment in these cases it must not be supposed that all surgical statistics are so brilliant as those of the Babies' Hospital.[11]

It requires the perfect team work of pediatric, surgical and nursing staffs as it is found only in such an institution to produce comparable results.

There are, of course, statistics far more favorable than these, such as Strauss of Chicago presents, with a mortality under 5 per cent.; but to any one familiar with these cases as they run, it seems hardly possible that he refers to the same group as reported from the Babies' Hospital. On the other hand, the less favorable statistics which have recently come from England reported by H. Tyrrell Gray,[12] who operated on thirty-eight patients by the Rammstedt method with a mortality of 55 per cent., and when the weight was under 6½ pounds (3 kg.), a mortality of 69 per cent., show that surgery alone is not a panacea, and that surgical treatment cannot yet be said to be so efficacious that medical treatment, especially by atropin, should not be given preference in every case until it has been shown to be wthout benefit.

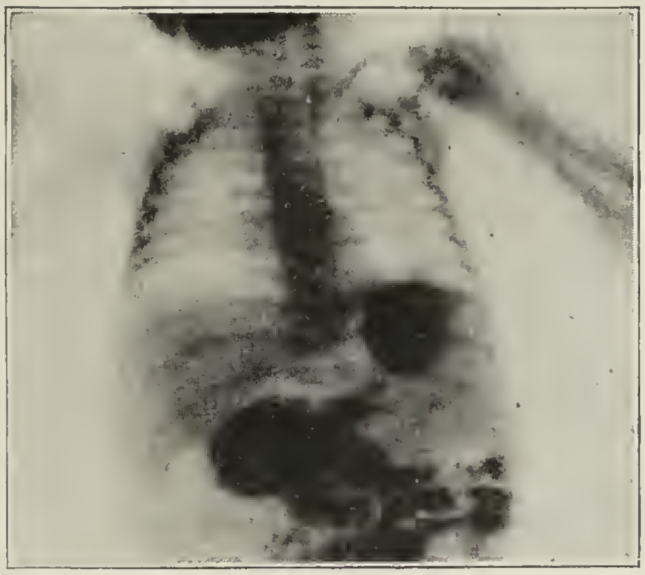

Fig. 4.—After atropinization: findings, October 29, after ingestion of the barium meal: normal emptying time of the stomach, and patent pylorus.

REPORT OF CASE

I report one case, although others paralleling it could be offered. This is presented because it was treated under the eyes of many observers and carefully watched and followed.

Ruth D., a girl, aged 4 weeks, was admitted to Mount Sinai Hospital in the service of Dr. Henry Heiman, Oct. 20, 1921. The chief complaint was vomiting and constipation, which began about three weeks before. The patient was a first child; labor was normal; the birth weight was 5½ pounds (2.5 kg.); the infant had been breast fed exclusively up to the time of admission. The weight on admission was 4 pounds, 9 ounces (2 kg.). The patient was dehydrated. There was no cyanosis or dyspnea. In the abdomen no mass was felt; there was slight distention, and visible peristalsis in the epigastrium. The hands were hyperextended and cone shaped; there was no tremor or twitching. The skin was clear, with loss of elasticity, and dehydration. The provisional diagnosis was: pyloric stenosis; tetany.

The foregoing, from the notes of the house staff on the admission of the patient, illustrates better than all else the statement that pylorospasm is only one part of a general picture, in this instance giving as well the picture of tetany, although electrical reactions later were negative for this condition.

Until October 25, nothing in the way of treatment was carried out excepting feeding, saline solution subcutaneously and a rectal drip for twenty-four hours. Roentgen-ray examination revealed that nothing had left the stomach after four hours. October 26, atropin was begun by mouth at 9 a. m., 5 drops of a 1:1,000 solution, to be increased 1 drop at each two hour feeding until vomiting was controlled. Vomiting stopped at 2 p. m. after 7 drops had been given. There was occasional vomiting until October 29, when another roentgenogram disclosed that the meal passed the pylorus readily in normal time. The first stool occurred, October 28.

Through a misunderstanding, the infant was receiving only the routine ward treatment, plus atropin. November 5, although the baby was having stools, it was vomiting a great deal and was in such desperately bad shape that it was transferred to the surgeons. On hearing of this I requested a twenty-four hour delay until hypodermic medication and such other measures as recommended themselves might be carried out. This was granted with the consent of Dr. Richard Lewisohn, who was to have operated. These recommendations consisted of administering the atropin hypodermically instead of by mouth, increasing the number of breast feedings, and diminishing the number of bottle feedings, discontinuing weighing before and after each feeding, discontinuing bathing and unnecessary handling, and raising the temperature of the room in which the baby was kept. The accompanying chart will show the result. November 22, the weight was 5 pounds, 9 ounces (2.5 kg.), a gain of 14 ounces (0.4 kg.) in seventeen days. December 10, the weight was 6 pounds, 7 ounces (2.9 kg.), a gain of 28 ounces (0.8 kg.) in thirty-five days. From December 13 to December 17 it suffered an attack of bronchopneumonia, and was discharged cured on Dec. 20, 1921. The weight was 6 pounds, 8 ounces (3 kg.); vomiting had ceased; 1/200 grain of atropin was given twice daily. April 18, 1922, at the age of 7 months, the weight was 13 pounds, 2 ounces (6 kg.). There was no vomiting; the child was normal in every way. Atropin was discontinued when the child left the hospital.

SUMMARY

1. Uncertainty of etiology is the cause of differences in treatment.
2. Medical treatment was formerly practiced until the success of the Rammstedt operation caused surgery to be advocated exclusively.
3. To see and feel a pyloric tumor, with complete stenosis, and observe its histologic picture of hypertrophy of muscle fibers makes credence of any other view difficult.
4. The problem is nevertheless a medical one, and atropin is practically a specific.
5. Pyloric stenosis is only an advanced degree of pylorospasm.
6. It is only a single manifestation of a general hypertonic state whose etiologic factor is an overaction of the vagus portion of the autonomic nervous system. There is usually a hyperexcitability of all motor functions.
7. This condition has been variously described as the hypertonic infant, myotonia, myotonia spastica perstans, arthrogryposis, essential contractures, pseudotetanus, tetanoid conditions, infantile tetany, spasmophilia and vagotonia.
8. Experimental work supports this point of view.
9. Further support is found in reports of cure by other than surgical methods.
10. Differential diagnosis between pylorospasm and pyloric stenosis is practically impossible.

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[11] In 163 operative cases reported by Goldbloom and Spence (Am. J. Dis. Child. **19**: 263 [April] 1920), the mortality was 19.63 per cent.

[12] Gray, H. T.: Brit. M. J. **2**: 891 (Nov. 26) 1921.

11. The symptoms of pyloric stenosis are projectile vomiting, visible peristalsis, constipation, starvation stools, rapid loss of weight and pyloric tumor.

12. Closer observation will reveal, as well, pallor; lividity; loss of turgor; circumoral cyanosis; cold, clammy, cyanotic hands and feet; subnormal temperature, unless obscured by starvation elevation, and spasm not only of the pylorus but often of the larynx, pharynx, esophagus, cardia, and various portions of the intestine. There is also hypertonicity of the skeletal musculature.

13. Irritation of the infant nervous system produces an effect predominantly stimulating. An inhibiting effect is virtually absent.

14. In the treatment, certain points should be observed:

(*a*) Errors in diet or hygiene must be corrected.

(*b*) In every advanced case, saline solution should be given subcutaneously at frequent intervals until enough fluid can be taken by mouth to supply body needs.

(*c*) Atropin, like digitalis, must be active, that is, it must be freshly prepared from the crystals. Once in solution, deterioration is rapid.

(*d*) In the milder cases, the drug may be given by mouth, in the bottle, or, if the patient is breast fed, in a teaspoonful of water before feeding.

(*e*) In the severe cases, the drug should be administered hypodermically until vomiting is controlled.

(*f*) The dose is variable, 1/1000 grain (or even 1/2000 grain, in rare instances) at each feeding to a maximum which either controls symptoms or produces the physiologic effect, i. e., flushing, etc. The largest dose used was 16/1000 grain at each feeding, or 1/8 grain in twenty-four hours. Beginning with 1/1000 grain, one should increase the amount at each feeding until the result is obtained, when the dose becomes fixed.

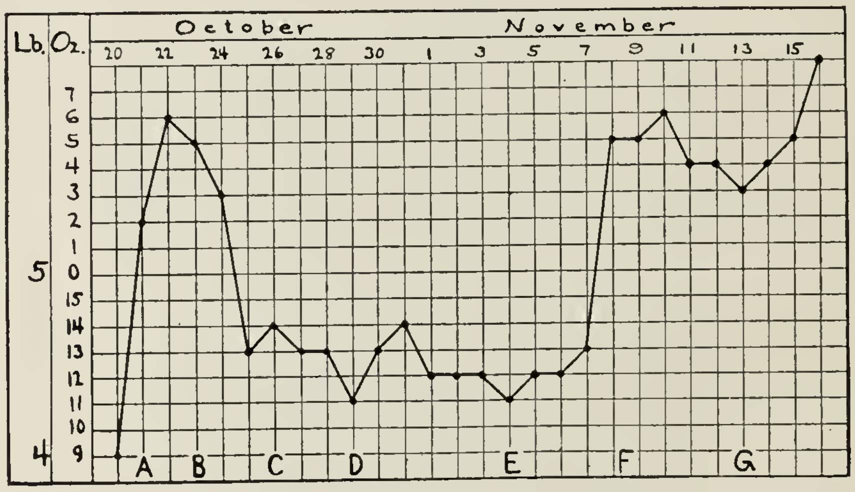

Fig. 5.—Weight curve: *A,* administration of saline solution subcutaneously; *B,* subcutaneous saline stopped; *C,* first three roentgenograms made, after which atropin was begun by mouth; *D,* roentgen ray; *E,* transferred for operation; atropin hypodermically; *F,* obstipation relieved by omission of atropin; *G,* loss due to vomiting when atropin was omitted.

(*g*) Treatment may need to be given only a few weeks, or may be required most of the first year.

(*h*) There are rare cases in which much smaller doses are required to begin with.

15. Occasionally, constipation with severe rectal tenesmus results. The omission of a few doses of atropin relieves this.

16. Infants of this type are practically immune to the harmful effects of atropin.

17. This paper is based on an experience of more than forty cases ranging from a mild spasm to complete stenosis. One of the patients died suddenly; another discontinued treatment and was successfully operated on. The others recovered under atropin treatment, although at least 20 per cent. had been advised that operation would be required.

18. In an illustrative case of so-called congenital pyloric stenosis with complete obstruction, the patient was cured by atropin.

19. Hypertrophic pyloric stenosis is a symptom of the hypertonic infant. It is only an advanced degree of pylorospasm. Most, if not all, cases can be cured by sufficient doses of atropin correctly administered.

666 West End Avenue.

SICKLE CELL ANEMIA

V. R. MASON, M.D.
LOS ANGELES

Recent medical literature contains the records of three patients, all negroes, or negroes with an admixture of Caucasian blood, in whom severe anemia, characterized by certain peculiar morphologic alterations of the red blood cells, was present. The first case was reported by Herrick.[1] Washburn [2] published the records of a patient whose blood showed similar changes, and Cook and Meyer [3] reported the third example of this rare type of anemia.

REPORT OF CASE

The following record is presented in some detail on account of the rarity of the disease:

History.—C. P., a negro, aged 21, was admitted to the Johns Hopkins Hospital, March 15, 1915, complaining of general weakness. The family history was fragmentary, and no evidence was adduced to indicate that any other member of the family had suffered from symptoms similar to his. The patient was born in Virginia and had never been farther than one of the contiguous states. He stated that, as far back as he could remember, he had been weak and sickly and unable to work or play as hard as other persons of his age. He had frequent attacks of tonsillitis during childhood, and gave a history of measles, pertussis, diphtheria and typhoid fever. He denied venereal infection. His present illness began about ten days before admission, with swelling of the ankles, increased thirst and frequent urination, and he stated that during this period he had lost about 40 pounds (18 kg.) in weight.

Physical Examination.—The patient was slender, and very black. There was no axillary hair, and the beard and pubic hair were scanty. There was marked pitting edema of both ankles. The epitrochlear glands were palpable, and there was slight general glandular enlargement. The tonsils and adenoids were moderately enlarged. The sclerae were pale and had a peculiar greenish hue. The mucous membranes were pale. The lingual papillae were not atrophic. There was slight dulness at the right pulmonary apex, but there were no râles. A roentgenogram revealed slight infiltration of the right upper pulmonary lobe. The cardiac impulse was forcible. Cardiac dulness extended 12 cm. to the left, and 4 cm. to the right, of the midsternal line. A loud systolic murmur was present at apex and base. The pulmonic second sound was accentuated. The radial arteries were easily palpable. The blood pressure was 105 systolic and 70 diastolic, according to the Tycos sphygmomanometer. The abdomen was slightly distended. The liver edge was felt 9 cm. below the costal margin in the right mammillary line. It was smooth and slightly tender. The spleen was not felt, and splenic dulness was not increased. The genitalia were normal. The tendon reflexes were active.

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[1] Herrick, J. B.: Peculiar Elongated and Sickle-Shaped Red Blood Corpuscles in a Case of Severe Anemia, Arch. Int. Med. **6**: 517 (Nov.) 1910.

[2] Washburn, R. E.: Peculiar Elongated and Sickle-Shaped Red Blood Corpuscles in a Case of Severe Anemia, Virginia M. Semi-Month. **15**: 490, 1911.

[3] Cook, J. E., and Meyer, J.: Severe Anemia with Remarkable Elongated and Sickle-Shaped Red Blood Cells and Chronic Leg Ulcers, Arch. Int. Med. **16**: 644 (Oct.) 1915.

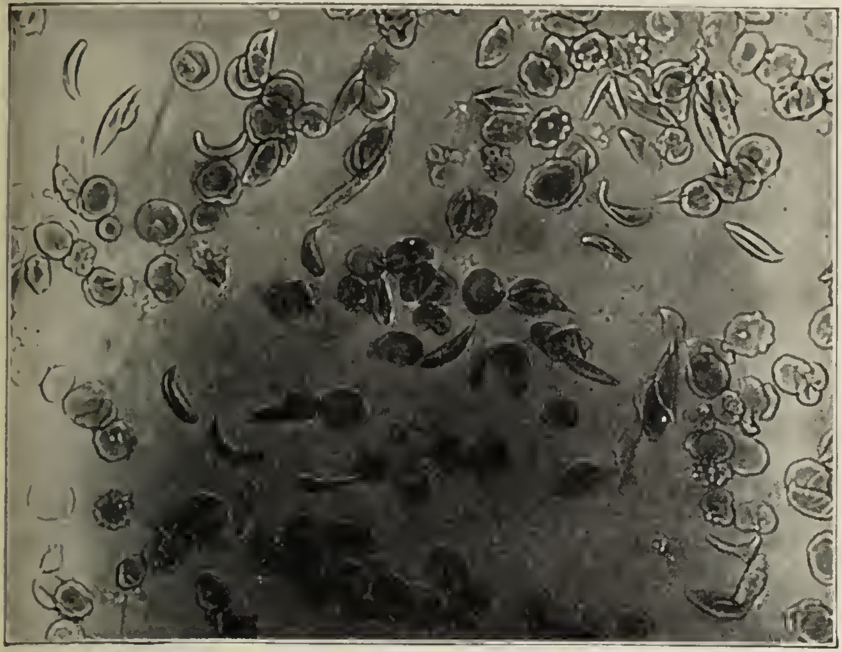

Fig. 1.—Unstained film of blood (high dry).

TABLE 1.—RESULTS OF BLOOD EXAMINATIONS IN CASE REPORTED

					Differential White Blood Count, per Cent.							Nucleated R. B. C. in Counting 250 W. B. C.	
					Polymorphonuclears								
Date	R. B. C., Million per Cubic Millimeter	W. B. C. per Cubic Millimeter	Hemoglobin, per Cent.	Color Index	Neutrophils	Eosinophils	Basophils	Small Mononuclears	Large Mononuclears	Transitionals	Myelocytes	Normoblasts	Megaloblasts
5/ 3/15	2.46	20,700	39	0.8	77.2	0.4	0.8	15.6	4.4	0.8	0.0	8	0
5/17/15	1.95	19.000	40	1.0	59.3	1.0	0.3	23.3	6.7	2.0	7.4	0	0
3/30/16	2.12	14,200	48	1.1	50.0	0.0	2.0	31.2	5.6	3.6	4.8	72	0
4/ 4/16	2.32	12,400	50	1.1	57.5	0.0	0.0	25.0	7.5	1.5	6.0	0	0
4/28/16	2.75	12.600	58	1.0	58.6	1.0	2.0	27.6	4.3	2.0	4.3	3	0
5/15/16	1.96	20,400	48	1.2	41.2	2.0	0.3	52.6	2.0	0.3	1.3	305	4

Course Under Observation.—The patient was observed at intervals for nearly two years. The pallor, muscular weakness and edema of the ankles were present constantly. The urine was of low specific gravity, and contained a trace of albumin on each examination. On one occasion, the albumin amounted to 1 gm. per liter, measured by the Esbach albuminometer, and there were numerous hyaline casts. The phenolsulphonephthalein excretion, however, was 72 per cent. in two hours, and the blood urea nitrogen was 6 mg. per hundred cubic centimeters. In March, 1916, the patient was readmitted to the hospital complaining of headache, pain in the upper abdomen and jaundice. He stated that he had had several similar attacks during the last few years. There was marked rigidity and considerable tenderness of the right upper abdomen, and fever to 103 F. The sclerae were yellow, and the urine contained bile. These symptoms subsided in about a week, and the patient was discharged from the hospital. He returned for observation in July, 1916. He had developed deep, "punched out" leg ulcers on both ankles; otherwise his condition was unchanged.

Laboratory Examinations.—The Wassermann reaction was negative with serum on several occasions. Blood cultures taken during the febrile and the afebrile periods remained sterile.

The urinary findings of importance have been given. No parasites or ova were found in blood, urine or stools after repeated searching.

The blood was examined on many occasions, and the results have been summarized in Table 1. Fresh smears demonstrated a moderate leukocytosis without increase of the eosinophils. The blood platelets were not diminished in number.

The red blood cells were reduced in number, and there was marked anisocytosis and poikilocytosis. The characteristic alteration of the blood was marked secondary anemia with a large number of sickle-shaped and oat-shaped and elliptical erythrocytes (Figs. 1 and 2). Each red blood cell contained a normal amount of hemoglobin. By means of a specimen of blood stained by a Romanowsky dye, these changes of morphology were brought out more clearly. An occasional myelocyte and a few nucleated red blood cells were present. Erythrocytes showing diffuse or punctate basophilia were frequently encountered. A differential count of the red blood cells was made, and they were classified as accurately as possible according to shape and size (Table 2). About 25 per cent. of the erythrocytes showed a granuloreticulofilamentous structure when vitally stained with brilliant cresyl blue. The fragility of the unwashed red blood cells was determined by means of solutions of sodium chlorid, of various concentration. Hemolysis began at 0.3 per cent. and was complete at 0.18 per cent. sodium chlorid solution. Differential counts of the unhemolyzed red cells remaining in the tubes of this test demonstrated that the sickle-shaped and oat-shaped cells were more resistant than the more normal erythrocytes. The clotting time of the blood, according to Howell's method, was five minutes and twenty seconds. The blood belonged to Group II, by the Moss classification.

TABLE 2.—DIFFERENTIAL COUNT OF RED BLOOD CELLS IN CASE REPORTED

Cells	Per Cent.
Approximately normal	50.4
Sickle-shaped	3.4
Oat-shaped	14.0
Macrocytes, diameter greater than 10 microns	11.0
Microcytes, diameter less than 6 microns	6.8
Irregular and misshapen	14.4

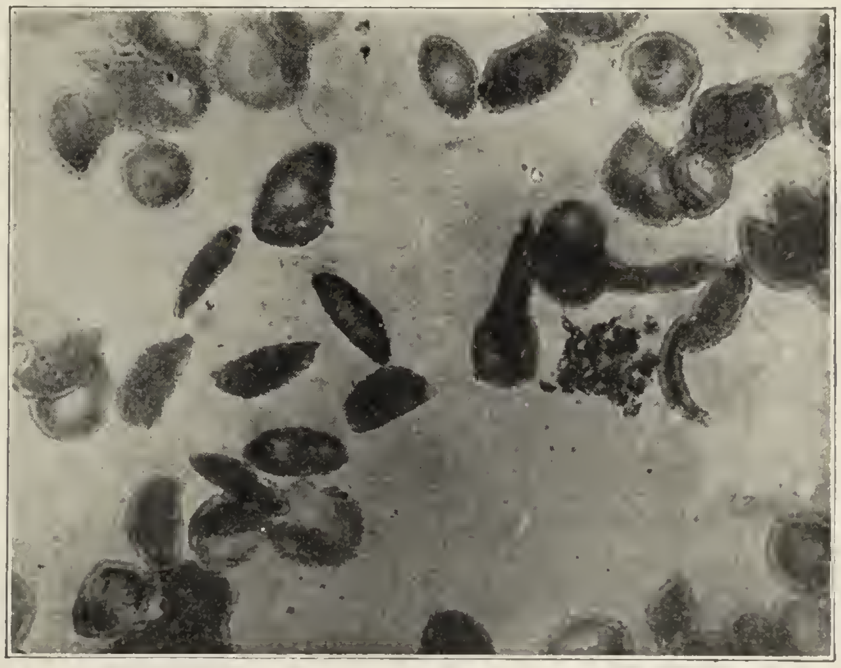

Fig. 2.—Stained film of blood (oil immersion).

COMMENT

The striking feature of the recorded cases is that all four patients were either negroes or mulattoes. Data concerning two are not definite, although they were described as negroes. Of the remaining patients, one was a mulatto and the other a negro without admixture of Caucasian blood. All were less than 30 years of age when the peculiar anemia was first discovered. They were equally divided as to sex. Two were born in Virginia and had never been farther than one of the contiguous states. One had recently come to the United States from the West Indies, and one had never left the immediate vicinity of St. Louis.

The cause of the peculiar type of anemia from which these patients suffered is not known, although a considerable amount of suggestive evidence has been obtained from clinical and experimental investigations. Studies of the blood have thus far failed to reveal the presence of any parasites, and the urine and feces of the patients have been free from metazoan parasites or their ova. Syphilis has also been excluded, as nearly as possible, as a causative factor, by means of the negative histories of the patients and the results of the Wassermann reactions with their serums. No patient gave a history of hemorrhages from any of the mucous surfaces, and no one dated his present symptoms from a previous illness. In each instance, however, the patient stated that he had been weak and unable to work hard as far back as he could remember.

TABLE 3.—RESULTS OF BLOOD EXAMINATIONS OF ALL OTHER CASES REPORTED

Reported by	Date	Red Blood Count, Million per Cubic Millimeter	White Blood Cells per Cubic Millimeter	Hemoglobin, per Cent.	Color Index	Differential Leukocyte Count, per Cent.: Polymorphonuclears: Neutrophils	Eosinophils	Basophils	Small Mononuclears	Large Mononuclears	Transitionals	Nucleated R. B. C.
Herrick	1904	2.8	15,250	50	0.9	72	5	0	15	7	0	Present
	1906	2.7	30.500	55	1.0	58	7	0	22	12	0	
Washburn	April, 1909	2.0	11.000	50	1.2	63	4	6	25	2	0	
	Sept., 1909	2.4	8,140	51	1.0	64	4	0	27	3	2	Present
	Jan., 1911	2.5	12,400	48	0.9	63	3	2	24	5	1	Present
Cook and Meyer	Nov., 1914	2.0	10,560	43	1.0	58.4	12.6	0.6	17.8	10.6	0	32 while counting W. B. C.
	Nov., 1914	2.2	10.320	45	1.0	37.5	26	3	30.5	3	0	
	Jan., 1915	2.9	14,200	53	0.9	55	12	2	23	8	0	Present

Washburn's patient first developed leg ulcers at the age of five years, and it is probable, therefore, that she had anemia at that time. The family physician of the patient reported by Cook and Meyer stated that each of her brothers and sisters had died in early life of a disease associated with a grave anemia. Emmel[4] made careful studies of the blood of that patient and, in addition to the demonstration of evidences of phagocytosis of erythrocytes in the peripheral blood, he pointed out the interesting circumstance that many of the normal-shaped red blood cells became elliptical or elongated when allowed to remain in physiologic sodium chlorid solution at room temperature. Furthermore, he showed that the erythrocytes of the blood of the patient's father, although apparently normal in other respects, underwent similar changes when subjected to the same experimental conditions. These results have not been confirmed and, therefore, must be evaluated with caution. Nevertheless, they do point to an hereditary or congenital anomaly as the factor of importance in the development of the disease, and this assumption is supported by the history of disability in early life, by the occurrence of the disease only in negroes, and by the reports of Dresbach[5] and Bishop[6] of otherwise healthy, and presumably normal persons whose red blood cells were elliptical. Since two of those persons were brother and sister, it is reasonably certain that the anomaly was congenital.

The symptoms of the malady have been very similar in all the reported cases, and may be very briefly described. The patients all complained of weakness and poor health since early childhood. All had swelling of the ankles associated with leg ulcers probably dependent on the chronic anemia. Two patients had had repeated attacks of abdominal pain associated with fever and jaundice; these symptoms were relieved in one instance by the removal of a number of gallstones.

Physical examination revealed a few abnormalities of some interest. The sclerae were of a peculiar greenish color in three of the reported cases. Two patients had a slight general glandular enlargement with scanty pubic and axillary hair. The spleen was not recorded as palpable in any instance, a fact of considerable importance in differential diagnosis. Otherwise the physical signs were those usually encountered in patients with a severe, long-continued anemia.

The abnormalities of the blood are of particular interest and of the greatest importance in the diagnosis of the disease (Tables 1 and 3). There was a marked anemia with a color index near unity. The red blood cells numbered from 2,000,000 to 3,000,000, and the leukocytes from 12,000 to 25,000, per cubic millimeter The platelets were not thought to be diminished in number, although no counts were made. The blood of two patients showed a slight relative and a marked absolute eosinophilia. A small number of nucleated red cells and an occasional myelocyte were present in every film examined. A few red blood cells showed diffuse or punctate basophilia when the film was stained with a Romanowsky dye. A large number of erythrocytes could be vitally stained with brilliant cresyl blue There was no increase or decrease of fragility of the red cells, and the clotting time of the blood was normal

The clinical features and the morphologic alterations of the red blood cells are so characteristic that differential diagnosis was not difficult in the reported cases The blood picture does not resemble that seen in any o the more common anemias, and it is possible that th disease represents a clinical entity. If that is true, it is of particular interest that up to the present the malady has been seen only in the negro, and, so far as could be ascertained, it is the only disease peculiar to that race.

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4. Emmel, V. E.: A Study of the Erythrocytes in a Case of Severe Anemia with Elongated and Sickle-Shaped Red Blood Corpuscles, Arch. Int. Med. **20**: 586 (Oct.) 1917.

5. Dresbach, Melvin, quoted by Bishop, F. W.: Elliptical Huma Erythrocytes, Arch. Int. Med. **14**: 388 (Sept.) 1914.

6. Bishop, F. W. (Footnote 5).

A SIMPLE NONOPERATIVE METHOD OF TREATING GASTRIC ULCER

PRELIMINARY REPORT

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In discussing the treatment of gastric ulcer, Moynihan[1] says: "The present medical treatment is wofully inefficient. Medical treatment, if properly carried out for a prolonged period, should enable an ulcer to heal. The need for surgical procedure is a confession that such treatment is unattainable or has failed." This statement expresses the view generally held concerning the present treatment of gastric ulcer, and gains particular significance when we consider its source.

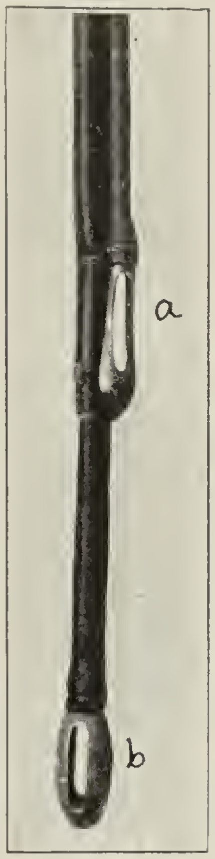

Fig. 1.—Tips of duodenal tubes: *a*, Lyons tip with side channel; *b*, Rehfuss tip.

The chief hindrances in the healing of a stomach ulcer are: (1) the direct irritation caused by the chemism of the gastric juice, as well as by the food which enters the stomach; and (2) the indirect irritation which manifests itself in increased peristalsis or hypermotility. It is reasonable to suppose that the ulcer would ultimately heal if these obstacles were overcome, i. e., if the gastric juice was not merely modified, but entirely removed, and food was prevented from entering the stomach for a sufficient period of time. The withholding of food is a relatively simple matter, and rectal alimentation is of great assistance in this respect. The rest is easily accomplished by the application of a simple nonoperative expedient, namely, continuous irrigation. This is the basis of the method to be described. Other details of technic and procedure have been added to make the method accurate, scientific and, at the same time, practical.

APPARATUS REQUIRED

The apparatus is the same in principle as that employed in the continuous irrigation of the chest after thoracotomy for empyema. The inflow and return circuit is maintained through two suitably adapted duodenal tubes. The apparatus consists of: a standard irrigating stand with four hooks, placed radially (preferably at right angles) and at different levels; two narrow-necked irrigating bottles, each of from ½ to 1 gallon capacity, fitted with a side spout, and rubber stoppers, each with a single perforation, provided for the neck and side spout; one double irrigating bottle holder, and two single irrigating bottle holders; one irrigating bottle (700 c.c. capacity) graduated with an outlet at the bottom (Carrel-Dakin type); one wide-necked bottle, of from 1 to 2 gallon capacity, fitted with a rubber stopper with three perforations; one glass or hard rubber T-tube (3/16 inch bore); one Y-shaped (glass or metal) two-way stopcock;[2] two spring pinchcocks; two L-shaped glass tubes (3/16 inch bore); two U-shaped glass tubes (3/16 inch bore); one straight glass tube about 4 inches long (3/16 inch bore); two glass connecting tubes (3/16 inch bore); one glass syringe (from 2 to 4 ounce capacity); one glass funnel (from 4 to 6 ounce capacity); rubber tubing (¼ inch bore), and two duodenal tubes.

The duodenal tubes in the present arrangement[3] constitute the intrastomachic irrigating system. One of the tubes is fitted with a Rehfuss tip, and the other is fitted with a modified Lyons tip. The modification consists in the removal of a lateral sector from the tip, so that it has a concave channel on one side. As is shown in the diagram (Fig. 1), the Rehfuss tip is placed from 2½ to 3 inches in advance of the other, which, by virtue of its side channel, is fitted snugly over the rubber tubing of the Rehfuss tube. The channeled tip is fastened firmly against the rubber tubing by means of threads of surgical silk. The rubber tubes connecting with the metal tips are placed parallel and are held together by loops of silk thread.

SOLUTIONS REQUIRED

The solutions required are: a saturated solution of Congo-red, a 0.25 per cent. solution of colloidal iron,[4] and distilled water.

ASSEMBLY OF APPARATUS

Figure 3 shows the apparatus as it appears when completely assembled at the bedside.

The double irrigating bottle holder (*H-1*) is suspended from the top hook of the stand. One end of the cross arm holds the large irrigating bottle *A*, and the other arm, the smaller irrigating flask *B*. Bottles *C* and *D* are suspended from the second and third hooks, respectively, by means of metal holders. Rubber stoppers, each with one perforation, are fitted into the neck and side spout of bottles *A* and *C*; bottle *D* is corked with a rubber stopper having three perforations, in two of which straight glass tubes are placed, and the stem of a T-shaped tube passes through the third perforation.

One arm of an inverted U-tube is placed in the stopper of bottle *A*; rubber tubing (*K-1*), provided with a pinchcock (*PC-1*), connects the other arm of the U-tube with one of the straight glass tubes projecting from the stopper of bottle *D*. The side spout of bottle *A* is fitted with a perforated stopper through which passes one arm of an L-tube (*L-1*). A piece of tubing 6 inches long is attached at one end to flask *B* (*K-2*), and at the other, to one arm of a Y-shaped two-way stopcock (*2-WSC*). A short piece of tubing also connects the other arm of the stopcock with the side spout of *A*. Thus the two arms of the Y-shaped stopcock join bottles *A* and *B*. A long piece of tubing (*K-3*) is fastened to the stem of the two-way stopcock. It ultimately connects with one of the duodenal tubes, forming the inflow channel of the irrigating system.

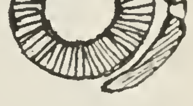

Fig. 2.—Cross-section of rubber tube and channeled tip, showing their close position.

One arm of an inverted U-tube (*U-2*) is fitted into the stopper in the neck of bottle *C*. Rubber tubing (*K-4*) connects the other arm of this U-tube with the second straight glass tube in bottle *D*. The side spout of bottle *C* is fitted with a rubber stopper carrying one arm of an L-tube (*L-2*); to the other arm, a long piece of tubing is attached (*K-5*), the free end of which reaches well into a bucket resting on the floor. This tube is provided with a metal or hard rubber pinchcock (*P C-2*) and serves to convey the water from the exhaust bottle *C*. The stem of the T-tube in bottle *D* passes through the rubber stopper, and attached to one of its arms, which is provided with a metal pinchcock (*P C-3*), is a short piece of rubber tubing (*K-6*). To the other arm, a long piece of rubber tubing (*K-7*) is attached. The latter tube connects ultimately with the second duodenal tube and constitutes the drain or return-flow channel of the irrigating system.

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[1] Moynihan, B.: Treatment of Gastric Ulcer, Lancet **1**: 267-271 (Feb. 11) 1922.

[2] In place of the two-way stopcock, a Y-shaped tube (glass or hard rubber) with two extra screw pinchcocks may be used.

[3] Modifications are being made in order to produce a more finished instrument.

[4] The colloidal iron employed is a solution of dialyzed basic ferric oxychlorid. It appears on the market as a 5 per cent. solution. The preparation used is that of Pfanstiehl, obtained from the Special Chemicals Company, Highland Park, Ill.

METHOD OF TREATMENT

The patient is put to bed with his head and shoulders resting on two pillows. The joined duodenal tubes, which have been previously chilled, are then swallowed and left in place for a period of about ten to fifteen minutes. The depth to which the tube is permitted to enter is dependent on the information derived from a previous fluoroscopic examination. Never should the distal portion of the tube be nearer than from 1 to 1½ inches to the pyloric ring.

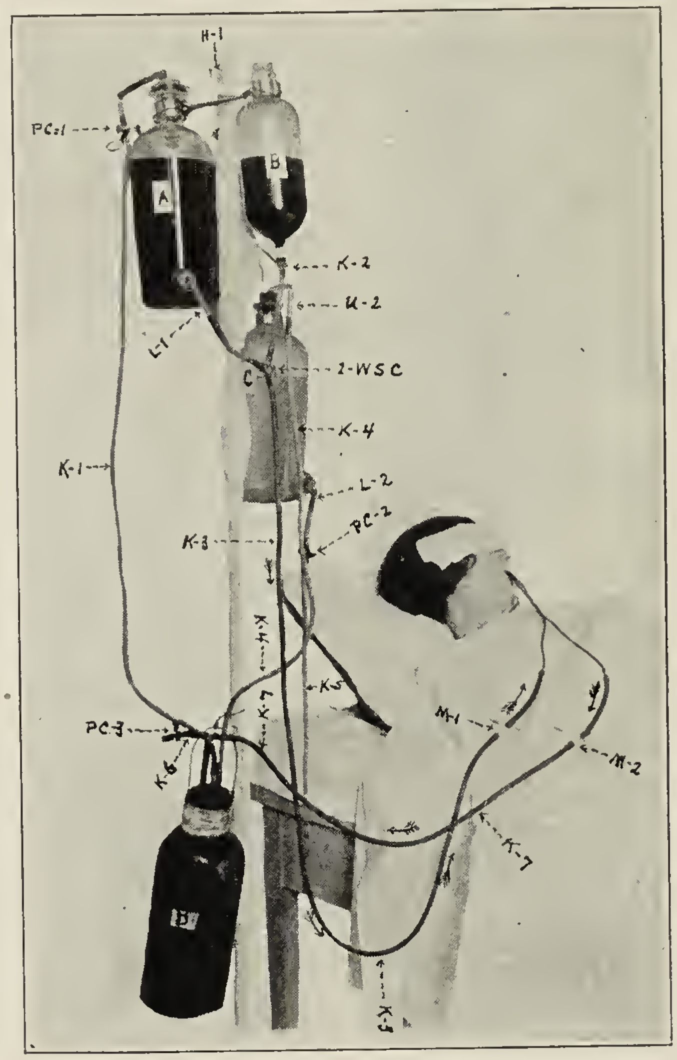

Fig. 3.—Apparatus assembled at bedside.

The distilled water is first warmed to body temperature or even a little higher, then colored with the saturated solution of Congo-red (1 c.c. to the gallon), and poured into bottle *A*. This constitutes the irrigating fluid. Distilled water is used to reduce the stimulating effect of the fluid on the gastric mucosa to a minimum. The Congo-red added to it serves as an indicator of the presence of hydrochloric acid in the stomach, which manifests itself by the blue coloration of the return fluid. Flask *B* is filled up to the zero mark with a 0.25 per cent. colloidal iron solution. The method of its use will be indicated later. It serves the purpose of a styptic and mild astringent; moreover, by its precipitating action, it removes all the mucus which adheres to the gastric mucosa, as well as the peptic ferments. Bottle *C* (exhaust bottle) is filled to the neck with tap water.

The various stoppers are then fitted into their proper places. The ends of the rubber tubes *K-3* and *K-7*, inflow and outflow, are joined to the loose ends of the two duodenal catheters by means of glass connecting tubes. These two connecting tubes are fastened with safety pins (*M-1* and *M-2*) to the sheet or coverlet alongside the patient, so that they may be plainly in view. Through these glass tubes, the color as well as the course of the inflow and outflow of the irrigating fluid can be observed.

To start the irrigation, the two-way stopcock (*2-W S C*) is turned so as to permit the flow from bottle *A*. By opening the pinchcock (*P C-3*) at the loose end of the T-tube in bottle *D*, the flow into the stomach is facilitated, and any gas or air present is permitted to escape. After from 500 to 600 c.c. of the colored distilled water has entered the stomach, the pinchcock (*P C-3*), just referred to, is closed. The stopcock (*P C-2*) is now opened to permit the water to flow from bottle *C*. This creates a partial vacuum in *D* (vacuum drain), which in turn causes suction in the return duodenal tube, bringing about a flow from the stomach. Bottle *D* serves as a receptacle for the return fluid.[5]

As long as hydrochloric acid is present in the stomach, the return flow will remain colored blue. The irrigation should be continued until the return fluid is of the same color as the irrigating fluid. If solid particles are seen to be present in the return fluid after all the acid has been removed, the irrigation should be continued until they are no longer present.[6] The inflow is then stopped; but the suction is continued until all the irrigating fluid has been removed from the stomach. Fifty cubic centimeters of the colloidal iron solution is then allowed to flow into the stomach, and permitted to remain there. The duodenal tubes are then withdrawn and the treatment is complete. The patient is permitted to rest for two hours. The colloidal iron is given for the first three days only, or longer in cases in which no food is given by mouth. In the two hour interval between treatments, a 5 per cent. glucose solution is administered by the rectal drip method.

Each period of irrigation, followed by the instillation of colloidal iron, constitutes a treatment. The number of treatments which it is possible to carry out in the course of a day is somewhat variable, and depends on a number of circumstances: (1) the expertness of the attendant in the necessary technic; (2) the ease with which the patient takes the tubes and retains them in situ; (3) the quantity of mucus and débris to be removed from the stomach, including bile regurgitated into the stomach; (4) the rate and quantity of gastric secretion, and (5) the comfort and physical endurance of the patient. From the experience thus far gained, the number of treatments need not exceed four, but, for proper efficacy, no less than two should be given daily. That total duration of the treatment is from two to three weeks. In the first week, the maximum number of irrigations are given. Subsequently, the number is gradually reduced, and so timed as to fit in with the feeding of the patient.

FEEDING OF THE PATIENT

No food is given by mouth for the first three days. On the fourth and fifth days, one ounce of equal parts of milk and cream, warmed to body temperature or slightly above, is given one hour after each stomach rrigation. On the sixth day, 2 ounces of the milk and cream mixture is given. As soon as the irrigations are reduced in number, the number of feedings is ncreased. Farina and strained oatmeal gruel are added; on the seventh day one egg, boiled for one minute, is added. On the eighth day, a second egg is added, and the quantity of gruel is increased from to 4 ounces. On the ninth day, a third egg is added. On the tenth day, 50 gm. of scraped beef and three well buttered pieces of zwieback, divided into three portions, are added. The allowance of milk and cream s doubled. On the eleventh day, 75 gm. of chicken is ubstituted for the beef. The gruel is increased to ounces. Subsequent feeding depends on indications. Rectal instillations are continued throughout, the quanity being reduced as feeding by mouth is increased.

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[5] Occasionally shreds of mucus or food débris will obstruct th fenestrae in the metal tips of the return tube, and thus interfere wit the return flow. The tube should then be disconnected at *M-2* and th glass hand syringe should be employed to clear the channel. Th obstruction is usually removed by alternately forcing some fluid throug the tube and withdrawing it.

[6] In cases of gastric ulcer associated with anacidity, the Congo-re is of no special advantage and the irrigation should be continued a long as mucus and débris are present in the return fluid.

It may be necessary, in certain cases, to withhold ood from the stomach longer than indicated above. In uch cases, duodenal feeding may be resorted to. This s readily accomplished by permitting the forward irrigating tube to pass down to the duodenum, after first emoving all the fluid from the stomach.

Thus far, the plan of treatment outlined above has been followed by the late Dr. E. A. Aronson and nyself in seven cases selected from his private practice. Among these were four cases of gastric ulcer, one case of pyloric ulcer with pylorospasm and marked food etention, one case of duodenal ulcer, and one case of gastrojejunal ulcer. A detailed analysis of these cases will appear in a future report. For the present, it may be stated that the relief which the patients have obtained by this method of treatment has been very triking. Whether the results thus obtained will prove o be permanent requires further observation; but they have been sufficiently promising to warrant this preliminary communication.

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CLASSIFICATION OF CONGENITAL CLEFTS OF THE LIP AND PALATE

WITH A SUGGESTION FOR RECORDING THESE CASES *

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The group plan for the description, discussion and recording of cases of congenital cleft of the lip and palate has recently received considerable attention from hose especially interested in the subject; but we believe hat it is of so much importance that it should be advocated more strongly if its general adoption is anticipated. The growth of the plan has been gradual, uggestions being received here and there from our ssociates, and particularly from the late Dr. H. M. herman of San Francisco, whose definitions of the roups are so exact in wording and direct in form that e believe they will, with slight simplification, become he most important feature of the scheme.

It is now generally accepted, by those who have given thought to the matter, that the term "harelip" should be discarded, and that the deformity thus named should be called "congenital cleft of the lip." Analysis of the word "harelip" reveals that its use has no foundation except as a simile. Embryologically considered, all congenital clefts of the lip and palate are the result of failure in the same process of union and, therefore, should be considered under this heading. When this point of view is taken, it becomes possible to classify the clefts on a surgical basis, according to the general procedure required for the repair of a given case.

The entire medical profession is interested in these clefts, because, sooner or later, patients with this deformity will come under the observation of nearly every one.

So far, there have been no generally accepted standard terms for describing congenital clefts of the lip and palate, and, in consequence, it is often difficult to understand the descriptions in some of the numerous articles written on the subject. One author may use a set of terms to describe certain of these conditions, while another may use the same terms to describe those conditions which are surgically different. Then again an author may have a set of terms which, it appears on investigation, he alone uses, and the reader may have to depend on the illustrations to find what is really meant by the text. In fact, the terminology is considerably confused; and, in a review of a number of classifications, we have not found one which we consider so rational as that which we shall present.

CLASSIFICATION

The object of this communication is to propose a simple classification for congenital clefts of the lip and palate, which is based upon the proposition agreed to by us, namely, that *the alveolar process forms the foundation for a surgical grouping.*

Accepting this as a logical basis, Dr. Sherman suggested the following terms for grouping these clefts: Group I, prealveolar cleft; Group II, postalveolar cleft; Group III, unilateral alveolar cleft, and Group IV, bilateral alveolar cleft.

In reviewing these terms we have agreed that there are two objections to them: First, the terms as they stand are incomplete; therefore, the word "process" should be included to make them exact. Second, the terms "unilateral" and "bilateral" may well be applied to Group I, and, therefore, cannot be used primarily in one instance and not in another. In meeting these objections we have revised and combined the terms into three groups: Group I, prealveolar (process) cleft; Group II, postalveolar (process) cleft, and, Group III, alveolar (process) cleft.

Furthermore, the group terms, while self-explanatory as they stand, do not give sufficient detail to be practicable in describing these cases, since, while each group usually occurs alone, it may be present in combination with other groups. It must also be borne in mind that the clefts of lip, palate and alveolar process may vary in extent, and, therefore, a number of anatomic varieties may be found which require description.

We present the following classification which is based on a proper conception of congenital cleft of the lip and palate, and we believe that it will fulfil the requirements.

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* Read before the Section on Surgery, General and Abdominal, at e Seventy-Third Annual Session of the American Medical Association, . Louis, May, 1922.

Group I. Prealveolar (process) cleft. (Lip cleft; alveolar process normal.)
1. Unilateral. Right. Left. Complete. Incomplete.
2. Bilateral. Right: Complete; incomplete. Left: Complete; incomplete.
3. Median (rare). Complete. Incomplete.
Cleft of the palate may be associated with this group.

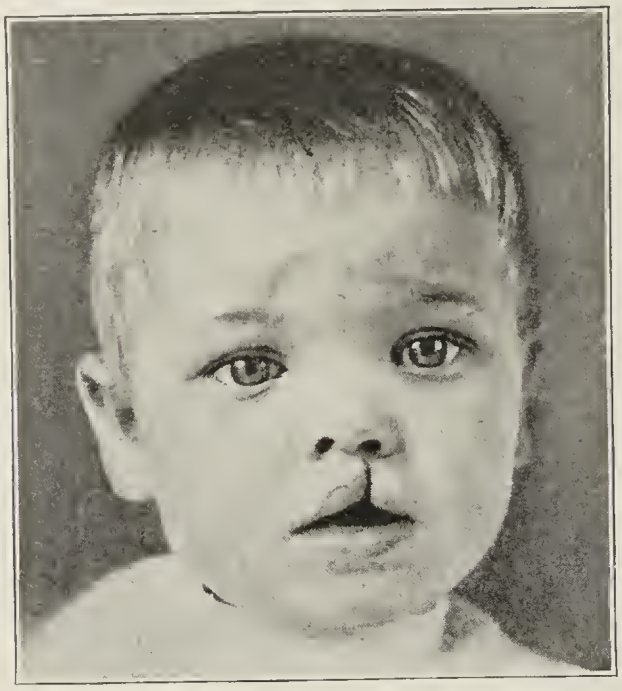

Fig. 1.—A typical case of prealveolar (process) cleft (Group I). It would be advantageous for the reader to visualize the various anatomic varieties in this and other groups when reading the classification.

Group II. Postalveolar (process) cleft. (Palate cleft; alveolar process normal.)
1. Soft palate. (The uvula only, or the entire soft palate, may be cleft.)
2. Hard palate. (May be notch only, or cleft may extend to the anterior palatine foramen, in addition to the soft palate.)
Cleft of the lip may be associated with this group.

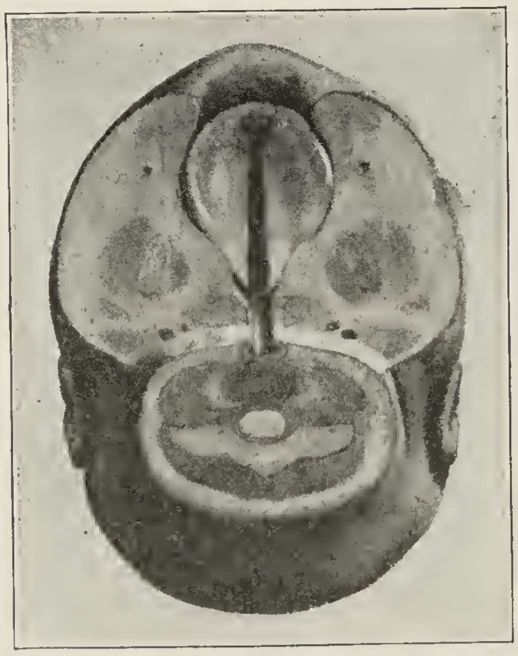

Fig. 2.—Reproduction of a drawing of a pig's palate illustrating a postalveolar (process) cleft (Group II).

Group III. Alveolar (process) cleft. (Cleft follows incisor sutures.)
1. Unilateral. Right: Complete; incomplete. Left: Complete; incomplete.
2. Bilateral. Right: Complete; incomplete. Left: Complete; incomplete.
3. Median (rare). Complete. Incomplete.
Clefts of the lip and palate are usually associated in this group.

In approximately 4 per cent. of our cases, Group I (prealveolar cleft) and Group II (postalveolar cleft) occur in the same case. While this is an associated lip and palate defect, the surgical problem is in nowise the same as in Group III, so each defect should be described under its proper surgical heading.

In the third group there is usually an associated cleft of the process, lip and palate of many degrees anatomically; but there must be included here that case, of variable frequency, in which a cleft lip and cleft process are present with a normal palate, or, if such cases occur, of a cleft palate and cleft process with a normal lip. The proper classification of these cases is a subject for debate, for many times the surgica problem is limited to the lip or palate only, and, therefore, Group I or Group II is suggested. It will be more practicable to record them in the third group as there the opportunity is given for the direct description of the three structures.

Any case in which the alveolar process is normal is recorded in Group I or Group II, or both. Any case in which the alveolar process is cleft is recorded in Group III.

The classification is an effort to develop specifi surgical terms for the case, based on the alveola

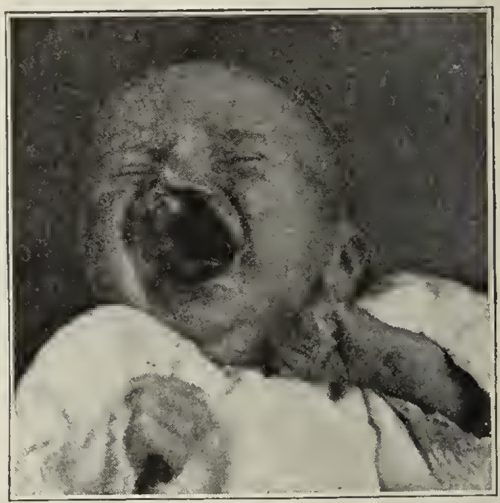

Fig. 3.—Alveolar (process) cleft, unilateral (Group III).

process, thereby placing all anatomic descriptions sub sidiary to these terms and giving the opportunity o recording separately the alveolar process, lip ar palate.

We have found that the plan encourages statistic study and permits of analysis of palate and lip i their relation to each other; likewise, the operatic whether primary, secondary, or tertiary, or, as occu occasionally, even later procedures, and yet keep tl original picture by first recording the group.

In teaching, it is of the greatest advantage to l able to locate directly the debatable problems of trea ment in their relation to the whole subject with i multiplicity of anatomic states.

This grouping correlates all cases to the subject c congenital clefts; it separates the cases according their special surgical requirements, and it indicates every case, directly instead of by implication, the mc important condition—that of the alveolar process.

A SUGGESTION FOR RECORDING CONGENITAL CLEFTS OF THE LIP AND PALATE

At one time or another, we have found it necessa to look over the records of congenital clefts of the l and palate in certain hospitals, and we have been asto ished by the utter lack of value of the majority of the ecords. As far as we can ascertain, the histories of hese cases taken in the hospitals of other cities are ittle, if any, better. The hospital histories for the nost part have been taken by fourth year students or ouse officers and, as these cases are comparatively are, in many instances the one who takes the history ad evidently never seen a congenital cleft before, so e could not be expected to know (and evidently did ot know) the important points to be noted, or how to se the correct descriptive terminology. It might also e said that records of these cases taken by men of nger experience are frequently incomplete. It ccurred to us that the matter might be simplified and he records made more useful and comprehensive if a tandard printed history sheet, with headings and imple diagrams, could be devised which would contain ll the necessary and important data to be noted.

Long charts are not to be recommended; but if we re to get definite information concerning these clefts, n many points not yet clearly understood, we must ssist the one who takes the history by giving him a rinted chart to fill out so that none of the essential ems will be omitted.

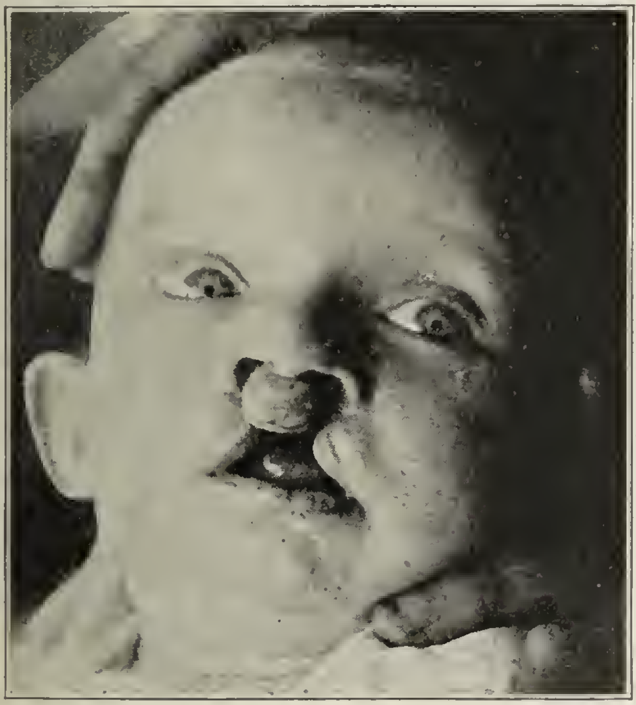

Fig. 4.—Alveolar (process) cleft, bilateral (Group III).

Many men have reduced the histories of these cases) what they call "essential information only." This ay be all that they require for their records and perative work; but when they come to look up special oints, such, for instance, as those which might give formation as to the etiology, their records are value-ss.

Dr. Vilray Blair of St. Louis has a most excellent orking chart; but it is not based on any particular assification. Without doubt, there are other charts use.

We suggest the use of the history sheet reproduced erewith, which is based on the group plan as presented the first part of this communication. The items may rearranged in any way that is convenient to indidual or hospital needs. Additions may also be made any data worth recording are found for which there no heading.[1]

Should the group plan with its classification be cepted by teachers in the medical schools, and the history sheet be adopted in the hospitals and in the private work of surgeons interested in congenital clefts of the lip and palate, the medical profession, when dealing with these cases, would soon become familiar with and use this rational and understandable nomenclature, which is based on logical terms.

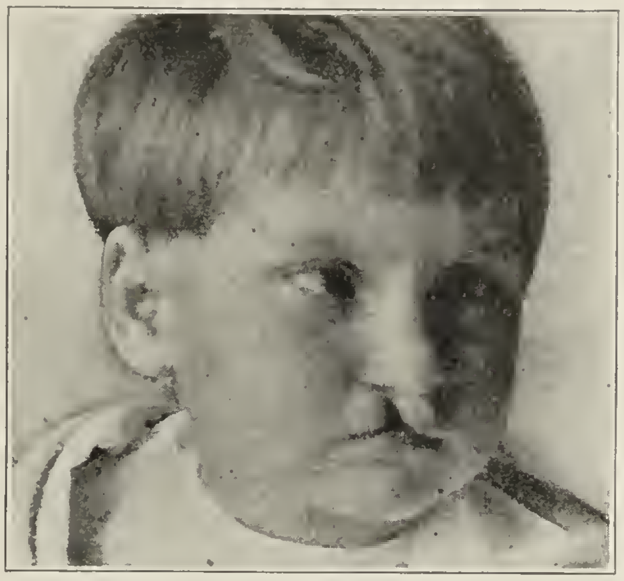

Fig. 5.—A case of prealveolar cleft and postalveolar cleft, each defect to be recorded in its proper surgical group.

ABSTRACT OF DISCUSSION

Dr. James E. Thompson, Galveston, Texas: If a classification is to be accepted, it must not alone have an anatomic and embryologic foundation, but it must be of practical surgical value. Otherwise we shall gain nothing. It seems to me that in the classification of congenital fissures of the lip and palate we have contented ourselves with an indiscriminate list of certain embryologic faults without any reference whatsoever to their surgical bearing. Consequently, it has always been a difficult matter for a surgeon in writing on this subject to explain himself intelligibly. I gather from Dr. Ritchie's paper that he makes the statement that the alveolar border is the basis for all surgical groupings. If he can prove this point, we shall be forced to accept his classification. I believe that most surgeons are willing to accept it without contention. In 1921, I tried to standardize operations in cases of cleft palate. I found serious difficulty in classification and was compelled to make a grouping of

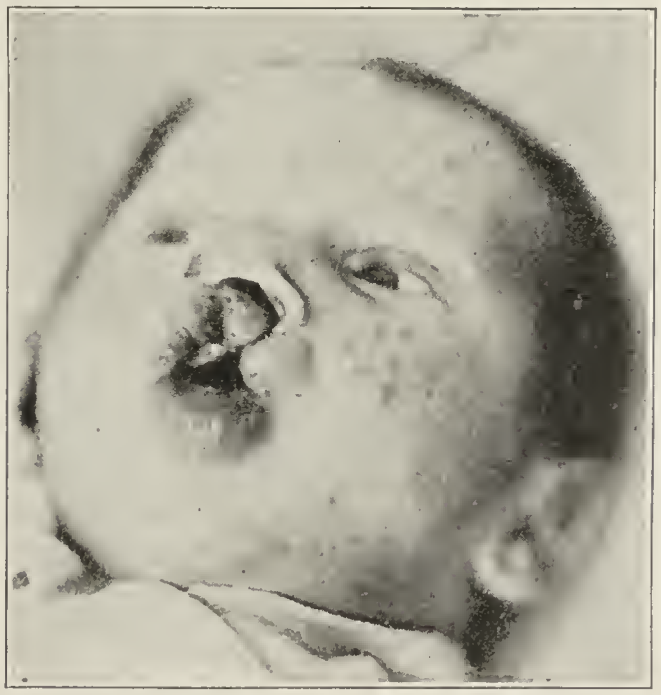

Fig. 6.—A case presenting cleft lip, cleft process and normal palate, to be recorded as Group III, unilateral or bilateral, as this affords the only opportunity to record these conditions. In the chart, the lip and process are noted and the palate is erased.

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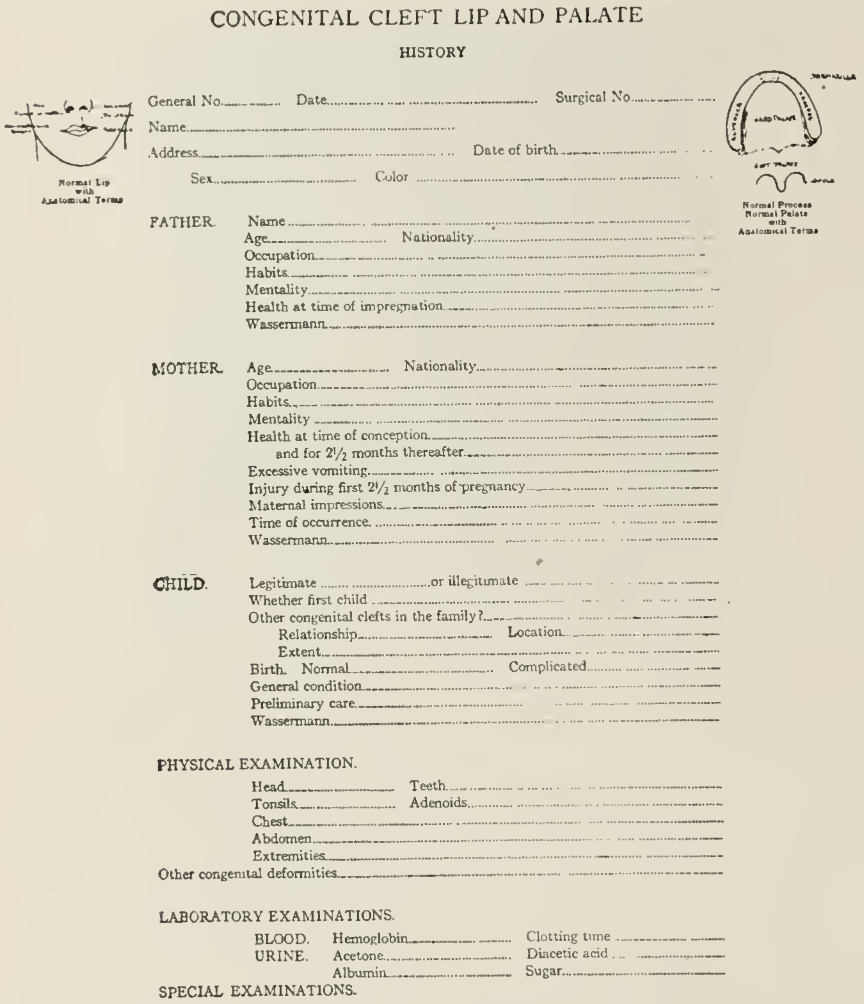
[1] Descriptions of operations, postoperative notes, temperature charts, ., have been purposely omitted from this sheet.

my own, without previous knowledge of either Dr. Sherman's or Dr. Ritchie's work. The result was that I divided cleft palate into three main types: (1) a complete unilateral cleft of the alveolar border and palate; (2) a complete bilateral cleft of the alveolar border and palate, and (3) a cleft of the palate with alveolar border intact. In other words, I found that the condition of the alveolar border was the natural basis of an intelligent classification. I believe that the condition of the alveolar border predetermines absolutely the kind of operation suitable to the particular case, and that afterward the sequence of operation follows logically. I have drawn up a table of operative sequences and alternatives which shows in a graphic manner the choice of procedures and the sequence in which the various parts of the defect are repaired. It is founded on the belief that the alveolar border is the key to every case and that repair of these processes must take precedence. It is my custom to mold the maxilla first in all cases. Whether one should be content with molding or should follow it up with suture is a matter of choice. There are grave objections to penetrating the jaws during the passage of sutures, the chief of which is the disrupting of tooth elements. If one could hold the molded jaws in contact without hurting the bone, the procedure would be ideal. I agree with Dr. Ritchie that there is great need of improvement in classification and nomenclature and that the scheme he has presented is a step in advance, because it attempts to give us a classification that is based on correct anatomic and surgical conceptions. The difficulties of grouping the cases under the various headings are mere matters of detail.


Normal Lip with Anatomical Terms
Normal Process Normal Palate with Anatomical Terms

CONGENITAL CLEFT LIP AND PALATE

HISTORY

General No........ Date........ Surgical No........
Name........
Address........ Date of birth........
Sex........ Color........

FATHER. Name........
Age........ Nationality........
Occupation........
Habits........
Mentality........
Health at time of impregnation........
Wassermann........

MOTHER. Age........ Nationality........
Occupation........
Habits........
Mentality........
Health at time of conception........
and for 2½ months thereafter........
Excessive vomiting........
Injury during first 2½ months of pregnancy........
Maternal impressions........
Time of occurrence........
Wassermann........

CHILD. Legitimate........or illegitimate........
Whether first child........
Other congenital clefts in the family?........
Relationship........ Location........
Extent........
Birth. Normal........ Complicated........
General condition........
Preliminary care........
Wassermann........

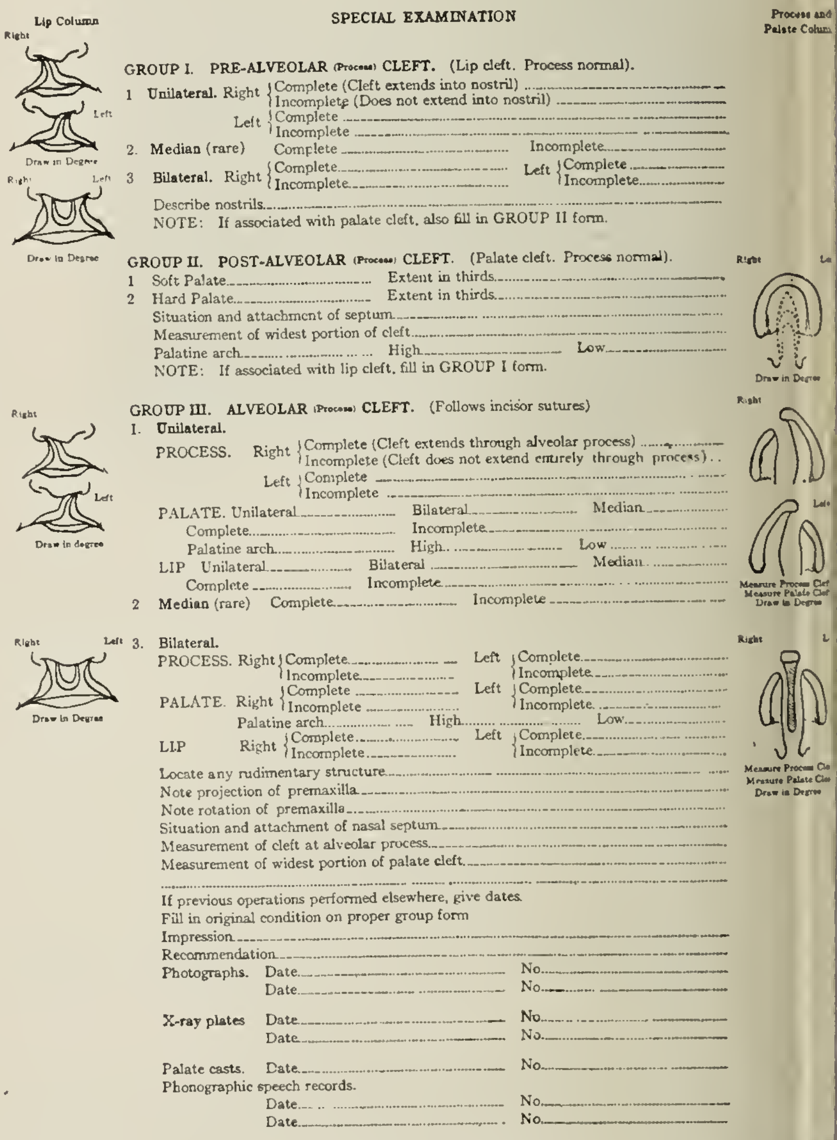
PHYSICAL EXAMINATION.
Head........ Teeth........
Tonsils........ Adenoids........
Chest........
Abdomen........
Extremities........
Other congenital deformities........

LABORATORY EXAMINATIONS.
BLOOD. Hemoglobin........ Clotting time........
URINE. Acetone........ Diacetic acid........
Albumin........ Sugar........
SPECIAL EXAMINATIONS.

Fig. 7.—Obverse side of chart for recording congenital cleft lip and palate defects.

Dr. Vilray P. Blair, St. Louis: I am thoroughly in sympathy with and heartily approve of the whole idea, but we are attempting to project something for universal adaptation. If it is not universally adopted, it is not worth while; and, to assure its adoption, it must be the best plan. If it is not, some one will present something a little better, upset the one we have adopted and go on. That is my excuse for any adverse criticism I may make. Dr. Ritchie puts forth the idea that the most important part of the cleft palate operation is the alveolar process, and that it must be dealt with primarily. He also puts forth the idea that the classification shall be along surgical lines, abandoning the anatomic lines. Granting that, as Dr. Thompson says, the surgical classification has the broader appeal, the anatomic basis is more fixed. To my mind, it is possible that in the future development of this work, the alveolar cleft may be disregarded, and then you would have a classification based on a surgical conception that had not stood the test of time. Dr. Ritchie makes no place for the prealveolar cleft combined with the alveolar cleft, because the alveolar cleft needs no surgical attention. The surgery is shifting and the anatomy is fixed. I am not sure we are sufficiently advanced to make a permanent, logical classification on a surgical basis. That is all right if you do not operate on it. About his diagram: I have found it easier to get the intern to give a description by having a picture of the different types around which he can draw a circle. I am perfectly willing to adopt this classification, but before we adopt it we must agree which is the best.

Dr. Truman W. Brophy, Chicago: Finding that there was no classification by which writers could describe the many forms of harelip and cleft palate, I prepared one whic includes all of the forms of cleft palate, anatomically considered. Every muscle and bone involved in this deformit is considered. The lip is not included, though it shoulc have been. The forms are: 1. A very simple form of clef palate, just a partial cleft of the uvula. 2. A cleft extendin forward into the fibers of the levator palati and the reflectec portions of the tensor palati muscles; which gives the absolute anatomic form. 3. A cleft extending through the uvul and forward to the posterior border of the horizontal plate of the palate bones. 4. A cleft extending through the entir soft palate, including partial or complete cleft of the ho zontal plates of the palate bones. 5. A cleft of the enti soft palate, through the horizontal plates of the palate bon and into the palatal processes of the maxillae. 6. A cleft soft and hard palate nearly as far forward as the line union between the maxillae and the premaxillae. 7. A co plete single cleft of the entire soft and hard palate, includi


Lip Column
Right
Left
Draw in Degree
Right
Left
Draw in Degree
Process and Palate Colum
Right
Le
Draw in Degree
Right
Left
Draw in degree
Right
Left
Measure Process Clef
Measure Palate Clef
Draw in Degree
Right
Left
Draw in Degree
Right
L
Measure Process Cle
Measure Palate Cle
Draw in Degree

SPECIAL EXAMINATION

GROUP I. PRE-ALVEOLAR (Process) CLEFT. (Lip cleft. Process normal).
1 Unilateral. Right {Complete (Cleft extends into nostril)........ / Incomplete (Does not extend into nostril)........
Left {Complete........ / Incomplete........
2. Median (rare) Complete........ Incomplete........
3 Bilateral. Right {Complete........ / Incomplete........ Left {Complete........ / Incomplete........
Describe nostrils........
NOTE: If associated with palate cleft, also fill in GROUP II form.

GROUP II. POST-ALVEOLAR (Process) CLEFT. (Palate cleft. Process normal).
1 Soft Palate........ Extent in thirds........
2 Hard Palate........ Extent in thirds........
Situation and attachment of septum........
Measurement of widest portion of cleft........
Palatine arch........ High........ Low........
NOTE: If associated with lip cleft, fill in GROUP I form.

GROUP III. ALVEOLAR (Process) CLEFT. (Follows incisor sutures)
I. Unilateral.
PROCESS. Right {Complete (Cleft extends through alveolar process)........ / Incomplete (Cleft does not extend entirely through process)..
Left {Complete........ / Incomplete........
PALATE. Unilateral........ Bilateral........ Median........
Complete........ Incomplete........
Palatine arch........ High........ Low........
LIP Unilateral........ Bilateral........ Median........
Complete........ Incomplete........
2 Median (rare) Complete........ Incomplete........

3. Bilateral.
PROCESS. Right {Complete........ / Incomplete........ Left {Complete........ / Incomplete........
PALATE. Right {Complete........ / Incomplete........ Left {Complete........ / Incomplete........
Palatine arch........ High........ Low........
LIP Right {Complete........ / Incomplete........ Left {Complete........ / Incomplete........
Locate any rudimentary structure........
Note projection of premaxilla........
Note rotation of premaxilla........
Situation and attachment of nasal septum........
Measurement of cleft at alveolar process........
Measurement of widest portion of palate cleft........

If previous operations performed elsewhere, give dates.
Fill in original condition on proper group form
Impression........
Recommendation........
Photographs. Date........ No........
Date........ No........
X-ray plates Date........ No........
Date........ No........
Palate casts. Date........ No........
Phonographic speech records.
Date........ No........
Date........ No........

Fig. 8.—Reverse side of chart for recording congenital lip and pal defects.

the alveolar process (the maxilla is separated from the premaxilla, usually on the left side, and accompanied by single harelip). 8. A tripartite cleft, extending through soft and hard palate, separating the premaxillae from the maxillae; nearly always complicated with double harelip. 9. A cleft of the entire soft palate, extending through the horizontal plates of the palate bones and into, although not through, palatal plates of the maxillae. (The premaxillae are arated from the maxillae, between which and the anterior rt of the cleft, the hard palate is normal. It is usually nplicated with double harelip.) 10. A cleft only between maxilla and premaxilla, usually on the left side and companied by single harelip. 11. A cleft completely sep- ting the premaxillae from the maxillae, with the palate erwise normal. 12. A cleft only of the anterior one half one third of the hard palate, with protruding premaxillae ich are entirely separated from the maxillae. 13. A cleft the entire soft and hard palate, extending through the eolar ridge on one side, with premaxillae separated com- tely on one side and partially on the other. 14. A cleft of the soft palate, partial or complete, normal hard palate with cleft in the alveolar border. 15. A cleft only of the alveolar process anterior to the maxillae, due to the nondevelopment or absence of the premaxillae, usually accompanied by harelip in the median line. 16. An exceedingly rare form, a cleft completely separating in the median line the entire palate and lip. If we can make a classification that will cover all these conditions anatomically, it will be well. We should have a complete classification.

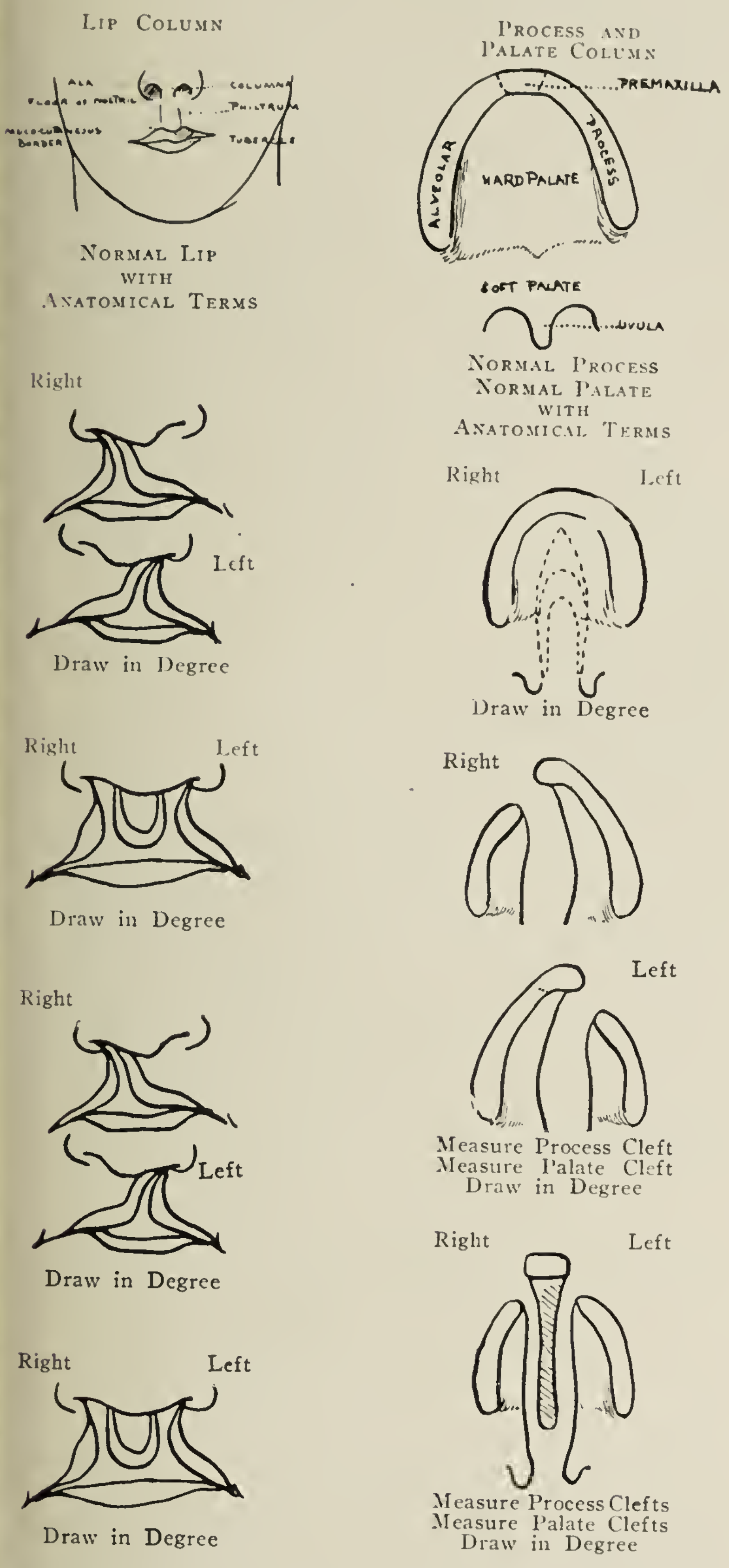


Fig. 9.—Reproduction, exact size, of marginal illustrations appearing the chart.

Dr. Harry P. Ritchie, St. Paul: Dr. Thompson has picked out the point that is most important for you to accept or discard. If you do not agree to the proposition that the condition of the alveolar process is the most important anatomic condition affecting selection of surgical procedures, then the scheme fails. But Dr. Davis and I have agreed that it is, and have made the alveolar process a foundation for a surgical grouping. It is not the time to repeat the arguments, but you may be sure that this proposal has received our earnest attention. What we are trying to do is to suggest a classification for the case, some descriptive term to include all forms and degrees of both palate and lip. We are making the effort to argue out and select agreeable and uniform terms for our descriptions and discussions. In a review of the literature, there is very often agreement on the various methods of treatment, but this fact is not admitted, owing, in many instances, to the very evident looseness of our terminology; and I do not see why we cannot develop a common and understandable language for these defects. I recognize the difficulty in advocating the disuse of a term so fixed in the literature as "harelip." I can find many arguments against its use but none for it, except custom. The condition is a cleft lip and all we are asking is to say so. Following the efforts to develop uniform terms, the divorcement of the alveolar process cleft from the palate cleft is equally important. In the surgery of this feature, I feel sure that operations to close the process have been interpreted as operations on the palate. We believe that the condition of the process is very important, and are simply asking you to say alveolar cleft instead of indicating it as a complete palate. I feel sure that the process and palate can be separately described from a surgical standpoint and that we may obtain embryologic evidence to support us. The plan involves the employment of terms of classification for the case, including both lip and palate, whether associated with cleft process or dissociated with normal process. Under the general terms for the case come the form divisions of unilateral and bilateral and median; then last, terms of degree, such as complete and incomplete; and then we have an orderly plan of record. Dr. Blair is right in saying this plan should be considered thoroughly before acceptance. If this is a new point of view, it should not be accepted until all defects are corrected. Our attitude is one of invitation of criticism. Dr. Brophy's palate classification is acceptable and understandable but our effort is to include the lip, and Dr. Brophy's forms fit readily into our grouping. Dr. Davis and I are interested to know whether this scheme will only add confusion to an already complicated subject or whether it will be considered as an earnest constructive effort.

Child Welfare in an Anthracite Coal-Mining District.—In a bulletin recently issued by the Children's Bureau of the U. S. Department of Labor, on excessive child labor in a Pennsylvania coal mining district, a direct relation between child labor and low earnings of the fathers is reported. The bulletin deals with children from 13 to 16 years of age in a district of the central field in Schuylkill County, Pennsylvania. In this area of little more than half a square mile, 24,726 were found living. A total of 519 boys had been employed, contrary to law, before reaching the age of 14 years, and 137 boys, not yet 16, had been employed underground. Of the 978 boys from 13 to 16 years of age who had been employed in or about the mines, 178 had suffered accidents. In ninety families studied, fatal accidents to the father had occurred, and in 235 families the chief wage earner had been disabled either totally or partially.

SPECIFIC PRECIPITIN REACTION OF LEUKOCYTES *

LUDVIG HEKTOEN, M.D.
AND
F. R. MENNE, M.D.
CHICAGO

We wish to report briefly the results of some experiments on the specific precipitinogenic action of leukocytes. The first experiments were made with extracts of dog and guinea-pig leukocytes obtained from the injection of suspension of wheat gluten in the pleural or peritoneal cavity. The leukocytes were washed many times in salt solution, and definite quantities by weight suspended in water and shaken thoroughly; an equal amount of physiologic sodium chlorid solution of double strength was then added, and the strength of the extract designated by the relation of the weight of the leukocytes extracted to the total quantity of the fluid used, this being usually 1 : 10 or 20 or 100. Rabbits were injected intravenously at three-day intervals with increasing quantities of such extracts, say 2, 3, 4, 5 and 6 c.c. of a 1 : 20 extract, and the serum was tested about the fifth day after the last injection. The results with extracts of dog and guinea-pig leukocytes are illustrated in Table 1. As shown in the table, the precipitin for dog serum in the antiserum for dog leukocytes may be removed by means of specific absorption. Extracts of dog leukocytes obtained by fractional centrifugation of citrated dog blood gave similar results as extracts of the leukocytes in exudate.

We now turned our attention to human leukocytes, and made experiments of the same general nature as those just outlined with extracts of the leukocytes in human blood and in the exudates of pleural empyema and gonococcal arthritis, as illustrated in Table 2, which also gives certain results obtained with antiserums produced by injecting rabbits with a 5 per cent. suspension of whole human leukocytes—1, 2, 3, 4 and 5 c.c. at three-day intervals—and with the filtered serum of the exudate of pleural empyema, 1, 2, 4 and 6 c.c., also at three-day intervals. Here again the precipitins for homologous serum may be removed from the antiserum by mixing it with diluted human serum without any apparent reduction in the precipitin for leukocytic extract. In connection with this matter it is of interest to note that the antiserum of rabbits injected with human leukocytic extract did not contain any precipitin for the proteins in human serum.

TABLE 1.—SPECIFIC PRECIPITINS FOR EXTRACTS OF DOG AND GUINEA-PIG LEUKOCYTES *

	Antiserums Produced by Injections of				
	Extract of Dog Leukocytes		Extract of Guinea-Pig Leukocytes		
Antigens	Original Anti-serum	After Treatment With an Equal Amount of Dog Serum 1:200, Antiserum Now Diluted One-Half	Original Anti-serum	After Treatment With an Equal Amount of Guinea-Pig Serum 1:200, Antiserum Now Diluted One-Half	Normal Rabbit Serum
Extract of dog leukocytes....	4,800	2,400	0	0	0
Dog serum......	500	0	0	0	0
Extract of dog erythrocytes..	0	0	0	0	0
Ext. of guinea-pig leukocytes	0	0	1,280	640	0
Guinea-pig serum	0	0	80	40	0
Ext. of guinea-pig erythrocytes..........	0	0	0	0	0

* The figures give the highest dilutions in which the leukocytic extracts and serums gave precipitates by the contact method after one hour at room temperature.

The erythrocytic[1] and other extracts used in the work with antileukocytic serums were prepared in the same way as the leukocytic extracts, and were shown by appropriate tests in each case to contain peculiar elements that evidently differ from derivatives of the leukocytes.

Extracts of dog, guinea-pig and human leukocytes contain specific precipitinogenic substances. Whole human leukocytes and the serum of pleural exudate in empyema also induce the formation of specific precipitins for extracts of human leukocytes. Leukocytes appear to contain specific elements not found in red corpuscles, platelets or blood serum, and these elements may be present in the serum of inflammatory exudates.

TABLE 2.—PRECIPITINS FOR EXTRACTS OF LEUKOCYTES

	Antiserums Produced by Injections of				
			Serum of Empyema Exudate After Passage Through Berkefeld Filter		
Antigens	Extract of Human Leuko-cytes	Whole Human Leuko-cytes	Orig-inal Anti-serum	After Treatment with Equal Amount of Human Serum 1:200, Antiserum Now Diluted One-Half	Normal Rabbit Serum
Extract of human leuko-cytes..................	160	320	320	160	0
Human serum...........	0	10	2,500	80	0
Extract of human eryth-rocytes................	0	0	0	0	0
Extract of human plate-lets...................	0	0	0	0	0
Extract of stroma of human erythrocytes...	0	0	0	0	0
Serum of empyema exu-date..................	160	500	5,000	80	0
Serum of exudate in gon-ococcal arthritis.......	32	320	5,000	160	0

So far no effort has been made to study the precipitin reactions of any special kind of leukocyte. I the mononuclear and other leukocytes could be obtaine pure, possibly by means of cultures, it no doubt woul be of much interest to study the precipitin and othe reactions of the different forms.

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* From the John McCormick Institute for Infectious Diseases.

[1] Hektoen, Ludvig, and Schulhof, Kamil: On Specific Erythrop cipitins (Hemoglobin Precipitins?), J. Infect. Dis. **31**: 32 (July) 19

PROSTATIC MASSAGE: A PRACTICAL AND THEORETICAL DISCUSSION *

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SANTA BARBARA, CALIF.

Prostatic massage first came into popular use i 1894, at which time it was adopted by the Roy Institute of Massage at Stockholm. Posner[1] of Berli in 1893, mentioned the cure of chronic prostatitis b repeated digital expression. Prior to the gener acceptance of this therapeutic procedure, diseases of th prostate were treated by applications to the perineu in the form of counterirritation, heat, cupping, leech and the like. Mitchell,[2] in 1904, suggested that th beneficial effects of horseback riding on hypertroph of the prostate is brought about by a kind of massag of the prostate gland from the alternating pressure the rider rose and fell to the horse's motion.

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* From the Santa Barbara Clinic.

* Read before the Section on Urology at the Seventy-Third Ann Session of the American Medical Association, St. Louis, May, 1922.

[1] Posner, cited by Fuller: Disorders of the Male Sexual Orga 1895.

[2] Mitchell, cited by Cohen: System of Physiologic Therapeutics 115.

The technic or method of massage has passed through stages of experimentation. When first adopted, the procedure was to massage around the prostate with a circular rotatory motion of the forefinger, but not to massage directly over the gland. A Berlin surgeon made firm pressure over the soft spots, but left the remainder of the gland untouched. An external method is to massage the perineum with stroking and friction movements. Another method is to knead the prostate between the thumb, placed externally on the perineum, and the index finger supporting the gland from within the rectum. A technic popular with many genito-urinary surgeons is as follows: The patient assumes the erect-flexed, Sims or knee-elbow position. The protected index finger is inserted within the rectum, and gentle to firm pressure made first over one lobe and then over the other, with a stroking downward movement directed toward the openings of the prostatic ducts in the deep urethra. Finally the finger is drawn from above downward over the posterior urethra so as to express secretions from the sinus pocularis and terminations of the ejaculatory ducts. Massage should be continued from one to three minutes. Mild massage may be repeated twice or, exceptionally, three times a week; vigorous massage not more often than once a week.

Instrumental massage of the prostate and seminal vesicles is not widely favored. The more inaccessible parts of these structures may be reached with a metal or hard rubber masseur, the use of which is, however, open to the objection that the manipulation and pressure are not accurately guided by the sense of touch. Some operators prefer the bimanual method of massage for the seminal vesicles, in which counterpressure is made with the left hand placed on the abdomen above the symphysis pubis.

Massage manipulation may or may not include stripping the seminal vesicles, though the latter procedure generally is attempted only in the presence of well defined chronic seminal vesiculitis. Some proceed with treatment based on the belief that in case of infection both the prostate and the seminal vesicles are involved together. Lydston[3] aptly states that "expression of secretions from affected glandular structures is least important," and that the therapeutic benefit derived from massage treatment consists more in stimulating circulation and increasing absorption. Schmidt[4] says that the prompt and regular removal of accumulated secretion is desirable, and Keyes[5] states that the prostatic massage is an unphysiologic attempt to empty the prostate of secretions, which is often not nearly so beneficial as regular sexual intercourse would be, if permitted, were it not for social and hygienic obligations.

For purposes of discussion, prostatic massage may be said to be most beneficial in three types of cases: simple catarrhal prostatitis, chronic parenchymatous prostatitis, and atonic or atrophic conditions of the prostate and seminal vesicles.

Simple catarrhal prostatitis generally accompanies or follows an initial attack of gonorrheal urethritis in young men. The symptoms usually are mild, and may be no more than increased frequency of urination with persistent mucopurulent discharge at the meatus. Such case responds well to mild prostatic massage combined with appropiate urethral treatment. The swollen prostate is emptied of its catarrhal contents by drainage and absorption, and the return to normal is often surprisingly rapid.

The largest group of cases come under the second classification of chronic parenchymatous prostatitis. In this category may be placed patients who have had gonorrhea two or more times, or who have had at any time a complication of epididymitis, seminal vesiculitis, abscess or stricture. Simple chronic parenchymatous prostatitis yields to well regulated treatment carried out over a sufficient length of time. The crux of the treatment consists in intelligent, thorough prostatic massage combined with appropriate treatment of contiguous structures. The type of urethral treatment varies greatly with individual operators—irrigations, instillations, topical applications, diathermy and dilatations each have a place fitting the individual case. Sitz baths and psychophore treatments hasten the reparative process. Relief of symptoms, cessation of the gleety discharge, urine free from pus and shreds, and three reliable negative bacteriologic examinations of the expressed prostatic fluid, constitute a clinical cure.

Chronic parenchymatous prostatitis complicated by stricture, abscess and seminal vesicle or epididymal infection is more resistant to treatment. Prostatic massage gives only temporary relief in many of these cases. Subsidence of the prostatic infection depends in a large measure on disappearance of infection in other parts of the genital tract. The prostate, because of its location at the neck of the bladder and intimate relation to associated structures, is the seat of persistent infection. In gonorrhea our attention is directed early to prostate involvement, and our treatment may be confined strictly to this organ, permitting minor points of infection in the seminal vesicles, vasa deferentia, epididymides and urethra to remain untreated. Resistant or recurrent cases of prostatitis, seminal vesiculitis and epididymitis which do not yield to standard methods of treatment within a reasonable length of time should be given the benefit of operative interference. Vasotomy, epididymotomy, seminal vesiculotomy or total extirpation of the diseased structures may then be advisable.

Atonic or atrophic conditions of the prostate and seminal vesicles include cases of prostatorrhea, spermatorrhea, premature ejaculation and impotency. These conditions are helped by massage of the prostate, the results depending on the age of the patient, his general state of health, and the primary etiologic factor. Prostatorrhea and spermatorrhea occur more commonly in young men, who may or may not be venereally infected. Local treatment by massage is usually effective.

Premature ejaculation, impotence or failing sexual vigor occur more commonly in men past 40 years of age. Usually the primary etiologic factor may be traced to gonorrheal or syphilitic infection, and alcoholic or sexual excess. In such conditions, prostatic massage is helpful and may postpone or prevent complete impotence; but results are far from satisfactory.

A fourth condition, in which prostatic massage serves to tide a patient over an attack, is the acute congestion occurring frequently in benign hypertrophy. Careful massage gives relief in many of these cases. Kretschmer[6] has compiled five cases of true calculi expressed from the prostate by prostatic massage.

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[3] Lydston: Massage of the Prostate, Chicago M. Rec. **7**: 412, 1895.

[4] Schmidt: Indications and Limitations of Massage of the Prostate land, Chicago M. Rec. **22**: 13, 1902.

[5] Keyes, E. L., Jr.: The Treatment of Gonorrhea of the Male rethra, J. A. M. A. **75**: 1325 (Nov. 13) 1920.

[6] Kretschmer: True Prostatic Calculi, Surg., Gynec. & Obst. **26**: 70 (Jan.) 1918.

Diagnostic prostatic massage is a procedure of importance to the general physician looking for foci of infection, especially in arthritic and neuralgic disutrbances. Both Lowsley[7] and Pelouze[8] have recently called attention to the frequent connection between the arthritides and dormant gonorrheal or secondary bacterial infections of the prostate and seminal vesicles. "In many patients suffering from toxic absorption from a focus of infection in the prostate, there occurs a great increase in symptoms within twelve hours following prostatic massage." This reaction generally is followed by distinct improvement in the patient's condition.

Prostatic massage should be avoided in all acute primary or recurring inflammatory conditions of the urogenital tract. Acute epididymitis which follows too vigorous or too early prostatic massage is a distressing complication for which the operator is frequently blamed by the patient. Barringer emphasizes the importance of gentleness in performing prostatic massage at first, no matter how chronic the case. Some believe that old chronic cases do better under prolonged gentle massage than under vigorous strippings.

Pelouze[9] states that "there is evidence that persistent prostatic massage has a decided tendency to light up tuberculous foci in other parts of the body, particularly in the lungs, and in the epididimides." The lymphatics of the prostate act as a natural defense against infection. Such a barrier may be broken down by manipulation at the improper moment, permitting the escape of infectious material into the seminal sacs, vasa deferentia, epididymis tubules, and even into the general circulation. It is to be avoided in marked neurotic and asthenic states.

Conditions of the rectum which delay and interfere with massage of the prostate are painful or bleeding hemorrhoids, anal fissures or proctitis.

A theoretical discussion of the effects of massage on the prostate gland should include consideration of the physiologic and pathologic changes produced in the genital tract with reference to certain nervous and internal secretory reactions.

Massage of a part increases the amount and flow of arterial blood, increases the venous outflow, promotes diapedesis of leukocytes, and tends to remove cellular débris. To quote Lockhart,[10] the effect of massage on the prostate consists in emptying the pus pockets into the urethra, relieving the engorged blood vessels and lymphatics of the stroma, and stimulating the reparative processes by inducing a more liberal supply of fresh blood and lymph to the entire organ.

We note best the effect of massage in cases of simple catarrhal prostatitis. The retrogressive course of the inflammatory process may be followed by rectal touch and microscopic examination of the expressed prostate fluid. A gland, at first swollen, tense and firm, gradually, sometimes rapidly, returns to its normal size and consistency. At the onset, the expressed prostatic secretions contain an abundance of mucus, pus cells, bacteria and débris, which disappear in direct proportion to the virulence of the infection and the regenerative power of the individual.

Similar, slower retrogressive changes are noted in cases of chronic parenchymatous prostatitis. When complicated by points of infection elsewhere along the genital tract, improvement is still more retarded. It is observed that massage of the prostate alone exerts a beneficial action on seminal vesiculitis. This is accomplished by promoting drainage from these structures through reflex stimulation of muscular, peristaltic contractions.

In atonic prostatorrhea, spermatorrhea or impotence, massage of the prostate strengthens relaxed muscle fibers and stimulates greater cellular activity of secreting surfaces.

Among the minor nerve reflexes brought on by massage of the prostate gland is tonic contraction of the internal vesicular sphincter. The patient frequently is unable to urinate following prostatic massage until voluntary effort effects relaxation of the sphincter. Syncope or fainting induced by massage through the rectum is a psychic or autonomic nerve reaction. The immediate effect of prostatic massage on blood pressure is to cause an initial rise, followed by a fall which in some instances is quite remarkable, with return to normal not later than ten minutes after the manipulation.[11] Stimulation of the nervi erigentes with erection is not uncommon.

We accept the researches of Serrallach and Pares,[12] of Macht,[13] of Matsumoto, of Bogoslowsky and Korentchevsky,[14] of Dubois and Boulet,[16] and of Rohleder[16] on the internal secretion of the prostate. Pousson[17] believes that the absorption of the toxic products of the adenomatous prostate exerts a noxious action on the general health. Expression of these toxic products by massage may lessen such deleterious effects.

It is believed that the prostate acts as a powerful stimulant to the internal secretion of the testicle, in which case the stimulating effect of massage on the prostate should increase the activity of both the prostate and the testicle, bringing about a sense of well-being and renewed vigor in men suffering from prostatism.

In the dog, the bladder, ureter, vasa deferentia and seminal vesicles are all stimulated in vitro by aqueous extracts of the mammalian prostate, including the human. It is reasonable to assume that similar contraction of homologous structures may be induced in man by stimulation of the internal secretion of the prostate.

ABSTRACT OF DISCUSSION

Dr. James A. Gardner, Buffalo: We should emphasize the fact that unless the bladder is full it is as impossible to massage as it is to press against a curtain. Many men attempt massage with the bladder empty, and the result is unsatisfactory.

Dr. Bransford Lewis, St. Louis: There is a very considerable need for more teaching about massage. I have come to that conclusion because of the occasional encounters with patients who abuse most emphatically some of the physicians who have previously massaged them. I have never seen an instance in which it was necessary to go at these patients with hammer and tongs. In many instances the doctor jams through a forefinger in a most unceremonious way, without glove or lubricant. Furthermore, the effects are not good when the massage is administered improperly. One can get better effects with gentle massage than with that which is too vigorous or prolonged. Dr. Farman called attention to the relation of massage in the presence of a strictured urethra. I recently met a patient who had been treated with massage nearly every day for a year. When I examined him, I found a stricture in the bulbous part of the urethra that would admit only a No. 18 sound. What could be accomplished by massage in the face of a stricture of such severity? There is no place for instrumental massage. In corpulent persons, when one cannot get up as far as necessary with the forefinger, I have used an instrument devised by Lydston. I get a good effect with that. I recently devised a little instrument for use in suprapubic prostatectomy. After the suprapubic opening is made, this prostatic elevator is inserted into the rectum. Because of the spoonshape of the instrument one can get leverage under the prostate, and then by means of the abrupt shoulder one can lift up the prostate. In addition to that, the handle is made so that it may be used for prostatic and vesicular massage.

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[7] Lowsley, O. S.: Rôle of Prostate and Seminal Vesicles in Arthritis, New York M. J. **113**: 641 (May 4) 1921.

[8] Pelouze, P. S.: The Rôle of the Prostate in Focal Infection, Med. Rec. **100**: 412 (Sept. 3) 1921.

[9] Pelouze, P. S.: J. Urol. **1**: 367 (Aug.) 1917.

[10] Lockhart, W. T.: Prostate Massage, Canad. M. A. J. **9**: 223 (March) 1919.

[11] Cowie: Some Clinical Observations on Blood Pressure, with Special Reference to the Effect of Prostatic Massage, Am. Med. **5**: 632, 1910.

[12] Serrallach and Pares: La sécrétions internes de la prostate, Ann. d. mal. d. org. gén.-urin. **29**: 625, 1911.

[13] Macht: Physiological and Pharmacological Studies of the Prostate Gland, J. Urol. **4**: 115 (April) 1920.

[14] Bogoslowsky and Korentschevsky: The Internal Secretion of the Prostate and Its Relation to the Testes, Comp. rend. Soc. de biol. **83**: 718, 1920.

[15] Dubois and Boulet: Compt. rend. Soc. de Biol. **82**: 1054, 1919.

[16] Rohleder, H.: Deutsch. med. Wchnschr. **46**: 70 (Jan. 15) 1920.

[17] Pousson: Bull. Méd. **35**: 595 (July 23) 1920.

Dr. Herman L. Kretschmer, Chicago: The doctor stated that some one said massage of the prostate was likely to light up some distant focus of tuberculosis. It seems hard to understand this unless the patient had tuberculosis of the prostate and it does not seem possible that any one would massage a tuberculous prostate. I wish to emphasize what Dr. Lewis has said. I often wonder whether we give as much time and thought to the details of carrying out this treatment as we should. Those who teach in the medical schools have been neglectful of this subject. In teaching students we should try to instruct them to massage the prostate properly. I wonder how many in the section had this instruction in massage.

Dr. A. I. Folsom, Dallas, Texas: In any inflammatory condition the local use of heat is very beneficial. I have a box measuring about 2 by 2 by 2 feet, with a lid, much like a commode seat, containing two sets of lamps. The two together are sometimes too much for the patient to stand, and if so he can snap one off until the heat is regulated. The patient sits on this box for from fifteen to twenty minutes, thus heating the prostate and the surrounding region, and I have seen this soften up the secretions so that the secretion after massage is materially increased. The method has been very beneficial and the patients have all been enthusiastic about it. Not only does it help in the massage of this gland, but the heat, by inducing hyperemia, helps to get rid of the condition in the gland.

Dr. George F. Farman, Santa Barbara, Calif.: Each case of prostatitis is more of an individual affair than we make it, in the large dispensaries especially. As was mentioned before, the orderlies often give this routine treatment, but we do not get the same effect; and the patients do not respond properly unless we take a personal interest in them and carry them along as individual cases. I agree that heat plus massage is really more effective than either one alone.

Rules for Typhoid Carriers.—One of the most notable steps taken by the bureau of preventable diseases of the Department of Health of New York City during the past year has been the formation of a set of regulations for the supervision of typhoid carriers. These rules instruct the carrier to have nothing to do with food or drink to be used by others, not to go to the icebox or refrigerator and not to hand anything at the table. Every bowel movement not passed into a toilet flushed with water must be disinfected by an effective disinfectant, such as chlorinated lime. If an outside privy is used, it should be kept disinfected by quicklime. The carrier should not use a toilet away from home during the day if he can avoid doing so, and should always wash his hands with plenty of soap and water after using a toilet. His underclothing should be disinfected before being sent to the laundry. Every person with whom a carrier lives must be immunized against typhoid fever. Typhoid carriers should keep the health department informed of their whereabouts and should have their stools examined from time to time.

EXTRAORDINARY DEVELOPMENT OF THE TACTILE AND OLFACTORY SENSES

COMPENSATORY FOR LOSS OF SIGHT AND HEARING: WITH DEMONSTRATION OF THE REMARKABLE CASE OF WILLETTA HUGGINS *

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CHICAGO

The recent communications of Prof. Joseph Jastrow [1] of the University of Wisconsin denying unusual ability in the case of Willetta Huggins makes it imperative, in behalf of scientific facts, that we immediately publish what work has already been completed on the case. I had hoped to make our investigations more complete before publication, as we are still conducting experiments and making observations.

There can be no doubt that through all the ages that man has inhabited the earth, the dual affliction of deafness and blindness has often been borne by humankind. However, we have, prior to recent times, no authentic and detailed record of those so unfortunate. It is more than likely that few, if any, so afflicted congenitally ever lived beyond infancy or early childhood, for, under the iron rule of the survival of the fittest, they had no place in the scheme of human existence.

There are two other cases comparatively recent and both women, comparable in some respects to Willetta Huggins. They are Laura Bridgman, a pupil of Samuel G. Howe, and Helen Keller. Of these a more or less definite record has been placed in scientific literature. In comparing the case here reported with that of Laura Bridgman, Helen Keller, or any of those more recently published, it must be borne in mind that these subjects, especially Miss Keller, represent an exceptionally high grade of intelligence, which, once put into communication with the external world, was able to surmount the great obstacles which lack of sight and hearing placed in its path. The mental and physical handicaps of Willetta make her present attainments all the more remarkable, and this fact should be kept in mind, in order to arrive at a just comparison with other deaf-and-blind subjects.[2] However, in all fairness, we should not forget that our present subject possessed both sight and hearing for, at least, the first twelve years of her life.

Details of her family history have been obtained from Willetta, through Dr. J. P. Thorne, superintendent, and Mrs. Hooper of the Wisconsin School for the Blind, and through schoolteachers and city nurses.

Willetta Huggins was born at Eau Claire, Wis., March 26, 1905, so she is now 17 years old. Her father died when she was 4, and her mother died in the county tuberculosis sanatorium at Eau Claire five years later.

The child was found living with her grandmother by a field worker for the Wisconsin School for the Blind, in the summer of 1915, when she was 10 years of age. In September of that year she was admitted to the institution because of defective vision, and it was later found that she also had defective hearing, especially in the right ear. She states that she has always had "weak eyes and a running from the right ear," that she was always deaf in her right ear, and that her hearing in the left ear seems to have been subnormal.

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* This is abbreviated in The Journal, as space could not be given to the complete article, which includes observations of others. The whole is incorporated in reprints, which may be obtained on application to the author.

[1] Jastrow, Joseph: "The Will to Believe," J. A. M. A. **78**: 1891 (June 17) 1922; **79**: 151 (July 8) 1922.

[2] For information concerning Laura Bridgman and Helen Keller, I am indebted to the "Life of Laura Dewey Bridgman," by Mary S. Samson, her teacher, and biographical addenda to Helen Keller's own "Story of My Life."

BECOMES DEAF

In October, 1919, following a severe "catarrhal cold," she very suddenly—over night, it seems—lost the remaining sense of hearing in the left ear. Though no history of illness has been obtained except the ordinary diseases of childhood and possibly undernourishment in early life, "colds in the head" have been so frequent that to her it seems she was never without one. Her vision, too, has apparently always been very defective.

Up to the time of her entrance into the school, Willetta appears to have possessed some sense of both sight and hearing, but from the age of 10 both faculties rapidly diminished. When she was 15, Mr. Hooper placed her under the care of Dr. J. P. Thorne of Janesville, who states that he found her totally deaf at that time. On his examination of her ears then he discovered that she had an acute suppurative otitis media in the right ear, which still persists.

As she was a state ward, Dr. Thorne referred the patient (in February, 1920) to the University Clinic at Madison for treatment and observation by the eye and ear department, and she remained there six weeks. According to a communication which I received, Dec. 1, 1921, from Dr. W. F. Lorenz of the department of psychiatry, the result of a Wassermann test on Willetta was negative. Two blood Wassermann tests that I have since had made also proved negative. She was returned to the school from the clinic with the report that she was "incurably deaf, and of a subnormal mentality of the moron type." According to Superintendent Hooper, Professor Jastrow had but one opportunity to examine her, and then for only two hours. This was on June 11, 1921.

Owing to her physical handicap, without private or institutional assistance, she had not been able to progress further than the second grade of school at the age of 10, and even after her entrance into the Wisconsin School for the Blind, the progressive diminution of her sight and hearing apparently made her mental development almost impossible. The findings of the university clinic confirmed the observations already made by Mr. Hooper and his assistants and, realizing that she was now totally deaf, they proceeded to assist her by having her taught the alphabet for the deaf. In this, at that time, she made very slow progress.

BECOMES BLIND

Meantime, her vision failed, and in 1920, following a severe cold, similar to the one that terminated her hearing about a year before, she just as suddenly became totally blind.

On thus becoming excommunicated from the world by blindness and deafness almost simultaneously, her reaction was interesting. She developed a peculiar, morbid, uninterested, morose attitude toward everything. She was nearly 15 now and, as she could neither see nor hear, she rapidly became listless and apathetic, with the minimum mental reaction to her environment. Physically, her condition was fairly good and of normal development for a girl of 15 years. The school authorities had had considerable experience with similar cases, but even to them her mental condition was pathetically interesting, because of such unusual morbidity in so young a person, when the natural exuberance of youth generally overcomes even the tragedy of deafness and blindness.

During 1920, Miss Smith, a teacher of the deaf at Eau Claire, informed Willetta of Helen Keller's method of communication. Willetta became interested and gradually began to show mental development, emerging from her shell of indifference with an eagerness and alertness transcending anything that had seemed possible to her when she possessed both partial vision and hearing. She piloted herself from the dark silence, and discovered hidden paths which took her back into communication with the world she had thought forever lost.

I was first called to Wisconsin in consultation on Willetta's case, by Dr. J. P. Thorne, oculist and aurist for the Wisconsin School for the Blind, during November, 1921. I had previously discussed the case with him and was interested in his observations. Since then I have made other visits to Wisconsin to study the case, and have had Willetta brought to Chicago once for a few days during which I presented her before the Chicago Medical Society and its Evanston branch. I have already spent more than seventy-five hours with her, and feel that I have only begun to realize her value as a scientific subject. The following is what I have observed after numerous severe and exacting tests.

"HEARS" WITH FINGER TIPS

She learned that, by placing her finger tips on her phonating larynx, she could "feel" what she said. She discovered that she could discern what others said by placing her fingers over their larynges; and as time went on, she advanced still further and found that she could hear through her finger tips when they rested not only on the larynx but also on the head or chest of the speaker. She soon learned that the vibrations could be "heard" if transmitted by intervening objects, such as a billiard cue, one end resting on the speaker's head or against his chest, the other end in her hand. She heard men better than women, because of the coarser vibrations. She heard speakers with deep voices better than those whose voices were pitched higher, and could not only "hear" but also distinguish the speakers. She learned their "different feel" as we learn the difference in voices. She could carry on a conversation, with only the air as a medium of vibration, by holding a sheet of paper between both hands, the speaker talking "against" it. The school authorities state that she can use a telephone and read its messages by her fingers held over the receiver, but this test proved unsuccessful each time I tried it, though I found her very efficient in the audiphone test, although the latter, with a short receiver wire, would not exclude hearing. She can hold her fingers over the end of a 10 foot tube, as a mailing tube, and carry on a conversation with the speaker at the other end. She can hear an orchestra or lecture by placing her fingers over the ear pieces of the oral phones such as are now in use. I attended the Easter service with her and she told me correctly what was on the program, having apparently obtained this information by the assistance of her finger tip placed on the receiver of her audiphone. This, she carries constantly with her.

Her fine sense of touch does not stop here. She can actually read by running her finger tips over newspaper headings of half-inch or even smaller type, and she can readily and rapidly distinguish the denomination of paper money by feeling the imprint of the numbers and the difference of the designs.

In spite of the fact that she is blindfolded and that all precautions are taken to eliminate the possibility of her gaining information by either sight or hearing, it is almost impossible to believe what she does, and equally uncanny to witness her practically faultless demonstrations.

"SMELLS" COLORS

Her remarkable powers do not cease here. She has also developed her sense of smell to an unheard of degree. This was first discovered in her sewing class, when it was found that she was able to distinguish the different colors of thread by smelling them. She was able to state not only which student had made a certain dress, but also which instructors had supervised the making of that dress, by the individual odors imparted.

She can easily distinguish the colors of flowers. At first I thought that this was because of the perfume, but found that she was able to distinguish the colors and different shades of color in no less than eight different colored flowers of one kind (asters or zinnias) by her sense of smell alone, with both eyes completely blindfolded.

At one of my examinations, I handed her a sweater, the body of which was orchid color with a deep hem of purple, the weave being identical. She smelled it and said it was lavender in the body, but that there was a deep purple color there too. I asked her to find the line of demarcation between the two colors, which she did as accurately as if she were able to see.

TESTED IN THE DARK

I took some Holmgren's yarns, handed a different color to each of eight persons present, told them to remember the color given them, and after turning out the light, each of us gropingly found our way before her with our yarns, which she placed in turn to her nose and correctly named the colors and tints (whether light or dark) of each.

One of the women present wore a hat on which was embroidered a three-color design. Willetta correctly named the three colors, the color of the hat and its lining.

I gave her a string of colored beads and a set of different colored glass lenses, but with these she was lost. She said she could not smell these because "they keep their smell inside of them." She gets no appreciable odor from them or from any glazed surfaces as, for instance, pottery, though she can distinguish unglazed pottery fairly well. She states that all glass "smells green," so she cannot detect other colors in glass.

Through her sense of smell she states that she can determine the number of people in the room with her, if there are not too many. She correctly stated that there were eight persons present during one of my examinations, and she was even able to tell when the large family cat meandered in and out.

However, she became quite tired during one of my examinations, and toward the end I found she made an occasional mistake, which she corrected on being allowed to go to the open window and breathe freely for a while. She finds that a close, stuffy room, without frequent air changes, interferes considerably with her ability to distinguish colors. There are some odors that seem to produce a sense of pain to her—for instance, the odor of a narcissus seems to hurt her—much the same, perhaps, as the vibrations of a Bárány noise apparatus produces a sense of pain in her, owing to the tremendous vibrations.

She seems able to tell when she is being looked at, and dislikes being the center of interest. She is extremely sensitive, particularly to the mental attitude of those about her, and is especially resentful of having her veracity questioned. During one of my examinations, when I had sealed her eyes with cotton, several layers of adhesive plaster and bandages to prevent any possibility of vision, she felt it so keenly that she would neither smell a color correctly nor feel the denomination of paper money. I let her rest for about three hours with the adhesive blindfold intact, and, after joking and laughing with her for a time, proceeded with the tests as successfully as at any time. She is temperamental and will work accurately on the experiments only when the examiner is kind, patient and considerate, and betrays no evidence of skepticism.

I here desire to emphasize the fact that no stranger can examine her and obtain accurate and conclusive results by one examination, even should it be of several hours' duration. It requires infinite patience and an acquaintanceship that allows her to work in sympathy with the examiner.

I must admit, in spite of the exhaustive tests to which I have submitted her, that it has been very difficult for me to remove all feeling of doubt and skepticism. She is so conscious of her surroundings and environment that it is almost impossible to believe that she has not some vision and some hearing. On numerous occasions I have tested her for both, but have been wholly unable to obtain any definite proof that she possesses any remnant of either.

PHYSICAL EXAMINATION

Willetta is a well grown and well nourished girl of 17, of the brunette type, with rather high cheek bones. Her knee jerks and Babinski reflexes are normal. Her eyes are brown, and slightly below the average in size. Voluntary eye movement is free in all directions, although a somewhat nystagmoid horizontal concomitant wandering without design is observable at times. This nystagmus is much increased, like an intentional tremor, when she is told to keep the eyes quiet. At times, her eyes have the usual empty, shifting and meaningless appearance of blind eyes, but at other times it is extremely difficult even to believe her blind, because she can look at one with eyes apparently full of recognition and understanding. This is one of the greatest obstacles to a conviction of her blindness. The lid margins and tear ducts are normal, and the conjunctivae smooth and clear. The cornea has normal reflection of external objects, but deep in the corneal substance opacities are observable, somewhat pigmented, and ramified by a few contracted blood vessels. At one place in the left cornea this opacity is somewhat stellate and radiating in type. The keratitis is of the deep interstitial type, with fine, amorphous scarring. In each eye the opacities are located mostly in the 7 to 11 o'clock sector, and are suggestive of syphilitic infection. The anterior chambers are of medium depth. The pupils are regular and symmetrical, about 4 mm. in diameter, with good brisk reaction to light.

The pupils were well dilated and the fundi examined. There was a fairly bright red reflex in each eye with which the corneal opacities interfered considerably. The media were otherwise clear, with no apparent vitreous opacities. The fundi were difficult to examine because of the nystagmoid movements referred to above and the corneal opacities. The disks seemed medium pink and fairly well outlined. There is no cupping and the vessels are fairly well proportioned, straight and well distributed. Maculae and the remainder of the fundi seem normal, and I can discern no choroidal or other pathologic condition of the fundi. There is certainly no marked optic atrophy or other gross pathologic condition observable in either eye, and I can state positively that if she is blind, the pathologic change lies posterior to the eyeballs.

Examination of the nose, throat and ears disclosed no enlarged cervical glands. Her teeth are fairly good, with no Hutchinson pegs. The tonsils have been removed by Dr. Wolkoski of Chippewa Falls.

Anteriorly, the nasal septum is slightly deviated, but there is a moderate breathing space on both sides with but little evidence of discharge. There is a small spur on the left septal aspect, and the left inferior turbinate is slightly enlarged. The nose is practically normal, on the whole, showing no pathologic changes.

The canal of the left ear is clean, with the membrana tympani revealing a normal cone of light except for some scarring near the umbo, where there is a very slight retraction; otherwise the external objective examination is negative. The canal of the right ear contains a small, thready stream of mucopurulent discharge, escaping from a 2 to 3 mm. slightly ovoid perforation, through which faint pulsation can be seen. The handle of the malleus is missing, and considerable scarring can be detected about the perforation, though it is fairly thin lipped. The appearance here represents the usual pathologic changes of chronic suppurative otitis media. Objectively, one is at as much loss to explain her deafness as her blindness. Further blood and spinal tests will be made.

Subjectively, the patient refused to admit the remotest remnant of hearing in either ear. She readily admits feeling the vibrations of the tuning fork and Bárány noise apparatus, but she positively states that she cannot hear them. She can feel, and emphatically reiterates that she cannot hear, the tuning forks vibrating on the head (not lateralized) about as long as one can usually get bone conduction, but she can feel it vibrate even after we cannot normally detect air vibration, if the fork is in contact with her left middle finger. This is her most sensitive finger. The right middle finger is next in degree of sensitiveness, and the left forefinger is third. The right forefinger has lost all sensation distal to the last joint within the last year, the result of an infection, apparently a paronychia.

She can pitch her voice correctly with a vibrating tuning fork even after the fork cannot normally be heard by air conduction by holding it in finger contact, when her arm is fully outstretched, and can even pitch with the lower notes of the Galton whistle, which she also detects, according to her statement, only by her sensitive finger tips held in contact with the instrument.

Rotation tests, with the head slightly forward, produced moderate dizziness and beginning nausea, but no change in the eyes except that they seemed to be turned rather more toward the side opposite to the direction of rotation; and her irregular nystagmus reading was extremely inconstant, making it difficult to base any reliable conclusion thereon.

I must admit that, from the objective point of view, I am wholly unable to account for her blindness or deafness, except that both, if present, must be due to central, probably cortical, pathologic changes. The observation of the eyes and what we have been able to learn about the family history, despite the negative Wassermann report, point to a syphilitic infection, which, of course, could be sufficient to account for any pathologic condition found, but certainly can hardly be credited with the extraordinary constructive developments of her case.

The possibility of malingering is, of course, very great, and I have given it due consideration, as I most fully realize that her peculiar abilities will tax ordinary credulity to a point at which not only her sincerity but my observing powers will be severely questioned. In fact, I questioned them myself for no brief period. But, after the most deliberate observation of the subject, and considering her lack of motive for malingering, combined with the tests carried out to the best of my ability, and despite the apparent discrepancy between the objective manifestations and the physical findings, I am convinced that the girl is both blind and deaf; that her ability to comprehend speech by receiving the vibrations with her fingers and to distinguish colors by recognizing a distinctive odor for each shade is genuine, and that she presents an example of the development of certain special senses replacing those lost, of which no exact parallel has yet been recorded in any medical or other scientific literature.

I have every faith in the honesty and sincerity of Professor Jastrow, but he simply could not "see the forest because of the trees." His letter expresses my first impressions rather accurately; but he was misled by limited examination and natural assumptions, and I know that he will share our enthusiasm and interest in the future developments of this case.

My purpose with this article will be accomplished if this statement is accepted as a warning and an appeal to all interested in science to examine most carefully all cases presented; to judge only when all the obtainable evidence is accumulated, and then if necessary to revamp antiquated beliefs to conform to facts as developed rather than to make facts conform to antediluvian creeds, for thus do we arrive at the road to progress.

30 North Michigan Avenue.

RESUSCITATION BY THE INTRACARDIAC INJECTION OF EPINEPHRIN *

JULIUS GOTTESMAN, M.D.

NEW YORK

Instances of recovery, after failure of the heart action, by the injection of epinephrin into the heart are sufficiently rare to justify the report of a case in which this occurred:

REPORT OF CASE

S. K., a man, aged 73, with generalized arteriosclerosis, was admitted to the hospital, June 26, 1921, complaining of severe pain in the right leg due to trophic changes. The patient was in fairly good condition for his age, although there was marked emphysema of the lungs, and emaciation. The heart sounds were distant and of poor quality. The arteries of the extremities were tortuous and much thickened. There was marked atrophy of the muscles of the right lower extremity. Neither the dorsalis pedis nor the popliteal arteries could be felt. The Wassermann blood test was negative. The urine contained a trace of albumin, but no casts. The blood analysis revealed the urea nitrogen as 12.2. The systolic blood pressure was 176, diastolic 80.

The pain continued to be very severe, and, September 20, amputation of the affected extremity under spinal anesthesia was attempted. The patient was placed in a sitting position on the operating table, and after 10 c.c. of spinal fluid had been withdrawn, 10 c.c. of 1 per cent. solution of procain was injected into the spinal canal, followed almost immediately by drowsiness, cyanosis and shallow respiration. The heart action remained good for about five minutes, when the patient became unconscious, respiration ceased, and the pulse and the heart sounds could not be detected. Artificial respiration was begun and various cardiac stimulants, including caffein, camphor and epinephrin, were given hypodermically, but without effect; the breathing had ceased and the heart action seemed to have ceased. Twenty minims (1.2 c.c.) of epinephrin, full strength, was then injected into the left auricle by puncture of the chest wall between the left third and fourth ribs, the position in the cavity of the heart having been determined by aspiration of blood. There was immediate reappearance of the radial pulse and of feeble

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* From the Surgical Service, Montefiore Hospital.

respiratory efforts. This was followed by the return of the heart sounds. The cyanosis was gradually replaced by normal color, and within a few minutes, respiration became regular, the heart action good, and consciousness was restored. After this the patient made an uneventful recovery from his symptoms.

As the pain continued for a number of months, the extremity was finally amputated above the knee, under gas and oxygen anesthesia. Recovery was prompt and the patient was discharged from the hospital four months after operation.

All the successful cases of resuscitation with intracardiac injections of epinephrin reported in the literature occurred in heart failure following anesthesia, asphyxia, or severe physical or electrical shock, when there was no distinct contraindication to the restoration of the cardiac action, to wit, the presence of a prolonged illness or disease. Only in this type of case would such measures have any permanent effects.

Emergency measures used to restore cardiac activity act either through direct action on the cardiac muscle, as in cardiac massage through the abdomen, or through the action of a drug on the myocardium or on the neuromuscular junctions. Epinephrin injected directly into the heart combines the advantages of the two, the puncture mechanically stimulating the heart muscle, and the drug acting on the neuromuscular junctions.

129 East Sixty-Ninth Street.

Clinical Notes, Suggestions, and New Instruments

CARCINOMA OF THE ESOPHAGUS, WITH PERFORATION OF THE AORTA

Joseph J. Meyer, M.D., Johnstown, Pa.

As perforation of the aorta is a rather infrequent complication of cancer of the esophagus, this case is reported so that it may be recorded with the relatively few cases so far entered in medical literature. Knaut[1] reports a series of fifty cases up to 1896. Carr and Hanford[2] compiled reports of twenty-one cases occurring since 1896, and added one of their own, making a total of twenty-two. The following case is here added:

An Austrian housewife, aged 47, entered the Conemaugh Valley Memorial Hospital, Oct. 17, 1921, for the relief of vomiting. The family history was unimportant. The patient had always enjoyed excellent health until the present illness began. She did not remember having any sicknesses. She had four children, two of whom were living and well. There had been no miscarriages. The menstrual history was normal. The present illness began about two months before with vomiting (on observation it was found that what the patient thought was vomiting was really a regurgitation), particularly noticeable with solid and semisolid foods. The patient could swallow liquids, if taken in small amounts and swallowed slowly. She complained of pain beneath the sternum and in the stomach, with a sense of fulness in the epigastrium. The appetite was good. There was considerable eructation of gas. She vomited (?) undigested food. The bowels had been fairly regular until the last month; there had been no movement during the last week. She complained of loss of weight and weakness. There were no renal symptoms and no headache.

The patient was fairly well developed, poorly nourished and anemic, and appeared normal except for the presence of an umbilical hernia. The temperature varied between 97 and 101 F.; the pulse, between 70 and 120; the respiration, between 20 and 35. The urine was amber, clear, acid with a specific gravity of 1.020, a thick sediment, a medium trace of albumin, no sugar, and a heavy trace of acetone. There were a few hyaline casts and a moderate amount of pus cells. Blood examination revealed: hemoglobin, 70 per cent.; erythrocytes, 4,336,000; leukocytes, 10,600; polymorphonuclears, 61 per cent.; large lymphocytes, 4 per cent.; small lymphocytes, 33 per cent.; transitionals, 1 per cent.; basophils, 1 per cent. The Wassermann reaction was negative. The coagulation time was four and one-half minutes. Roentgen-ray examination revealed stricture of the esophagus 2 inches from the top of the sternum, rather irregular, and probably malignant.

The patient was unable to swallow anything except for a small amount of liquids. The throat consultant advised against esophagoscopy at this time, and as the patient was failing rapidly, a gastrostomy was performed. After a rather stormy ten days the patient began to improve, and, about December 10, was up and about the ward. Her general condition improved, and she gained slightly in weight. December 29, immediately after going to bed, she was found gasping for breath, and died in a few minutes. There was no bleeding from the mouth.

Necropsy revealed a fibrous, malignant growth involving the esophagus, on a level with the bifurcation of the trachea, about 3 inches in length. The lumen was almost occluded, admitting only a small-sized probe. There was an ulcerating area in the center of this growth which invaded the aorta, and here the perforation occurred. The opening into the aorta admitted an ordinary sized lead pencil. The stomach was filled with blood. The gastrostomy opening was in good condition. No metastasis and no other abnormalities were found.

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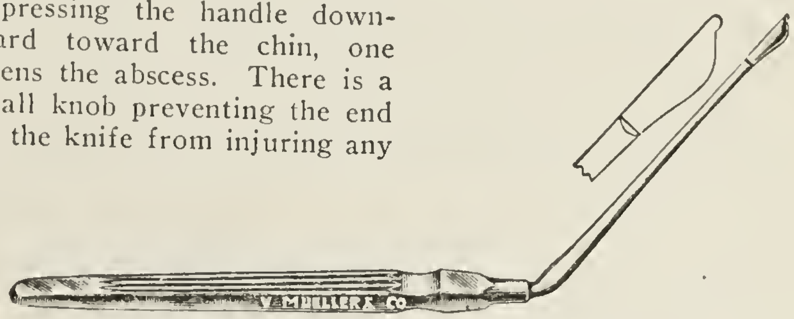
[1] Knaut: Inaug. Diss., Berlin, 1896.

[2] Carr, J. G., and Hanford, C. M.: Carcinoma of the Esophagus with Perforation of the Aorta, Am. J. M. Sc. **164**: 340 (Sept.) 1922.

A NEW INSTRUMENT FOR OPENING ABSCESSES IN THE LARYNGOPHARNYX

I. Ruebert Smith, M.B. (Tor.), M.R.C.S. (Eng.), L.R.C.P. (Lond.)
Toronto

This instrument is to open abscesses in the laryngopharynx. The angle of the handle with the shank is 135 degrees, so that when the instrument is inserted in the pharynx the cutting edge of the blade presents itself against the anterior surface of the abscess, and by depressing the handle downward toward the chin, one opens the abscess. There is a small knob preventing the end of the knife from injuring any of the deeper anatomic parts. The knife itself is bellied near the tip to facilitate the opening of the abscess. This knife can be used with the patient in either the sitting or the lying position with the same advantages.



Knife for opening abscesses in the laryngopharynx.

I had this knife made for me about twelve months ago, and have found it simple, practical and efficient for this purpose.

116 College street.

Menstruation.—I doubt if there is any bodily function in the female which has received more attention from time immemorial than menstruation, and yet we are still groping in regard to the actual cause and the precise significance of it. Its very mysteriousness has led to its becoming surrounded by encrusted masses of superstition and folklore which have, as Novak says in his recent book, "befogged the subject in the minds of both the laity and the profession and inhibited intelligent efforts to study it."—Johnstone, *Edinburgh M. J.*, May, 1922.

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SATURDAY, OCTOBER 14, 1922

TESTS OF ARTIFICIAL RESPIRATION

Artificial respiration is so likely at times to be a life-saving procedure that the fundamental facts in regard to it should be firmly established and clearly understood, especially by the public. Proposals of methods for the resuscitation of persons in whom respiration has been suspended through drowning, electrical shock, injury to the nervous system or other causes have been made by many investigators. Those which advocate the forcible introduction of air into the lungs by means of a special apparatus have not found widespread favor, although some of them have been extensively advertised. When artificial respiration is called for it should be instituted without delay in order to be effective; for this reason, mechanical devices are not always to be depended on for such first aid, because they may not be immediately available. And "immediately" usually means one or two minutes. The more familiar methods depend on securing an expansion of the lungs in the normal way through altering the position of the walls of the chest by an external force.

All physicians and many laymen are familiar with the procedures advocated by Sylvester, Howard and others in which the affected person is placed in a supine position. Various schemes are then employed to expand and contract the chest successively. They have been widely described in popular treatises, and have been taught to many persons. Some time ago, Sir Edward Schäfer[1] recommended what is commonly known as the "prone pressure" method. This consists, in his own words, in laying the subject in the prone posture, preferably on the ground, with a thick folded garment underneath the chest and epigastrium. The operator puts himself athwart or at the side of the subject, facing the head, and places his hand on each side over the lower part of the back (lowest ribs). He then slowly throws the weight of his body forward to bear upon his own arms, and thus presses on the thorax of the subject, and forces air out of the lungs. This being effected, he gradually relaxes the pressure by bringing his own body up again to a more erect position, but without removing the hands.

The Schäfer procedure is not difficult to practice, and seems to be relatively free from injury to the patient. After all, the most important point in any method is to secure adequate ventilation of the lungs. For adult man this means from 5,000 to 6,000 c.c. of air each minute. Schäfer has maintained that the older directions fail to accomplish this. Recently, Burton-Opitz[2] of Columbia University made accurate spirometric measurements of the efficiency of various procedures. The results were most favorable with the prone method. Burton-Opitz has found that the raising of the umbilical region greatly diminishes the downward trend of the pressure, so that the best possible bellows-effects may be obtained. Under these circumstances, it suffices to exert only a very moderate degree of pressure, provided the hands are placed flat against the lower ribs and the pressure is directed inward and upward. It is then an easy matter, he states, to exceed the normal volume of the tidal air by as much as from 100 to 150 c.c. These facts support the conclusions of the Third Resuscitation Commission in urging the immediate manual treatment of those in need of artificial respiration by the prone-pressure method on the spot where they are found. It is alike the simplest and most reliable of the first aid devices.

THE CAPILLARIES OF THE HUMAN SKIN

In his review of the evidence of functional activity of the capillaries and venules, Hooker[3] pointed out that although studies of capillary contractility extend back for a period of fifty years, almost to the time of the discovery of vasomotor nerves, and although the profound significance of the blood stream in the capillary areas for tissue nutrition was recognized at an even earlier period, capillary function is given scant, if any, consideration in discussion of vascular reactions today. The simple hypothesis of vascular control by means of functional activity on the part of the arterioles has been adequate to explain experimental results. Yet, Hooker adds, in recent years a considerable amount of evidence has been collected which goes to show that this conception is inadequate.

An important factor in the revision of our ideas regarding capillary function has been the development of helpful methods of study. Foremost has been Lombard's[4] simple technic whereby a drop of glycerol or transparent oil on the skin, illuminated with a bright light and examined with a suitable binocular microscope, will yield a view of the superficial blood vessels. The procedure has been developed to one of large usefulness. An outcome of the scientific research that it has fostered has been the demonstration that the capillary bed is responsive to both chemical and nervous influences. The smallest vessels may participate directly in vascular reactions. Much of the evidence has been furnished by Hooker in this country, and by Krogh in Copenhagen. The latter, in particular, has pointed out how important are the active contraction and relaxation and the shifting number of open capillaries in the regulation of blood distribution and the supply of the tissues. In a recent contribution from Krogh's laboratory, Carrier [5] has demonstrated anew that the diameter of the capillaries is not necessarily dependent on the pressure in the arterioles, but rather on their own tone and state of contraction. They normally contract or relax independently of the pressure behind them, but in response to local or general stimuli. It can be shown that cold produces a contraction of arterioles, with a slowing in the blood stream and contraction of the capillary wall. When the cold becomes extreme, the capillaries are paralyzed, open up, and fill ultimately with venous blood. Studies on the action of drugs applied locally also indicate the power of the capillaries independently to contract or relax.

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[1] Schäfer, E. A.: Artificial Respiration in Its Physiologic Aspects, J. A. M. A. **51**: 801 (Aug. 29) 1908.

[2] Burton-Opitz, Russell: A Comparative Study of the Different Methods of Artificial Respiration, Am. J. Physiol. **61**: 562 (Aug.) 1922.

[3] Hooker, D. R.: Evidence of Functional Activity on the Part of the Capillaries and Venules, Physiol. Rev. **1**: 112 (Jan.) 1921.

[4] Lombard: The Blood Pressure in the Arterioles, Capillaries and Small Veins of the Human Skin, Am. J. Physiol. **29**: 335, 1912.

It is becoming necessary, in the light of this knowledge, to revise our ideas regarding the nature of dermatographism. This term is applied to the vascular cutaneous reaction which may be developed as a blanched area after fifteen or twenty seconds, when the skin is stroked lightly with a blunt instrument. This phenomenon has been known for more than half a century, and has been regarded clinically in certain circumstances as indicative of "vasomotor instability." Carrier asserts, in the light of his experimental findings, that if the cause of such reactions has not been placed with absolute certainty outside the action of the sympathetic nervous system, it is at least made very probable that they are due to direct mechanical stimulation of the vessel walls. Such information about dermatographism is highly important, because there has been a tendency of late to use it diagnostically in several fields of clinical and physiologic study.

ANTIVIVISECTION PROPAGANDA BY CAMOUFLAGE

In Colorado and California the antivivisectionists have initiated bills to abolish animal experimentation. At the November elections in these states the proposal will be decided by popular vote. Dr. W. R. Hadwen has again come from England to denounce in these Western States and elsewhere the use of the experimental method in solving medical problems. As possessor of an M.D. degree, and as a facile speaker, he may lead thoughtless people into believing that the medical profession seriously questions the value of the method. Dr. Hadwen is characterized by antivivisectionists as "a distinguished physician and surgeon of England, whose attainments are of the highest order." Who is Dr. Hadwen, and upon what basis does he presume to speak for the medical profession?

Dr. Hadwen was born in 1854, and he obtained his M.D. degree from St. Andrews in 1897, when he was 43 years of age. He also writes "J.P." after his name —Justice of the Peace. No evidence is forthcoming to indicate in any way that Dr. Hadwen is a "distinguished" physician or surgeon, except as he may be said to be "distinguished" from the rest of the medical profession by the manner in which he allows his medical degrees to be exploited in the interests of an unscientific propaganda, thus lending to his bizarre utterances a weight which they would not otherwise have. Like most faddists, he does not confine his efforts to the advocacy of a single fad: he not only is an ardent antivivisectionist, an antivaccinationist and a vegetarian, but also has been the proponent of movements connected with temperance, premature burial, and almost every agitation against modern science and modern medicine. His knowledge may be judged from the following quotations:

> "I deny the whole germ theory of disease."
>
> "There is no such thing as a typhoid or diphtheria germ."
>
> "There is not an atom of truth" in the view that germs carry disease.
>
> "I know nothing whatever that has been gained from experimentation on living animals that has been of the slightest benefit in the amelioration or cure of any human disease."
>
> "I am out for the abolition of vivisection entirely, root and branch."
>
> "The boasted work of Pasteur and Lister is all nonsense."
>
> "I have no hesitation in calling him (Pasteur) the greatest charlatan of the last century."

We repeat: Such views as these are sufficient to "distinguish" any man—certainly in holding such views he practically stands alone among doctors of medicine.

When he was in the United States last year, Dr. Hadwen asserted that the British government was paying £4,000,000 a year to former British soldiers suffering from heart disease, and said, "I have no hesitation in giving my own firm opinion publicly tonight that nine tenths of those cases were the direct result of the blood poison by antityphoid inoculation." This astounding charge was brought to the attention of Sir Thomas Goodwin, director-general of the British Army Medical Service, by Major-General M. W. Ireland, Surgeon-General of the United States Army.[1] In reply, General Goodwin stated officially that the causes of cardiac disease in the pensioners had been carefully determined by highly qualified experts, and that they did not lend the smallest support to Dr. Hadwen's conjectures. Instead, in comparison with previous experience without antityphoid inoculation, the procedure saved many thousands of lives—a conclusion supported by the statistics of the American army.

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[5] Carrier E. B.: Studies on the Physiology of Capillaries, V, The Reaction of the Human Capillaries to Drugs and Other Stimuli, Am. J. Physiol. **61**: 528 (Aug.) 1922.

[1] The correspondence appeared in THE JOURNAL, Jan. 21, 1922, p. 233.

The ignorance of the basic facts of medicine revealed by this opinionated gentleman may be appraised from the utterances quoted. It is unfortunate that a man so essentially uninformed on medical science is in a position to exploit his medical status so as to endanger the lives of his fellow men, and even of the dumb creatures which he claims to befriend. The members of the medical profession should make sure that Dr. Hadwen's true position in the medical ranks is generally understood by the public which he has tried to influence, and that his "opinions" are opposed by well-founded facts.

We assert that W. R. Hadwen is *not* "a distinguished physician and surgeon"; on the contrary, he stands discredited both in his own country and abroad by those whose scientific opinions and attainments are worth anything.

DANGERS OF ALKALOSIS

Alkali therapy, particularly as it is exemplified in the widespread use of sodium bicarbonate under all manner of circumstances, has such a long tradition and so much popular approval that its possible shortcomings are rarely given consideration. In the management of diabetes, for example, the administration of sodium bicarbonate, particularly when a detectable ketosis is present and acid products of incomplete intermediary metabolism must be eliminated, has come to be looked on by many as essential to the safety of the patient and conducive to his well-being. Some of the leaders in this clinical field, however, have warned against the indiscriminate use of the alkali in combating so-called acidosis; in fact, it has even been questioned whether the procedure is ever really necessary, if the regulation of diet is so enforced as to reduce the production of acid factors of the sort referred to. In recent years it has become more apparent that "alkalosis" may have dangers for the organism quite as serious as those of the better recognized acidosis. Any situation in which the acid-base equilibrium of the organism is seriously impaired may be regarded as a physiologic menace.

Illustrations of this have lately been recorded by Grant[1] at the Peter Bent Brigham Hospital, Boston. Overdosage with sodium bicarbonate in cases of acidosis resulted in the appearance of unmistakable symptoms of tetany, a symptom already described for animals under conditions in which alkali is added to the blood faster than it is being excreted, so that the normal ratio of sodium bicarbonate to carbonic acid ($NaHCO_3$: H_2CO_3) is upset. Tetany is seen in man in other conditions in which this disturbance of equilibrium may occur; for example, in hyperpnea leading to an overventilation whereby the carbon dioxid is removed in undue proportions from the blood, and in gastric obstruction whereby acid secreted into the stomach remains there so that it cannot pass into the intestine to stimulate the flow of corresponding alkaline secretions into the bowel. Consequently, an excess of sodium bicarbonate is left in the blood.

A type of tetany associated with a lowered content of calcium in the blood has received much attention of late.[2] Alkalosis is not a constant characteristic of this condition, which is occasionally found in infants and in experimental parathyroidectomy. Whether the various types of tetany now recognized can ultimately be explained on some common etiologic basis, such as a deficiency of calcium in the tissues themselves, or failure to excrete certain toxic substances, as claimed by Luckhardt, remains to be seen. The warning that alkalosis through institution of inadvisable therapeutic procedure should be avoided is timely, in any event.

Current Comment

CONGENITAL HEMOLYTIC JAUNDICE

Hemolytic jaundice, a disease first recognized by Hayem in 1898 and by Minkowski in 1900, occurs in an acquired and a congenital or familial form, the latter being more frequent and also better understood. The disease often appears in members of different generations of a family, and it is apparently transmitted in equal degree by father or mother; but sometimes it is observed without any record of previous occurrence in the patient's ancestry. As in the case of other hereditable diseases, the cause is obscure, and the usual efforts to ascribe this, as other little understood conditions, to congenital syphilis and to tuberculosis have not been successful. As pointed out by Tileston,[3] the jaundice in this disease, as a rule not pronounced, is present at birth or appears in childhood or youth and persists through life. The general health may not be affected seriously, the patient being "jaundiced rather than sick"; many of the patients live to an advanced age, and some regard the jaundice as a family peculiarity. Generally speaking, the jaundice is acholuric and nonobstructive—bile pigment is present in the stools but absent from the urine—the spleen is enlarged with more or less anemia ("congenital icterus with enlarged spleen"), and, as shown by Chauffard, the resistance of the red corpuscles, many of which are reticulated, to hypotonic salt solution is lower than normal. In hemolytic jaundice, laking may begin in from 0.7 to 0.6 per cent. salt solution and be complete at 0.4 or even at 0.45 per cent., while normally laking begins at from 0.44 to 0.48 per cent., and becomes complete at 0.3 per cent.[4] A characteristic feature is the "crises" that occur more often in the earlier periods of life, in which there is fever, vomiting of bile, and pain in the splenic and hepatic regions, the general jaundice deepening and the number of red corpuscles falling rapidly (Widal's "deglobulization") so that a rather severe temporary anemia may develop. The hemolytic nature of the jaundice, that is, the derivation of the pigments directly from hemoglobin, is regarded as settled, the abnormal fragility of the red corpuscles in all likelihood being a primary factor in its production. Whatever the nature of this fragility, it is easily conceivable that in consequence of it the red corpuscles are destroyed more readily. There is increased phagocytosis of corpuscles and pigmentation on the part of the endothelial cells of the spleen, liver, marrow and lymph nodes, and the spleen becomes enlarged, partly, at least, from the effects of the excessive destruction (so-called spodogenous enlargement). Whatever the explanation of the mechanism of increased destruction of corpuscles in congenital hemolytic jaundice, and of the accentuation of the process at times of crises, the spleen must play an important, active part because splenectomy may be followed by marked improvement, and even virtual cure. In such cases the jaundice fades away, and the red corpuscles become normal in number as well as appearance. Their abnormal fragility on testing with hypotonic salt solutions may persist, however, and the possibility cannot be denied that pathologic hemolysis may become reestablished. The value of splenectomy in hemolytic jaundice was shown strikngly in Elliott and Kanavel's [5] compilation of forty-eight cases—sixteen acquired, twenty-three familial, nine ungrouped—in which splenectomy had been made: In all except two in which death took place soon after he operation, a "cure" was reported. Various forms of medical treatment and the roentgen ray so far have been without any effect. Tileston advises that in all cases of chronic or recurring nonobstructive jaundice n patients under 30 years of age, the possibility of congenital hemolytic jaundice be given careful consideration. In fact, in all cases of chronic nonobstructive aundice the resistance of the red corpuscles to hypoonic salt solution should be tested, and searching nquiries made as to the occurrence of jaundice in the amily, and of "crises" and anemia in the earlier hisory of the patient.

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[1] Grant, S. B.: Tetany: A Report of Cases with Acid-Base Disturbance, Arch. Int. Med. **30**: 355 (Sept.) 1922.

[2] Howland and Marriott: Quart. J. Med. **2**: 289, 1918. Kramer, B.; Tisdall, F. F., and Howland, J.: Observations on Infantile Tetany, Am. Jour. Dis. Child. **22**: 431 (Nov.) 1921. Hastings, A. B., and Murray, H. A., Jr.: J. Biol. Chem. **46**: 233 (March) 1921.

[3] Tileston, Wilder: Hemolytic Jaundice, Medicine **1**: 355-388, 1922.

[4] Directions are given by Pearce, Krumbhaar and Frazier: Spleen and Anaemia, Philadelphia, J. B. Lippincott Company, 1918. Kolmer, J. A.: Infection, Immunity and Specific Therapy, Philadelphia, W. B. Saunders Company, 1915, p. 847.

RADIOACTIVITY OF WATERS

Twenty-five years ago, various mineral springs and waters were advertised with a host of therapeutic virues accredited to "lithia." Time and the analytic hemists have educated laymen—and physicians too—s to the absurdity of the lithia theory. To obtain a ose of lithium in the average natural lithia-containing waters, the patient must drink a quantity of water qual to that in some of our summer resort lakes—and fter this Gargantuan feat the pharmacologist would nform him that lithium is of no value anyway. Is adioactivity now to complete the same cycle? So opular is the magic word "radio" that no advertisement is complete without it. Waters, be they from omestic mineral springs or from the spas abroad, are roclaimed as containing the "therapeutic catholicon" f the ages. But again experience and the chemists are to be reckoned with. Experience has shown that radium and its emanations are not endowed with all of the wonderful virtues professed, and the rationale of its internal administration is being doubted. Furthermore, relative traces of radioactive substances are practically valueless; the Council on Pharmacy and Chemistry will not accept, for inclusion in New and Nonofficial Remedies, any radium solution for internal use the dosage of which is less than 2 micrograms each day, or any radium emanation generator which yields less than 2 microcuries of emanation each twenty-four hours. For the last ten years, chemists in the Department of Agriculture have been examining both natural domestic waters and bottled foreign waters; a report of the amount of radium or radium emanation found in such waters has just been published.[1] The determinations show that it would be necessary to consume 2,810 gallons daily of the water yielding the largest quantity of temporary radioactivity in order to obtain the minimal therapeutic dose of 2 microcuries emanation. On the other hand, if the permanent variety of radioactivity is desired, the best water available would necessitate its administration in the amount of 1,957 gallons a day in order to obtain 2 micrograms of radium! What will be the mineral water fad twenty-five years hence?

A BRITISH ESTIMATE OF CHIROPRACTIC AND OSTEOPATHY

We all have burdens to bear. In Great Britain, as the *British Medical Journal* points out, the medical profession had to contend with the "medical clubs," but "the campaign against cheap medical schools and inferior medical qualifications . . . has been unnecessary in the British Empire." Parenthetically, our British colleague credits the American Medical Association for the complete victory which now, it hopes, has been gained over these American evils. With an eye to the future, the British journal now considers the medical cults which seem to be firmly established in America. It appears that a host of publicity agents and advertising experts has descended on London in a sporadic raid for the establishment of osteopathy. The *British Medical Journal* publishes an analysis of the report of the Massachusetts Medical Society on the principles underlying these manipulative cults. It is unnecessary here to repeat the fallacies pointed out or to show the absolute lack of any scientific evidence for the systems of therapy built on misconceptions. Here, however, is the estimate of our British confrères on these massotherapists and spinal manipulators:

> It may appear to observers at a great distance that osteopathy and chiropractic are little more than terminological adaptions of bone-setting, with the site of operation cleverly transferred from the knee or the ankle, where results (if any) can at least be seen, to the backbone, where they cannot.

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[5] Elliott C. A., and Kanavel, A. B.: Splenectomy for Haemolytic Icterus, Surg., Gynec. & Obst. **21**: 21, 1915.

[1] Skinner, W. W., and Sale, J. W.: Radioactivity of Miscellaneous Waters Examined in the Bureau of Chemistry, J. Indust. & Engin. Chem. **14**: 949 (Oct.) 1922.

Anthrax in Pennsylvania.—In connection with a survey of the entire tanning industry of Pennsylvania, 123 cases of anthrax traceable to the handling of cattle hides or goat skins were tabulated from 1910 to 1921.—H. F. Smyth, *Am. J. Hyg.*, July, 1922.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ALABAMA

Annual Clinical Meeting.—The second annual clinic of the Dallas County Medical Society was held at Selma, September 26-27, under the presidency of Dr. William W. Burns. A banquet was given, September 27, at which Dr. Oscar Dowling, state health officer of Louisiana, and Dr. Winfield K. Sharp, Jr., U. S. Public Health Service, Washington, D. C., gave addresses.

CALIFORNIA

Southern California Medical Society.—The fall meeting of the society will be held November 3-4 in Los Angeles. Dr. Louis B. Wilson, dean of the University of Minnesota Graduate School of Medicine, and Dr. Edward C. Rosenow of the Mayo Foundation, Rochester, Minn., will be among the speakers.

Luncheon Given for Dr. Stadtmuller.—A luncheon was given in honor of Dr. Eleanor Stadtmuller of San Francisco. September 6, at the San Diego Hotel, by the Medical Women's Club. Dr. Stadtmuller is chairman of the child hygiene department of the state board of health, and is making a survey of the state and planning her next year's work.

Hospital News.—A new hospital will be erected immediately at a cost of $500,000, at Bakersfield, for Kern County. This institution will replace the old structure in Bakersfield, which has been pronounced inadequate for the present need. Dr. Joe Smith will be superintendent of the institution.——The U. S. Public Health Service has contracted with the Alpine Sanatorium at Alpine to take care of government patients, Dr. Hyman Lischner, president of the sanatorium, announced, September 23.

CONNECTICUT

Large Sum for Hospital.—Under the will of Mrs. Winchester, widow of William W. Winchester, founder of the Winchester Repeating Arms Company, more than $4,000,000 has been bequeathed to the General Hospital Society of Connecticut (New Haven Hospital), New Haven. Mrs. Winchester died in California.

DISTRICT OF COLUMBIA

Drive on Hypnotic Drugs.—Following the death of Thomas Gibbs in Georgetown Hospital, Washington, from barbital (veronal) poisoning, Dr. William C. Fowler, district health officer, declared that the sale of barbital and other hypnotic drugs of the same class come under the present act regulating the sale of poisons in Washington. Section 13 of the act reads that it "shall be unlawful for any person to sell or deliver to any other persons the compounds, combination, or preparation to wit: compounds of salts of antimony, arsenic, barium, chromium, copper, gold, lead, mercury, silver or other poisons derived from poisonous alkaloids or their salts, or any other virulent poison." Dr. Fowler holds that barbital and other drugs of the sort come under "virulent poisons," and therefore should only be sold by pharmacists under the rules affecting poisons.

GEORGIA

Personal.—Dr. Marvin F. Haygood, Atlanta, who for many years has been director of county health work for the state board of health, has been selected as a beneficiary under their scholarship system by the International Health Board. Dr. Haygood has been assigned to Johns Hopkins University, Baltimore.

ILLINOIS

Full-Time Health Department Installed.—The municipality of Berwyn has installed a health officer and two nurses on a full-time basis. Funds for this purpose were made available through the creation of a public health district, which, under the laws of Illinois, provides for the levy of a tax that can be expended for nothing but public health work. Berwyn, it is stated, is the second municipality in the state to create a public health district by popular vote.

Special Diphtheria Bulletin.—The state department of public health announces that a special bulletin on the prevention and control of diphtheria has just come from the press. Space has been given to a discussion of the practical use of toxin-antitoxin and of the Schick test. The technic of administering antitoxin and problem of the diphtheria carrier are also covered at some length. Copies of the bulletin are free to the medical profession and public health workers in Illinois, and will be forwarded promptly on receipt of requests addressed to Dr. Isaac D. Rawlings, director of public health, Springfield.

Diphtheria Takes Upward Climb.—A rather sudden and sharp increase in diphtheria incidence is reported by the state department of public health. During the first week in October, when 335 cases were reported, the increase amounted to nearly 100 per cent. over the last week in September, when 189 cases were reported. The latter was slightly higher than the average for the preceding four weeks. While cases have been reported from every quarter of the state, still the most threatening foci are found in four southern counties, Madison, Saline, Jasper and St. Clair. Up to October 1, there had been reported during the year more than 1,000 cases less than for the corresponding period in 1921.

Personal.—Dr. Paul A. Slater, Hindsboro, has been appointed district health superintendent, under the state department of health, of the Seventeenth Senatorial District, which includes the counties of Coles, Clark, Douglas and Edgar. He will assume his duties at once.——Dr. James L. Miller has resigned as city physician of North Chicago.——Dr. Samuel E. Parr, Ottawa, has been reappointed county physician of La Salle County.——Dr. John W. H. Pollard, health officer of Quincy, has been named by Dr. Rawlings of the state health board as member of the committee on public health and child welfare, which will meet in St. Louis in November, and of the committee on pasteurization, which will meet in Illinois shortly.

Sanitary Surveys of Upper Fox River Region.—Sanitary engineers of the state department of public health recently made detailed sanitary surveys of the upper Fox River and connecting lakes. Along the water front of this whole region, an ever-increasing number of summer homes are being built and, as a result, there are numerous private sewers discharging into the lakes and river, making the water dangerous for bathing purposes. As a result of the investigations, steps have already been taken whereby the sources of pollution will be eliminated; while property owners will be instructed and advised as to how properly to dispose of sewage without dangerously polluting either the bathing beaches or domestic water supplies. Some half dozen cases of typhoid fever that recently developed among bathers in this region were the immediate cause of the sanitary investigations and the protective measures that have been adopted.

Health News.—The "health chores" inaugurated last year in the River Forest schools by the Chicago Tuberculosis Institute produced such successful results that they will be continued this year. Illustrated verse cards are given the children to remind them of their "chores" which are as follows:

I washed my hands and drank a glass of water before each meal, and tried to eat slowly.

I washed my face, my ears and neck and cleaned my fingernails.

I kept my fingers, pencils and everything likely to be unclean or injurious out of my mouth and nose.

I brushed my teeth thoroughly after breakfast and after the evening meal.

I took ten or more slow, deep breaths of fresh air. I protected others if I spit, coughed or sneezed.

I played out doors or with open windows more than thirty minutes.

I was in bed ten hours or more last night and kept my windows open.

I drank no tea or coffee, and tried to eat nourishing foods, including milk, cereal, vegetables and fruits.

I tried to sit and stand straight and also to keep neat.

I tried to be cheerful and cleanminded, and to be helpful to others.

I took a full bath on each of the days of the week that are checked X.

Chicago

Central Society of Physical Therapeutics.—Dr. Valemar Sillo, New York, and Dr. Francis J. Stirn, Dubuque, Iowa, were elected president and secretary, respectively, of the society at the recent annual meeting in Chicago.

Medical Building to Be Revised.—The plans of the Medical Research Building for the University of Illinois in Chicago must be revised in order to keep within the state appropriation of $500,000, it is announced. The architect states that revisions will shortly be made and new bids asked.

Hahnemann Hospital Changes.—The following changes have been inaugurated at Hahnemann Hospital: 1. An absolutely nonsectarian policy as to teaching and practice; the resident states that the hospital has no affiliation with any nedical college at the present time, and will have none except vith a Class A college. 2. Complete reorganization of the taff. 3. Weekly clinicopathologic conferences and monthly taff meetings at which the quality of service rendered atients is closely analyzed. 4. Plans, now completed, for n outpatient department, which will supplement the routine vork of the hospital. The newly appointed consulting staff ncludes: Drs. A. J. Ochsner, surgery; Ludvig Hektoen, athology; E. E. Irons, internal medicine; Cassius D. Wesott, eye; Edgar J. George, eye; Lewis J. Pollock, neurology; . Sproat Heaney, gynecology; David S. Hillis, obstetrics, nd O. T. Schultz, director of laboratories.

INDIANA

Personal.—Dr. Fletcher Hodges, Indianapolis, who was njured in an automobile accident in January, has recently eturned from a tour of Central Europe and the British Isles. —Drs. Joseph L. Conley, Martha J. Smith, William Wise, oseph Ward, Floyd R. Carter and Euclid T. Gaddy have been ppointed full-time medical inspectors of the city schools of ndianapolis by the city board of health.——Dr. C. L. Barttt, who has had charge of the laboratories of St. Joseph's lospital, South Bend, has resigned to go to China for the ockefeller Institute.

Department of Hygiene Established.—Four, or possibly ix, child hygiene clinics, with a physician in charge, will be pened in various parts of Indianapolis as soon as possible, it announced by Dr. Herman G. Morgan, secretary of the city ealth department. Paul L. Kirby, formerly general secretary f the Children's Aid Association, will be director of the new ivision. Instruction and medical attention will be given ree to expectant mothers. Dental hygiene work and home isits to parents will also be conducted under the new division. If necessary, the city will pay for such home improveients as screening windows, if a baby's life is at stake, r. Morgan states. It is estimated that the cost of maintaing the division will be from $12,000 to $14,000, yearly.

KENTUCKY

Personal.—Dr. Everette C. Wilhite has resigned as director f the Harlan County health unit and will reside in Covingn.——Dr. George W. Brown has been reappointed on the oard of health of Newport.

Hospital News.—The Henderson Tuberculosis Hospital, lenderson, a municipal institution, has been closed.——Dr. ımes P. Riffe, Covington, has been appointed to a committee develop plans for a Kenton County tuberculosis sanatorium r which $30,000 has already been raised.

LOUISIANA

Personal.—Dr. Fayette C. Ewing, Alexandria, president the Rapides Parish Medical Society and chief of the eye, ır, nose and throat service of the U. S. Veterans' Hospital o. 27, Camp Beauregard, has been appointed abstract editor r the proceedings of the ophthalmologic and otolaryngogic sections of the Royal Society of Medicine of Great ritain. It is stated that Dr. Ewing is the only living merican who has held an original fellowship in this society ıd had access to the proceedings.

MAINE

Prohibition and Narcotic Law Violators Fined.—Fifteen leged violators of the Eighteenth Amendment and the arrison Narcotic Law were fined a total of $11,850 by Judge eters in the U. S. district court at Portland, September 26. r." James C. Baker, Portland, alias James C. Wilson, was ntenced to serve three months in the county jail for having ırcotics in his possession.

MARYLAND

Physician Fined.—It is reported that Dr. Henry G. Branım, Baltimore, was fined $100 recently for unlawfully issuing prescription for intoxicants without keeping an official cord for federal authorities.

Personal.—Drs. Charles S. Levy, Moses M. Savage and arry R. Lickle have been appointed health officers in the altimore City Health Department, to succeed Drs. Jacob isher, Amos R. Koontz and George H. Grove, all of whom ıve resigned.—Dr. Robert Picqué, professor of the faculty medicine and hospital surgeon, Bordeaux, France, who ill attend a conference of surgeons in Washington, D. C., next week, was recently in Baltimore, where he inspected the surgical clinic of the Johns Hopkins Hospital.

Military Training for Medical Students.—A new course of instruction has been added to the Johns Hopkins Medical School—the Medical Reserve Officers' Training Corps. This unit will compare with the same line of training offered at the university at Homewood. Officers at the Johns Hopkins University have classed the new undertaking as essential to the general scheme for building adequate national defense. Major Charles Riley is in charge of the work. He was formerly on the staff of the Walter Reed Hospital, Washington.

Clinics for Venereal Diseases to Be Established.—The state department of health has developed plans for the opening of a chain of clinics and stations throughout Maryland to combat venereal diseases. Six new clinics are to be established, in Rockville, Easton, Frederick, Westminster and Elkton. Ultimately, it is planned to have a clinic in every city in Maryland. The department of health will furnish equipment and medical supplies for the clinics. A county health officer or a physician designated by the department will give his services. Some of the clinics are to be established in hospitals, wherever this is possible, and others will be held in physicians' offices.

MASSACHUSETTS

Refuses to Indict Physician.—The Essex County grand jury returned a no bill in the case of Dr. Joseph A. Levek, Lawrence school physician, charged with performing an illegal operation.

Boston University Opens.—Dean John P. Sutherland presided at the special exercises in honor of the fiftieth anniversary of the founding of Boston University School of Medicine, recently. Dr. Samuel H. Calderwood, chairman of the board of registration in medicine of Massachusetts, and Dr. Edward B. Hooker, Hartford, Conn., gave addresses at the ceremony.

American Physiotherapy Association.—The, first annual convention of the American Physiotherapy Association was held in Boston, recently. Dr. Elliot G. Brackett and Dr. Joel E. Goldthwaite, both of whom were active in the organization of the division of reconstruction of the M. C., U. S. Army, during the World War, and Dr. Frank B. Granger were among the speakers.

Mental Health of Children.—Dr. William Healy, director of the Judge Baker Foundation, gave a lecture on juvenile delinquency and mental training, September 24, at the Boston University School of Education. This was the first lecture of a series of fifteen to be given on the mental health of children. Teachers and parents from Massachusetts, New York and Rhode Island have registered for this course of lectures, one of which will be given every Monday night until Jan. 15, 1923.—— Prof. J. Mace Andress, head of the department of psychology and child study of Boston normal school, delivered the first lecture of a series, September 26, at the Jacob Sleeper Hall, Boston, on the subject of "Mental Hygiene—Its Significance for Education." Professor Andress was recently sent by the government on a tour of twenty-five states, to lecture on public health methods.

MICHIGAN

County Medical Meeting.—At the annual meeting of the Clinton County Medical Society, held at St. Johns, September 27, under the presidency of Dr. W. A. Scott, Dr. Guy H. Frace was elected president, and Dr. Jerome W. Ankley, secretary-treasurer.

Personal.—Dr. Homer T. Clay has been appointed school physician at Grand Rapids.——Dr. Mabel Elliott, Benton Harbor, has arrived in Rodosto, Thrace, to help care for the 40,000 refugees from Smyrna. Dr. Elliott was formerly stationed at Erivan, Armenia.

Commercialization of Sex Education Films Banned. — Dr. Richard M. Olin, commissioner of the state department of health, has issued a statement condemning the showing of the picture "Some Wild Oats" in theaters in several Michigan cities. He states that the film is being shown for the money that is in it and that there is no attempt on the part of theater managers to better health conditions or discourage sex crimes.

Hospital News.—The Oceana County Hospital Association, Hart, has purchased a site for a new hospital building and nurses' home.——The contract has been let for converting a farm building at Valley Farm, Henry Ford's place at Dearborn, into a nursery building. Provisions are planned for the accommodation of twenty-four babies, including isolation rooms, bath rooms and kitchen.——An addition is under construction at the hospital owned by Dr. R. E. Loucks in Detroit.——Dr. Bryce Miller has purchased property at First and McCook streets, Monroe, on which a hospital building will be erected.

MISSOURI

Missouri Valley Medical Association.—At the thirty-fifth annual convention of the association, held at St. Joseph, the following officers were elected: president, Dr. Floyd H. Spencer, St. Joseph; vice presidents, Drs. Willis F. Stotler, Shenandoah, Iowa, and Palmer Finley, Omaha; treasurer, Dr. Oliver C. Gebbart, St. Joseph, and secretary, Dr. Charles Wood Fassett, Kansas City. Both secretary and treasurer were reelected. The next annual meeting will be held in Omaha.

MONTANA

Dr. Scanland Resigns.—Dr. John Milton Scanland has resigned as superintendent of the Montana State Hospital for the Insane, Warm Springs, his resignation to take effect, October 31. Dr. Scanland has been connected with the institution for about twenty-five years, and has served as superintendent for the last fifteen years, when he succeeded the late Dr. O. Y. Warren.

NEBRASKA

Children's Health Conference.—The week of October 2-7 was children's health week in Omaha. Its observance was under the auspices of the Nebraska Bureau of Health, and the department of public welfare, Lincoln. Lectures were given and moving pictures shown demonstrating attention to the welfare of children, prenatal care and general hygiene, and physical examinations were made daily. Nurses were provided for the children while the mothers attended the lectures or motion pictures. All services were free.

NEW JERSEY

New Hospital Superintendent.—Dr. Frederick A. Pringle, Cedar Grove, has been appointed superintendent of the Essex County Hospital for Contagious Diseases, Belleville.

Famous Educator Dead.—Maximilian P. E. Croszmann, Ph.D., founder of the National Association for the Study and Education of Exceptional Children, member of the American Academy of Medicine, and author of many notable works on the education of children, dropped dead near his home in Plainfield, October 2. He was 67 years of age.

Health Officer to Regulate Coal Deliveries.—The ordinance for the distribution of coal in Jersey City empowers Health Officer John Hagan to regulate priority in the matter of coal deliveries. The health officer is empowered to require from a customer a verified statement as to his requirements up to April 1, 1923, and the size and tonnage of coal now in possession of the customer; also that no order is now on file with any other source of supply. Every coal dealer shall recognize the priority list of the health officer, who shall so direct distribution that the homes of the sick, the aged and infirm shall be supplied fuel and the hospitals, schools, orphanages and public institutions be supplied in order of their necessity. Any offense or violation of this ordinance shall be punishable by a fine of $100.

NEW YORK

Hospital News.—Although opened to receive patients some time ago, the new Cumberland Street Hospital, Brooklyn, formally celebrated its opening, October 1. The following day, the institution was opened to the public. On October 3, the celebration closed with a dinner in honor of Commissioner of Public Welfare Bird S. Coler.

Appropriation Asked for Maternity Work.—Dr. Copeland, health commissioner of New York, has asked the board of estimate for $6,412,173 for health work and prenatal care. This is an increase of $927,608 over last year's appropriation. Dr. Copeland estimates that, if thirty-nine additional nurses are granted, the department will be able to effect a 15 per cent. reduction in the infant death rate within the year.

Foundation Day Exercises of Medical Society.—The medical Society of the County of Kings will hold exercises, October 7, at the MacNaughton Auditorium Library Building, Brooklyn, to commemorate the founding of the society. Dr. Frank D. Jennings will preside. There will be a musical program. Dr. Lewis P. Addons, secretary, will read minutes of the first meetings of the society, and addresses will be given by Dr. Royal S. Copeland and Dr. Luke D. Stapleton, LL.D.

Smallpox Among Indians.—A recent outbreak of smallpox on the St. Regis Reservation in Franklin County resulted in twenty-nine cases of the disease and has caused the state department of health to take energetic measures to prevent a further invasion of northern New York. Altogether, 146 cases of smallpox have been reported in New York State, outside of New York City, since January 1. With repeated local outbreaks and constant danger of infection being brought across the border lines from Canada, State Health Commissioner Biggs considers the situation sufficiently serious to urge again upon the public the importance of vaccination. The department of health is preparing special posters to be put up in railroad stations and public places throughout the state.

Personal.—Dr. Sue Radcliff, Yonkers, arrived on the *Lapland,* September 23. Dr. Radcliff was one of the delegates to the convention of the International Medical Women's Association in Geneva.——Dr. Eliza Mosher of Brooklyn arrived on the *Mauretania,* September 23, from Europe, where she attended the International Women's Medical Association Congress in Switzerland. Dr. Mosher described a plan which is being carried out near Paris by the American Women's Hospitals Committee. A large playground and a row of houses have been secured, which are being rebuilt for a settlement where children may gather for recreation. The first floor will contain a tuberculosis dispensary and the second floor a dental clinic, and the third floor will be made into a children's museum, patterned after the one in Brooklyn.——Dr. Royal S. Copeland, health commissioner of New York, has been nominated for the United States Senate.

Buffalo's Infant Death Rate Falls.—At the request of Health Commissioner Fronozak, the division of vital statistics of the state department of health has made a special preliminary report on the infant mortality of Buffalo. According to this report, the death rate from preventable causes in children under 1 year of age has declined in Buffalo from 140 deaths per thousand births in 1900 to 62 in 1919. During the same period, the death rate from diseases classed as nonpreventable has remained practically stationary. The infant mortality of Buffalo corresponds closely to that of New York, and the two cities show about the same average annual ratio of decrease since 1900. At present, more than 56 per cent. of the infant mortality of New Zealand, which has a much lower infant mortality than either New York or Buffalo, is nonpreventable, and in Buffalo about 44 per cent. is nonpreventable. The infant mortality from preventable and nonpreventable causes declined in New York from 203 in 1900 to 76 in 1921. During the same period, the rate in Buffalo declined from 187 to 93.

New York City

Charity Conference Meets.—The thirteenth New York City Conference of Charities and Corrections, postponed from the spring, was held, September 26-28. Among the subjects discussed were industrial problems, delinquency and problems affecting the child and the family.

School for Social Research.—The courses offered at the New School for Social Research, New York, include, "The Significance of Modern Philosophy," by Prof. John Dewey, Ph.D., Columbia University; "Behavior Psychology," by John B. Watson; "Psychology and Conduct," by Prof. Arthur R. Moore, and "Biology and Its Social Implications," by Prof. Otto Glaser, Ph.D., of Amherst College.

Gifts to Columbia University.—At a meeting of the board of trustees of Columbia University, October 6, a list of gifts was announced. Those of interest in connection with the medical school are: a gift of $135 for the general support of the medical school; from the Commonwealth Fund for the study of rickets in the pathologic department, $4,000; from an anonymous donor, for the surgical research fund, $3,000; to be added to salaries in the surgical research laboratory, $500 from the Biochemical Association for Clerical Assistance in the department of biologic chemistry, $180.

Fifth Avenue Hospital Open.—The Fifth Avenue Hospital, erected at a cost of $3,500,000, was formally opened, September 27. There are 340 rooms, all private, and every room an outside one. The new institution is an outgrowth of the combination of the Hahnemann Hospital and the Laura Franklin Free Hospital for Children. It is hoped to obtain an endowment fund of $5,000,000; of this sum, $3,000,000 has already been subscribed. The aim of the hospital is to provide the highest type of service irrespective of race or creed.

Safety Week.—The week beginning October 7 was devoted o efforts to lower the accident death rate in New York. By proclamation, Mayor Hylan gave free rein to the public safety ommittee of 100 appointed by the Safety Institute of America. Two thousand four-minute men and 1,000 four-minute women made addresses in schools, churches, clubs and public places o emphasize that the city's death toll by accident is 3,483 ersons a year—1,054 of them children. More than 6,000 ndustrial plants are cooperating. Posters, bulletins and programs repeated the admonition "This is Safety Week. Don't get hurt today."

Appropriation to Fight Diphtheria.—The city department of health has received an appropriation of $25,000 from the oard of estimate with which to establish a bureau to fight diphtheria. The work of the new bureau will be to prevent diphtheria by Schick testing and toxin-antitoxin inoculation. This procedure has within the last two years reduced the death rate of children under 5 years of age. It is claimed hat last year it saved 300 lives and that there were 2,000 ewer cases of diphtheria than during the preceding year. Appointments to be made to the bureau will include five physicians at salaries of $1,340 a year, five nurses at $1,405 and two bacteriologists at $1,495.

The Wesley M. Carpenter Lecture.—The New York Acadmy of Medicine held its first meeting of the season on the evening of October 5, when Prof. Rafaelle Bastianelli of Rome, Italy, delivered the Wesley M. Carpenter lecture. His ecture was entitled "On the Diagnostic and Therapeutic mportance of Some Typical Tender Bone Points," under which he described what he believes to be a disease entity hitherto unrecognized as such, and diagnosed variously as neurasthenia, neuroses and the various "algias," and even as different visceral diseases. Professor Bastianelli also described the treatment which had proved effective and afforded convincing evidence that the condition he described was actually a distinct entity.

Personal.—Dr. Charles A. Wilson-Prevost, after twenty-ive years of practice in New York, sailed on the *Paris,* October 4, for France, where he will be permanently located at 28 Avenue d'Iena, Paris.——Dr. M. S. Gregory, alienist at Bellevue Hospital, returned to New York, September 19, on the *Berengaria,* after a study of the progress made in Europe since the war in treating mental and nervous condiions.——Dr. Esther Lovejoy, New York, president of the nternational Women's Medical Association at the recent onference in Geneva, has gone to Smyrna to assist in directng the medical relief work for the refugees from Smyrna, Mytilene and Chios. Dr. Lovejoy has already given $10,000 or relief work in Greece and promises more if the situation demands it.——A delegation of several hundred residents of he Bronx went down the Bay, September 27, to welcome Drs. Edward L. Corbett and John Riegelmann, who were eturning from Europe on the *Homeric.*——Dr. Arthur I. Blau, New York, diagnostician to the department of health, has left for Vienna and Berlin for graduate work in pediatics. On his return in the summer of 1923 he will limit his practice to that specialty.——Dr. Edward W. Lee, New York, has been appointed consulting surgeon of the Erie Railroad, with headquarters at Randolph, N. Y. He has retired from active practice, and in the future will devote himself to conulting practice only.

OHIO

District Medical Meeting.—At the annual meeting of the Second Councilor District Medical Society held at Dayton, Dr. John C. Ryder, Eaton, was elected president; Dr. Herbert C. Haning, Dayton, treasurer, and Dr. Daniel B. Conklin, Dayton, secretary.

Medical Society Adopts Resolution on Vaccination Law.—At a meeting of the Campbell and Kenton County Medical Society in Alexandria, September 21, a resolution was adopted giving its hearty support to the health officers and school physicians in the enforcement of the vaccination law.

Women Hold Hygiene Conference.—A meeting of repreentatives of women's organizations interested in social hygiene was held in Columbus, October 2. A program for campaign for the advancement of social hygiene work was adopted. Organizations representing a membership of more han 500,000 women pledged their support.

OKLAHOMA

Successor to Jules Schevitz.—R. H. Hixson has recently been appointed secretary of the Oklahoma Public Health Association to succeed the late Jules Schevitz. Mr. Hixson comes from the Florida Public Health Association, of which he was general secretary.

Hospital News.—The Drumright Hospital Association, of which Dr. Paul Sanger is president, will establish a new hospital at Drumright. Since the recent death of Dr. J. C. Stevens the Drumright Emergency Hospital has been closed. The new hospital will take its place.

PENNSYLVANIA

Physician Convicted.—It is reported that Dr. Herbert Bryson, Cassville, who served in the M. C., U. S. Army, during the World War, with the rank of major, was found guilty by a jury at Huntingdon, September 23, on a charge of murder in the second degree. Dr. Bryson was charged with the murder of Mrs. Helen K. Haines of Washington, D. C., on April 8. The verdict carries with it a sentence of not more than twenty years in the penitentiary.

State Medical Meeting.—At the annual meeting of the Medical Society of the State of Pennsylvania, held in Scranton, October 2-5, under the presidency of Dr. Frank G. Hartman, Lancaster, the following officers were elected for the ensuing year: president, Dr. Lawrence Litchfield, Pittsburgh; president-elect, Dr. Howard C. Frontz, Huntingdon; first vice president, Dr. Martin T. O'Malley, Scranton; second vice president, Dr. Peter Barkey, Erie; third vice president, Dr. J. C. Booker, Fall River, and fourth vice president, Dr. Frank Memmett; secretary, Dr. Walter E. Donaldson, Pittsburgh, and treasurer, Dr. John B. Lowman, Johnstown. The 1923 convention will be held in Pittsburgh.

Oppose Hospital at Media.—Media citizens, including physicians, lawyers and business men, are against the establishment of a hospital for the treatment of indigent tuberculous patients on the Baltimore Pike, a short distance from Media, in Nether Providence Township, where the county commissioners have purchased 40 acres of land. The members of the local business men's association have made a formal protest against the building of the hospital, and now it seems that Dr. Edward Martin, commissioner of health of Pennsylvania, must approve the site before a hospital can be built. The people of Media hope through his nonapproval to keep the hospital out of this vicinity.

American Red Cross Activities.—The Southeastern Chapter of the American Red Cross plans to install sixteen public health nurses in nearby counties if its sixth annual roll call, November 11-17, is successful. These plans were discussed at a meeting of the representatives of fifty-eight branches, September 21, at the roll call headquarters, Philadelphia. The Red Cross already has twenty-seven public health nurses in adjacent counties.——Ground was broken, September 3, for the memorial hospital to be erected by the emergency corps of the Southeastern Pennsylvania Chapter, disaster relief division of the American Red Cross at Valley Forge. This hospital is being erected as a memorial to the Red Cross workers who died or were killed during the World War. The site is in the rear of the Washington Memorial Chapel.

Pharmacy College Plans New Home.—A million dollar campaign for the construction of new buildings and the establishment of a permanent endowment fund for the Philadelphia College of Pharmacy was opened at the quarterly meeting of members of that institution, September 25. Admiral William C. Braisted, president of the college, announced that the president, the officers, the board of trustees and the faculty had already contributed $60,000 for the purchase, October 1, of a new site for the college at Forty-Third Street and Woodland Avenue. The old buildings at 145 North Tenth Street have long been inadequate to meet the need of the rapidly increasing enrolment. On the new site, classrooms, an administration building and laboratories will be erected. A great research laboratory will be built, which will cooperate with a medical school of the city and with the city hospitals.

UTAH

Hospital News.—A new addition will be erected at the Dee Memorial Hospital, Ogden, by the Latter Day Saints Church at Idaho Falls. The institution will have a capacity of 150 beds when completed.

Prison Physician Appointed.—Dr. George A. Allen, Salt Lake City, has been appointed by the state board of correction as physician to the state prison. Dr. Allen is a graduate of the University of Illinois and succeeds Dr. Leo F. Hummer.

SOUTH CAROLINA

University News.—With the largest enrolment in its history, the Medical College of the State of South Carolina opened its ninety-fourth session, September 21. Two hundred and ninety students enrolled. Dr. Bowman C. Crowell was appointed professor of pathology to succeed Dr. Kenneth M. Lynch. Dr. Crowell was formerly connected with the Oswaldo Cruz Institute of Rio de Janeiro, and he has also spent considerable time in the Philippines as pathologist at the School of Medicine and Surgery, Manila, the Bureau of Science and the Graduate School of Medicine, Manila. At one time, he served as president of the Philippine Islands Medical Association.

TENNESSEE

Fund for Health Center.—A drive to raise $23,000 for the Health Center in Knoxville will be conducted by the Kiwanis Club, October 15-20.

Gift for Medical School.—The Carnegie Foundation has presented the sum of $300,000 to Meharry Medical College (colored), Nashville, it was recently announced at the Northeast Ohio Methodist Episcopal Conference.

Personal.—Dr. William N. Day, Lone Mountain, arrived in New York, September 3, on the *Laconia* from Liverpool. ——Dr. William D. Haggard, president of the St. Thomas Hospital, Nashville, gave an illustrated lecture on the Passion Play at Oberammergau, recently.

VIRGINIA

Amalgamation of Health Departments.—Arrangements have been made for the consolidation of the health departments of Charlottesville and Albemarle counties, with Dr. William S. Keister as health officer in charge. Dr. Keister was formerly director of the county health department.

Public Health School.—The Richmond School of Social Work and Public Health opened for its sixth session, September 27, with an increase in its faculty and a much greater variety of courses, and with enlarged quarters and facilities. Three courses will be offered, one in social service, one in recreation and physical education and a graduate course in public health nursing.

WEST VIRGINIA

New Building for St. Luke's Hospital. — A new $100,000 building will be erected in the near future at St. Luke's Hospital, Bluefield.

Personal.—Mrs. Nellie Noel, superintendent nurse of the Princeton General Hospital, Princeton, has been appointed a member of the state board of examiners for nurses, to succeed Dr. Irene B. Bullard.——Dr. Morris Weiner will have charge of the City Hospital, Morgantown, while Dr. Irvin Hardy is taking a graduate course in Europe.

WISCONSIN

Tuberculosis Conference.—In cooperation with the Wisconsin Antituberculosis Association and the Milwaukee Association of Commerce, the Mississippi Valley Conference on Tuberculosis was held in Milwaukee, October 9-11, under the presidency of Dr. Robinson Bosworth, St. Paul.

Personal.—Dr. Mynie G. Peterman, Merrill, formerly chief resident physician of the City and County Hospital, St. Paul, has accepted a position in the department of surgery of the Mayo Clinic, Rochester, Minn.——Dr. Lewis W. Dudley has been appointed superintendent of the Wisconsin State Tuberculosis Sanatorium at Wales, to succeed the late Dr. Robert L. Williams.

Milwaukee Physicians' Association.—At the annual meeting of the association, Dr. Hugo Siekert was elected president; Dr. Emil H. Sutter, vice president, and Dr. Benn P. Churchill, secretary-treasurer. Announcement was made of the purchase of three-quarters of a mile of shore line at Silver Sands, Lake Michigan, on behalf of the association for the establishment of a summer colony for the benefit of the members and their families.

Placarding on Suspicion. — The village of Shorewood, adjoining the city of Milwaukee, has put into successful operation a plan whereby the prevalence of communicable disease has been greatly reduced and school attendance has been increased. Children suspected of having communicable diseases are immediately excluded from school and isolated until a diagnosis can be made. Until a decision is reached, the child's home is placarded with a card stating that whooping cough or scarlet fever, etc., is suspected. This idea of isolation first and diagnosis afterward has proved successful, even though it involves considerable personal inconvenience.

CANADA

New Tuberculosis Bulletin. — The first number of the *Canadian Tuberculosis Association Bulletin* has recently been issued and distributed among 20,000 English and 3,000 French. This issue contains a digest of tuberculosis deaths for eight of the nine provinces of Canada in 1921.

Cornerstone of Medical Science Laboratory Laid.—Dr. John Stewart, dean of the faculty of medicine of Dalhousie University, Halifax, laid the cornerstone of the new medical science building for Dalhousie University, September 29, with the trowel that Lord Dalhousie used more than 100 years ago to lay the cornerstone of the first Dalhousie building. This building will house the departments of biochemistry, physiology, pharmacology and hygiene. President Mackenzie took occasion to emphasize the necessity of college confederation from the point of view of economy in the rapid development now demanded of universities.

Public Health News.—Persons attending fall fairs in fifteen towns in Western Ontario will receive afternoon and evening health talks by radio, broadcasted from London, Ont., as a result of an arrangement made by the Western Ontario Academy of Medicine in cooperation with the London War Memorial Hospital for Sick Children, the Provincial Board of Health and other interested organizations. The program will include a daily talk on the purpose of the Sick Children's Hospital.——Outstanding in the health statistics for the Province of Ontario, just tabulated, is the increase in infantile paralysis, as compared with the corresponding month of 1921. There were fifty-five cases and nine deaths in 1922 as compared with seventeen cases and one death in September, 1921. The number of smallpox cases are only about one third of that reported a year ago. The total number of deaths from all causes is reduced by fifty-two, with a total of thirty deaths by violence.

Massachusetts-Halifax Health Commission.—Clinics were held every Thursday by the staff of the commission in the recent graduate course given in the Maritime Provinces by Dalhousie University for the medical profession. The commission has recently completed a year's work in prevention of tuberculosis. Dr. T. Thaddeus M. Sieniewicz has directed six clinics during the year, and there are 744 cases under surveillance. A public health nurse takes notes at the tuberculosis clinics in order to see that the treatment is carried out in the homes. A visiting housekeeper also makes periodical visits to the homes, and malnourished children are enrolled in nutrition classes. Cases are sent to the Kentville Sanatorium or to the recently opened City Tuberculosis Hospital. The services of Dr. Sieniewicz are at the disposal of the city practitioners, and his services are free as a lecturer to any club or society. A series of sixty lectures on tuberculosis were delivered by him at Dalhousie University.

University News.—The Alumni Federation of the University of Toronto is again receiving applications for loans to students who have been overseas, but the demand is falling off as most of the men who entered shortly after the end of the war are now in their final year, and the registration of overseas students is decreasing.——A memorial, in the form of a stained glass window, dedicated to Lieut.-Cols. John McCrae, R. P. Campbell and H. B. Yates, formerly of the teaching staff of the Faculty of Medicine, McGill University, Montreal, who were killed in the World War, was unveiled recently in the medical building of the university by Sir Arthur Currie, principal of McGill University. The Rev. Canon J. L. Almond presided at the dedication ceremony. Later in the day, the new biologic building of McGill University was formally opened by Sir Charles Sherrington, F.R.S., Waynflete professor of physiology, Oxford University, England, and president of the Royal Society. Numerous other medical men were in attendance, including Dr. Harvey Cushing, Harvard University, Boston; L. B. Mendel, Yale University, New Haven, Conn.; W. G. MacCallum, Johns Hopkins University, Baltimore, and Dean Alexander Primrose, University of Toronto.——The Alumni Federation of the University of Toronto is arranging for a chair of appointments, to assist both graduates and undergraduates in obtaining employment. Already steps have been taken to assist graduates to positions, but this has, for the most part, been confined to those who were in receipt of financial assistance from the Alumni Federation; and it is generally felt in university circles that such a department is a necessity.

GENERAL

American Electrotherapeutic Association.—At the annual meeting of the association in New York, Dr. Frank E. Peckham, Providence, R. I., was elected president. Dr. Abram Bern Hirsh, New York, was reelected recording secretary and Dr. John Willard Travell, New York, treasurer. Dr. Richard Kovacs is corresponding and financial secretary.

American Association for the Advancement of Science.—The seventy-fourth annual meeting of the American Association for the Advancement of Science, together with associated societies, will be held in Toronto, Canada, December 27-31, under the presidency of Prof. Eliakim H. Moore, Ph.D., University of Chicago. Prof. L. O. Howard, of the United States Department of Agriculture, is the retiring president of the association.

New Hospital in the Far East.—The contract has been awarded for St. Luke's Hospital, to be erected in Tokyo at a cost of $400,000. The Department of Missions has made the erection of this institution possible, to take the place of the temporary buildings erected during the last twenty years. It is proposed to double the present capacity. It it expected that the new buildings will be erected within the next two years and that when completed the new hospital will be the largest and best equipped hospital under foreign patronage in the Orient.

Physical Examination of Postoffice Employees.—Henry S. Dennison, welfare director of the Postoffice Department, has started on a trip of inspection through the middle West, to secure first hand data on the welfare work being conducted n the postoffices of this section of the country. Mr. Dennison will make an investigation of the success of the physical examinations of postoffice employees, made by the U. S. Public Health Service in fifty-seven cities of the United States as a result of the request of Postmaster-General Work. Among the cities he will visit are Chicago, Cleveland, Buffalo, Detroit, Grand Rapids, Milwaukee, Omaha, Kansas City, St. Louis, Cincinnati and Indianapolis.

Causes of Death Among Miners.—An investigation has een started by the U. S. Bureau of Mines to determine the auses of death among miners in the principal mining disricts. A study of this character has been made in the coal nining districts of Indiana by Dr. H. R. O'Brien. The data vere obtained from a tally of the death certificates in the iles of the Indiana State Board of Health. For comparative urposes, similar figures were obtained on farmers (as nother industrial class) and on all other males 16 years of ge and over. A similar study of the mining industry in lissouri was made by Dr. Bradford Massey. Investigations long this line will be made in other mining communities as pportunity permits, in order to obtain sufficient data on hich to base definite conclusions.

Birth and Infant Mortality Rate for 1921.—The Department f Commerce will soon issue a bulletin showing for each tate and city in the birth registration area the number of irths and the infant mortality rate for 1921. These figures over a population of 70,425,705, and show 1,714,261 births, 25,511 deaths at all ages, and 129,588 deaths under 1 year f age. This gives a birth rate of 24.3 per thousand poputtion, and a record low death rate of 11.7 per thousand; lso a record low infant mortality rate of 76. The rates in 920 for the birth registration area were: birth rate, 23.7 per housand population; death rate, 13.1 per thousand, and infant ortality rate, 86. For the states, Oregon has the lowest fant mortality rate (51), and Delaware the highest (98); r cities of 100,000 population or more, Portland, Ore., has e lowest infant mortality rate (50), and Fall River, Mass., e highest (114).

Bequests and Donations.—The following bequests and nations have recently been announced:

Presbyterian and St. Luke's Hospitals, New York, equal shares of e half of the estate of John H. Flagler, unofficially estimated at about .000,000.

Hospital for Joint Diseases, New York, $796,704; Mount Vernon . Y.) Hospital, Presbyterian Hospital and the Methodist Episcopal ospital, New York, each $25,000, under the will of Mrs. A. Gertrude atter.

Perkins Institution and Massachusetts School for the Blind, each 5,000; Home for Incurables and Cullis Consumptives Home, Dorester, Mass., each $15,000; Home for Aged Couples in Boston, $10,000; assachusetts Society for the Prevention of Cruelty to Children and the rchester Relief Society, each $5,000, under the will of Mrs. Alice W. rrey of Boston.

Presbyterian Hospital, Philadelphia, $20,000, and one half of the sidue of her estate, by the will of Mrs. Mary Jane Ross of Charleston, C.

Hahnemann Medical College, Philadelphia, $5,000, and the Homeopathic spital, West Chester, Pa., $4,000, by the will of Dr. Charles F. Bingan, Pittsburgh.

Abington (Pa.) Memorial Hospital, $600 by the will of William S. Stuppe.

William Major Memorial Hospital, Shelbyville, Ind., $1,977, from the sale of building lots, and a donation of one lot from James B. Kennedy.

For a hospital at Westerville, Ohio, a plot of ground 200 feet square, by S. P. Sanders.

A free home for tuberculous children near Manitou, Colo., has been provided for by the will of the late Mrs. Edith H. L. Sobernheimer.

National Physical Education Service.—Enactment of legislation in twenty-eight states, partially effective in providing physical education and health training for schoolchildren, and an increase of $683,000 in its annual expenditures for physical education are two outstanding results of the work of the national physical education service for the last three years, according to a report made public recently. The state campaigns for additional legislation will be continued, with the aim of giving every child in the nation opportunity for health and normal physical development. The report states further:

> Although the progress during the last three years has given this fundamental training to 500,000 additional children, yet, at the same time only one tenth of the 22,000,000 children of school age are being reached. State campaigns will be pressed during the coming winter in eight of the middle western states which have not yet enacted legislation. The inadequacy of many of the state laws indicates that federal cooperation with the states will be necessary in order to insure the early extension of physical education for the schoolchildren of the nation. Draft statistics, reporting more than one third of the young men physically disqualified for full military service, showed the result of neglect of youthful training for physical fitness. A thorough system of physical education for all children up to the age of nineteen, including adequate health supervision and instruction, would remedy conditions revealed by the draft, and would add to the economic and industrial strength of the nation. National leadership and stimulation will be necessary to induce the states to adopt a wise system of physical training.

The report further states that "the federal congress will be urged to take action in line with the pledge included in its national platform promising physical education with federal aid." The national committee of the physical education service include Walter Camp, Dr. Charles Mayo, Mrs. Mary Roberts Rinehart and Dr. Thomas A. Storey.

Proposed Revision of International Sanitary Treaty.—During October, a convention will be held at Paris, France, to consider proposed revisions of the International Sanitary Treaty of Paris of 1912. Dr. Hugh S. Cumming will attend at the special invitation of Dr. T. Madsen of Copenhagen, who is chairman of the committe on international standardization of serums and laboratory products. Other members of the committee are Professor Kolle of the Royal Laboratory of Milan, and Dr. Albert Calmette, director of the Pasteur Institute. Dr. George W. McCoy, director of the Hygienic Laboratory of the U. S. Public Health Service, who is now in Europe, will also attend the convention. Thirty-eight maritime nations will be represented at the convention. Among the questions to be discussed will be the mutual reporting of quarantinable diseases by nations; cooperation between nations in the treatment and care of immigrants afflicted with disease, and uniform standards in the preparation of serums and antitoxins, so that such medicinals, when shipped from one country to another, may be accurately and scientifically used. In the existing treaty of Paris, no recognition was made of rat-plague; typhus was not mentioned, because not threatening at the time of making the treaty. Also, it is said, the treaty does not give recognition to yellow fever in accordance with modern knowledge. As the representative of the United States government, it is understood that Dr. Cumming will ask for safeguards for the protection of public health in the United States against diseases directly due to immigration from European and Asiatic countries. The Surgeon-General will also meet with the International Sanitary Service at Brussels, which has already been organized and is expected to be fostered, in part, by the Rockefeller Foundation. At this conference will be discussed plans for the exchange of health officials among nations, for the purpose of observation, study and cooperation. Dr. Cumming will also make a brief stay at Geneva, Switzerland, in connection with quarantine and public health matters.

LATIN AMERICA

Third American Child Welfare Congress.—Our exchanges record the great success of this meeting which convened at Rio, August 27, with Dr. Olintho de Oliveira presiding, and with 2,500 inscribed members.

Brazilian Congress of Pharmacy.—The *Brazil-Medico* relates that the pharmacists of Brazil have organized a ten-day conference, to open, October 12, and to be officially known as the First Brazilian Congress of Pharmacy.

Festival Number of the Brazil-Medico.—Our Rio de Janeiro exchange is planning a special souvenir number in honor of the national centennial celebration. The festivities of the celebration suspended all regular work, so that the souvenir number has been delayed.

Brazilian Neurology Congress.—The *Brazil-Medico* reports with much detail the proceedings of the Second Brazilian Congress of Neurology, Psychiatry and Forensic Medicine, which convened at Rio in August, with Prof. Juliano Moreira presiding. The date was also the eighty-first anniversary of the foundation of the Rio psychiatric hospital. Prof. Henrique Roxo was the secretary of the congress and Dr. U. Vianna, treasurer.

University Interchanges.—Among the European university professors who have been lecturing by invitation in South America is Dr. P. Alessandrini of Rome and Prof. V. Ascoli's service. He lectured at Buenos Aires on tuberculosis as studied by him with the roentgen rays. Dr. J. L. Faure of Paris, the successor to Pozzi in the chair of gynecology, has also been lecturing at Buenos Aires. He is accompanied by Dr. Douai.——Dr. Max Nonne of Hamburg, who has been lecturing at Rio de Janeiro, has returned to Germany. His special theme was neurosyphilis.

Election of Officers.—The *Archivos Brasileiros de Medicina* states that at the recent annual meeting of the Pernambuco Medical Society, Dr. U. Pernambuco was elected president; Dr. A. Medeiros, vice president; Dr. A. Lima, secretary; Dr. F. Clementino, treasurer, and Dr. A. Ramires, librarian.——The Bahia Medical Society has elected Dr. Luiz Pinto de Carvalho president for 1922-1923; Dr. C. O. Ferreira de Moura, first vice president, and Dr. S. Barrozo, second vice president; Dr. E. Diniz Gonçalves, secretary general; Dr. Alvaro Fróes da Fonseca and Dr. E. Vidal da Cunha, secretaries, and Dr. C. Levindo de Moura Pereira, treasurer.

Personal.—Dr. Juan C. Segovia has been appointed to take charge of the newly founded laboratory of the national public health service in El Salvador. Dr. Luis V. Velasco is chief of the public health service, and the new laboratory is due to his initiative and efforts, with some pecuniary aid from the Rockefeller Foundation.——The recent birthday of Dr. Silva Santos, formerly professor of anatomy at Rio, was celebrated by his former pupils and friends.——The Rio Faculdade de Medicina tendered a reception to Professor Lemaitre of Paris and Professor Cacace of Naples and the other delegates to the American Child Welfare Congress and the Brazilian Child Protection Congress. The delegates from Argentina, Uruguay, Ecuador and Peru made brief addresses.——Dr. Delfor Del Valle has resigned the position of director of the Asistencia Pública of Buenos Aires. The *Semana Médica* states that his friends tendered him a banquet on the occasion. Dr. Fermín Podriguez has been appointed to succeed him.——Dr. Jacinto Avilés and Dr. J. Gómez Brioso have returned to Porto Rico from a trip to the United States, and Dr. F. Hernández, director of the public health laboratory, has left for a stay in New York.——Dr. J. Capo of San Juan, Porto Rico, has sailed for several months in Spain.——Prof. José Arce and Prof. David Speroni have been appointed delegates from Argentina to the Sixth Latin-American Medical Congress, which convenes at Havana, November 19. The *Semana Médica* mentions that Dr. Speroni has been collecting Argentine medical works to take with him as a gift to the library of the Havana faculty of medicine.

FOREIGN

Czech Tuberculosis Society.—The Czech Scientific Tuberculosis Society will convene at Prague in the spring of 1923. This society was founded in 1920 for the purpose of promoting research in tuberculosis. Various scientific problems in tuberculosis are being studied in the different medical departments of Prague University, in connection with the forthcoming congress.

The Swiss Society for the Advancement of Science.—The Schweizerische naturforschende Gesellschaft held its hundred and third annual meeting at Bern in August. Two new societies were incorporated with it, one for history of medicine and one for general science. There now are federated with it twelve various national scientific societies and twenty-three cantonal organizations.

Inauguration of Pathology Institute at Freiburg.—The new building was formally inaugurated last month with an address by Professor Aschoff on "The Importance of Pathologic Anatomy for Social Medicine." He emphasized that each class of society, each industry, each occupation has its special pathologic anatomy, and only by studying this is it possible to keep the individual at the maximum of physical health and efficiency and ward off the pathologic conditions.

Sanitary School Planned for Russia.—Dr. Mark D. Godfrey, Columbus, Ohio, in charge of the medical work for the American Relief Administration at Nijni, Russia, will open a sanitary school in that city this winter. The pupils will be instructed in cleanliness and the purposes of disinfection as a precautionary measure against conditions which may develop this winter in Russia.

First International Congress of Open Air Schools.—The main purpose of this gathering held at Paris, recently, was to discuss ways and means for adapting the schools of the day to the open air principle, while awaiting the real open air schools of the future. Among the resolutions adopted was one to the effect that brain work should be restricted to four hours, and the remaining two hours be devoted to the practice of hygiene out of doors. A visit to some monument, museum or factory, should be planned each week. Teachers should be encouraged to hold their classes in the open air whenever the weather permits, and one out-door school for weakly children should be organized in each suburb or for each hundred thousand inhabitants. Other resolutions advocated that a national committee be formed in each country, to insure cooperation, and that an out-door boarding school in the rural district be founded for the weakly children who do not thrive in the cities.

Total of Arsphenamin Fatalities.—The Journal mentioned, July 1, 1922, page 50, that the German committee appointed to investigate the mishaps from the use of arsphenamin reported that the average of mishaps was about 1:10,000. Our exchanges are now commenting on the second report of the committee appointed in England by the British Medico-legal Society, in 1918, to investigate the toxic action of arsphenamin. The report embraces 340,000 German and 140,000 English courses of arsphenamin treatment. The number of injections averaged 4.6 in Germany and 4.5 in England. The total fatalities per 10,000 cases averaged 3.8 in Germany and 4 in England. This is a proportion of 0.65 per 10,000 injections. The total of complications in the English records was 16 per 10,000. The committee report stated that arsphenamin is more effectual than any other remedy, and that the interests of the patient require arsphenamin treatment, notwithstanding the very small number of unavoidable fatalities.

Centenary of Sir Christopher Wren. — Dr. R. Dawtrey Drewitt has been appointed representative of the Royal College of Physicians on the committee that has been appointed to make arrangements for commemoration week, beginning, Feb. 26, 1923, of the bicentenary of Sir Christopher Wren (1632-1723). Sir Christopher Wren before he entered as an undergraduate at the University of Oxford was assistant to Sir Charles Scarborough, physician and mathematician, in making and demonstrating anatomic preparations and in various experiments for his anatomic lectures at Surgeon's Hall. When 21 years old, Wren executed a number of drawings which appeared in Thomas Willis' famous *"Cerebri Anatome Nervorumque Descriptio et Usus"* (1664). Wren was one of the first fellows of the Royal Society and was the architect of the third home of the Royal College of Physicians of London; but he was famous as the architect of St. Paul's Cathedral, London, where he was buried, in 1723. It is proposed to organize a procession to St. Paul's Cathedral, where a memorial service will be held and a wreath laid on his tomb.

Personal.—Prof. H. J. Hamburger, professor of physiology and histology at the University of Groningen, Holland, arrived in New York, September 22, on the *Rotterdam.* He will lecture on recent advances in physiology, the opening address to be given at Johns Hopkins University, Baltimore.——Dr. Alberto C. Bonaschi, secretary of the Italian Chamber of Commerce, arrived on the *Colombo,* from Naples, September 19. He has come to arrange for a group of medical men to come from Italy to take up graduate work in the United States. This is the outcome of an exchange plan, about twenty-five young Americans having just completed such courses in Italy.——Prof. J. J. Van Loghem, director of the department of tropical hygiene at the Colonial Institute, Amsterdam, delivered a lecture in London recently on the "Transmission of Plague by Rats." He confined himself to bubonic plague, which he regards as being the plague of all the great historical epidemics.——As the result of burns received while experimenting with radium, Dr. Hideljich Kinoshita, professor of science at the Imperial University of Tokyo, may lose his eyesight.——Dr. Arnold Chaplin will deliver the Harveian oration at the Royal College of Physicians, London, October 18.——The Bradshaw lecture will be delivered by Sir Maurice Craig of London, November 2. He will speak on "Mental Symptoms in Physical Disease."——Dr. Robert O. Moon, London, will deliver the Fitzpatrick lectures, November 7. His subject will be "Philosophy and the Posthippocratic School of Medicine."——The Belgian Académie de médecine has elected as foreign corresponding members, Professor Bar and Dr. Cabanès of Paris, Professor Bettencourt of Lisbon, and Dr. Fonzes-Diacon of Montpellier.

Deaths in Other Countries

Dr. **Wertheim Salomonson**, professor of neurology at the University of Amsterdam and author of numerous works on the heart, photography of the retina in the living subject, etc.; aged 58. He was a pioneer in introducing roentgenography into the Netherlands, and the *Nederlandsch Tijdschrift* remarks that his name is found in all the borderland topics where physics and medicine meet.——Dr. **C. A. Pekelharing,** professor of physiologic chemistry and histology at the University of Utrecht, one of the editors of the *Zeitschrift für physiologische Chemie* and of the *Nederlandsch Tijdschrift voor Geneeskunde;* aged 74. These two scientists of the Netherlands died the same week. They were both frequent attendants at international gatherings.——Dr. **C. Scagnondi** of Ravenna; recently stabbed by a man in revenge for the physician's certifying that he had tuberculosis, as this lost him his position.——Dr. **A. Montalti**, professor of legal medicine at Palermo.——Dr. **J. Katzenstein** of Berlin, professor of diseases of the ears and throat.——Dr. **S. Gross,** privat-docent in dermatology and syphilis at the University of Vienna, known by his works on the secondary sexual characters, etc.——Dr. **Léon Cahn** of Paris, whose degree dates from 1888.——Dr. **C. Paradis** of Brussels.——Dr. **L. Perrin** of the Marseilles medical faculty.——Dr. **E. A. Fries** of Stockholm, physician to the railroads.——Dr. **C. A. Walter** of Göteborg, aged 69.——Dr. **E. de Reynier** of Neuchâtel, Switzerland, aged 90.——Dr. **C. Bonvin** of the Sion Hospital, Switzerland, aged 95.——Dr. **L. Faisans** of Paris, director of the state railroads medical service, aged 71.——Dr. **J. Passet,** formerly instructor in surgery at Munich, aged 67.——Dr. **G. Stieler,** also of Munich, aged 79.——Dr. **T. V. Møller** of Rudkøbing, Denmark, aged 72.——Dr. **S. Mircoli,** formerly professor of clinical medicine at Rome and at Genoa; recently, after years of illness, aged 63.

Government Services

American Legion Convention

The National Convention of the American Legion will be held at New Orleans, October 16-20. Special leave of absence has been granted for trainees desiring to attend. No transportation will be paid by the government under any circumstances for trainees attending this meeting.

The Veterans' Bureau and the Physician; Also the Chiropractor

The mistakes of the Veterans' Bureau in the past have been largely due to failure to appreciate the fundamental medical importance of the bureau's problems, and to a tendency to overrule or even ignore the physician's honest opinions by assumption of an authority which the law never contemplated. Such is the opinion of Col. C. R. Forbes, director of the Veterans' Bureau, who in addressing a conference of district managers, September 18, said:

> The mistakes of the past were largely due to failure to appreciate the fundamental medical importance of our problems and also a tendency to overrule or even ignore the doctor's honest opinions by an assumption f an authority which the law never contemplated. Some of these acts were errors of the heart and may be forgiven, but enormous abuses in his respect not only of the letter but of the spirit of the law have ccurred in the beginning and occur now to some extent, and for which here is no excuse and which perhaps cause irreparable harm to the character of thousands of young men by helping to destroy their selfeliance and their natural ambition to succeed through their own efforts.

Now that the Veterans' Bureau has formally recognized he essential value of medical opinion with respect to maters medical, it is hoped that it will accept the judgment of he medical profession with respect to the inadvisability of training veterans as chiropractors and will discontinue the ropagation of such quackery.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Sept. 18, 1922.

The Reimbursment of a Physician Mulcted in Damages for the Treatment of a Fractured Femur

In THE JOURNAL, Dec. 24, 1921, p. 2072, the case was reported of a country physician who had to pay damages and heavy costs to a woman whom he treated for fracture of the upper third of the femur by a Thomas splint and extension. Union took place with only one-half inch of shortening. He warned the patient against putting weight on the limb. On her return home the limb suddenly gave way. There was fracture of the neck of the femur, for which an operation was performed. An action for damages was brought, in which the physician's treatment was criticized. It was said that he should have used an anesthetic in setting the fracture, and also the roentgen rays. As a matter of fact, the roentgen-ray apparatus was out of order in the country hospital to which the patient was taken. However, the great balance of expert medical evidence was on his side. One well known surgeon stated that an anesthetic was not indicated, as struggling would have increased the damage. He attributed the refracture to the patient's putting too much weight on the limb, which she was warned not to do. The failure to use the roentgen ray weighed strongly with the jury, which gave a verdict for the plaintiff with $3,750 damages. The costs of the action brought the physician's loss up to $9,000. Widespread sympathy was felt for him in the profession, as it was held that he had treated the fracture by approved modern methods, and was not responsible for the untoward result. A fund was opened to reimburse him, and Sir Robert Jones and other eminent orthopedic surgeons supported the movement. In a letter to the medical press, announcing the closure of the fund, they state that $8,600 has been subscribed. They point out the great importance of the verdict to physicians, as it shows that although a practitioner may have exercised all the skill at his disposal and adopted approved modern methods, he has to run the risk of an adverse verdict if the case does not go well. The moral is drawn that in no circumstances should a physician engage in practice without joining a medical defense society. The interest taken in the case is shown by the fact that subscriptions were received from such distant places as New Zealand, Tasmania, Queensland, Toronto, Oporto, Nigeria, Khartoum, South Africa and Bagdad. The highest individual subscription was $130, and the lowest $0.50.

Plague in Australia

A serious outbreak of plague, which took place at Sydney, has been dealt with energetically and stamped out. The infection originated in a steamer which arrived from Brisbane in September, 1921, on which a fatal case of plague occurred. Six dead rats were found on this steamer, and bacteriologic examination of one revealed infection with plague. Before the arrival of the steamer, rats were constantly being caught and found free of infection, but soon afterward infected rats were caught on the wharf and in the neighborhood. Sixteen cases of plague occurred in the human population round the docks and were traced in nearly every case to infected rats. It has been found that quarantine measures in New South Wales cannot secure ports from invasion without imposing too severe restrictions on commerce. Reliance is placed on rat-proofing of wharves and buildings, and rat-catching. In Sydney a process of reconstruction is gradually being carried out, and much has already been done in rendering wharves and buildings rat-proof by concrete flooring and sheeting. When the outbreak began, the rat-catching staff was largely increased. Whenever an infected rat was found, the premises were immediately quarantined and disinfected. The process, which consisted of the destruction of both rats and fleas, took days or hours, according to the method employed. At the same time an area of several street blocks around the infected premises was intensively searched for rats, which were poisoned or trapped. The best method of disinfection was found to be hydrocyanic gas. Control rats in cages, and fleas in test tubes, were buried deeply among the goods of the warehouse. But sometimes a more troublesome method, which took days, had to be adopted. All the stock had to be removed by gangs of workmen, so as to discover the rats. The premises were not released from quarantine until all defects had been made good, rat holes filled up, basements concreted, and the premises put in rat-proof condition. Antiplague serum was prepared in Sydney by Dr. Bradley, who used a modification of Yersin's method. He immunized horses by dead, and later by living, cultures of bacilli. The results are considered satisfactory; the total mortality of the cases was 25 per cent., while that of those admitted to the hospital and treated at once with serum was 15.4 per cent.

Health Lectures for Criminals

A curious new departure has been made by the People's League of Health. With the approval of the government, it has extended its propaganda to prisons, where it has arranged for lectures on "Health of Mind and Body: How to Obtain and Preserve It." Criminals are generally very ignorant persons, and as ignorant of hygiene as of other things. It is therefore hoped that good results will be obtained from the movement.

Sir John Bland-Sutton's Travels on the Amazon

Alone among English surgeons, Sir John Bland-Sutton maintains the hunterian tradition of regarding man and his diseases as merely a chapter in the book of life which must be read through by him who wishes to understand. Early in his career he turned his position as prosector of the Zoological Gardens into account by describing the tumors, cysts and other lesions of animals. This he did in a series of papers, published in the *British Medical Journal,* which attracted great attention, as it was a revelation in those days to find how closely animal diseases resembled human diseases. Sir John has also been a keen naturalist, and has been able to gratify his taste by travels all over the world. In 1911, he published "Man and Beast in Eastern Ethiopia," which was an account of his observations in British East Africa, Uganda and the Sudan. He has just returned from a visit to the Amazon. For many years he desired an opportunity of visiting that mighty river, for its physical geography, natural history and ethnology, and also to see tropical diseases in situ. He went to Para and then 1,000 miles up stream to Manaos, the center of the rubber trade. Here Dr. Wolferstan Thomas, who was trained at the Liverpool School of Tropical Medicine, gave him the opportunity of seeing the excellent arrangements for investigating and treating tropical diseases. Thanks to the antimosquito work, he found that yellow fever and malaria had almost been abolished. He considers that the occupation of tropical countries by Europeans has been hindered more by small biting insects than by the arrows and spears of savages, and that brilliant discoveries await investigators who combine a practical knowledge of bacteriology and entomology. He was able to get hold of two shrunken skulls for the museum of the Royal College of Surgeons. One of the Indian tribes has a method, when an enemy has been shot, of splitting the back of the head and shrinking down the skull to the size of an orange. The authorities do all they can to diminish the trade in these trophies, because a demand for them might lead to their production.

PARIS

(From Our Regular Correspondent)

Sept. 22, 1922.

The League of Nations in Relation to Hygiene

Acting on the report of M. Manuel Rivas Vienna of Chile, the plenary assembly of the League of Nations passed two resolutions proposed by the League of Nations Health Conference. By the first resolution, the assembly took official cognizance of the collaboration of the Health Conference in the work of the sanitary conference held in Warsaw (The Journal, May 6, 1922, p. 1400) and of the fact that the Genoa conference had turned over to the Health Conference the execution of the program outlined by the Commission on Epidemics. The assembly also noted with satisfaction the development of the epidemiologic service and the initiative taken by the Health Conference to introduce a system of exchange of sanitary personnel (The Journal, Sept. 23, 1922, p. 1961). In view of the fact that the League of Nations Health Conference constitutes a permanent need, the assembly declared it indispensable that this conference should be given within a short time the character of a permanent organization.

By the second resolution, the assembly called the attention of the various governments to the persistent danger of epidemics in eastern Europe, and invited them to give their financial aid in combating the peril. The assembly decided that the budget of the League of Nations should contain an allotment of 125,000 pounds sterling to aid the Commission on Epidemics in its work.

Fall in the Birth Rate

The Alliance nationale pour l'accroissement de la population française recently published a comparative table showing the birth rate in the ten largest cities of France during the first six months of 1921 and 1922, respectively. The number of births has decreased 10 per cent.:

	First Six Months of	
	1921	1922
Paris	27,489	24,238
Marseilles	6,303	6,176
Lyons	5,088	4,583
Bordeaux	2,943	2,629
Lille	2,587	2,353
Strasbourg	2,221	2,003
Nantes	1,967	1,875
Toulouse	1,642	1,534
Saint-Etienne	1,832	1,661
Nice	1,479	1,476

Unfortunately, it looks as if the figures for the second six months would be still more unfavorable, for the number of marriages entered into each month has been decreasing rapidly for the last two years, which is, however, only natural in view of the large number of marriages that followed the war. If the decrease in the birth rate is as great in the rest of the country as it is in the large cities, we shall have, this year, 80,000 births less than in 1921.

Addition of Student Delegates to the University Councils

According to a new decree concerning disciplinary affairs affecting students matriculated in the universities and affiliated schools that are administered by the university councils, henceforth two students regularly matriculated in a given university or affiliated school will be chosen to sit on the university council. These delegates are chosen by the student body by secret ballot; also four alternates, who take the place of the delegates in case these are prevented from serving, refuse to act, resign or terminate their studies before the expiration of their term of office. Candidates must be of age, of French nationality, and must have a clear record as far as disciplinary punishment is concerned. The appointment is made for two years. If the delegates or alternates so chosen do not present themselves at the hour appointed for meetings of the university council, regular business can be carried on in their absence.

Hygiene and the Housing Problem

Monsieur C. Roëland, a specialist on questions of hygiene, attached to the municipal council, has recently initiated a plan in the form of a competitive contest between the owners of newly constructed buildings. In 1898, the .municipal council opened a competitive contest for the most beautiful and best building fronts. But M. Roëland holds, with reason, that, under present conditions, the exterior appearance of a building is a secondary consideration, and that architectural beauty should bow before considerations of health and comfort. Monsieur Roëland points out that the number of slum districts has jumped from six to seventeen, and that these districts comprise 4,290 houses, which shelter 186,000 persons. n these seventeen districts, during the twenty-five year period from Jan. 1, 1894, to Dec. 31, 1918, there were 33,069 deaths from pulmonary tuberculosis. From 1918 to 1920, the echnical branch of the public health service has made investigations in 118 houses classed as foci of tuberculosis. These 118 houses contain 3,609 lodgings, which are occupied by a otal population of 7,834 persons, distributed as follows: .358 lodgings of one or two rooms (together, 3,209 rooms) ousing 4,287 persons, which gives an average distribution f 1.3 persons per room; 1,251 lodgings of three rooms or more, comprising altogether 4,113 rooms occupied by 3,547 ersons, an average distribution of 0.9.

The demolition of these 4,290 insanitary lodging houses would represent, at the present time, an expenditure of 92,251,000 francs, after allowing for the amount that would e realized from the resale of the lots and wrecked material. With financial conditions as they are, such a radical proedure is out of the question. It is, therefore, more in the ature of a palliative measure that M. Roëland proposes the nstitution of an annual competitive contest which would ave an ameliorative effect on hygienic conditions in the heaper tenements and contribute at least something toward he healthful character and the comfort of each lodging, ncluding the janitor's lodge.

Aid for Russian Children

In a previous letter, I mentioned that Monsieur Etienne ilson, professor at the Sorbonne, had been sent on a mission o the famine regions of Russia and Ukraine by the Comité rançais de secours aux enfants russes (THE JOURNAL, Sept. 6, 1922, p. 980). He has recently sent to the president of his committee a telegram in which he states that in the gion between Odessa and Kherson, in a section nearly 100 iles wide, the famine is more terrible than last winter. he harvest has been a complete failure. The situation of e children is especially tragic. The French kitchens that e giving help at Odessa and Kherson are operating very uccessfully. There is, however, an urgent need of shower ths and shelters for the night, without which the children scued from starvation will die of cold or become the vicns of epidemics. The headquarters of the Comité de cours aux enfants russes is in Paris, 10, rue de l'Elysée.

A Reported Offer by the Rockefeller Institute

According to a recent newspaper report, the Rockefeller stitute had offered 200,000,000 francs to the Faculté de édecine of Strasbourg but the offer had been withdrawn, favor of Brussels, as a result of the opposition on the part the Faculté de médecine of Paris. The minister of public struction has denied the truth of the report. He admits at the Rockefeller Institute recently instituted an inquiry among the medical schools of France, but no proposal with respect to the granting of financial aid, either as regards 200 million francs or any inferior sum, has been addressed either directly or indirectly to the Faculté de médecine of Strasbourg. However, the Rockefeller Institute has given evidence of the esteem in which it holds our medical profession by inviting, at its expense, several professors of the medical faculties of Paris and Strasbourg to visit the United States for the purpose of studying the organization of laboratories and public health work, which invitation has been gratefully accepted. As to the relations between the medical schools of the universities of Paris and Strasbourg, the official note of the minister of public instruction affirms that they have always been and still are most excellent.

BUDAPEST

(From Our Regular Correspondent)

Sept. 16, 1922.

Cardiac Neuroses

At a recent meeting of the Royal Medical Society, Dr. Hasenfeld suggested that functional disorders of the heart be classified as: (*a*) nervous weakness, synonyms for which are neurasthenia cordis and irritable heart (reizbares Herz); (*b*) cardiac palpitation; (*c*) pseudo-angina, also called sthenocardia and neuralgia of the cardiac plexus, and (*d*) abnormalities in rhythm: tachycardia, bradycardia and arrhythmia. Each of these symptoms may be secondary to organic disease of the heart, or to some nervous disease, generally functional. Frequently, however, any one of these symptoms may be the primary and sole disease. It is to such cases alone that the designation "cardiac neurosis" is properly applicable. Gerhardt (of Germany) states that more than half the patients who consult him for cardiac trouble suffer from disorders of innervation and have no valvular disease.

The differentiation between functional and organic disease is usually easy. It may be difficult in cases of palpitation with hypertrophy of the heart, and in pseudo-angina and arteriosclerosis. In cases of profound nervous prostration, in which cardiac symptoms predominate, it may be impossible to say which is primary and which is secondary. The following points are important: (1) Neuroses are most frequent in young persons, in whom the usual causes of organic disease, such as rheumatism, are absent; (2) there is often a family history of nervous disorders; (3) the pains and paresthesia in neuroses are generally diffused over the whole body, while in organic disease they are usually confined to the cardiac region, the left side and left arm; (4) arrhythmia and other abnormalities in the pulse are less frequent in nervous than in organic disease; (5) physical signs are absent in neuroses (even after long-continued cardiac neurasthenia the heart is not hypertrophied and there is no accentuation of the second sound); (6) other organs do not suffer secondarily; (7) the symptoms of cardiac neuroses are often more alarming than those of organic disease. The neurotic patient, instead of instinctively avoiding exertion, like those with organic disease, more often cries out and throws himself about.

A Case of Pseudohermaphroditism

Dr. Török exhibited, at the meeting of the Interhospital Association, photographs and casts from an individual, aged 23, with large breasts, large hips and a distinctly feminine appearance, who had a large clitoris with a distinct glans, ridges representing labia majora and slighter ridges representing labia minora, and leading to the meatus urinarius. There was no trace of hymen or vagina. On the right side, there was a large inguinal canal with an ovarian or testicular structure projecting into the labium majus, a similar structure accompanying the upper portion of the left canal. The shoulders were straight and distinctly manly. There was sexual inclination toward the female, and, though brought up as a girl, the patient wished to assume male dress and chose the profession of a hairdresser.

Physician Sued for Error in Diagnosis

In a large provincial town, a case of considerable importance to the medical profession has recently been tried. It happened that the masseur of a fashionable sporting club, which had a large swimming place with Turkish bath, was attended for a skin trouble by a physician, who diagnosed syphilis. This opinion was conveyed by the patient himself to the management of the bath, with the result that the man lost his position. As a matter of fact, the malady was not syphilis, but simply an attack of scabies. The real nature of the disease seems not to have been disputed at the trial. The main point at issue was that of negligence; whether, by the exercise of reasonable care and skill, the error in diagnosis with all its serious results would have been avoidable in the era of reliable blood analyses. The judge held that the plaintiff's discharge was the direct consequence of the error, in spite of the fact that the plaintiff himself made the communication to the manager of the bath. The claim for 10,000 kronen was allowed, with costs.

VIENNA

(From Our Regular Correspondent)

Sept. 21, 1922.

The Danger of Tuberculous Infection in Schools

An interesting problem was presented by Dr. Peyser recently at a meeting of the Society for Pediatrics; he called attention to the possibilities for transmission of tuberculosis offered by the present method of teaching in public schools. It happens frequently, especially among the poorer classes, that a child showing manifest symptoms of active disease (cough, anemia, slight temperature, night sweats) is not kept at home, and thus may disseminate disease among the children in his classroom. Dr. Peyser made investigations in a school in Vienna from the third form of which two children with manifest pulmonary affection had been brought to his dispensary. He first of all obtained permission from the parents to make a tuberculosis test on the pupils by using Moro's ointment three times within a week and then injecting 1 mg. of tuberculin. By these means, patients that are unusually susceptible and thus show a high degree of infection are easily excluded.

In his series of investigations, Dr. Peyser found 30 per cent. of the children free from tuberculosis, a fair percentage for Vienna. The children were 8 years old. The average for this age has been figured out by Hamburger and Monti at 27 per cent. for this city. Even those children who were seated next to the child who had been originally examined were at the time of the examination free from tuberculosis. The sputum of the infected child was free from bacilli, so it was, manifestly, not a very active source of infection for the children in its company. The infection is probably due to conditions at home, or it may result from the food or from contact with tuberculous teachers. Further investigation will disclose whether older children with positive bacillary findings in the sputum are capable of infecting younger children. It appears from these researches that schools, as a rule, are not dangerous in this respect. Nevertheless, every child found suffering from lung disease should be kept away from school and brought under conditions favorable to checking the disease.

Result of Pasteur's Treatment Against Rabies

In a review of the results obtained by Pasteur's method of injection against rabies, Dr. Schweinburg gives interesting figures on this subject. In the years 1880 to 1889, the Austrian statistics office shows 3,024 persons bitten by animals, of whom 27 per cent. (822) died; but other statistics show much lower figures, going down as far as 2 per cent. As there is an alarming indifference on the part of some of the people because numerous animals that had bitten persons proved to be healthy, strict conclusions could not be drawn from such statistics. But recently the authorities had an excellent opportunity to investigate the problem, as, in 1913, the disease was imported into the district of Vienna, where a well managed institute and reliable administration of the board of health cooperated to give useful information. The number of cases reported—it may be safely said that almost all persons bitten by animals were reported—increased until 1918. Then, in August, it declined rapidly until, in 1919 (July), the epizootic could be declared extinct.

All persons suspected of rabies, as well as all persons treated for this disease, are brought to one central Pasteur institute in Vienna. The police are bound to report, at least once a year, every person who has been under treatment for this disease; and the reports are coming regularly. All postmortems in which there is a suspicion of rabies are also reported; thus no case can escape the attention of the institute. Altogether, in six and a half years, 1913 to 1919, 977 persons were treated who had been bitten by animals which afterward were proved to be infected. Of these persons, eight, or about 0.81 per cent., died. All of these had had severe injuries and were treated within eight days. But within the same period eight other persons died from rabies who had not been treated. It is clear that the institute has been notified of at least 90 per cent. of all injured persons; thus it must be admitted that the mortality of the untreated persons was much higher than that of the treated persons, for it is impossible that such a large number of injured persons should have escaped the knowledge of the institute as to justify the same number of deaths, i. e., eight, as the treated series show. As nearly all persons who died in spite of treatment were bitten by diseased dogs, the eight untreated persons were undoubtedly also bitten by dogs.

In the treated series, of 410 persons bitten by dogs, only six died; the occurrence of eight deaths in the untreated group would thus prove that Pasteur's treatment is a most powerful means to counteract the dangers arising from the bite of animals, and that immediate treatment is the only means of saving the life of the victim. It may be added that the animals were usually dogs. Cats were implicated i thirty-two cases, horses in four, and one person was bitte by a monkey.

The Result of Ligature of the Carotid After Twenty Years

Dr. Schönbauer presented, at a meeting of the Medica Society of Vienna recently, a man who, in the year 1902, ha been stabbed in the neck, in the right carotid, and in whom the common carotid artery had to be ligated because th technic of suturing arteries had not at that time been per fected. Digital compression had temporarily saved the man' life. On the day following the operation, the left extremitie were paretic. The symptoms gradually diminished, but twent years later, spastic contractures were still present.

Experiments on animals demonstrate that the results o the ligature of the common carotid artery differ widely. I the circle of Willis is well developed, the exclusion of on carotid may be well borne. Temporary compression of on of the carotids should be tried to see whether the patien can stand the operation. On the other hand, a cortex tha is already damaged by alcohol or disease will not stand th initial shock of the sudden shutting off of its blood suppl which a healthy cortex may sustain for some time withou lasting detriment. Therefore, in judging such an operatio all these points must be taken into consideration. The patient presented merely the spastic contractures of the left extremities in a mild degree; his mental and moral conditions were otherwise quite satisfactory, and during the twenty years which had passed between his injury and the demonstration, he had been healthy in all other respects and had been able to earn his living as a laborer.

The New Winter Term

In October, the new winter term of the university begins, lasting until the end of March. For the first time in many years, the number of new medical students is smaller than in the corresponding period of previous years. The figures are now known fairly definitely. The decrease is due to the drastic measures taken to cut down the number of first-year students flocking to the medical faculty. By putting obstacles in the way of those who do not desire to devote all their time to their studies, by handicapping the foreign beginners and by diminishing the number of working places at the anatomic theaters to 400, and by the natural falling off of numbers due to lack of patients and the consequent diminished means of teaching, the desired aim has been achieved. Nevertheless, the number of lecturers and teachers has even increased. Postgraduate teaching has obtained a firm footing in Vienna. Regular four-week courses will be held all the winter term in all important subjects, and in direct contrast to the endeavor to restrict first-year students, the increased influx of graduate students, i. e., physicians from the country and from abroad, is freely encouraged by the press and by advertisements in medical periodicals.

Reform of Pharmaceutic Studies

With the beginning of the winter term at the University of Vienna, in October, a new arrangement of the studies of pharmacy will come into force. By cooperation of the board of health, the board of education, the medical and philosophical faculty of the university and the board of apothecaries, the following rules were agreed on: The student desiring to take up the pharmaceutic studies must have passed an examination in Latin and Greek, arithmetic and general knowledge, as required for medical or juristic studies (eight classes of the so-called gymnasium). Then he is admitted to the philosophical department of the university where he has to study, in the first year, botany, organic and inorganic chemistry and physical subjects. In the second year he adds to these subjects physical and pharmaceutic chemistry. In the summer term of the second year, he has to take up pharmacognostic studies. In the third year, these studies are continued, and practical exercises in the technic of dispensing and prescribing are added.

Furthermore, the leading principles of hygiene: bacteriology, serology, disinfection and sterilization, as well as toxicology and pharmacodynamics, are taught, and also analysis of human excreta and secreta and a course on first aid. During the three years, practical instruction in all subects taught is given. In the new curriculum, the student is given as much as possible practical knowledge, in laboratories and institutes. Theoretical knowledge comes second, but is not neglected. Courses on legislation pertaining to pharmacy, as well as the history of the latter, are available to the students. A rigid examination must be passed at he end of the third semester (half year) and at the end of he third year. Both examinations are practical and theoretical, partly oral and partly written. The successful candidate is then called "magister of pharmacy." He is then allowed to work for at least one year in a dispensary, either in a hospital or with a private apothecary. He may then apply for an examination at the ministry of health to test his fitness to manage a dispensary. This examination comprises historical, legal and administrative commercial subjects, and only the successful candidate can apply for a license to run a dispensary or an apothecary shop.

If the "magister of pharmacy" desires to obtain a diploma as "doctor of pharmacy," he may continue his university studies at the philosophical faculty. One year after obtaining his degree as "magister," that is to say, after completing his fourth university year, the student may apply for a diploma by writing a scientific dissertation or essay on a subject of pharmacognosy, chemistry, botany or hygiene. Doctors of pharmacy will, no doubt, be preferred to simple "magisters" of the same vocation, as "magister" is about equivalent to the "bachelor" of the English university. Certain regulations pertain to the admittance of foreign students to Austrian pharmaceutic studies. They should have had a preliminary teaching nearly equal to that of our gymnasium; but if they desire only to follow up or to finish their studies here, without settling here, they will meet concessions as to their preliminary knowledge, so that they too can obtain their degree or diploma here and practice pharmacy in their native country.

BERLIN

(From Our Regular Correspondent)

Sept. 9, 1922.

The Campaign Against the Nostrum Evil

In view of the fact that considerable interest is taken in the United States as well in the fight against nostrums and a certain class of proprietaries, it may be of interest to your readers to learn what measures are being adopted and carried out in Germany with the same object in view. First, let me state that manufacturers and promoters of nostrums that constitute out-and-out frauds on the public are prosecuted in the courts, and on the basis of the law against illegal competition (*unlauterer Wettbewerb*) a conviction can be secured if it can be shown that, in advertising matter setting forth the supposed merits of the preparation, statements are made that do not coincide with the real value of the remedy. Under certain circumstances, a penalty can be imposed on such manufacturers on the ground of actual fraud. Against proprietaries themselves there is a decree still in force which was passed by the *Bundesrat* (federal council) in 1907. According to this enactment, two separate lists of Geheimmittel (proprietaries) and similar drugs or medicaments were prepared, for which the following regulations are in force: The label on the containers (and also the outside wrappers) in which these remedies are sold must bear, plainly visible, the name of the remedy and the name of the manufacturer. The price at which the remedy is to be sold must also be stated. It is not lawful to print on the inside labels or outside wrappers any form of recommendation, such as testimonials pertaining to the therapeutic effects of the remedy, nor may copies of such recommendations and testimonials be handed out along with the remedy or otherwise. If the pharmacist is not sure about the composition of a remedy, he can sell it only on a dated, written order of a physician. Any new supplies of the remedy require a repetition of the order. In the case of remedies that can be dispensed only on a physician's prescription, either the inside label on the container or the outside wrappers must bear the statement: To be dispensed only on a physician's order. Of special importance is the regulation prohibiting the advertising of these remedies. The distribution of prospectuses or the dissemination of any other information pertaining to the remedy will be regarded as a form of advertising. Of late, the combating of the nostrum evil has been possible in connection with the so-called *Umsatzsteuergesetz* (act pertaining to tax on the annual business turnover). According to this act, which enables tax officials to collect a tax on every article sold, proprietaries are among the articles subject to an increased tax. In this way, not only the state treasury receives a greater income from the sale of proprietaries, but the public, on whom the manufacturers will of course endeavor to throw the extra burden, will possibly be discouraged from buying these remedies, owing to the greatly increased price. Recently, the newly elected *Reichsrat* (council of the empire), which controls the interpretation of the aforementioned *Umsatzsteuergesetz,* has endeavored to define the term Geheimmittel (secret remedy, proprietary), concerning which there has been so much discussion, during the last few years, by jurists and other experts. According to the final decision of the federal council, *Geheimmittel* (secret remedies) are substances or preparations that are to be used for the prevention, cure or relief of diseases, affections or bodily injuries of all kinds; for increasing or diminishing bodily performances, or for the furtherance or easement of childbirth in man or animals, when (1) the ingredients, with respect to kind and quantity, are concealed from the knowledge of the purchaser; (2) the remedies in the prescribed and usual application are likely to prove deleterious to health, especially in that they keep the patient or subject from using proper remedies or securing medical assistance, or (3) the remedies serve to deceive or defraud, owing to the method by which they are advertised. Such substances and preparations as are listed or described in the pharmacopeia of the German empire and are offered for sale under the name by which they are known in said codex; likewise all remedies that are generally recognized by medical science and practice as therapeutic agents, are not to be regarded as *Geheimmittel* (secret remedies). The commission that makes up the list of taxable proprietaries must govern itself by this definition. Attached to this commission, besides the regular officials, is one representative each from the Deutsche Aerztevereinbund, the Deutsche Apothekerverein, the Deutsche Drogistenverein and the wholesale chemical industry. As compared with these official measures against the nostrum evil, the regulations adopted by the medical profession itself are inadequate and need to be revised and further developed.

Marriages

Earl Macbeth Watson of Canada to Miss Zoë Eileen Addy of Sheffield, England, August 1, at Sheffield.

Edwin J. Schneller, Prairie du Sac, Wis., to Miss Hazel Snuff of Berrien Springs, Mich., September 16.

Samuel John House, Nashville, Tenn., to Miss Mary Goodell Ingals of Chicago, September 29.

Robert Porch Sturr, Haddon Heights, N. J., to Margaret Tullidge of Philadelphia, September 20.

Martin C. Bergheim, Hawley, Minn., to Miss Mildred M. Engquist of Minneapolis, August 13.

John Andrew Saari, Portland, Ore., to Miss Frances Cook of Terre Haute, Ind., September 27.

Angelo Caldarone to Miss Elvira Laura DeCesare, both of Providence, R. I., recently.

Frank E. Ellison to Miss Edith C. Smith, both of Monticello, Minn., September 1.

Harvey L. Van Pelt to Miss Abigail H. Sutphen, both of Ithaca, N. Y., July 27.

Clarence Martin to Miss Genevieve East, both of St. Louis, September 23.

Charles Anton Freund to Miss Helen Mary Browne, both of Chicago, July 1.

John R. Paul, Philadelphia, to Miss Leita Harlan of Baltimore, September 30.

Cyril K. Valade to Miss Marion I. Anderson, both of Detroit, October 5.

John H. Norris to Mrs. Hazel Morris, both of Fostoria, Ohio, recently.

Deaths

Lucius Fayette Clark Garvin, Lonsdale, R. I.; Medical School of Harvard University, Boston, 1867; died suddenly in his office, October 2, from heart disease. Dr. Garvin was born in Knoxville, Tenn., in 1841, and received his A.B. degree from Amherst College in 1862. He served throughout the Civil War. In 1864 he located in Rhode Island, and in 1883 was elected a member of the state legislature. In 1902 he was elected governor of Rhode Island and served two terms. Dr. Garvin served two terms as state senator and sixteen terms in the lower house. He served eighteen terms in the General Court of Rhode Island and for twelve years was medical examiner of Cumberland. He was elected to the senate again in 1920 and was in office at the time of his death. For many years Dr. Garvin was a member of the Rhode Island Medical Society.

Frank Fremont-Smith ⊕ Boston; University of Pennsylvania, Philadelphia, 1883; member of the Maine Medical Association; member of the Obstetrical and Gynecological Society of Washington, D. C.; formerly associate professor of pediatrics, George Washington University, Washington, D. C.; at one time physician to the Hospital for Foundlings and the Garfield Hospital, Washington, D. C.; aged 66; was found dead in the bathtub, with his throat cut, September 29, at his summer home in Bar Harbor, Maine.

Francis M. Gunnell ⊕ Rear Admiral, M. C., U. S. Navy (retired), Washington, D. C.; Medical Department of Columbian College, Washington, 1846; Civil War veteran; at one time president of the board of medical examiners at Washington; served as surgeon general of the navy, 1884-1888, and retired as medical director in 1889; delegate to the International Medical Congress in 1876; for several years represented the navy at meetings of the American Medical Association; died recently, aged 94.

Arthur Bray Oechsli, Walla Walla, Wash.; University Medical College of Kansas City, Mo., 1908; head of the roentgen-ray department of the U. S. Veterans' Bureau Hospital at Walla Walla; suffered a compound fracture of the skull and internal injuries in an automobile accident on the Tucanon, September 9, and died, September 12, aged 39, at the hospital at Fort Walla Walla.

Henry P. Merrill, Jr. ⊕ Lieut., M. C., U. S. Navy, Washington, D. C.; Cornell University Medical College, New York, 1920; member of the Maine Medical Association; served in the Surgeon-General's office at Washington; recently assigned to the Asiatic squadron with sailing orders, October 17; veteran of the World War; died, September 25, aged 47, at Brooklyn Navy Yard Hospital.

George R. Andreas, Wilkes-Barre, Pa.; Jefferson Medical College, Philadelphia, 1892; member of the Medical Society of the State of Pennsylvania; chief medical examiner for the city schools; at one time on the staffs of the Nesbitt West Side Hospital and the Mercy Hospital; died, September 19, aged 54, from cerebral hemorrhage.

Neill Archie Thompson, Lumberton, N. C.; Maryland Medical College, Baltimore, 1905; member of the Medical Society of the State of North Carolina; medical superintendent of the Thompson Hospital, Lumberton; aged 52; died, September 29, in a hospital at Fayetteville, from injuries received when he was knocked down and run over by an automobile.

Frank William Anderson ⊕ Rochester, Minn.; Medical School of Harvard University, Boston, 1918; member of the Massachusetts Medical Society; associate in the section on radium and roentgen-ray therapy of the Mayo Clinic, Rochester, since October 1920; died, September 29, aged 37, at the home of his parents in Roslindale, Mass.

Nathaniel Royal Perkins, Boston; Boston University School of Medicine, Boston, 1876; formerly president of the Massachusetts Homeopathic Medical Society; member and for many years assistant secretary of the board of registration; at one time member of the state legislature; aged 75; dropped dead in front of his home, September 22.

Frank Randolph, Elkhart, Ind.; University of Michigan Ann Arbor, 1892; member of the Indiana State Medical Association; aged 57; died, September 24, at the Hostettler Hospital, LaGrange, from injuries received when the automobile in which he was driving was struck by a freight train.

James Warren Ingalls ⊕ Brooklyn; Medical Department of Columbia College, New York, 1884; member of the American Ophthalmological Society and the American Pathological Society; ophthalmologist to the Wyckoff Heights Hospital and the Bushwick Dispensary; died, September 27, aged 72, from angina pectoris.

Daniel Walker Figgins, Ketchikan, Alaska; College of Physicians and Surgeons, Keokuk, Iowa, 1877; served in the Philippine Islands, with the rank of major, during the Spanish-American War; for many years a railroad surgeon; died, September 15, aged 66, at San Diego, Calif.

Daniel L. McNamara, Utica, N. Y.; New York University Medical College, 1882; formerly a railroad telegrapher; at one time medical superintendent of the Batavia Institution for the Blind; for several years police surgeon of Utica; died, September 22, aged 67, from pneumonia.

James Craig, Columbus, Mont.; Medical School of Maine (Bowdoin College), Portland, 1876; member of the Medical Association of Montana; formerly mayor of Columbus and at one time county health officer; died, September 15, aged 72, following a long illness.

John Henry Parker, Corbin, Ky.; University of Louisville Medical Department, 1890; member of the Kentucky State Medical Association; aged 60; was instantly killed, September 25, when the automobile in which he was driving was struck by a railroad train.

Charles Woodbury Banta ⊕ Buffalo; University of Buffalo Department of Medicine, 1901; formerly gynecologist to the Buffalo Hospital of the Sisters of Charity, and at one time obstetrician to St. Mary's Maternity Hospital, Buffalo; died, September 22, aged 44.

Frank Raymond Mehler, New London, Iowa; Keokuk Medical College, Keokuk, Iowa, 1900; member of the Iowa State Medical Society, served in France with the M. C., U. S. Army, during the World War; died, September 24, aged 48, following a long illness.

Andrew John Forman, Auburn, N. Y.; New York University Medical College, New York, 1897; member of the Medical Society of the State of New York; coroner of Cayuga County for twelve years; died, September 24, aged 49, from heart disease.

Jennie Trish Topinka Cohn ⊕ Chicago; Hahnemann Medical College and Hospital of Chicago, 1895; at one time research worker for the department of health; died, October 3, aged 56, at the North Chicago Hospital, from carcinoma of the breast.

Rolla Harrison Henry ⊕ St. Louis; St. Louis University School of Medicine, St. Louis, 1908; superintendent of the St. Louis City Hospital, No. 1; aged 47; was killed instantly, September 14, when he fell from the top story of the City Hospital.

William Wilson Silvester, Jr., Norfolk, Va.; University of Pennsylvania School of Medicine, Philadelphia, 1913; member of the Medical Society of Virginia; aged 33; died at a hospital in Richmond, September 4, following a short illness.

Samuel Silberstein, Passaic, N. J.; Baltimore University School of Medicine, 1900; one of the founders and first president of the Barnert Memorial Hospital, Paterson, N. J.; died, September 21, aged 42, from cerebral hemorrhage.

Sarah Hatton McAulay, Monterey, Calif.; Hahnemann Medical College of the Pacific, San Francisco, 1904; died, September 17, aged 40, at the Monterey Hospital, from injuries received in an automobile accident.

Russell Penrose Heilman, Emporium, Pa.; Jefferson Medical College, Philadelphia, 1876; member of the Medical Society of the State of Pennsylvania; aged 71; was killed in an automobile accident, September 10.

George W. Ira, Lynch, Neb.; St. Louis College of Physicians and Surgeons, St. Louis, 1888; for twenty-six years in the Indian Service; author of "Medical Experience Among the Indians"; died, August 24, aged 80.

Frank Leslie Hughson, Breckenridge, Texas; Ensworth Medical College, St. Joseph, 1904; member of the State Medical Association of Texas; died, September 15, aged 50, from septicemia following coccygeal abscess.

Robert Bruce Mullins, Broken Arrow, Okla.; Louisville Medical College, Louisville, Ky., 1882; for twelve years health officer and coroner of Dighton, Kan.; died, August 29, aged 52, at the Morningside Hospital, Tulsa.

John Keesee, Carbondale, Ill.; College of Physicians and Surgeons of Keokuk, Iowa, 1878; formerly member of the city council; aged 73; died, September 20, at the home of his son in Denver, from paralysis.

Philip S. Rieg ⊕ Toledo, Ohio; Toledo Medical College, Toledo, Ohio, 1894; served in the Navy during the Spanish-American War; was found dead in bed, September 21, aged 56, from heart disease.

James Willis Kerley, Cordell, Okla.; University of Nashville Medical Department, 1900; member, and at one time secretary, of the Oklahoma State Medical Association; died, July 27, aged 51.

Murdoch Thomas McLean, North Sydney, N. S.; Dalhousie University Faculty of Medicine, Halifax, N. S., 1899; mayor of North Sydney; died recently, aged 49, from cerebral hemorrhage.

William N. Daniels, Mosinee, Wis.; Rush Medical College, Chicago, 1878; member of the State Medical Society of Wisconsin; Civil War veteran; died, September 17, aged 77, at Madison.

William C. Reece, Elvins, Mo.; Barnes Medical College, St. Louis, 1899; member of the Missouri State Medical Association; died, July 28, aged 55, from gastritis and uremia.

Edward Cabell Smith, Richmond, Va.; University of Virginia Department of Medicine, Charlottesville, 1881; was found dead in bed, September 16, aged 58, from heart disease.

Harry Milton Smith ⊕ McKeesport, Pa.; Ohio Medical University, Columbus, Ohio, 1903; died, September 8, aged 49, at the McKeesport Hospital, from chronic nephritis.

Albert S. Gilbert, Florence, Ga.; Atlanta Medical College, Atlanta, Ga., 1889; died, September 16, at Eufaula, Ala., following an operation for appendicitis, aged 57.

Charles L. Scott, Hanford, Calif.; Keokuk Medical College, Keokuk, Iowa, 1898; Kings County health officer; died, September 4, aged 49, from diabetes mellitus.

Jacob Solovay, Chicago; Chicago College of Medicine and Surgery, 1917; member of the Illinois State Medical Society; died, October 3, aged 32, from pneumonia.

Joseph John Zak ⊕ Chicago; Bennett Medical College, Chicago, 1915; specialized in pediatrics; died, October 1, aged 43, from retroperitoneal carcinoma.

Richard B. Bennett, Bangs, Texas; Tulane University of Louisiana School of Medicine, New Orleans, 1870; died, August 13, aged 75, from senility.

Franklin Lafayette Rownd, Pasadena, Calif.; Rush Medical College, Chicago, 1874; died suddenly, September 12, aged 71, in Kansas City.

Stanley M. Ward, Hampton, N. H.; Jefferson Medical College, Philadelphia, 1882; died, September 13, aged 63, following a long illness.

Levi Zimmermann, Lebanon, Pa.; Jefferson Medical College, Philadelphia, 1883; died, September 6, aged 66, from arteriosclerosis.

Robert A. McQueen, Rusk, Texas; Medical Department University of Tennessee, 1884; died recently, aged 75, at Marlin, Texas.

Merrell Monk, Athens, La.; University of Nashville Medical Department, 1897; died, August 1, aged 49, from cerebral hemorrhage.

George Albert Spaulding ⊕ Avoca, Iowa; University of Iowa College of Medicine, Iowa City, 1888; died, August 2, aged 54.

Thomas Delass Bristol, Cleveland; College of Physicians and Surgeons of St. Joseph, Mo., 1882; died, September 13, aged 68.

William J. Joyce, Webb City, Mo.; Barnes Medical College, St. Louis, 1898; died, August 24, aged 66, from heart disease.

Cornelius F. Mills, Chicago; University of Michigan, Ann Arbor, 1871; died, October 1, aged 77, from cerebral hemorrhage.

Alfred H. Tucker, Whiterock, Mich. (licensed, Michigan, 1900); died, August 11, aged 79, from cirrhosis of the liver.

J. D. S. Fairey, Orangeburg, S. C.; Medical College of the State of South Carolina, 1884; died, September 13, aged 62.

Winfield Scott Marshall, Chicago; Medical College of Ohio, Cincinnati, 1872; died, October 4, aged 73, from heart disease.

Joseph K. Miles, Conroe, Texas (registered, in Texas, by the Act of 1907); aged 56, died recently, from nephritis.

Reuben R. Tidrick, Bringhurst, Ind.; Medical College of Ohio, Cincinnati, 1866; died, September 19, aged 81.

D. U. Hurst, Combs, Ark. (licensed, Arkansas, 1903); died, September 7, aged 74, from heart disease.

The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other General Material of an Informative Nature

THERAPEUTIC RESEARCH INTO THE CLINICAL FIELD OF YEAST PREPARATIONS

Report of the Council on Pharmacy and Chemistry

The Council has adopted the following report and has authorized its publication. W. A. Puckner, Secretary.

The Council, at its meeting of March, 1921, directed its Therapeutic Research Committee to determine the advisability of undertaking a clinical study of the usefulness in therapy of yeast preparations. Accordingly, the chairman of that committee drew up a provisional plan which proposed to utilize the easily observable phenomena of growth, appetite and laxative effects as cumulative indices of all action and to record these under a variety of normal and pathologic conditions. The plan was submitted to the members of the committee and to others, with a request that they express their views: first, as to whether such an investigation would be likely to justify the effort; second, as to the plan itself, and, third, as to those who should be asked to participate.

The responses indicated considerable interest in the subject. They were rather evenly divided as to the desirability of the investigation, and predominantly skeptical as to the probability of positive results. That is, most of the correspondents doubted the usefulness of yeast in clinical conditions; but about half thought that the question should be investigated in some such manner as was proposed in the plan. The others inclined to the opinion that the results would probably be inconclusive, at least to the advocates of yeast therapy; and that the trials should be begun, if at all, on a very restricted scale.

Since the plan was drafted, Prof. A. L. Daniels has reported experiments on babies and older children, with entirely negative or with unfavorable results. A. F. Hess also had previously published similar, negative data. Since persons of the actively growing age would be most likely to show improvement in growth, the Therapeutic Research Committee concluded not to extend the observations to other groups; nor did a repetition of the investigations of Daniels and Hess seem, to the committee, necessary. The chairman of the committee, therefore, recommended to the Council that the investigations along the lines proposed be not inaugurated, on the ground that, in the light of present knowledge, there does not seem to be a deficiency of growth vitamin under conditions existing in America, even when the growth demands are most active.

In advising against the proposed investigations of yeast preparations, the chairman of the committee pointed out that this does not entirely dispose of the question of yeast therapy, for several other fields of usefulness are hypothetically conceivable:

A. For individuals living on extraordinary diets of especially low vitamin content: The investigation of this field would need to await more knowledge as to the actual existence of such conditions. The correspondence indicates that no such group has been recognized in this country, with the possible exception of dietary faddists, in whom neurotic factors are likely to be inherent in such degree as to make them difficult subjects for study.

B. As a laxative: There is no doubt that living yeast does act as a laxative, and as such may be useful for subjects afflicted with habitual constipation and its progeny. This much may be granted *a priori;* and it does not seem worth while carrying the subject further at this time, since no plan has suggested itself by which to determine whether it should be preferred to other laxatives.

C. To increase resistance in some other manner: This is too indefinite to be considered seriously for clinical investigation, until the conditions in which it is supposed to act are more sharply defined, or until it is based on animal experiments.

The chairman reported that, as a result of the information obtained, he had come to these conclusions:

1. Apart from the occasional imported cases of beriberi, vitamin deficiency is not a recognized or diagnosable clinical entity in this country.

2. With ordinary diets, yeast does not have any effect on growth, even of babies and children.

3. The one effect of yeast that has been definitely established is the laxative effect. This may be useful in chronic constipation but no direct method is at present available for determining its advantages or disadvantages in comparison with other laxatives. Critical observations in the course of ordinary practice may perhaps furnish some hints at a future time, especially when objective observations are not so much hindered by the psychic influence of commercial propaganda.

For these reasons, the further investigation of the problematic usefulness of yeast in clinical conditions would not be worth the effort and expense.

The report of the Therapeutic Research Committee and the replies to the committee's inquiries were submitted to the Council.

At its meeting in March, 1922, the Council considered the report of its Therapeutic Research Committee and agreed to the recommendation that the plans for the investigation of yeast preparations be abandoned for the present. The Council directed that the committee's report and the replies which had been received be submitted to those who had previously advised the Council in this matter, with the inquiry whether, in their opinions, the plans should be continued or abandoned. The Council directed that the replies be referred to the committee responsible for the yeast preparations proposed for admission to New and Nonofficial Remedies, with instructions to make final recommendations to the Council.

The replies received were, in general, against a clinical study of yeast preparations under the auspices of the Therapeutic Research Committee of the Council on Pharmacy and Chemistry. The committee therefore, recommended that the Council's decision to abandon, for the present, the plans for the investigations of yeast preparations be allowed to stand and that, as a matter of record, this report be authorized for publication. The Council adopted the recommendations and extended a vote of appreciation to those who had aided in the consideration of the important questions involved.

Correspondence

THIRD INTERNATIONAL CONGRESS ON THE HISTORY OF MEDICINE

To the Editor:—The third international congress on the history of medicine was held at the Royal Society of Medicine in London, July 17 to 22, under the honorary presidency of Sir Norman Moore and the acting presidency of Dr. Charles Singer, two of the leading medical historians of the English-speaking world. Distinguished representatives from every country of Europe, except Germany, Austria, Russia and one or two of the Balkan states, attended the scientific meetings. At the Royal College of Physicians, its president, Sir Humphry Rolleston, gave a most entertaining discourse on the history of the institution, and its splendid historical library and portrait gallery of distinguished members was exhibited.

The scientific program was chiefly devoted to medieval epidemics and to the history of anatomy. In the former topic, important papers were given by Tricot-Royer, a former president of the association, Professor Simpson, Wickersheimer, Mrs. Singer and others. The subjects of the anatomic papers, too numerous to mention, ranged from such general topics as "Beginnings of Western Anatomy," "Early Anatomic Instruction in Edinburgh" and "Beginnings of Anatomical Teaching in the United States" through individual consideration of Galen, Leonardo da Vinci, Vesalius, Des Cartes and others to a valuable group of papers on veterinary anatomy.

The International Society of the History of Medicine was founded at Paris in 1921, with the object of studying all subjects pertaining to the history of the biologic and medical sciences, and of organizing congresses on medical history. Three such congresses have already been held, and henceforth will be held triennially, the next being at Geneva in 1925. At this year's congress, Great Britain was well represented by Sir Norman Moore, Sir d'Arcy Power, Dr. and Mrs. Charles Singer, Sir James Purves Stewart, E. T. Withington, W. Wright, F. J. Poynton, W. G. Spencer, J. D. Comrie, C. J. S. Thompson, Major Gen. Sir F. Smith and others; France by Laignel-Lavastine, Fosseyeux, Villaret, Jeanselme, Wickersheimer and others (Menetrier unfortunately could not attend). Capparoni and Castiglioni from Italy, Tricot-Royer from Belgium, de Lint from Holland and Sigerist (unofficially) from Switzerland were other prominent members. The United States was represented by Drs. B. I. Hart of Bridgeport, Conn.; E. B. Krumbhaar of Philadelphia, and Victor Robinson of New York. Dr. Fielding H. Garrison, the official delegate, was compelled to be absent, having been ordered to the Philippines. It is hoped that before the next congress, a national section (as called for in the regulations of the international society) will be organized and firmly established in this country.

E. B. Krumbhaar, M.D., Philadelphia.

"A NEW TYPE SIGMOIDOSCOPE"

To the Editor:—In The Journal, September 30, Lyon and Bartel describe a new type sigmoidoscope. They object to the seven-eighths inch diameter of the Tuttle and Lynch instruments as being too large, and could get only a short Axtell with a smaller diameter. Evidently they are not acquainted with Yeoman's sigmoidoscope, made by Wappler of New York. I have and now use a Yeoman's instrument with a barrel of five-eighths inch diameter, and also one with a three-eighths inch diameter for "nervous patients" and children. The light is placed at the butt of the instrument and is of a substantial type, and a lens window which does not blow off with inflation is also attached. I have found both light and window so satisfactory under all conditions that I have had it attached to both a proctoscope and an anoscope, the latter of the Hirschman model.

Harry Goldman, M.D., New York.

COLLECTING PHYSICIANS' ACCOUNTS

To the Editor:—I have read with interest the editorial comment on collection agencies, in The Journal, September 23. My experience, covering the last fifteen years, with collection agencies is that it is time and money wasted to have anything to do with them. The question of what to do with past due accounts had been agitating the physicians of this community. Finally a meeting of all the physicians and dentists was called to discuss ways and means to get our outstanding accounts in more businesslike shape. After discussion, a committee was formed to draw up an agreement for a working organization. This brought into being the Physicians and Dentists Clinic Association of Cache Valley.

We secured the service of a man as auditor who had had several years of experience for banks and business houses in this class of work. The members of the association put into his hands accounts amounting to about $20,000 and added to them month by month as accounts became from sixty to ninety days old.

We have been under way now four months, and results have been good. It has had a good moral effect. It has brought the professional men together as nothing else could, and has brought to time that class who never intend to pay a physician, going from one to another without paying any. Up to the present several thousand dollars in cash has been collected for the association, with several thousand dollars' worth of accounts put in note form. Our business agent follows up the accounts and notes when due, and insists on payment or renewals, as a bank or a business house would do. Objections on the part of the public have been remarkably few, and no one, so far as we can learn, has suffered in any way from the adoption of a more businesslike method in the handling of their accounts.

A complete set of books is kept in the secretary-treasurer's office. Every account statement, receipt and check is made out in duplicate form so that a double check can be made on every transaction. In a system like this, the expenses of the first few months will be large, but after several months they should keep getting less and less, until the cost of collection should be down to from 10 to 15 per cent. Even if it were 25 or 30 per cent., it would be an improvement over the average loss of from 40 to 60 per cent. on old accounts.

For a system like this there should be in the organization not less than ten active men, and from that up to as many as one good competent man could handle by devoting all his time. To be successful, all the men must be united behind the business agent and give unanimous support.

G. W. States, M.D., Preston, Idaho.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

PRECIPITIN TEST FOR MENINGITIS

To the Editor:—Please tell us whether or not the precipitin test for meningitis is reliable. The test is given in many textbooks, telling us to take the clear spinal fluid and add a small amount of antimeningococcus serum and incubate five or six hours. Should this incubation be carried on at body temperature or at 56 C.? We have tried the test in two supposedly positive cases—cases in which meningococcus-like organisms were found, but in which the patients were not very sick or rigid. Incubation was done at 56 C. for five hours. Results were negative. Can we feel quite positive that infection was not a true meningococcus infection, or is the test unreliable? If the test was not performed correctly, please tell us the correct method.

————, Wisconsin.

Answer.—Dopter, the French authority on meningococcus infection, in his recent book (L'Infection méningococcique, 1921) says that on adding from 1 to 5 drops of antimeningococcus serum to about 5 drops of cerebrospinal fluid, first cleared thoroughly by centrifugation, and then incubating at 37 or preferably 55 C. for five or six hours, an opalescence may develop if the meningitis is due to the meningococcus. The control tube, incubated in the same way, should contain the same cerebrospinal fluid but no antimeningococcus serum, and this fluid should remain clear. Dopter says that sometimes the fluid in the control tube also becomes opalescent, and that normal horse serum may give opalescence when used in the place of antimeningococcus serum; furthermore, that the reaction sometimes occurs in cases of meningitis due to other organisms than the meningococcus, such as the pneumococcus and the tubercle bacillus; and also that the reaction may fail to develop even when the meningococcus is the pathogenic agent. These observations self-evidently limit greatly the value of the precipitin reaction in meningococcus meningitis. It should be noted, however, that it has been found possible by means of this reaction to determine to what group the particular meningococcus in a given case belonged, showing that under certain conditions the test may have diagnostic specificness.

Basal Metabolism.—The heat production per square meter of surface, using the Du Bois method, is 39.7 calories per hour, provided the individual is resting and is "normal," and provided the experiment is carried out before the administration of food in the morning (that is, after he has fasted from twelve to fourteen hours). This is the so-called "basal metabolism," and constitutes the unit of reference whereby we can measure what are the deviations from the normal. Harrow: Glands in Health and Disease, E. P. Dutton & Co., 1922.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Arkansas: Little Rock, Nov. 14-15. Sec., Reg. Bd., Dr. G. W. Walker, Fayetteville; Sec., Eclec Bd., Dr. C. E. Laws, 803½ Garrison Ave., Fort Smith; Sec., Homeo. Bd., Dr. George M. Love, Rogers.

California: Sacramento, Oct. 16-19. Sec., Dr. Charles B. Pinkham, 906 Forum Bldg., Sacramento.

Connecticut: Hartford, Nov. 14-15. Sec., Reg. Bd., Dr. Robert L. Rowley, 79 Elm St., Hartford.

Connecticut: New Haven, Nov. 14-15. Sec., Eclec. Bd., Dr. James E. Hair, 730 State St., Bridgeport; Sec., Homeo. Bd., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

Iowa: Des Moines, Nov. 1-3. Sec., Dr. Rodney P. Fagen, State House, Des Moines.

Nevada: Carson City, Nov. 6. Sec., Dr. Simeon L. Lee, Carson City.

New Jersey: Trenton, Oct. 17-18. Sec., Dr. Alexander MacAlister, State House, Trenton.

Texas: Waco, Nov. 28-30. Sec., Dr. T. J. Crowe, Dallas County Bank Bldg., Dallas.

Oklahoma July Examination

Dr. J. M. Byrum, secretary, Oklahoma State Board of Medical Examiners, reports the written examination, held at Oklahoma City, July 11-12, 1922. The examination covered 12 subjects and included 120 questions. An average of 75 per cent. was required to pass. Of the 13 candidates examined, 12 passed and 1 failed. Three candidates were granted reregistration licenses, and one candidate received a duplicate license. Nine candidates were licensed by reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
Tulane University	(1922)	87
Harvard University	(1921)	90
Kansas City College of Medicine and Surgery	(1921)	78
Washington University	(1922)	90
Eclectic Medical College	(1922)	83
Ohio State University Coll. of Homeopathic Medicine	(1921)	78
University of Oklahoma	(1922)	82, 83, 84, 85, 85, 85
FAILED		
Meharry Medical College	(1921)	71

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Northwestern University	(1906)	Kansas
Physio-Medical College of Indiana	(1906)	Indiana
Iowa College of Physicians and Surgeons	(1897)	Iowa
Kansas City Medical College	(1895)	New Mexico
Marion Sims College of Medicine	(1903)	Nebraska
University Medical College of Kansas City	(1911)	Kansas
John A. Creighton Medical College	(1912)	Nebraska
University of Tennessee	(1890), (1914)	Tennessee

Utah July Examination

Mr. J. T. Hammond, director, Department of Registration of Utah, reports the written examination held at Salt Lake City, July 5-7, 1922. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 7 candidates examined, 5 passed and 2 failed. Four candidates were licensed by reciprocity. Three candidates were licensed on government credentials. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
Stanford University	(1922)	87
Jefferson Medical College	(1921)	81.2
University of Pennsylvania	(1920) 85.4, 86.4, (1922)	82.8
FAILED		
St. Louis College of Physicians and Surgeons	(1918)	57.6
Creighton University	(1921)	72.6

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Illinois	(1922)	Illinois
College of Physicians and Surgeons, Baltimore	(1915)	W. Virginia
Washington University	(1921)	Missouri
University and Bellevue Hospital Medical College	(1920)	New York

College ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
Chicago College of Medicine and Surgery	(1917)	U. S. Navy
Barnes Medical College	(1896)	U. S. Army
University Medical College of Kansas City	(1903)	U. S. Army

West Virginia July Examination

Dr. W. T. Henshaw, secretary, West Virginia Public Health Council, reports the oral, written and practical examination held at Martinsburg, July 11, 1922. The examination covered 11 subjects and included 132 questions. An average of 80 per cent. was required to pass. Of the 29 candidates examined, 27, including 1 osteopath and 2 chiropodists, passed, and 2 candidates failed. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
Rush Medical College	(1922)	89
State University of Iowa College of Medicine	(1920)	80
University of Maryland	(1921) 88, (1922)	91, 93
Harvard University	(1920)	88
Ohio State University College of Medicine	(1922)	90
University of Cincinnati College of Medicine	(1921)	86, 88, 90, 93, (1922) 88, 88
Jefferson Medical College	(1921)	87, 89, 89, 91, 93, (1922) 87, 88, 91
University of Pennsylvania	(1920)	87
University of Virginia	(1921)	89
National University, Athens	(1921)*	80
Osteopath		91
FAILED		
Chicago Medical School	(1920)	†
St. Louis College of Physicians & Surgeons	(1922)	73

Dr. Henshaw also reports that from January, 1922, to July, 1922, twenty-five candidates were licensed by reciprocity. The following colleges were represented:

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Emory University	(1920)	Georgia
University of Louisville Medical Department	(1907)	Kentucky
	(1910)	Indiana
Tulane University	(1917)	Texas
College of Physicians and Surgeons, Baltimore	(1903)	New Jersey
Johns Hopkins University	(1914)	Hawaii
Univ. of Maryland	(1907) Louisiana, (1908) (1916) (1919)	Maryland
University of Michigan Medical School	(1917)	Ohio
Cornell University	(1910)	New York
Medical College of Ohio	(1896)	Ohio
Western Reserve University	(1917)	Ohio
Hahnemann Med. Coll. and Hosp. of Philadelphia	(1902)	Penna.
Jefferson Medical College	(1913)	Michigan
Medico-Chirurgical College of Philadelphia	(1911)	Penna.
Medical College of Virginia	(1915), (1916, 2), (1917)	Virginia
Meharry Medical College	(1917)	Georgia
University of Nashville	(1910)	Indiana
Vanderbilt University	(1914)	Alabama

* Graduation not verified.

† No grade given.

Book Notices

Maladies du Cervelet et de L'Isthme de L'Encéphale. (Pédoncule, Protubérance, Bulbe). Par Henri Claude, Professeur a la Faculté de Médecine de Paris, and Lévy-Valensi, Ancien Chef de Clinique de la Faculté de Médecine de Paris. Paper. Price, 35 francs. Pp. 439, with 104 illustrations. Paris: J.-B. Baillière et Fils, 1922.

This, the thirty-second part of a large work on internal medicine, covers the subject excellently, and is up to date. Those who have had trouble in correlating the signs of cerebellar disease and in fully grasping the Bárány tests will find the numerous diagrams helpful. The volume includes consideration not only of the inflammatory and vascular lesions of the cerebellum and brain stem but also of tumors of this region, including tumors of the cerebellopontile angle, and epidemic (lethargic) encephalitis. The discussion of symptomatology is especially full and detailed, and the literature is given more extensively than is usual in a work of this kind; but in neither are the important and determinative sufficiently separated from the subsidiary and nonessential. The illustrations are excellent and nearly all really illustrate something. As in most French works, there is no index: only a table of contents.

Management of the Sick Infant. By Langley Porter, B.S., M.D., M.R.C.S., Professor of Clinical Pediatrics, University of California Medical School, and William E. Carter, M.D., Assistant in Pediatrics and Chief of Out Patient Department, University of California Medical School. Cloth. Price, $7.50. Pp. 654, with 54 illustrations. St. Louis: C. V. Mosby Company, 1922.

The authors have limited the scope of their work to the needs of the sick infant. They describe minutely the dietetic and therapeutic measures indicated in the many minor and major pathologic conditions distinctive of infancy. The book is written in three parts. Part One, which is divided into ten chapters, discusses the most important symptoms encountered, inclusive of their treatment, as vomiting, diarrhea, constipation, hemorrhage, fever, cough, pain and tenderness convulsions and syncopes. In this section the most common nutritional disturbances and their management are reviewed. Part Two, in ten chapters, covers the more frequent malformations, infections and other disturbances of the respiratory and digestive tracts, the diseases of the heart and circulation, and those of the blood and the lymphatic, nervous, genitourinary and osseous systems. The final chapters are devoted to the diseases of the skin, the glands of internal secretion, and chronic and acute infections. The general and specific measures indicated in their care are described in detail. In Part Three, the application of the special therapeutic measures previously recommended is described in great detail, such as intravenous, subcutaneous, intramuscular and intraperitoneal injections, intraspinal serum injection, gavage, rectal feeding and heliotherapy. This part of the book also covers the description and indications for use of important and established measures for diagnosis of the diseases of infancy, such as determination of coagulation time, lumbar and ventricular puncture and puncture of the cisterna magna, the Schick test, flouroscopy, and the taking and interpretation of roentgenograms. One of the later chapters is devoted to drug therapy, with illustrated combinations which may be recommended in the treatment of the commoner diseases and those for which there is a known specific therapy. The book closes with a chapter on the treatment of acute poisoning, with an enumeration of the antidotes and a detailed description of the indicated physical measures. The authors have successfully arranged their material in a practical and accessible manner. The description of the various methods is concise and comprehensive. The volume is well illustrated throughout, and will prove a valuable and practical addition to the library of physicians interested in the care of children, and to the hospital library as well.

The Principles of Electrotherapy and Their Practical Application. By W. J. Turrell, M.A., D.M., B.Ch., Consulting Physician, Oxford County and City Mental Hospital. Cloth. Price, $3.85. Pp. 276, with 29 illustrations. New York: Oxford University Press, 1922.

The author has condensed in this small volume more pracical facts than are usually found in such works. Part I leals with the therapeutic action of current electricity, includng the constant current, interrupted currents of low and of high frequency, and currents derived from the static machine. When technical and mathematical subjects are referred to, he text is well illustrated by diagrams and formulas. Part I deals with the therapeutic action of radiant energy, includng radiant heat and light, ultraviolet radiation and roentgen ays. The Wintz method of treating malignant growths is gone into in some detail. Parts III and IV take up electrodiagnosis and the application and mode of action of elecricity in peripheral nerve lesions and in nervous and other iseases. The chapter on peripheral nerve lesions is full of nterest, and brings out the newer methods of treatment and iagnosis developed during the late war. Taken as a whole, his is one of the best textbooks on the subject.

A Treatise on Glaucoma. By Robert Henry Elliot, M.D., B.S., c.D., Lecturer in Ophthalmology, London School of Tropical Medicine. econd edition. Cloth. Price, $8. Pp. 656, with 213 illustrations. New ork: Oxford University Press, 1922.

This edition appears in an elaborated form, entitled a eatise, and a veritable treatise it is. The entire subject of laucoma—"a convenient clinical label for a large group of athologic conditions, the distinctive feature common to all f which is a rise in the intra-ocular pressure"—is covered n a manner that cannot fail to elicit praise from any reader, o matter what divergent opinions he may hold. No thinkng ophthalmologist will agree with Elliot in all of the details otherwise he would not be a thinking ophthalmologist), but oth sides of mooted questions are discussed in all fairness, nd from these and his vast clinical experience, the author as drawn the conclusions on which he pins his faith. It ould be well if the axioms expressed on page 140 could be nphasized: "(*a*) A mydriatic should never be used without rst ascertaining the tension of the eye and the condition of he optic disk; and (*b*) no doubtful patient should be allowed o leave the surgeon's care until miosis has been established." he question of diagnosis occupies a full two hundred pages, bout one third of the book, and is handled in a clear, convincing manner. In these pages, there are few sentences that can be questioned. Treatment fills another two hundred odd pages, but here the individual experience and belief of the ophthalmic reader may lead to variance, particularly as to the efficacy of operative results. Taken by and large, however, the book is a real encyclopedia of glaucoma, well written, well printed and well illustrated. The author has not allowed his individuality to dominate the pages, even in those devoted to the clear discussion of the operation that has done so much to make his name a standby in ophthalmic circles.

Leitfaden der Medizinisch-Klinischen Propädeutik. Von Dr. F. Külbs, Professor an der Universität Köln. Third edition. Paper. Price, 108 marks. Pp. 178, with 87 illustrations. Berlin: Julius Springer, 1922.

This little book in German, covering the clinical methods of examination, is a most useful handbook for medical students or for practitioners who desire to review this important subject. It is particularly to be recommended for its excellent schematic drawings.

Medicolegal

Malpractice Provable Without Expert Testimony

(Cornwell v. Sleicher et al. (Wash.), 205 Pac. R. 1059)

The Supreme Court of Washington, in reversing a judgment of nonsuit and remanding the case for a new trial, says that the plaintiff suffered an oblique fracture of the radius of his right arm, about midway between the elbow and the wrist. The defendant Sleicher took two roentgenograms of the arm from different positions, and, thereby discovering the nature of the fracture, sought to reduce it by extension and counter extension, after which he put on the arm a wire splint, the swollen condition of the arm forbidding placing it in a permanent cast. Another roentgenogram was then taken. The defendant, being satisfied that the bones were in place, instructed the plaintiff as to the manner of carrying the arm, and told him to return in ten days to have a permanent cast put on. When the plaintiff returned, as directed, the defendant, after examining the fracture, said that the bones were not quite together, so he would slip them, which he sought to do by pressure. The plaintiff then called attention to a protuberance at the wrist. The defendant remarked that the bone would have to be slipped a little, and proceeded to manipulate it, after which a catch or snap was heard and the protuberance disappeared. The arm was then placed in a plaster cast, and the plaintiff was told to return in three weeks. When he returned, the defendant removed the cast, examined the arm, and pronounced it satisfactorily healed. The plaintiff called attention to the fact that the arm was crooked, but was told that it was all right. Soon aferward, the arm became very painful, and the plaintiff found a lump underneath the fracture, which he described by saying, "It seemed like I could hook my thumb right under the end of the bone sticking out." Subsequently, the plaintiff consulted another physician, who took roentgenograms of the arm, and treated it by cutting into it and chiseling off a protruding end of the fractured bone. He described the arm as showing a slight angle and a very little shortening. He also testified that there was some loss of motion. Such, in effect, was the evidence which the jury would have been entitled to believe had the case been submitted to them, and the court holds that it was error to withdraw the question of the defendant's liability from them.

It was urged that, while lay witnesses testified as to what was done by the defendant, and to the result, no witness testified that that result was caused by any improper or unskilful treatment. But with reference to the proposition that there must be evidence by a person skilled in the science of surgery that the treatment of a particular injury is negligent and unskilful, before a court or jury can pronounce it so, this court has heretofore dissented, and is not now in accord. There must be, in the nature of things, many instances in which the facts alone prove the negligence, and in which it is unnecessary to have the opinions of persons skilled in the particular science to show unskilful and negligent treatment. It seems to the court that this was an instance of that sort. Both the defendant and the other surgeon testifying said that the fracture was without complications, and one easy of reduction. The roentgenograms produced by the different surgeons showed that the bones knitted much in the same position in which they were prior to any attempt at reduction. This, taken with the evidence of the lay witnesses to the effect that there was no misuse of the arm between the time the fracture was reduced and the patient was discharged as cured, that at the time of the discharge the arm was crooked and shortened, that there was a lump in the region of the fracture palpable to the touch and visible to the eye, that there was a loss of flexion, and almost constant pain in the arm, and that a second operation was necessary to make it even passably usable, was sufficient to make the question whether the defendant had brought to the treatment of the arm that degree of care and skill usually brought to the treatment of similar fractures by surgeons practicing in this locality one of fact for the jury rather than one of law for the court. Moreover, the second surgeon based his opinion that the treatment was skilful on a hypothetical question that assumed that the fracture was reduced and the fractured bones placed in apposition, and that they were so at the time the permanent cast was put on the arm; while he expressed the opinion, reluctantly, it may be conceded, that, if the opposite of these conditions were the fact, the operation was not skilful.

Must Provide Emergency Treatment for Poor Children

(Caton et al. v. Board of Commissioners (Kan.), 205 Pac. R. 341)

The Supreme Court of Kansas holds that, notwithstanding the provisions made for surgical operations and hospital treatment, at the state hospital conducted by the regents of the university, of the children of indigent persons, afflicted with certain deformities and maladies, it is still the duty of the overseer of the poor, in cases of emergency, to provide promptly proper medical or surgical treatment for children of the poor when the lack of emergency relief is likely to result in the loss of life or other serious consequence. The court says that this case involved the question whether a county is liable for the cost of an emergency operation performed on an indigent person at the instance of the overseer of the poor, without the order or consent of the commissioners of the county. It appeared that the mayor of the city of Osborne, a physician, and the overseer of the poor for the city, found a child of an indigent person suffering from a mastoid ailment, and that to save her life an immediate operation was necessary. There was no poorhouse or hospital in the county, nor were there any surgeons capable of performing such an operation, and the overseer of the poor therefore sent her to Concordia, where a successful operation was performed. When the bill for the operation and hospital care was presented to the county commissioners, it was rejected. This action was then brought, and it was held that the county was not liable; which judgment is now reversed.

While the act of 1911 provides for surgical operations on and hospital treatment for children of the poor, afflicted with deformities or maladies that may be cured by such operations and treatment, it was evidently intended to apply to afflictions which progress slowly or are of a chronic character which can without great risk await the calling together of the board of county commissioners and transportation of the sufferers hundreds of miles across the state to the university hospital. Emergency cases, such as the one under consideration, were manifestly not intended to be included in that act; nor was it intended that relief should be withheld by the overseer of the poor until action was taken by the board of county commissioners. When an overseer of the poor finds a poor person in need of care, it is his duty to furnish him prompt and proper relief. If the afflicted one is seized with a malady or has sustained an injury likely to terminate in death unless immediate medical or surgical attention is given, he would be grossly negligent if he did not promptly furnish it. In any event, the duties imposed on the overseer would not end until charge of the afflicted one had been taken by the board of county commissioners. Even if the child of an indigent person was suffering from a deformity or malady such as would bring it within the act of 1911, and while waiting the action of the board of commissioners was seized with appendicitis or diphtheria, or had a mastoid attack such as that with which this child was suffering and which was likely to end in death if an operation was not immediately performed or special medical treatment given, it would be a gross dereliction of duty on the part of the overseer if he did not promptly provide for such an emergency and furnish proper care and relief.

Liability for False Imprisonment for Insanity

(Boesch v. Kick (N. J.), 116 Atl. R. 796)

The Supreme Court of New Jersey, in permitting a verdict for $8,500 damages to stand against the defendant, says that two other defendants were the physicians who signed the certificates on which the order was made that committed the plaintiff to a hospital for the insane, but the verdict for damages was against this one defendant only. He testified that he had known the plaintiff for ten years; that from 1915 to 1917 he had seen her probably four or five hundred times; that she would meet him every morning at the railroad station to talk over her troubles, and wrote him letters for three years, about four a week; that she talked about her husband, her business, her life, her marriage, her children, everything that it was possible for a woman to bring up; that she considered him her best friend; that he gave her loans; that she had a delusion that her husband was insane; that her husband said, "It's time to put her away." The defendant arranged the meeting at which the plaintiff was examined by the physicians. He induced her to go with him in an automobile to the asylum under the pretense that they were going to make arrangements for the commitment of her husband, and then he left her there. Subsequently, after several days, at the request of her husband, she was permitted to leave, but was not discharged. Nowhere in the record was there any testimony or even suggestion that to permit her to be at liberty would imperil her own safety or that of the public, or that she might become dangerous. The defendant's own evidence justified the verdict found by the jury. When one has restrained a member of society of his liberty, who may be deranged in his mind, he must show, in order to justify such conduct, when charged therewith as a wrongful act, not only that the person was insane at the time, but also that to permit him to go at large imperiled his own safety or the safety of the public. The defendant assumes the burden of showing that fact and the imminent necessity of the restraint. He must show that the danger from the plaintiff's being at large was not merely possible, but probable.

Society Proceedings

COMING MEETINGS

American Association of Railway Surgeons, Chicago, Oct. 18-20. Dr. Louis J. Mitchell, 29 E. Madison St., Chicago, Secretary.
American Public Health Association, Cleveland, Ohio, Oct. 16-19. Mr. A. W. Hedrich, 370 Seventh Ave., New York, Secretary.
Central States Pediatric Society, Cincinnati, Oct. 16-17. Dr. H. T. Price, Westinghouse Building, Pittsburgh, Secretary.
Hawaii, Medical Society of, Honolulu, Nov. 19-21. Dr. F. J. Pinkerton, 45-46 Young Building, Honolulu, Secretary.
Kentucky State Medical Association, Paducah, Oct. 16-19. Dr. A. T. McCormack, 532 W. Main St., Louisville, Secretary.
Medical Association of the Southwest, Hot Springs, Ark., Oct. 16-18. Dr. W. H. Bailey, 115 West 21st Street, Oklahoma City, Okla., Sec'y.
Radiological Society of North America, Detroit, Mich., Dec. 4-8. Dr. M. J. Sandborn, Appleton, Wis., Secretary.
Southern Medical Association, Chattanooga, Tennessee, Nov. 13-16. Mr. C. P. Loranz, Empire Building, Birmingham, Alabama, Secretary.
Tri-State District Medical Society, Peoria, Ill., Oct. 30-Nov. 2. Dr. William B. Peck, Freeport, Ill., Managing Director.
Virginia, Medical Society of, Norfolk, Oct. 31-Nov. 3. Mr. G. H. Winfrey, 104½ W. Grace Street, Richmond, Secretary.
Western Surgical Association, Minneapolis, Minn., Dec. 8-9. Dr. Warren A. Dennis, Hamm Building, St. Paul, Secretary.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Syphilis, St. Louis

July, 1922, 6, No. 3

- *Study of 443 Cases of Hereditary Syphilis with Especial Reference to Results of Treatment. Part I. Social and Clinical Data. P. J. White and B. Veeder, St. Louis.—p. 353.
- *Id. Part II. End Results of Treatment. P. J. White and B. Veeder, St. Louis.—p. 371.
- Extragenital Chancre. W. J. Young, Louisville.—p. 392.
- Diagnosis of Early Syphilis. J. H. Stokes and A. R. McFarland, Rochester, Minn.—p. 395.
- Pathogenesis and Treatment of Tabes Dorsalis and General Paralysis. L. B. Alford, St. Louis.—p. 410.
- *Unusual Manifestations of Syphilis. W. J. Stone, Pasadena, Calif.—p. 416.
- Practical Observations on Syphilis. III. H. H. Hazen, Washington, D. C.—p. 425.
- Studies in Standardization of Wassermann Reaction, XXVII. Study of Factors Influencing Titration of Antigen. J. A. Kolmer and M. E. Trist, Philadelphia.—p. 461.
- Id. XXVIII. Study of Factors Influencing Amount of Antigen to Employ in Complement Fixation Tests in Syphilis. J. A. Kolmer, Philadelphia.—p. 481.
- Quantitative Complement Fixation Test in Syphilis. J. A. Kolmer, Philadelphia.—p. 496.
- Wassermann Reaction from Clinician's Point of View. C. J. Broeman, Cincinnati.—p. 499.
- Arsphenamin Derivative Suitable for Subcutaneous Administration. C. Voegtlin, H. Dyer and J. W. Thompson.—p. 526.
- *Unusual Reaction Following Antisyphilitic Treatment; Jarisch-Herxheimer Reaction. H. A. R. Kreutzmann, San Francisco.—p. 539.
- Death Fifty-Five Hours After Intravenous Administration of Neo-Arsphenamin. J. H. Sehrup, Dubuque, Ia.—p. 544.
- Contribution to Action of Arsphenamin and Mercury on Treponema Pallidum. D. C. Lee, Hot Springs, Ark.—p. 546.
- Prophylaxis and Management of Syphilis. J. W. Shuman, Sioux City, Ia.—p. 551.
- Distribution and Excretion of Arsenic After Intravenous Administration of Arsphenamin in Children. S. W. Clausen and P. C. Jeans, St. Louis.—p. 556.

Results of Treatment of Hereditary Syphilis.—So far as he individual case is concerned, the results of White and eeder's study show that a given patient has a fair chance f clinical and serologic recovery or improvement; that uch recovery or improvement may seemingly take place on ittle or practically no treatment, but that the chances for ure or improvement are very much better for a patient reated thoroughly with arsenicals and mercury than for one oorly treated. The earlier the treatment is started the better he result. If in the given case there is either serologic or linical evidence of involvement of the central nervous sys-em, the chances for recovery or improvement are poor. One s justified, therefore, in treating a case of hereditary syphilis horoughly with the expectation that the patient will be enefited. As regards the group of cases investigated as a hole the results have been disappointing. The infant mor-ality rate is three times the rate for infants from all diseases. his is despite treatment and is seemingly dependent on the xtent to which the infant's nutrition and metabolic function ave been impaired. Further, in approximately one third of he cases there has been involvement of the central nervous ystem and as a group these have shown little improvement. lthough active lesions in these cases have been checked the esidue of the infection leaves a child, who as a rule, belongs the socially unfit. In the group of 308 cases in which nd-results are known there were: cured or recovered, 22 er cent.; improved, 35 per cent.; unimproved, 17 per cent.; ied, 25 per cent. Thus, in the entire group, regardless of the mount of treatment received, 43 per cent. of patients were ither unimproved or died. Despite the intensive work dur-ng this period only 22 per cent. are known to have been ured or recovered.

Unusual Manifestations of Syphilis.—Six patients seen by tone exemplify certain unusual manifestations of syphilis: 1) syphilis, cerebrospinal tertiary, with intraventricular emorrhage, recovery; (2) syphilis, cerebrospinal tertiary, ith intraventricular hemorrhage, recovery; (3) syphiloma f pons varolii with recent hemorrhage, death; (4) Addison's disease, due to syphilitic fibrosis of suprarenals, death; (5) syphilitic fever, simulating typhoid, recovery; (6) syphilitic meningitis, subacute, recovery.

Urticaria Following Antisyphilitic Treatment.—Following arsenic therapy Kreutzmann's patient complained of itching of the right lower leg. Examination showed a reddened urticarial wheal the size of a man's hand over the inner portion of the right tibia. After another treatment the patient complained of intense itching over the entire body. His temperature was 101.2 F. His hands were so greatly puffed up that the tense skin caused pain and the patient was unable to close his fists. The feet were so swollen that shoes could not be worn. There was marked edema of both legs, with pitting on pressure. Over the entire body there were huge urticarial wheals which were most pronounced wherever there was pressure on the skin, as on the back, the buttocks and about the waist. The wheals were raised, felt hot and were dusky red in color. None of the symptoms of arsenic poisoning were present. After six days all symptoms had disappeared.

Archives of Dermatology and Syphilology, Chicago

September, 1922, 6, No. 3

- *Yaws: Its Manifestations and Treatment by Neo-Arsphenamin. P. D. Gutierrez, Manila, P. I.—p. 265.
- Leukoderma in Pityriasis Lichenoides Chronica. H. E. Michelson, Minneapolis.—p. 288.
- *Study of Ringed Hair. L. D. Cady and M. Trotter, St. Louis.—p. 301.
- *Is Syphilis Curable and Can It Be Eradicated? V. G. Vecki, San Francisco.—p. 318.
- *Simple Quantitative Precipitation Reaction for Syphilis. R. L. Kahn, Lansing, Mich.—p. 332.
- Granuloma Inguinale with Lesion on Lower Lip; Report of Case. B. B. Beeson, Chicago.—p. 342.
- *Clinical Value of Kolmer Complement Fixation Test for Syphilis. C. H. deT. Shivers, Atlantic City, N. J.—p. 344.
- Nail Tumor of Unusual Type. R. L. Sutton, Kansas City, Mo.—p. 351.

Yaws.—Gutierrez had the opportunity of studying several hundred cases of yaws found in a village near Manila in which the disease is endemic. It is transmitted by direct contact. Many of the children in this locality were affected with scabies, and Gutierrez believes that it is responsible for the transmission of the disease. There are three types of secondary eruptions: the frambesiform, the papular and the macular. The macular eruption is described herewith in detail. A new lesion associated with secondary eruptions is described as ichthyotic shins. Three tertiary lesions are described. The disease yields readily to neo-arsphenamin therapy. In 275 patients treated, there was a clinical cure in 94.52 per cent. The secondary eruptions yielded best to the drug, the macular forms best of all. The primary lesions and tertiary keratotic lesions of the palms and soles did not do well.

Ringed Hair.—Cady and Trotter give a summary of eighteen cases recorded in the literature and add some personal cases which occurred in three families. To the unaided eye ringed hair shows alternating light and dark segments varying in length in different persons. The ends of the segments appear to be sharply defined. The condition occurs in normally pigmented hair and in hair turned gray as a process of senescence. It is not due to a lack of pigment or to pigment atrophy. There is no evidence that the condition is caused by an unknown pathologic process. It may vary in the degree to which it affects an individual hair, and may vary widely in the number of hairs it affects in different persons. The condition is compatible with the normal growth of hair. It may be transmitted by heredity directly from one generation to the next.

Is Syphilis Curable?—The statement that syphilis is a comparatively easily curable disease, Vecki says, is no exaggeration. All patients can be cured, but each case must be approached as a rebellious one. Syphilis is not a vice disease —just an infectious disease like any other. Compulsory reporting of the disease to the health authorities in Vecki's opinion would be a calamity — another slap at justice, another assault on the professional secret, and another unconstitutional assault on personal liberty. Progress in stamping out syphilis will be made when proper treatment shall be easy of access and easy to take, and when it will be made easy for every one to find out whether he has syphilis or not. Syphilis is a curable disease in the hands of an experienced syphilologist, but in order to abolish it antisyphilitic remedies must cease to be dangerous weapons in the hands of the majority employing them. Neo-silver arsphenamin is prompt in its action on primary symptoms. The induration disappears promptly; secondary skin lesions, papules and condylomata lata, which are generally very stubborn, invariably disappear after six or eight injections, and one is always able to obtain a negative Wassermann reaction in from six to eight weeks, and by using a total of 3 to 6 gm. of the remedy. Late syphilis seems to be easier to influence whenever the Wassermann reaction is positive, more difficult in the rare cases in which the blood reaction is negative, although clinical symptoms allow no doubt about the diagnosis.

Precipitation Reaction for Syphilis.—In his original method Kahn used a cholesterinized antigen and because of its high sensitiveness the test was completed after four hours' incubation. In the new procedure a noncholesterinized antigen is also employed. The same alcoholic extract of heart muscle is used with and without the addition of cholesterin. When employing the noncholesterinized antigen, however, it was observed that the rapidity of precipitation is not as marked as in the case of the cholesterinized one. It was necessary to incubate the tests with the former antigen over night in order to elicit complete precipitation in most cases. On the basis of this finding, and because of another consideration, it was deemed best to employ overnight incubation also with the cholesterinized antigen. Finally, it seemed advisable to adopt the plus sign as a basis for recording results of this test. Since a heavy and complete precipitation undoubtedly corresponds with complete fixation of complement in the Wassermann test, it seemed best to employ the nomenclature widely used by workers in connection with the older test. Although the final reading of results is taken after overnight incubation, this test is said not to lose its spontaneous character with strongly positive serums. This is particularly true when employing the cholesterinized antigen. In close to 80 per cent. of serums giving a four plus reaction in the Wassermann test, a definite precipitate will be seen within five minutes when employing this antigen. Kahn believes that this spontaneous phase of the reaction should prove a valuable aid in corroborating an immediate diagnosis of syphilis.

Kolmer Test for Syphilis.—Shivers has employed the Kolmer complement-fixation test for syphilis in 320 cases—some with a definite history of specific infection and presenting clinical evidences of syphilis, others with negative histories and presenting no signs or symptoms of syphilis. The new method has proved a very sensitive and reliable test, much more so than the old method, being frequently positive while the latter is negative. The new method has yielded earlier positive reactions in primary syphilis than other methods, and is much slower in becoming negative when the patient is under treatment than the old method. A negative reaction with the Kolmer method was found to be of more value when giving a prognosis. The new Kolmer method has not yielded falsely positive reactions in nonsyphilitic persons. The method has been proved more valuable in aiding a diagnosis of congenital syphilis in obscure cases than the old method. The new method marks a distinct and valuable advance in the serum diagnosis of syphilis, being much more sensitive and at the same time yielding no falsely positive reactions.

Archives of Ophthalmology, New Rochelle, N. Y.

September, 1922, **51**, No. 5

Correction of Squint by Muscle Recession with Scleral Suturing. P. C. Jameson, Brooklyn.—p. 421.
Filtering Scar. R. H. Elliot.—p. 433.
Phakoerisis. Advantages and Important Details of Technic. I. Barraquer.—p. 448.
Diagnostic Use of Uveal Pigment in Injuries of Uveal Tract. A. C. Woods, Baltimore.—p. 451.
Roentgen-Ray Studies of Nasolacrimal Passageways. D. M. Campbell, J. M. Carter and H. P. Doub, Detroit.—p. 462.
Further Observations of Protein Injections in Severe Ocular Infection. B. W. Key, New York.—p. 471.
Pathology of Uveitis. S. R. Gifford, Omaha.—p. 483.

Arkansas Medical Society Journal, Little Rock

September, 1922, **19**, No. 4

Has Cautery Lost or Gained Ground in Treating Cancer in Different Parts of Human Body. R. C. Dorr, Batesville.—p. 65.
*Treatment of Carbuncle. A. U. Williams, Hot Springs.—p. 68.
Differential Diagnosis Between Appendicitis and Ureteral Calculi; Report of Cases. A. S. Buchanan, Prescott.—p. 69.

Salicylic Acid Treatment of Carbuncle.—As soon as he can secure an opening Williams packs all cavities with salicylic acid as thoroughly as possible. He says this checks the sloughing and is death to the causative microbe. If the lesion is situated so that it is possible, strong compression should be kept up continuously by means of adhesive strips from beyond the outer edge of the invaded tissue, applied alternately from side to side so as to shut off the circulation, leaving a small space in the center for suppuration, using as long strips of plaster as possible. If sufficient compression can be applied properly pain is relieved and further invasion of surrounding tissue is checked.

Boston Medical and Surgical Journal

Sept. 21, 1922, **187**, No. 12

Treatment of Dehydration in Infants. O. M. Schloss, Boston.—p. 428.
Pediatrist's Opportunity. E. R. Kelley, Boston.—p. 429.
Tonsillectomy in Contagious Diseases. E. H. Place, Boston.—p. 434.
Investigation of Reliability of Laboratory Tests and Discussion of Technic of Laboratories in and Near Boston. F. H. Slack, Brookline, Mass.—p. 441.

Florida Medical Association Journal, St. Augustine and Jacksonville

August, 1922, **9**, No. 2

Optic Neuritis Resulting from Hyperplastic Ethmoiditis and Sphenoiditis. S. A. Richardson, Jacksonville.—p. 22.
*Case of an Extralaryngeal Cyst. H. M. Taylor, Jacksonville.—p. 29.
Eye and General Practitioner, with Plea for Early Consultation. A. Miller, West Palm Beach.—p. 32.
Tonsillectomy: Elective Major Operation. J. B. Davis, Daytona.—p. 37.

Case of Extralaryngeal Cyst.—The only complaint elicited by Taylor in his case was severe, distressing choking sensations extending over a period of seventeen months. The patient felt that someone had their hands on his throat. On assuming an upright position, the sensation subsided. There was no impairment of voice or difficulty in swallowing. Laryngoscopic examination showed a round tumor 0.5 cm. in diameter involving the lingual surface and right lateral border of the epiglottis, crowding the epiglottis posteriorly and to the left. The tumor was glistening and of grayish color, with a smooth surface traversed by several large blood vessels. One year later the tumor was excised. There was an immediate discharge of a yellow gelatinous fluid. The examination of the specimen showed it to be a true cyst or cyst adenoma. There was no change or abatement in the severity or frequency of these severe spells of choking, however. There was no recurrence of the tumor. The epiglottis was still turned on itself and occupied the same plane that it did prior to the removal of the cyst. That portion showing a definite entropion was removed. There were no further paroxysms.

Georgia Medical Association Journal, Atlanta

September, 1922, **11**, No. 9

Use of Ophthalmoscope in General Diagnosis. W. G. Lyle, Atlanta.—p. 343.
Influenza Epidemic at Camp Benning, Ga., February-March, 1922. A. J. Bayley, M. C., U. S. Army.—p. 347.
Epidemiologic Work in Army. O. G. Brown, M. C., U. S. Army.—p. 350.
Trophic Disturbances of Lower Extremities in Relation to Syphilis. S. J. Sinkoe, Atlanta.—p. 352.
Preoperative and Postoperative Studies in Goiter. C. E. Waits, Atlanta. —p. 355.
Review of Georgia State Sanitarium Report. H. D. Allen Milledgeville. —p. 359.
*Case of Prediabetes with Bronzing of Skin. S. A. Folsom, Atlanta.—p. 362.
Rôle of Antrum of Highmore as Focus of Infection. L. C. Roughlin, Atlanta.—p. 365.
*Simple Technic for Removing Appendix. E. H. Highsmith, Atlanta.—p. 368.

Case of Prediabetes.—The main features in Folsom's case were: generalized pigmentation of skin since birth of last child two years ago; loss of weight, 15 pounds, in three months; initial chill and fever for two weeks; unproductive, paroxysmal cough for two weeks; general myalgia and nervousness for past two weeks; night sweats for past week. The entire body was pigmented, the color being that of a light brown. The mucous membranes were normal. The blood sugar was 111 mg. per 100 c.c. There was no sugar in the urine. The clinical diagnosis was: chronic interstitial pancreatitis; lobar pneumonia, lower left lobe. The patient died on the twenty-seventh day of her illness from lobar pneumonia. The patient gave no past or present history which would lead one to suspect her true condition, except the obesity and the pigmentation.

New Method of Removing Appendix.—After the meso-appendix has been tied and freed, Highsmith crushes the appendix just above the base with a Ferguson forceps and ties it with a 000 plain catgut. Then a loop-clamp (which may be of silkworm gut or plain catgut) is slipped down over the appendix to the crushed portion, and is tightened down over the crushed area, being held with the left hand while it is cut away with the right. After the appendix has been cut away the end of the loop-clamp holding the stump is slightly pressed down in the cecum, and tucked in with a Lembert suture for about 3 cm., after which the loop is cut. The stump of the meso-appendix is brought over the sutured area.

Illinois Medical Journal, Oak Park

September, 1922, **42**, No. 3

Symptomatology of Chronic Fatigue Intoxication. E. H. Ochsner, Chicago.—p. 169.
Diagnosis of Foreign Bodies in Bronchi. T. McCrae, Philadelphia.—p. 174.
Report of Deep Roentgen-Ray Therapy as Practiced in Germany. R. T. Pettit, Ottawa, Ill.—p. 178.
Present Status of Chronic Gastritis. A. A. Goldsmith, Chicago.—p. 182.
Simplifying Diagnosis of Some Kidney and Bladder Disease by Use of Cystoscope and Roentgen-Ray. O. J. Sloan, Bloomington, Ill.—p. 185.
General Hospital Beds for Acute Mental Cases. C. F. Read, Chicago.—p. 186.
Rôle of Physician and Surgeon in Prophylaxis of Neurasthenia in Convalescents. H. S. Hulbert, Chicago.—p. 190.
Vertigo, and Its Significance as Symptom. O. T. Allen, Terre Haute, Ind.—p. 192.
Psychologic Fads. J. V. Hanna, Peoria, Ill.—p. 195.
Thermal Eye Treatment. S. Rosenblatt, Chicago.—p. 202.
Diagnosis and Management of Occiput Posterior Positions. E. L. Cornell, Chicago.—p. 207.
Anesthesia in Children; Safest Methods and Agents. F. E. Haines, Chicago.—p. 211.
Malignant Glands and Their Proper Treatment with Radium. C. W. Hanford, Chicago.—p. 214.
Influence of Complement on Schick Reaction and on Untoward Symptoms Occurring During T-A Immunization. F. Herb, Chicago.—p. 217. p. 217.

Journal of Experimental Medicine, Baltimore

September, 1922, **36**, No. 3

*Tetanus Bacillus as an Intestinal Saprophyte in Man. C. Tenbroeck and J. H. Bauer, Peking, China.—p. 261.
Epidemiologic Study of Rhinitis (Coryza) in Calves with Special Reference to Pneumonia. F. S. Jones and R. B. Little, Princeton, N. J.—p. 273.
Mixed Cultures of Pure Strains of Fibroblasts and Epithelial Cells. A. H. Ebeling and A. Fischer, New York.—p. 285.
Relation Between Accumulation of Globulins and Appearance of Agglutinins in Blood of New-Born Calves. M. L. Orcutt and P. E. Howe, Princeton, N. J.—p. 291.
Rabbit Septicemia Bacillus, Types D and G, in Normal Rabbits. P. H. De Kruif, New York.—p. 309.
Source of Microorganisms in Lungs of Normal Animals. F. S. Jones, Princeton, N. J.—p. 317.
New Cannulation Method for Measuring Pressure in Pulmonary Artery. W. E. Swift, G. E. Haggart and C. K. Drinker, Boston.—p. 329.
Experimental Rickets in Rats. VI. Anatomic Changes Which Accompany Healing of Experimental Rat Rickets, Under Influence of Cod Liver Oil or Its Active Derivatives. A. M. Pappenheimer, New York.—p. 335.
Etiology of Yellow Fever. XIV. Duration of Protective Effect of Anti-Icteroides Immune Serum After Subcutaneous Inoculation Into Animals. H. Noguchi, New York.—p. 357.

Tetanus Bacillus as Intestinal Saprophyte.—Tenbroeck and Bauer have demonstrated tetanus bacilli in 34.7 per cent. of tools from seventy-eight persons. They assert that the etanus bacillus is growing in the digestive tract, for it is resent in persons who have been on a practically sterile diet for a month or more, and one person may eliminate several million spores of tetanus bacilli in a single stool.

Anatomic Changes Accompanying Healing in Rickets.—Rats which had developed rickets were treated by Pappenheimer with cod liver oil or an active fraction of cod liver oil, and the various changes which occur in the healing of the bone lesions were studied. Several phases are described, from the early deposit of calcium salts in the zone of preparatory calcification to the return to normal bone. These stages correspond closely to those found in the healing of human rickets.

Duration of Artificial Immunity in Yellow Fever.—Analysis of the records of instances in which nonimmune persons contracted yellow fever notwithstanding vaccination shows that the onset of disease occurs soon after vaccination, the longest period being thirteen days. Since the average incubation period in yellow fever is six days, it seems that infection must have taken place in some instances during the period while protection was developing. These instances led Noguchi to make a study of the possibility of immediate protection by means of the anti-icteroides serum. It had already been shown that the immune serum protects at once against experimental *Leptospira icteroides* infection, but it remained to determine how long the protection would last. Guinea-pigs were given different quantities of the immune serum and subsequently injected, at various intervals, with a virulent strain of *Leptospira icteroides*. Complete protection enduring five days was obtained with as minute a quantity of serum as 0.002 c.c. per 1,000 gm. of body weight. After five days, however, the immune substance rapidly diminished, and to keep the animal protected for as long as ten days it was necessary to give 100 times as much, or 0.2 c.c. For a man weighing 80 kg., 0.16 c.c. (0.002×80) would theoretically be sufficient to protect for at least five days, 1.6 c.c. for seven days, and 16 c.c. for ten days. This temporary protection may be a valuable antecedent to that furnished by vaccination, since the final effect of the latter cannot be expected until at least from nine to ten days have passed.

Journal of General Physiology, Baltimore

September 1922, **5**, No. 1

Visibility of Monochromatic Radiation and Absorption Spectrum of Visual Purple. S. Hecht and R. E. Williams, Liverpool.—p. 1.
Colloidal Behavior of Serum Globulin. D. I. Hitchcock, New York.—p. 35.
Excretion of Carbon Dioxid by Relaxed and Contracted Sea Anemones. G. H. Parker, Boston.—p. 45.
Cell Penetration by Acids. VI. Chloroacetic Acids. W. J. Crozier, New Brunswick, Me.—p. 65.
Absorption of Nutrients and Plant Growth in Relation to Hydrogen Ion Concentration. O. Arrhenius, Cambridge.—p. 81.
Cataphoretic Charges of Collodion Particles and Anomalous Osmosis Through Collodion Membranes Free From Protein. J. Loeb, New York.—p. 89.
Influence of Electrolytes on Cataphoretic Charge of Colloidal Particles and Stability of Their Suspensions. I. Experiments with Collodion Particles. J. Loeb, New York.—p. 109.

Journal of Industrial Hygiene, Boston

September, 1922, **4**, No. 5

Critical Age as Factor in Labor Turnover. H. D. Kitson, Bloomington, Ind.—p. 199.
Poisoning by Benzol Carbon Tetrachlorid Cement; Early Symptoms of Benzol Poisoning. E. B. Starr.—p. 203.
Diagnosis and Supervision of Industrial Diseases in Germany. L. Teleky.—p. 212.
Industrial Diseases of Fur Cutters and Hatters. A. Hamilton, Boston.—p. 219.

Journal of Immunology, Baltimore

September, 1922, **7**, No. 5

Photolability of Serum Complement. E. G. Lundberg, Copenhagen.—p. 389.
Prophylactic Treatment for Rabies by Means of Standardized Glycerinated Virus. J. McI. Phillips, Columbus, Ohio.—p. 409.
*Study of Precipitin and Complement Fixation Reactions with Tuberculous Exudates with Special Reference to Tuberculous Pleuritis. I. Ogawa, Philadelphia.—p. 423.
Origin and Nature of Alexin (Complement) in Guinea-Pig Blood. L. F. Morrison, Berkeley, Calif.—p. 435.

Precipitins and Complement Fixing Antibodies in Tuberculous Exudates.—The results obtained by Ogawa indicate that in the exudates of tuberculous pleuritis, precipitins and especially complement fixing antibodies, are found in a large percentage and that a sensitive complement fixation test with special attention to certain technical features, may prove a valuable practical aid to diagnosis.

Journal of Parasitology, Urbana, Ill

September, 1922, **9**, No. 1

Cases of Cutaneous Myiasis: Larvae of Wohlfahrtia Vigil (Walker). E. M. Walker, Toronto, Canada.—p. 1.
Three New Species of Holostomidae. J. E. Guberlet, Stillwater, Okla. —p. 6.
Diagnosis of Intestinal Flagellates by Culture Methods. R. W. Hegner and E. R. Becker, Baltimore.—p. 15.
Councilmania Lafleuri Not a New Ameba. H. Gunn.—p. 24.
Actinomycosis in Fossil Rhinoceros. R. L. Moodie, Chicago.—p. 28.
Tricercomonas Intestinalis and Enteromonas Caviae N.Sp. and Their Growth in Culture. K. M. Lynch, Dallas, Texas.—p. 29.
Embadomonas Sinensis, Faust and Wassell 1921. E. C. Faust, Peking, China.—p. 33.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

September, 1922, **20**, No. 2

*Quantitative Studies in Chemotherapy. VI. Rate of Excretion of Arsenicals, Factor Governing Toxicity and Parasiticidal Action. C. Voegtlin and J. W. Thompson, Washington, D. C.—p. 85.
*Mechanism of Straub Biologic Test for Morphin. W. J. R. Heinekamp, Chicago.—p. 107.
Ipecac in Treatment of Blackhead in Turkeys. H. W. Graybill, Princeton, N. J.—p. 115.
Effect of Epinephrin and Extracts of Pancreas and Liver on Blood Dextrose. E. L. Ross and L. H. Davis, Chicago.—p. 121.
Quantitative Studies in Chemotherapy. VII. Effect of Ligation of Ureters or Bile Duct on Toxicity and Trypanocidal Action of Arsenicals. C. Voegtlin, H. A. Dyer and D. W. Miller, Washington, D. C.—p. 129.
Influence of Arsphenamin and Neo-arsphenamin on Epinephrin Content of Suprarenals. B. Lucke, J. A. Kolmer and G. P. McCouch, Philadelphia.—p. 153.

Rate of Excretion of Arsenicals.—This research by Voegtlin and Thompson reveals an important relation between rate of excretion on the one hand, and toxicity and parasiticidal action on the other. This relationship appears to depend on the differences in physical properties of the arsenicals studied. It is pointed out that changes in the chemical constitution affect the physical properties, which in turn determine the rate of diffusion and distribution in the body and the path and rate of excretion of the arsenic, thus governing the toxicity for the host and the therapeutic action.

Straub Biologic Test for Morphin. — Heinekamp asserts that the Straub biologic test is due to direct stimulation of the cord. It is not specific for morphin, but is indicative of spinal cord stimulation.

Journal of Urology, Baltimore

September, 1922, **7**, No. 3

*Coincident Calculus and Diverticulum of Bladder. J. L. Crenshaw and C. B. R. Crompton, Rochester, Minn.—p. 185.
Report Following Use of Mercurosal in Treatment of One Hundred and Fifty Cases of Syphilis. W. E. Keane and J. G. Slaugenhaupt, Detroit.—p. 197.
Hydatid Cyst at Site of Prostate. H. W. Plaggemeyer and R. E. Cumming, Detroit.—p. 207.
Endoscopic Diagnosis of Minor Degrees of Prostatic Obstruction and Their Treatment per Urethram. H. M. Young, St. Louis.—p. 227.
*Action of Benzyl Benzoate and Morphin on Vesical Sphincter. W. J. Stater, Boston.—p. 239.
Pressure Used in Pyelography and Its Effects on Kidney. L. C. Todd and S. R. Thompson, Charlotte, N. C.—p. 247.
Experimental Study of Ureter after Nephrectomy. Report of Case of Pyo-Ureter. R. L. Latchem, Rochester, Minn.—p. 257.

Coincident Calculus and Bladder Diverticulum.—Among 222 cases of diverticula of the bladder of such size or shape as to make them of importance pathologically, there were twenty-eight cases (12.1 per cent.) of diverticula and bladder stone which Crenshaw and Crompton analyzed. These diverticula varied in size from 2 to 3 cm. in diameter to large sacs holding many ounces, and in some instances they were larger than the bladder itself. The lateral walls and base were the most frequent areas of communication with the cavity of the bladder, although a few were found in which the opening was in the posterior wall or dome of the bladder. These cases are divided into three groups: (1) stone in the bladder without stone in the diverticulum, thirteen cases; (2) stone in both the diverticulum and the bladder, nine cases, and (3) stone in both the diverticulum alone, six cases. There were four deaths (14.2 per cent. of twenty-eight). One patient died the seventy-second day after suprapubic removal of the stones from the bladder and resection of a carcinoma at the mouth of the diverticulum. Death resulted from extension of the carcinoma. One patient died the seventeenth day after a suprapubic drainage for gangrenous cystitis; death was the result of renal insufficiency and sepsis. Two patients died without operation, one from carcinoma of the larynx and one from perinephritic abscess and sepsis. There was no mortality following the removal of diverticula or of stones from diverticula.

Action of Benzyl Benzoate and Morphin on Vesical Sphincter.—The fact that the administration of morphin is followed by a marked increase in the sphincter tonus and that benzyl benzoate lowers the sphincter tone both in normal rabbits and in those with an increased tonus due to the previous administration of morphin, Stater asserts, is consistent with the clinical observations of bladder distention relieved by benzyl benzoate in cases in which therapeutic doses of morphin have or have not been administered.

Military Surgeon, Washington, D. C.

Septemer, 1922, **51**, No. 3

Proposed New Standardized Field Carrying Device for Individual Equipments of Medical Department, U. S. Army, from a Study by Medical Department Equipment Laboratory Submitted to Surgeon General of Army. J. P. Fletcher.—p. 227.
Insistent Campaign for Venereal Disease Control in Army of France. A. N. Tasker.—p. 240.
Reinfection in Syphilis. Report of Case. C. E. Brenn.—p. 250.
Social Hygiene. P. C. Hutton.—p. 257.
Use of Desiccated Blood Serum in Selection of Donors for Transfusion. W. D. Gill.—p. 285.
*Case of Primary Intravascular Tumor; Probably a Spindle Cell Sarcoma. A. Egdahl, Rockford, Ill.—p. 288.
Deafness. A. G. Wilde.—p. 292.
Study of Schick Reaction and Toxin-Antitoxin Immunization Against Diphtheria. F. E. Gessner.—p. 299.
Post-Measles Pneumonia. P. E. McNabb.—p. 313.
Strabismus and Its Treatment. R. H. Goldthwaite.—p. 327.

Primary Intravascular Sarcoma.—Egdahl's patient had a mass on the anterior aspect of the right wrist, about the size of a small apple. From this a thick, tortuous branch extended up over the forearm almost to the elbow. This in turn had several smaller tortuous branches, one of which extended up over the back of the thumb. A diagnosis of a malignant tumor was made, and operation advised. The tumor, which was easily removed, was found to be composed of veins filled with a firm, solid growth, but toward the tapering points the growth slipped easily out of the veins, as a finger out of a glove. On examination it was decided that the tumor was a spindle cell sarcoma and that the site of origin was in the wall of the vein. This view was strengthened by the appearance of what may be a metastatic nodule at the angle of the right lower jaw. A roentgenogram of the chest showed a nodule of fair size to the left of the hilum, possibly a metastatic nodule.

New Jersey Medical Society Journal, Orange

September, 1922, **19**, No. 9

Tuberculosis Campaign and Some of Its Accomplishments. H. R. M. Landis, Philadelphia.—p. 229.
Has Quinin Place in Treatment of Pneumonia? C. J. Murn, Paterson, N. J.—p. 233.
When Not to Operate, or When to Operate with Reservations? G. Blackburne, Newark.—p. 238.
What Medical Society Means to Physician. W. Graves, St. Louis.—p. 249.
Dignity and Value of Organized Medicine. T. R. Ray, Shelbyville, Tenn.—p. 250.
*Tetanus Following Vaccination. L. G. Shapiro and A. Shulman, Paterson, N. J.—p. 253.

Tetanus Following Vaccination.—Shapiro and Shulman describe a case of tetanus occurring in a child, 2 years of age, fifteen days after vaccination. Tetanus bacilli were recovered from the vaccination wound and the disease was reproduced in a guinea-pig. The condition of the wound with the primary scab torn off and a secondary dirt crust, suggested the possibility of infection, subsequent to the inoculation of the virus. This appeared more likely because the severity of the disease suggested a short incubation period

The virus seemed an unlikely source of infection since no other cases of postvaccination tetanus occurred at the same time. No tests of the vaccine were made.

New Orleans Medical and Surgical Journal

September, 1922, **75**, No. 3

Roentgen-Ray Diagnosis of Diseases of Lungs. A. Granger, New Orleans.—p. 107.
Eye and Endocrines. C. A. Bahn, New Orleans.—p. 121.
Treatment of Pyelonephritis by Pelvic Lavage. M. H. Foster, Alexandria, La.—p. 128.
Orbital Abscess. J. L. Sclaes, Shreveport.—p. 136.

New York State Journal of Medicine, New York

September, 1922, **22**, No. 9

*Establishment of Temporary or Permanent Pulmonary Lip Fistula in Conservative Treatment of Advanced Bronchiectatic Lung Abscess. W. Meyer, New York.—p. 389.
Tonsillectomy. M. F. Jones, New York.—p. 392.
Avoidance of Pulmonary Abscess with General Anesthesia in Nose and Throat Surgery. J. T. Gwathmey, New York.—p. 394.
Physical Signs in Pulmonary Abscess. O. M. Schwerdtfeger, New York. —p. 397.
Roentgenologic Interpretation in Pulmonary Abscess. W. H. Stewart, New York.—p. 398.
*Interpretation of Posture of Parkinsonian Syndromes in Terms of Neuromuscular Mechanism. W. M. Kraus, New York.—p. 399.
*Compensatory Mechanism in Status Thymicolymphaticus. W. Timme, New York.—p. 404.
Surgery of Spleen. R. H. Fowler, Brooklyn.—p. 407.
Protein Injections in Severe Ocular Infection. B. W. Key, New York. —p. 415.
Acute Pancreatitis. H. R. Trick, Buffalo.—p. 420.
Ten Years' Experience with Nitrous Oxid as an Anesthetic. P. J. Flagg, New York.—p. 422.
Leptospiras, Pathogenic and Nonpathogenic. H. Noguchi, New York.—p. 426.

New Operation for Advanced Lung Abscess. — Meyer describes a method which he claims often cures the active lung disease in a very simple manner, viz., by through, direct and prolonged drainage and increased ventilation, secured by means of establishment of a temporary or permanent lung-lip fistula, which, after the principal cavity is emptied of its contents—pus, old fibrinous coagulations, etc.—ventilates the same directly, and does away quickly and definitely with the foul odor of the sputum.

Analysis of Posture in Parkinson's Disease.—Kraus asserts that the defects in posture and the contractures of the parkinsonian syndrome indicate an imbalance between the activities of certain ventral and dorsal muscles. As a result of this imbalance, the activity of certain ventral muscles becomes greater than that of certain dorsal muscles. Normal or, better, increased tone, is required to make this imbalance manifest. The defects of posture and of tone are separate and distinct and are not due to disorder of a single physiologic system.

Compensatory Mechanism in Status Thymicolymphaticus. —There is abundant evidence, in Timme's opinion, that cases of status thymicolymphaticus undergo a gradual change hrough one of several decades leading finally to a more or ess adequate state which enables the patient to take his place n a competent unit among his fellows. The enabling mechanism is composed of several component glandular organs, hief among which are probably the thyroid and the pituitary. nywhere in the course of the compensation, cessation of the rocess may take place, leaving the patient only partly efficient, giving signs of symptoms of the deficiency of the articular gland or glands involved. If this is properly ecognized, a method of assisting the compensatory progress uggests itself. It is, furthermore, of the greatest importance o recognize the signs and symptoms of the overactivity of he connecting mechanism so that they be not treated as ertaining to a disease process but to a defensive one.

Pennsylvania Medical Journal, Harrisburg

September, 1922, **25**, No. 12

Chemical Control of Respiration. J. J. R. Macleod, Toronto.—p. 831.
Importance of Examining Diaphragm. E. H. Funk, Philadelphia.—p. 834.
Clinical Interpretation of Phthalein Test and Ambard Coefficient in Certain Disturbances of Kidney Function. J. A. Lichty and W. A. Bradshaw, Pittsburgh.—p. 838.
Analysis of Cause of Fever in Early Life with View to Diagnosis. J. C. Gittings and J. D. Donnelly, Philadelphia.—p. 842.
Otitic Phlebitis Without Thrombus. B. A. Randall, Philadelphia.—p. 847.
Sympathetic Ophthalmia. N. S. Weinberger, Sayre.—p. 848.
Tuberculin Therapy in Surgical Tuberculosis. H. A. McKnight and H. Trager, Philadelphia.—p. 853.
Conservative Obstetrics. G. M. Boyd, Philadelphia.—p. 859.
Frequency of Indigestion of Fats During First Two Years of Life; Causes and Treatment. J. D. Stevenson, Beaver.—p. 865.
Diagnosis and Treatment of Nocturnal and Diurnal Enuresis. F. B. Jacobs, West Chester.—p. 867.
Pulmonary Abscess Due to Lodgment of a Tooth. E. J. Patterson, Pittsburgh.—p. 869.
Diseases of Accessory Nasal Sinuses. W. D. Chase, Bethlehem.—p. 871.

Cause of Fever in Children.—Infections of the respiratory tract and the acute intestinal disorders comprised 59.6 per cent. of what may be called the more serious forms of febrile disease among 734 cases reviewed by Gittings and Donnelly. If to these are added cases of meningitis, otitis, pyelitis, heart and skin disease and the exanthems, more than 87 per cent. of all the febrile cases were comparatively easy to diagnose by ordinary careful clinical examination, with a minimum of aid from the laboratory other than in the differentiation of the types of meningitis and in throat cultures. Seventy-five per cent. of all the patients were under 3 years of age. A majority of the cases were admitted with fever which was due solely to the condition of the ears. The authors emphasize that the examination of a child with fever is not complete without an examination of the membrana tympani. When the cause of fever cannot be determined, a drop or two of urine should be examined under the high power objective for pus cells. When a leukocytosis is present a differential count should be made. When the cause of the fever is at all obscure such examination becomes the irreducible minimum.

Virginia Medical Monthly, Richmond

September, 1922, **49**, No. 6

Correction of Facial Defects with Special Reference to Nutrition of Skin Flaps and Planning of Repair. C. C. Coleman, Richmond.—p. 301.
Cataract. J. A. White, Richmond.—p. 306.
Railway Industrial Surgery. E. L. Kendig, Victoria.—p. 311.
Relation of Age to Disease in Childhood. W. M. Johnson, Winston-Salem, N. C.—p. 313.
Diseases Associated with Protein Sensitization. W. T. Vaughan, Richmond.—p. 316.
Development of Public Health Activities in Rural Districts. W. F. Draper.—p. 322.
Maxwell Antrum Punch. G. M. Maxwell, Roanoke.—p. 324.
Moral Conditions of Present Day. E. M. Mann, Kenbridge.—p. 325.
Gastro-Intestinal Disorders of Infants. R. M. Cox, Portsmouth.—p. 327.
Management of Convergent Strabismus. V. M. Hicks, Raleigh, N. C. —p. 332.
Dentistry from View Point of Neurologist. J. K. Hall, Richmond.—p. 335.
Two Cases of Syphilis of Eighth Nerve and Inner Ear. E. G. Gill, Roanoke.—p. 337.
Modern View of Cancers. C. M. Blackford, Staunton.—p. 339.
*Unusual Appearance of Bullet Wound. J. M. Whitfield, Richmond.—p. 342.
Successful Heterogenous Testicular Transplantation in Man. M. Thorek, Chicago.—p. 343.
Syphilis of Lung; Report of Case. A. T. Hawthorne, Harrisonburg. p. 345.
Optometry—Its Limitations and Dangers. H. H. McGuire, Winchester. —p. 348.
*Historical Note on Appendicitis. B. M. Randolph, Washington, D. C. —p. 351.

Unusual Appearance of Bullet Wound.—Whitfield reports a case of suicide by firing a shot into the head in which the exit wound presented burned hair on the edges. He states that this knowledge may prove very advantageous to a physician on the witness stand who is being rigorously cross-examined by a persistent and astute lawyer.

Early Description of Appendicitis.—Randolph reprints a description of appendicitis published by Richard Bright and Thomas Addison in 1839, forty years before the contribution of Fitz.

Wisconsin Medical Journal, Milwaukee

September, 1922, **21**, No. 4

Lethargic Encephalitis—Experimental and Cultural Study. W. Thalhimer, Milwaukee.—p. 125.
Lethargic Encephalitis. L. M. Warfield, Ann Arbor, Mich.—p. 127.
Hydronephrosis. I. R. Sisk, Madison.—p. 132.
Dilatation of Duodenum. W. J. Tucker, Ashland.—p. 136.
Serious Menace. O. B. Bock, Sheboygan.—p. 137.
Roentgen-Ray and Clinical Findings in Normal Chest of Child.—p. 140.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

June, 1922, **27**, No. 1

Pathologic Changes Produced in Those Rendered Insensible by Electric Shock and Treatment of Such Cases. T. M. Legge.—p. 1.
Id. Mr. Scott Ram.—p. 5.
Id. A. G. Levy.—p. 9.
*Id. J. A. MacWilliam.—p. 11.
Hilum Tuberculosis. G. T. Hebert.—p. 13.
Case of Pneumothorax. F. T. Burkitt.—p. 21.
Unusual Fracture of Tibia and Fibula. E. Scott.—p. 26.

July, 1922, **27**, No. 2

Normal Stomach. Lebon and Colombier.—p. 34.
Normal Roentgen-Ray Stomach. M. Peremans.—p. 46.
Abnormal Stomach. A. Reid.—p. 52.
Present-Day Value of Opaque Meal Examination in Gastric Lesions. S. G. Scott.—p. 58.

Treatment of Electric Shock.—By experimental investigation MacWilliam has found that there are two modes of immediate death by electric shock, and there may be a combination of the two. In the ventricular fibrillation due to electric shock, artificial respiration should be at once begun to keep open the possibility of recovery of the ventricular beat which may possibly occur, though if the period of ventricular fibrillation is more than a very brief one, the central nervous system will probably have suffered irretrievable damage from the period of circulatory arrest. The only active remedial measure that has been found useful in ventricular fibrillation so far, viz., massage of the heart through the diaphragm after the abdomen has been opened, is obviously not available under the conditions in which electric shock occurs. Heart massage, when applicable, is rendered much more effective by the intracardiac injection into left ventricle or a vein of urethane, from 0.025 to 0.25 gm.; strontium chlorid, from 0.01 to 0.06 gm.; epinephrin, from 0.1 to 1 mg.; herudin, from 8 to 10 mg.; pilocarpin (injected into vein), 0.0025 gm.

British Medical Journal, London

Sept. 9, 1922, **2**, No. 3219

Indications for, and Limitations of, Surgery in Chronic Abdominal Disease. J. Sherren.—p. 455.
Pain in Genito-Urinary Affections: W. K. Irwin.—p. 457.
Two Cases of Intracranial Complication of Acute Ear Disease. P. MacDonald and J. Acomb.—p. 458.
*Diagnosis of Septic Sinus Thrombosis. W. Milligan.—p. 459.
Difficulties Presented by Cases of Septic Sinus Thrombosis. L. Colledge.—p. 460.
Benign Forms of Otogenic Meningitis. H. Mygind.—p. 465.
Is It Worth While to Remove Aural Polypi? J. S. Fraser and S. Young.—p. 467.
Affections of Superior Opening of Esophagus. D. R. Paterson.—p. 468.
Affections of Lower Segment of Esophagus. W. G. Howarth.—p. 470.
Solution of Trinitrin in Acute Nephritis with Dropsy. J. T. MacLachlan.—p. 473.
Rupture of Quadriceps Treated by Suture. L. W. Dryland.—p. 473.
Abnormal Anterior Fontanel. C. J. H. Aitken.—p. 473.
Treatment of Pulmonary Tuberculosis by Tuberculin. W. Stobie.—p. 473.

Diagnosis of Septic Sinus Disease.—The disease with which sinus thrombosis is most likely to be mistaken in Milligan's experience is typhoid. During the first week of an attack of typhoid many of the symptoms are almost identical with those of sinus thrombosis, and if by chance the patient happens at the same time to have a suppurating ear confusion becomes confounded. The presence, however, of a Widal reaction and petechiae and the absence of very marked variations of temperature with rigors or chills are as a rule sufficiently distinctive. At times it is difficult to distinguish thrombosis from a central bronchopneumonia. The persistent cough, the rusty sputum, and the more even temperature serve, however, as useful differential diagnostic aids. From malaria it is to be distinguished by means of a blood examination and the discovery of *Plasmodium malariae.* In rare cases in infants and young children severe gastric attacks, especially if at the same time the patient has running ears, are liable to mask an existing thrombosis and to confuse diagnosis. Typical cases present no great difficulty in diagnosis, but atypical and latent cases present extremely complex problems. Milligan has no hesitation in performing an exploratory operation, in exposing or actually slitting up the sinus, purely and solely for diagnosis purposes.

Glasgow Medical Journal

August, 1922, **98**, No. 2

Short Sketch of History of Early Medicine. J. F. Fergus.—p. 81.
Splenomegaly and Splenectomy. J. S. McKendrick.—p. 101.
Treatment of Amebic Dysentery by Alcresta and Emetin. A. S. M. MacGregor and J. Frew.—p. 114.
Minor Displacements of Coccyx. E. F. Cyriax.—p. 118.

Indian Medical Gazette, Calcutta

August, 1922, **57**, No. 8

Filariasis at Puri. S. K. Roy and S. C. Bose.—p. 281.
Observations on "Ulcus Tropicum" in North Palestine. K. C. Sen.—p. 286.
Relative Rate of Absorption of Solar Radiant Heat of Silt Laden Waters. A. D. Stewart.—p. 289.
*Carbon Tetrachlorid in Helminthiasis. J. B. McVail.—p. 290.
Remarks on Typhus Fever of Kumanon, and on Suggestion That It Is Transmitted by a Tick. F. W. Cragg.—p. 291.
Toxic Jaundice of Unknown Origin in Andamans. A. Bayley de Castro. —p. 292.
Primary Carcinoma of Liver. W. L. Forsyth.—p. 295.
Some Contraindications to Intracapsular Operation for Cataract Based on 8,000 Cases by an Intracapsular Operator. H. T. Holland.—p. 296.
Case of Large Ovarian Cyst. C. B. McConaghy.—p. 297.
*Postmortem Examination in Cerebral Malaria. New and Simple Method of Demonstrating Parasites in Capillaries of Brain. R. N. Raja.—p. 298.
Case of Multiple Hemorrhages. S. R. Prall.—p. 299.

Carbon Tetrachlorid in Helminthiasis.—McVail relates his experiences with carbon tetrachlorid. He has given children, aged 12, 1 dram each on two successive days without ill effects. A dose of 60 minims in a very old man was followed by irregularity of the pulse and slurring speech. Seventy minims on two successive days is the largest dose McVail has given to an adult. Carbon tetrachlorid is a soporific. At a certain leper asylum fifty-one patients were given a 60 minim dose one evening and all slept so soundly that a burglar was able to remove the contents of the rice godown during the night. It does not appear to aggravate albuminuria and may be given with confidence in cases of kala-azar complicated with ankylostomiasis during the remissions of temperature, though kala-azar cases stand chenopodium badly. Carbon tetrachlorid is of little value against ascaris, trichiuris, and *Hymenolepsis nana.* On the other hand, this drug appears to be almost specific for threadworms. In thirteen cases oxyuris worms were found in the stools after a single treatment with carbon tetrachlorid, and in four cases after a double treatment, though oxyuris ova had been found during the previous microscopic examination only in three cases out of the seventeen.

Demonstrating Malaria Parasites in Brain Capillaries.—A piece of brain tissue from the cerebrum or cerebellum is pressed between two slides and the material thus obtained is transferred to a clean slide and spread out with the edge of another slide taking care to draw the spreader in only one direction. The smears are dried in the air or over a flame, fixed with alcohol or equal parts of alcohol and ether and stained by Giemsa's method or by diluted Leishman's stain; or they may be stained by the ordinary Leishman's method without preliminary fixation. Raja asserts that smears prepared in this way usually contain several portions of capillaries of varying length which, in cases of cerebral malaria, are filled with malarial parasites.

Japan Medical World, Tokyo

August, 1922, **2**, No. 8

Studies on Sheep Pox. M. Tsurumi, T. Toyoda and T. Inouye.—p. 221.
Duration of Life of Clonorchis Sinensis Infecting Animal Body. M. Muto.—p. 224.
*Experimental Studies on Prevention of Peritoneal Adhesions. T. Kubota.—p. 226.
Lumbar Spinal Anesthesia, as Method of Painless Birth. T. Hosaka.—p. 229.

Use of Papain to Prevent Peritoneal Adhesions.—Kubota used successfully in his experimental work on the prevention of peritoneal adhesions a refined papain. The powder is sterilized at 100 C. for one hour and pulverized in a mortar, then dissolved in physiologic solution of sodium chlorid making a solution of from 0.001 to 0.0005 per cent. This solution is filtered through a filter paper. The filtrate is warmed to the body temperature before use. In rabbits and dogs, 10 c.c. of the solution was soaked in gauze and rubbed over the area two or three times to prevent the adhesions. In a case of extensive separation of adhesions, besides the local application, 10 c.c. of the solution was poured into the abdominal cavity just before the closure of the abdominal wall. No toxic effect followed the injections of 1 c.c. of 1 per cent. solution intravenously and 2 c.c. abdominally in a mouse of 15 gm. body weight and 40 c.c. intravenously and 50 c.c. abdominally in a rabbit weighing 2,000 gm. Injection of 5 c.c. of the concentrated solution into the abdomen killed the rabbit in from two to six hours.

Journal of Tropical Medicine and Hygiene, London

Sept. 1, 1922, **25**, No. 17

Laryngeal Complications of Tropical Diseases. W. S. Sharpe.—p. 273.
Linguatulids Parasitic in Monitors. New Genus Sambonia. F. Noc and G. S. Giglioli.—p. 276.

Lancet, London

Sept. 9, 1922, **2**, No. 5167

*Efficiency of Man and Factors Which Influence It. E. P. Cathcart.—p. 547.
*Rickets, Marasmus and Scurvy. J. H. Thursfield.—p. 551.
*Pelvic Appendix. R. Morison.—p. 553.
*Salivary Glands in Carcinoma. L. S. Dudgeon and P. H. Mitchiner.—p. 558.
*Periodic Alkalemia with Alkalosis in Adult. W. MacAdam and J. Gordon.—p. 560.
Scope of Vaccine Therapy. C. E. Jenkins.—p. 563.

Sept. 16, 1922, **2**, No. 5168

Pleural Effusion. A. Ramsbottom.—p. 595.
Dyspituitarism, Obesity and Infantilism. H. L. Tidy.—p. 597.
*Pathology of Sydenham's Chorea. J. G. Greenfield and J. M. Wolfsohn.—p. 603.
Amaurosis in Infants. P. G. Doyne.—p. 607.
Bacterial Food Poisoning From Mutton. W. A. Young and G. D. Dawson.—p. 608.
Case of Sporadic Infection by Bacillus Aertrycke. R. E. Pleasance.—p. 609.
Hemolytic Streptococci in Feces of Patients Suffering from Scarlet Fever and Nephritis. E. Wordley.—p. 610.
Errors of Refraction in Hyperthyroidism. A. Sourasky.—p. 611.
Case of Multiple Pancreatic Calculi: Removal and Recovery. E. C. Lindsay.—p. 612.

Factors which Influence Efficiency.—The real industrial fficiency of the worker, Cathcart says, cannot be causally elated to any single factor. It is not the mere capacity of he individual to perform so many kilogrammeters of work n a given time with the smallest expenditure of energy. The uest of efficiency involves the whole welfare of the race and ation, and calls for the closest and most intimate cooperation etween the scientific investigator, the employer and the mployee. It is no more capable of being settled on a communistic than on a capitalistic basis; it can only be satisactorily attacked when mutual distrust of motives, capacities, nd methods is stilled.

Early Signs of Rickets.—The early signs of rickets on hich Thursfield lays stress are: (1) head sweating and estless sleep; (2) loss of muscle tone; (3) polyuria; (4) allor; (5) alteration in the bones of the skull.

Symptoms of Pelvic Appendix.—Inflammation of the pelvic ppendix, Morison says, can still mislead diagnostic experts. he ordinary symptoms of appendicitis—abdominal pain and ver—may both be absent in pelvic appendix cases. In many elvic appendix cases there is no severe early pain. Not ntil the appendix has perforated, generally at its distal end, e urgent symptoms noted. Absence of pain is not special the pelvic appendix, but is more common in this than any her variety. The explanation offered is that tension is not esent, because this type of appendix can empty itself, and e first serious pain results from perforation. Frequency micturition, especially in boys, and in rare cases retention urine, occurs as an early symptom. Careful rectal examiation may save the situation in a difficult case. So may a ood count. Pelvic abscess may result from the localization a diffuse peritoneal infection, from leaking of an abscess nnected with the appendix in the right iliac fossa, or from leaking pelvic appendix. Rectal tenesmus is the most suggestive symptom of a pelvic abscess. The treatment of an inflamed pelvic appendix is to remove it as soon as a diagnosis has been made. After the second day from perforation it is seldom wise to operate from the abdomen, and this should never be done if the intestines are distended or the patient is actually ill. Medical treatment is then the method of choice, until the abscess points in the rectum so prominently that it can safely and easily be opened there. Intestinal obstruction follows operations for pelvic appendicitis with disturbing frequency. When convalescence seems assured, during the second or third week, it develops suddenly. Early operation will save nearly every patient—delay is deadly. Following abdominal operation for pelvic abscess a complicated fecal fistula may refuse to heal and threaten life. In women vaginal hysterectomy will save the majority of these dangerous cases.

Salivary Glands in Carcinoma.—Dudgeon and Mitchiner assert that in the majority of cases of carcinoma of the tongue and floor of the mouth the salivary glands are not the seat of carcinoma. In nearly all cases the changes present in these glands are of a chronic inflammatory nature, somewhat analogous to the changes met with in the pancreas in chronic pancreatitis, and apparently due to infection from the mouth along the ducts. In other cases no microscopic change can be seen. The lymph nodes in this area show malignant changes in only 27.3 per cent. of early and 50 per cent. of late cases, though inflammation is always present. It would appear, therefore, in certain cases with early carcinoma of tongue to be justifiable to leave the submaxillary area untouched at operation, though clinical experience teaches that the risk of the subsequent appearance of metastases is very great.

Periodic Alkalemia with Alkalosis.—A case is described by MacAdam and Gordon of periodic vomiting in an adult, aged 39, which has continued over a period of five years. In addition to a constant acetonuria during the attacks, the other notable feature of the urinary examination is an abnormally low ammonia index. Investigations of the blood and alveolar air show that during the attacks of sickness there is a low hydrogen-ion concentration of the blood, a low carbon dioxid, tension of the alveolar air, and a high carbon dioxid combining power of the blood plasma—a condition of alkalemia with alkalosis. Treatment with large doses of decinormal hydrochloric acid, to counteract this abnormal alkaline reaction of the blood and body tissue, gave satisfactory results; the administration of ammonium chlorid was unsuccessful owing to vomiting being immediately induced. The clinical association of acetonuria with a condition of alkalemia is thus demonstrated. It is possible that these findings afford an explanation of some of the unsatisfactory results following the administration of large doses of alkalies in certain conditions of acetonuria; while it is suggested that some of those metabolic disturbances—e. g., certain types of the toxemia of pregnancy—in which a low ammonia index has been associated with severe clinical symptoms may be due to the swing of the acid base balance of the blood to the alkaline side.

Pathology of Sydenham's Chorea.—In the case cited by Greenfield and Wolfsohn, the macroscopic appearance of the brain was normal except for some subpial hemorrhage in the occipital region. In many parts of the brain the microscopic changes were of so slight a degree that they might easily have passed unnoticed, but although slight they were quite definite. In other places the changes were so great that they could scarcely have escaped observation. The sections, in fact, were very similar to those from cases of lethargic encephalitis in the earlier stages of the disease, in which the cellular infiltration of the vessel walls is either absent or is not a prominent feature. The authors assume that embolism of cerebral arteries, if and when it occurs in Sydenham's chorea, is not the cause of the typical symptoms, but may possibly cause other more lasting effects, such as the hemoparesis which not uncommonly follows the attacks. They believe that chorea is a meningo-encephalitis of rheumatic origin.

Hemolytic Streptococci in Feces in Scarlet Fever.—Wordley asserts that hemolytic streptococci are more abundant in the feces from cases of scarlet fever and from cases of nephritis, whether associated with scarlet fever or not, than in the feces of normal patients. The type of hemolytic streptococci isolated from the feces of such cases is not a uniform one. Such streptococci appear to be nonpathogenic to rabbits.

Astigmatism in Hyperthyroidism.—Of twenty cases of hyperthyroidism examined by Sourasky, sixteen had exophthalmos of varying degree. Twenty-nine out of these thirty-two eyes were astigmatic. Of the four cases (eight eyes) of hyperthyroidism without exophthalmos, two patients (four eyes) had astigmatism. The amount of astigmatism present was small. Out of the sixteen patients with exophthalmic goiter, thirteen suffered from headaches. Out of the four hyperthyroid patients, three were subject to headaches. In most cases the history of headaches given corresponded closely with the history of the disease.

Medical Journal of Australia, Sydney

Aug. 5, 1922, **2**, No. 6

Medical Journalese and How to Write It. F. G. Griffiths.—p. 145.
Some Points in Surgical Technic. W. J. S. McKay.—p. 148.
Diathermy in Treatment of Malignant Growths. W. K. Hughes.—p. 152.
Inversion of Uterus. R. Worrall.—p. 158.

Aug. 12, 1922, **2**, No. 7

Influence Listerism Exercises on Obstetrics. G. R. Adam.—p. 175.
*Case of Systemic Blastomycosis. J. R. Williams.—p. 185.
Strangulated Right Inguinal Hernia Containing Stomach and Transverse Colon. A. F. Stokes.—p. 187.

Systemic Blastomycosis.—Williams relates the case of a man, aged 35, who came with the diagnosis of tuberculous meningitis. The patient presented all the signs of acute cerebral mischief. He was widly delirious, irritable, resented any interference and lay coiled up on one side. Four months previously he had influenza, followed by bronchitis and a right-sided pleurisy. The apexes of the lungs were clear, but there was marked dulness, with diminished vocal fremitus and resonance, at the base of the right lung. The spleen and liver were not enlarged. The knee jerks were equal and active; the superficial abdominal reflexes were not elicited; the plantar reflexes were flexor. A double Kernig's sign was obtained. Examination of the fundi revealed optic neuritis. The leukocyte count was 16,800. The patient had no cough and no sputum was obtainable. On three successive occasions there was no response to the Wassermann test. No chorioidal tubercles were found and the optic neuritis was not progressive. The temperature chart showed a practically afebrile course with occasional elevations to 102 F. The patient was in hospital for twenty-nine days and the course of the disease was a gradual decline. The lesion of the lung was regarded as the primary focus, with systemic spread to the meninges. This diagnosis was made four days before the patient's death and the postmortem findings amply confirmed it. Scrapings from the cut surface of the lung and the cerebrospinal fluid taken from the brain contained the blastomyces in enormous numbers. On section the brain presented multiple minute abscesses close to the cortex. There were no gross collections, but tiny aggregations of the parasite. The subarachnoid space was almost filled with a pronounced round cell reaction and numberless parasites. In the brain substance small abscesses were noted containing a blastomycotic collection in the center and weak attempt at repair surrounding it.

Medical Journal of South Africa, Johannesburg

July, 1922, **17**, No. 12

Some Points on Operative Treatment of Myomata. W. G. Grant.—p. 237.
Clonorchis Sinensis: Human Liver Fluke, Found in Chinaman in Johannesburg; Pathology of Case. A. Porter and J. H. H. Pirie.—p. 240.
Some Relations of Radiology to Other Specialties. L. E. Ellis.—p. 244.
Hits and Misses in Diagnosis of Skin Eruptions. C. Pijper.—p. 248.
Prevention of Ocular Defects in School Children. F. H. Robinson.—p. 250.

Practitioner, London

September, 1922, **109**, No. 3

Albuminuria of Pregnancy. A. W. Bourne.—p. 197.
Cesarean Section. J. L. Stretton.—p. 214.
Mitral Traumatism. W. Gordon.—p. 223.
Some Diagnostic Pitfalls in Arthritis. L. J. Llewellyn.—p. 226.
Fracture: Separation of Lower Humeral Epiphysis.—p. 244.
Causation and Treatment of Urinary Incontinence.—p. 250.
Enlarged Prostate Treated Without Operation. R .Creasy.—p. 256.

Sei-I-Kwai Medical Journal, Tokyo

August, 1922, **41**, No. 4

Effect of Extract of Myoma of Uterus on Heart of Frog. T. Hosaka.—p. 1.

Archives des Maladies de l'App. Digestif, Paris

1922, **12**, No. 4

*Etiology of Recurring and Gastro-Jejunal Ulcers. L. Christophe.—p. 233.
*Etiology of Chronic Habitual Constipation. T. E. Hess Thaysen.—p. 250.
Balantidium Coli Dysentery. V. Vedel and J. Baumel.—p. 265.
Ileocecal Invagination Due to Membranous Pericolitis. J. Abadic.—p. 269.
Mega-Esophagus. W. Oettinger and R. V. Caballero.—p. 274.
Concentration of Solutions in Hydrogen Ions. R. Goiffon.—p. 277.

Etiology of Recurring Gastric Ulcers.—This research by Christophe confirms Rosenow's work along similar lines, as published in The Journal, Jan. 28, 1922, p. 266. Christophe isolated streptococci from the teeth of 3 patients with recurring gastric ulcer. Rabbits were injected with cultures of these streptococci, and 12 of the 14 rabbits developed ulcers and hemorrhagic foci in the stomach mucosa; in the other organs such lesions were exceptional. The elective localizing power of the streptococci in these cases was most remarkable. His proportion of positive results was even higher than Rosenow's 68 per cent. in 168 animals injected. In 212 animals Rosenow injected with 71 different strains of streptococci from normal persons or patients free from ulcer in the digestive tract, only 9 per cent. of the animals developed lesions in the stomach or duodenum. In Christophe's three clinical cases, eradication of the dental focus, and Sippy treatment of the ulcer, induced a clinical cure rendering operative measures unnecessary.

Habitual Constipation.—A similar article by Thaysen was reviewed in these columns, Nov. 19, 1921, p. 1692.

Bulletin de l'Académie de Médecine, Paris

July 25, 1922, **88**, No. 30

Mikulicz Syndrome in Course of Epidemic Encephalitis. G. Guillain et al.—p. 80.
*Arteriotomy for Embolism. L. Sencert and P. Blum.—p. 84.
Vaccination of Infants Against Typhoid. M. Renaud and Duchein.—p. 87.
*Organotherapy of the Liver. J. F. Martin et al.—p. 90.
Nervous Disturbances Traceable to Appendix. C. Poenaru Caplesco and D. Paulian.—p. 93.
*Cholera at Constantinople, 1920-1922. G. Delamare.—p. 98.

Arteriotomy for Embolism.—The embolic obstruction of the axillary artery occurred during coughing. The man of 58 had previously presented symptoms suggesting a tendency to aneurysm of the aorta, but the symptoms had subsided under treatment for syphilis. Sudden agonizing pain and paralysis of the right arm followed the complete obstruction of the axillary artery, and Sencert found the embolus just below the mouth of the inferior scapular artery. Catgut was thrown around the axillary artery a few centimeters above this opening and another around the scapular artery. As these were lifted up, they kinked the arteries and prevented hemorrhage. An incision 1.5 cm. long was made in the axillary artery just below the opening of the scapular, and a thread was passed through each lip of the incision. The clot was 4 cm. long, and the size of a lead pencil. The clot was removed, the artery unkinked; no blood flowed. The incision was then carried upward and a second clot was found, or rather the upper half of the same clot. It was not adherent anywhere, and the upper half was also 4 cm. long. The moment this was extracted, the blood gushed. The vessel was sutured and as soon as the kinking threads were drawn out the radial pulse appeared full and strong. In a few days the last traces of paralysis and retraction of the fingers had disappeared. The arterial tension is now the same in the two arms, and the cure is complete. This is the second case of successful embolectomy published in France.

Organotherapy in Kidney and Liver Disease.—Martin asserts that it is apparently established that ingestion of the tissue diastases from a healthy organ may effectually combat functional insufficiency of the corresponding organ. The specificity of these tissue diastases seems to be fully settled, he says, and in the research here reported the benefit from daily ingestion of 2 or 3 mg. of liver diastase was manifested by the veering to the normal response of tests to elicit the hemoclastic crisis and phlorhizin glycosuria. In the 150 patients tested the test gave abnormal findings in all the cases with a hemoclastic crisis, but the test elicited the normal response in 20 per cent. of those displaying the hemoclastic crisis. This confirmed that of the two functions of the liver revealed by these tests, the one responsible for the hemoclastic crisis is the more sensitive. Liver functioning is evidently one factor in phlorhizin glycosuria although the latter is of renal origin. Four cases are described in detail.

Cholera at Constantinople.—Delamare expatiates on the efficient work of the health service maintained at Constantinople by the Turk and interallied governments. Constantinople and Greece have thus been saved from cholera constantly menacing them from Russia.

Bulletins de la Société Médicale des Hôpitaux, Paris

July 21, 1922, **46**, No. 25

Case of Malta Fever at Paris. A. Courcoux et al.—p. 1104.
Respiratory Disturbances in Epidemic Encephalitis. C. Vincent and C. Bernard.—p. 1111.
Erythema Nodosum plus Phlebitis. C. Achard and J. Rouillard.—p. 1113.
*Serial Radiography of Region Below Liver. Enriquez et al.—p. 1116.
*Simulation of Hydatid Cyst of Liver. Salomon et al.—p. 1123.
*Acquired Dextrocardia. Bigart and Coste.—p. 1129.
*Argyria. C. Laubry and F. Bordet.—p. 1133.
*Plastic Linitis. Babonneix et al.—p. 1135.
*Quadriplegia from Spina Bifida. P. Marie and A. Léri.—p. 1138.
*Hyperostosis. A. Léri and Joanny.—p. 1141.
*Treatment of Sciatica. B. Weill-Hallé and H. Chabanier.—p. 1145.
Case of Melanodermia. Enriquez et al.—p. 1149.
*Pregnancy Pyelonephritis. Courcoux et al.—p. 1151.
*Treatment of Gastric and Duodenal Ulcer. Le Noir et al.—p. 1156.

Serial Radiography.—A number of cases are described with the typical roentgen findings out of a total of eighty cases in which the differential diagnosis of conditions in the duodenum region was made possible only by serial radiography. In some, the symptoms for which an ulcer seemed to be responsible proved to be merely from an inflammatory process close to the duodenum, with adhesions, but no ulcer. In one case three calculi in the gallbladder had evidently induced a reflex spasm in the duodenum, as conditions here righted themselves after cholecystectomy.

False Hydatid Cyst of the Liver.—Instead of the anticipated cyst in the liver, pneumoradiography revealed that a sclerotic process in lung and pleura had pulled the diaphragm and the liver up out of place. The liver seemed to be otherwise normal.

Acquired Dextrocardia.—The heart had been drawn entirely out of the left side of the chest by traction from the shriveling pleura consecutive to recurring right pleurisy in the young man.

Argyria.—In the case reported by Laubry, the man had been in the habit for six years of cauterizing his gums with a silver nitrate stick on account of recurring stomatitis.

Plastic Linitis.—Necropsy in Babonneix's case revealed an epithelioma in the stomach the seat of plastic linitis, plus a ibroma in the uterus.

Tardy Paralysis from Spina Bifida.—Marie and Léri describe the case of a woman of 54 who had been healthy until the age of 46. Then quadriplegia slowly developed, the pastic paraplegia finally becoming total and complete. It was explained by spina bifida in the seventh cervical vertebra. This would have escaped detection entirely without roentgen examination.

Linear Hyperostosis.—The left arm of the woman of 39 presented a row of bony excrescences extending from the houlder along the humerus and both bones of the forearm and the two middle fingers. The excrescences lie in an lmost straight line along the bones, as melted wax would un down to the tips of the two fingers involved. The lumps ad been first noted at the age of 10, and the patient seemed ealthy otherwise.

Rheumatismal Sciatica.—A sharp pain in the back of the right thigh was the first symptom in the case described. The pain was continuous and progressive, and the third day it appeared on the other side. The pain spread throughout the entire limb, with a tender point in the ischium-trochanter groove, and on the fibula. There was slight fever, and the man of 32 was given an intravenous injection of 1.5 gm. of sodium salicylate in 75 gm. of distilled water. There was a severe chill reaction, with pains in the legs, and the temperature ran up to 105 F. By the next day all the symptoms had subsided, including the pains. In a second similar case the sciatica was very severe and of over five months' standing. It had come on suddenly while walking and had been so severe as to confine the man to bed for months. No benefit was derived from a course of sodium salicylate by the mouth, but improvement followed an intravenous injection of 3 gm., and the sciatica subsided completely under a total of three injections on successive days.

Pyelonephritis and Bacteriophagia. — Courcoux quotes d'Herelle's saying that the bacteriophagum is capable of invading healthy persons during an epidemic, and thus protecting them against the disease. It is a kind of immunity that is contagious. D'Herelle has utilized this bacteriophagic property on a large scale in treatment of disease in animals and fowls, and Courcoux here reports a clinical case in which the prompt recovery seemed to be due to the colon bacillus bacteriophagum given systematically in treatment of the pregnancy pyelonephritis. The first symptoms had been observed in the young woman at the sixth month of pregnancy. The bacteriophagic lysin was given by a subcutaneous injection, and by injection of 15 c.c. directly into the bladder. There was a considerable reaction for forty-eight hours, but then all the symptoms subsided, the improvement amounting to a clinical cure although the colon bacillus could still be cultivated from the urine. The bacteriophagic action was still evident in the urine at the last examination.

Treatment of Gastric and Duodenal Ulcer.—When sodium bicarbonate is indicated in cases of gastric or duodenal ulcer, Le Noir and his co-workers give it by rectal drip. All the patients comment on the relief from pain, beginning in about half an hour and persisting for several hours. When given at 3 p. m. the relief persists all night. The relief from pain seemed to be more pronounced than when the alkali was given by the mouth in their twenty-seven patients thus treated.

Journal de Médecine de Bordeaux

Aug. 25, 1922, **94**, No. 16

Ileocecal Cancer. E. Loubat.—p. 519.
*Exclusion of Tuberculous Kidney. H. Blanchot.—p. 529.

Conservative Treatment of Tuberculous Kidney.—The periods of remission and improvement sometimes observed with renal tuberculosis are due to the fact that the diseased portion has become walled off. This partial or total exclusion has often served as an argument in favor of conservative treatment. Blanchot reports a case of spontaneous total exclusion of a tuberculous kidney which demonstrates that even in the most favorable circumstances surgical intervention is still the treatment of choice. In his case the course of the renal tuberculosis had been the most favorable possible for five years, the patient regaining his earning capacity. The kidney process had extinguished function completely. But when he resumed regular work the disturbance from the kidney compelled nephrectomy after all. Conditions then were far less favorable than if the kidney had been removed early in the disease.

Presse Médicale, Paris

Aug. 23, 1922, **30**, No. 67

*Blood Pressure in Obesity. C. Aubertin and L. Coursier.—p. 721.
*Tactile Sign of Pleural Effusion. J. Chalier.—p. 723.

The Blood Pressure in the Obese.—Aubertin compares the blood pressure record in seventy obese persons, mostly bedridden for years in an institution, and twenty-four in private practice, not bedridden, all with about the same obesity index. This is obtained by subtracting the height from the weight (metric). The blood pressure was normal in 10.1 per cent. in the first group and in 62.5 per cent. in the second group.

The blood pressure was very high in 43.4 per cent. of the institutional group, and moderately high in 46.3 per cent. His conclusion is that the sedentary life, a poorly balanced, excessively carbohydrate ration, and mild drinking habits cooperate in the institution to induce both the obesity and the high blood pressure, but only in the predisposed. Others, sharing the same conditions in every respect, do not develop obesity and their blood pressure keeps normal. Kidney disease and arteriosclerosis cannot be incriminated, as they are found among those with normal blood pressure and no tendency to obesity as often as in the obese. He rejects completely the assumption that obesity in itself can cause the high blood pressure, but he warns that their frequent coincidence imposes the necessity for taking the blood pressure of the obese. A permanently high blood pressure may escape detection unless directly sought for—the disturbances therefrom being ascribed to the obesity. Apoplexy and sudden death for which the obesity has been held responsible are, in reality, due to the high blood pressure, and this is within our control to a certain extent.

Tactile Sign of Pleural Effusion.—Chalier taps the chest lightly with his fingers, and is thus able to perceive with his finger tips that the area of the chest wall over even a very small effusion is less elastic than elsewhere, and there is a slight sensation of trembling of the wall under the finger. The other hand can be placed on the opposite side of the chest. The tapping is too light to induce any sound. The effusion is generally found at the back, close to the spine, in the ninth to the eleventh interspaces. Puncture may confirm the tactile findings when the effusion is too insignificant to cast a roentgen shadow. Several cases are cited to show the value of this sign which, he repeats, is instructive by the *frémissement et l'adhésion par le tapotement silencieux de la pulpe digitale.*

Aug. 26, 1922, **30**, No. 68

*False Addison's Disease. Roch.—p. 729.
*Treatment of Uterine Cancer. G. Leclerc.—p. 731.
Cirrhosis of Liver with Splenomegaly. M. Hanganutz.—p. 732.
*Quinidin with Digitalis. L. Cheinisse.—p. 734.

False Addison's Disease.—The clinical picture studied here by Roch occurs in the tuberculous long addicted to alcohol.

Uterine Cancer.—Leclerc presents convincing data to sustain his view that radium treatment should precede and not follow the operation, and that the excision of the malignant focus should never be omitted when practicable.

Quinidin and Digitalis.—Cheinisse compares the views of Hamburger and Priest (The Journal, July 15, 1922, p. 187) with the opposite practice of French clinicians. He cites Deschamps' recent thesis which reported six failures and one success in seven cases of auricular fibrillation treated with quinidin alone, and ten successes with eight failures in eighteen cases in which the quinidin had been preceded by a course of digitalis regardless of whether or not the heart showed signs of insufficiency.

Aug. 30, 1922, **30**, No. 69

The Basal Metabolism in Retarded Growth. Nobécourt and H. Janet. —p. 741.
*Serodiagnosis of Progressing Tuberculosis. P. Armand-Delille et al. —p. 742.
*Dupuytren's Contracture. P. Specklin and R. Stoeber.—p. 743.
*Absorption in Joints. S. Draganesco and A. Lissievici-Draganesco.—p. 745.
Anomalies in the Duodenum. W. Nimeh.—p. 746.

Serodiagnosis of Tuberculosis.—Delille and his co-workers agree with those who regard the complement fixation reaction as an unreliable guide in estimating whether a tuberculous process is progressing or not.

Successful Radiotherapy for Contractures Plus Neuralgia.—In the case reported here the contracture was similar to Dupuytren's contracture but in the course of ten years it involved the aponeuroses of both palms and soles. It was accompanied with intense neuralgia in the arms and legs. There was no evidence of neuritis although the trunk nerves in the limbs were tender. The clinical picture had persisted for twelve years, with no benefit from treatment for rheumatism, etc. Specklin and Stoeber applied roentgen-ray treatment to the regions of the contractures, and the contracture subsided in three of the limbs and also the neuralgic pains. The pains never preceded the contracture; there was usually an interval of months before the neuralgia developed. The man was a gardener, and the disturbances began on the side he used most. In a second similar case the patient was a coal shoveler, and only the right side was affected. The pain was relieved at once by radiotherapy and the aponeurosis returned to clinically normal, but the contracture of the flexor tendon of the elbow did not seem to be influenced. The disturbances were of not much over a year's standing. The treatment started with soft roentgen rays and concluded with radium exposures. In both cases the doses had to be powerful enough to induce slight radium dermatitis.

Absorption in Joints.—Various drugs, including potassium iodid and methylene blue, were injected into diseased joints and the urine was examined thereafter. In other experiments the drug was injected subcutaneously or into a muscle. The results confirmed that the joints possess considerable absorbing power for fluids injected directly into the joint but not for drugs injected elsewhere.

Schweizerische medizinische Wochenschrift, Basel

Aug. 10, 1922, **52**, No. 32

*Albumin Ratio of the Serum. F. Wanner.—p. 785. Idem. F. Rohrer. —p. 789.
Roentgen Ray Treatment of Cancer of Skin. G. Miescher.—p. 791.
Cataract with Myotonic Dystrophia. U. Lüssi.—p. 796.
Surgical and Nonsurgical Impressions of America. F. de Quervain.—p. 797. Cont'd.

The Albumin Quotient of the Blood Serum.—Wanner discusses Rohrer's recent statements in regard to the ratio between the albumins and the globulins, the refraction, and the viscosity of the blood. Rohrer replies to his objections.

Aug. 17, 1922, **52**, No. 33

*Pneumaturia. H. Walthard.—p. 809.
*Combined Treatment of Metasyphilis. T. Brunner.—p. 812.
*Breathing Sounds in Pulmonary Tuberculosis. F. Lichtenhahn.—p. 816.
*Dermography in Diagnosis. L. Schwartz.—p. 819.
Surgical Impressions of America. F. de Quervain.—p. 823. Cont'n.

Pneumaturia.—Walthard reports a case of intravesical generation of gas in a man of 65 with a chronic catarrhal cystitis. The foamy urine was free from sugar but contained a little albumin. He has been able to find only thirteen cases on record of pneumaturia of intravesical origin in the last forty years. The urine gave an acid reaction in all but one case, and bacteria of the colon bacillus group were always found. His case was under observation for months, but no treatment displayed any efficacy, and the gas production fluctuated without known cause.

Combined Intraspinal Treatment of Tabes and General Paresis.—Brunner reports three cases in detail, with control of the spinal fluid, all showing pronounced improvement under intraspinal neo-arsphenamin treatment plus sodium arsphenamin by vein; an iodid course, and a six weeks' Carlsbad course, with copious drinking to flush out the liver.

Breath Sounds with Incipient Pulmonary Tuberculosis.—Lichtenhahn explains that there can be no settled rules for the interpretation of the auscultation findings with early apical disease. The rules generally taught often prove misleading.

Dermography in Examination of the Vessels in the Skin.—Schwartz has systematized the application of dermography, as he explains. He calls attention to its importance from the diagnostic and other standpoints, when applied serially, with precision and special ereuthometers, as he calls the instrument devised for the purpose.

Pediatria, Naples

Aug. 15, 1922, **30**, No. 16

*Leukemia in Young Children. G. Caronia.—p. 745.
*Foreign Body in Esophagus. L. Leto.—p. 758.
*Spasmophilia. M. Coda.—p. 764.
Achondroplasia in Infant with Syphilitic Parent. G. Milio.—p. 775.

Leukemia in Children.—Caronia reports four cases in children from 28 months to 6 years old. Examination of the bone marrow may clear up many dubious pathologic conditions in children. An inherited taint, syphilis or tuberculosis, is the rule.

Foreign Body in Esophagus.—The special feature of the case described was that the presence of the foreign body had never been suspected. It was the ring handle of a small corkscrew, such as is sold with certain bottles. The corkscrew spiral had been broken off. The ring lay just at the entrance to the esophagus, and was easily fished out with the finger. But it was not discovered until the ring had induced an abscess, and the complications in the mediastinum and lungs proved fatal. The child of 10 had complained for nearly three weeks of pain in its throat and difficulty in swallowing, before it was brought to the hospital with the retropharyngeal abscess.

Spasmophilia.—Coda's review of the prevailing views on the etiology and pathogenesis of spasmophilia incriminates the endocrine system. This may act on the vegetative nervous system or on the calcium metabolism or on what Elliot calls the myoneural conjunction, or on all these elements at once.

Policlinico, Rome

July 24, 1922, **29**, No. 30

*Diphtheria and Pseudodiphtheria Bacilli. M. Pergola.—p. 969.
Diagnosis of Fracture of the Clavicle. S. Auriemma.—p. 972.
The Cocain Peril. C. F. Zanelli.—p. 975.

Differentiation of Diphtheria Bacilli.—Pergola presents arguments to demonstrate that the so-called pseudodiphtheria bacilli found with the genuine diphtheria or in convalescents from diphtheria are in reality true diphtheria bacilli, merely modified by certain factors. They behave on his tellurite culture medium just like true diphtheria bacilli. Pseudodiphtheria bacilli behave quite differently. He has been experimenting with hundreds of strains from different localities, all sustaining these assertions.

July 31, 1922, **29**, No. 31

*Dissociation of Elements of Cerebrospinal Fluid. P. Boveri.—p. 1001.
Apparatus to Hold Mouth Open. O. Brunicardi.—p. 1011.
Test for Indican in Urine. Leti-Testi.—p. 1014.

Dissociation of Albumin and Leukocytes in Cerebrospinal Fluid.—Boveri remarks that in affections involving the meninges the increase of albumin in the cerebrospinal fluid generally parallels an increase in the number of leukocytes. In some conditions, however, there is divergent behavior of the albumin and leukocytes. This dissociation is pronounced in Pott's disease and with compression from an intraspinal tumor, and Boveri has found it as an early sign of lead poisoning. His present communication is to call attention to the excessive albumin content with a primary tumor of the cerebral meninges in a woman of 55. For four months she had been having frequent dizziness, vomiting and somnolency, and finally transient loss of consciousness and subdelirium on rousing. The left eye showed congestion of the retina, and the urea content of both blood serum and spinal fluid was high. The albumin in the cerebrospinal fluid was over 2 per thousand, but there was no lymphocytosis. The spinal fluid seemed otherwise normal. Nothing was found to explain these findings until necropsy about a week later. This disclosed an encapsulated tumor, as large as a pigeon's egg, back of the right occipital lobe. It was a very vascular endothelioma. In another case of meningeal tumor the albumin content was low while lymphocytosis was extreme.

Riforma Medica, Naples

July 10, 1922, **38**, No. 28

*Treatment of Gastric Ulcer. I. Tansini.—p. 649.
Deep-Fibroma in Neck. L. Torraca.—p. 650.
*The Prognosis in Typhoid. F. Bergolli.—p. 653.
Muscle Sign in Diagnosis of Pulmonary Tuberculosis. Zagari.—p. 668.

Treatment of Gastric Ulcer.—When Tansini opened the abdomen in the woman of 37 he found an active ulcer in the upper half of the hour-glass stomach, and it was adherent to the liver. This large adherent disk he sliced off with a knife, making the excavation in the liver as shallow as possible, and suturing to leave a smooth surface. The large gap left in the proximal half of the stomach was sutured over a sound introduced through the mouth, and the sound wall was taken up in folds. His aim was to make an even tube out of this first half of the hour-glass stomach, as if it were a continuation of the esophagus. The distal half of the stomach was left unmolested, and the recovery was soon complete and permanent.

The Prognosis in Typhoid.—Bergolli bases his conclusions on 262 cases of typhoid personally studied for the elements on which to base the prognosis. Among the favorable elements he mentions repose during the prodrome; intermissions in the fever, as showing greater resisting power; a low level of the continuous fever of the second half; lower temperature in the morning; a relatively slow pulse. His mortality was only 4.6 per cent. in the 64 cases without enlargement of the spleen, while 85.8 per cent. of those that died had splenomegaly. The mortality in the men that had been given preventive vaccination was 8.6 per cent. and 20 per cent. in the nonvaccinated. There were no rose spots in 58 per cent. of the fatal cases and they were scanty in 28 per cent. and numerous only in 14 per cent. In the graver cases no rose spots were evident in 20 per cent.; they were scanty in 72 per cent. and were numerous only in 8 per cent. This confirms the opinion that when they are numerous the outlook is more favorable. Herpes labialis was observed only in the milder cases. Delirium only during the night seems less grave than both day and night. In all his fatal cases of paratyphoid A there were apathy and stupor, never delirium. Profuse diuresis in typhoid is a good sign, especially when the urine is concentrated. He has never seen but two instances of typhoid cystitis, and two of typhoid parotitis. He enumerates further the unfavorable signs, and in conclusion extols the value of intravenous serotherapy in typhoid.

July 31, 1922, **38**, No. 31

*Closing Lecture of Clinical Medicine Course. E. Maragliano.—p. 721.
Pharmacologic Action of Iron. P. F. Zuccòla.—p. 733.

Hemoglobin Test of Liver Functioning.—This lecture concluded Maragliano's fortieth year of teaching this course. Among the achievements of the year he mentions Barlocco's test of liver functioning by injection into the blood stream of dissolved isotonic hemoglobin. In normal conditions this induces merely slight urobilinuria and no change in the bilirubin content of the blood. With liver disease, on the other hand, transient bilirubinemia follows. It may be so intense that it amounts to actual jaundice. This same result follows introduction of hemolyzed blood into the duodenum or stomach.

Tumori, Rome

July 25, 1922, **9**, No. 1

*Induced Cellular Reaction and Cancer Grafts. R. Brancati.—p. 1.
*Roentgen Treatment of Malarial Spleen. S. Dentici.—p. 19.
Fibroma Removed from Palm. U. Stoppato.—p. 31.
Primary Cancer of Renal Pelvis. M. Pavone.—p. 44.
Mixed Tumors of Uterus. S. Cappellani.—p. 54.
Primary Sarcoma of Middle Ear. L. Leto.—p. 61.
Krukenberg's Tumors of the Ovary. D. Pizzetti.—p. 72.

Means to Influence Evolution of Tumors.—Brancati inoculated twelve mice with mouse carcinoma and then injected seven of them with nucleic acid, four times in one week. The difference in the development of the cancer was striking. Only one grew to the diameter of ⅛ inch while in the controls four reached ½ inch, and only one was as small as the next to the largest in the treated animals. Other groups gave similar results, all testifying to the depressing and even inhibiting action of the nucleic acid on the tumors. The action was most pronounced and the animals throve better when the nucleic acid was injected in small amounts on alternate days. The spleen and liver also increased notably in size under the influence of the nucleic acid. The tumors showed signs of necrosis. The salutary reaction to the nucleic acid occurs only when the animals are in good condition; with cachexia no beneficial effect was apparent. The effect was also most pronounced when the tumor was small. The extensive Italian bibliography on experimental cancer is appended, in addition to considerable American literature.

Radiostimulation of the Spleen in Chronic Malaria.—Dentici treated the large spleen with small stimulative doses of the roentgen rays in the case of a boy of 16 with chronic malaria. Then the spleen was removed, and the microscope showed unmistakable lymphoid hyperactivity.

Archiv für klinische Chirurgie, Berlin

July 21, 1922, **120**, No. 2

*Spastic Neuroses. B. O. Pribram.—p. 207.
*Nonsuppurative Osteomyelitis in Adults. A. Winkelbauer.—p. 262.
*Suture of Stomach. M. Gara.—p. 270.
*Artificial Bursae. B. Martin.—p. 281.
*Treatment of Exstrophy of Bladder. R. Drachter.—p. 291.
*Fracture of Neck of Femur. R. Bonn.—p. 298.
*Necrosis After Fracture of Neck of Femur. G. Axhausen.—p. 325.
Operations on Bile Passages. P. Walzel-Wiesentreu.—p. 347.
*Epigastric Hernia. H. Smidt.—p. 385.
Import of Cicatricial Infiltrates in Pylorus. G. Kelling.—p. 402.
*Means to Apply Extension to Pelvis. W. Block.—p. 410.

Spastic Neuroses.—Pribram is convinced that the neurosis often has its local origin in some plexus in the wall of the organ involved. This in time sets up a vicious circle which has to be considered in treatment, as well as the local source of the irritation responsible for the neurosis in the first place. It also has to be borne in mind that these subjects present a cooperating element in the line of general myotonic overexcitability of the hollow organs or of some special organ or group of organs. In the respiratory apparatus we have spasm of the glottis and asthma; in the circulatory apparatus, migraine, Raynaud's disease and certain disturbances in conduction of the impulse in the heart. Spasms may occur at almost any point in the alimentary canal and also in the ureters and the bladder. It is impossible to explain a spastic neurosis by the vagus or sympathetic system as a whole system. The local spasm interrupts and prevents the normal course of the stimulus. The dilatation above the spasm is merely in accordance with the general law that contraction of any portion is always accompanied by relaxation of the portion just above. He cites some cases in which the causal irritation could be traced to some removable cause with the prompt cure of the neurosis. In one case there was a diverticulum in the esophagus. Correction of this cured the spasm of the glottis. In two other cases excision of a projectile in the abdomen cured the severe spastic obstipation or hyperperistalsis of the stomach. In four cases spastic constipation or spasm of the stomach was cured by appendicectomy or breaking up of adhesions. In one case cardiospasm and hyperperistalsis of the esophagus were cured by gastropexy. Spasm of the esophagus is the typical example of associative fixation of the irritation. In one case the woman had swallowed a thimble which stuck in the esophagus but was easily pushed down into the stomach and was soon voided in the stools. Since then she has had spasm of the esophagus; it comes on every time she has to do any darning. This monograph on spastic neuroses is accompanied by seven pages of bibliographic references, set solid.

Nonsuppurating Osteomyelitis in Adults.—In the two cases illustrated by Winkelbauer, there never had been any acute phase, but nearly the entire shaft of the humerus was the seat of necrosis that had developed in five and eight weeks after the first symptoms. Pain and swelling were the only symptoms, and the necrosis became spontaneously resorbed in one case with a complete cure and regeneration of the bone. In the other case the tendency to spontaneous healing was equally marked, but the process was hastened by removal of the sequester.

Suture of the Stomach.—Gara gives photomicrograms which apparently prove the superiority of a method of suturing the stomach wall which he advocates. He remarks that it is strange that ulcers do not develop at the suture point more often than they do, as the ordinary sutures actually invite suppuration. He draws up the entire stomach wall like the neck of a bottle, and takes the continuous suture through all the layers at the base of this neck. Then the mucous membrane is sutured together at the top of the neck, at the free edge of the mucosa. Then the whole neck of the bottle is pushed down inside the stomach and a Lembert suture taken above it. The microscopic findings with this and other methods of suture were compared on rabbits.

Artificial and Acquired Bursae.—Martin gives a histologic and biologic study of three cases in which an effusion formed in the cavity left by resection of a lipoma in the flank, the back of the neck or above the scapula. The effusion returned two or three times, and the fluid was like the synovial fluid. It deposited a fibrin-like substance which transformed the cavity into a kind of bursa. Experiments on dogs confirmed this sequence.

Treatment of Exstrophy of the Bladder.—Drachter cuts one of the ureters some distance above the bladder, and twists the bladder around to bring the mouth of this ureter on the lower side of the bladder. A ureter catheter is then introduced through this distal stump of the severed ureter and passed through the bladder into the other ureter. The proximal stump of the severed ureter is then implanted in the other ureter which thus serves as the outlet for both kidneys. The distal stump hangs down below the bladder and serves for a new urethra. The loosened bladder walls are drawn up to make a closed bladder, and the ureter stump that hangs down is brought through the muscular ring forming the anal sphincter, but without communicating with the rectum. The rectum wall is left intact. He applied this procedure in a boy of 6 in 1917. The proximal stump of the ureter was sutured to the skin at first and later implanted in the bladder. The boy is healthy and is continent during the day, attending school regularly. The urine is not clear, and the case is not decisive as to the value of the method, but it certainly has produced a continent bladder and one not made out of the bowel.

Fracture of the Neck of the Femur.—Bonn advises opening up the joint capsule to investigate conditions. If the inner capsule is extensively destroyed, the only recourse is to resect the head of the femur and bring the trochanter major into the acetabulum. Otherwise the fracture can be reduced and held in place with a screw, peg or wire. In the young, a movable joint is the aim, and in the elderly and the very heavy, ankylosis in a good position. Axhausen describes the complete necrosis of the proximal stump ten months after fracture of the neck of the femur in a lad of 16. It did not hinder the bony consolidation at the point of fracture, but arthritis deformans is under way and the bone shows a tendency to rarefaction.

Epigastric Hernia and Gastric Ulcer.—Smidt declares that only an exploratory laparotomy will reveal whether a gastric or duodenal ulcer accompanies an epigastric hernia. The irritation from the latter may well induce the ulcer, but it may escape all other means of investigation.

To Apply Extension to Pelvis.—Block's illustrations show the effectual traction and extension that can be realized in cases of luxation of the pelvis on one or both sides. A wire passed through the crest of the ilium on both sides allows traction and counter traction without interfering with the movements of the legs. Or the traction can be aided by peg or nail extension at the knee or above. The methods are illustrated and commended also for old congenital luxation of the hip joint, fracture of the femur with extreme dislocation, and in limb-lengthening measures.

Beiträge zur klinischen Chirurgie, Tübingen

1922, **126**, No. 2-3, Kraske Festschrift

*New Lines for Cancer Research. P. Meisel.—p. 337.
Case of Carcinoma of Small Intestine. A. H. Hofmann.—p. 383.
Ascarids Obstructing Common Bile Duct. W. Kauert.—p. 387.
Pathogenesis of Chronic Gastric Ulcer. T. Armbruster.—p. 390.
*Transgastric Excision of Gastric Ulcer. M. Stenglein.—p. 400.
Localization of Projectiles by Meisel's Method. Zwiffelhoffer.—p. 416.
Mathematical Drawings from Roentgenograms. E. Leiner.—p. 426.
Two Rare Congenital Deformities. Deeg.—p. 429.
Traumatic Formation of New Bone Tissue. Weglen.—p. 432.
*Combined Prostatectomy. A. Läwen.—p. 445.
Etiology of Köhler's Disease of Metetarsal Bones. Axhausen.—p. 457.
Allergy from Surgical Standpoint. E. Melchior.—p. 479.
*Esophagoplastics. G. Lotheissen.—p. 490.
Ratio of Macroscopic and Microscopic Gastric Cancers. Volkmann.—p. 550.
Motor Function After Operations on Stomach. O. v. Dehn.—p. 555.
Ascarids in Esophagus and Biliary Apparatus. A. Reich.—p. 560.
Surgery for Injury of Liver. R. Reichle.—p. 601.
Anatomic Bases for Resection of Liver. E. Martens.—p. 620.
Experimental Roentgenization of Pituitary. H. Rahm.—p. 642.
Cysts of the Thyroglossal Duct. G. R. Boss.—p. 658.
Deformity After Resection of Children's Knees. A. Nussbaum.—p. 662.
Operative Treatment of Fracture of Patella. E. Staffel.—p. 697.
Schlatter's Disease as a Constitutional Anomaly. F. Mandl.—p. 707.
Spontaneous Dislocation of Wrist. H. Burckhardt.—p. 714.

New Routes for Cancer Research.—Meisel refers to efforts to induce the precancer changes by occluding arteries and veins or by other methods to reduce the nourishment of the region. He calls attention in particular to injection of acetone-celluloidin as a means for studying conditions better.

Transgastric Excision of Callous Gastric Ulcer.—Stenglein relates that two died in the fourteen cases reported; one from embolism the nineteenth day, the other from the injury of the heart from the anesthetic. In five cases the symptoms returned, and in one case, at least, there was recurrence of the ulcer.

Combined Prostatectomy.—Läwen extols the advantages of operating both through the perineum and through a suprapubic incision.

Reconstruction of the Esophagus.—Lotheissen refers to plastic operations in which the stomach is drawn up to make the new esophagus. He tabulates a total of 44 plastic operations for stenosis of the esophagus which were not completed and 45 cases that were completed. The jejunum was used in 25 and 34 cases in these groups, and the stomach in 17 and 4. The plastic operation was undertaken for cancer in 41 cases but was completed in only one case, and this patient died not long after. The total is thus 130 cases. He has applied the stomach method in 4 cases of stenosis from lye, and reports success in 2 of them. The stomach answered the purpose well in all, and he is thus responsible for 2 of the 3 permanent successes with this method out of the 19 in which it has been applied. He also reviews his experience and that of others with other methods.

Deutsche medizinische Wochenschrift, Berlin

July 14, 1922, **48**, No. 28

Protoplasma Hysteresis in Relation to the Rejuvenation Problem. V. Ruzicka.—p. 931.
*Treatment of Bite Wounds by Rabid Animals. Baumgarten.—p. 932.
*Finsen Baths in Tuberculosis of Larynx. O. Strandberg.—p. 935.
Effect of Inactivation by Heat on Guinea-Pig Complement and Human Serum. P. Hirsch and M. Liebers.—p. 936.
*Effects of Epinephrin on the Human Organism. Rothmann.—p. 936.
Perforated Gastric and Duodenal Ulcer from the Standpoint of Mortality. Wagner.—p. 937.
Various Positions of the Appendix. A. H. Hofmann.—p. 939.
*Cullen Sign in Diagnosis of Extra-Uterine Pregnancy. J. P. zum Busch. —p. 941.
Appendicitis and Gonorrhea in Relation to Salpingitis and Ovaritis. W. Förster.—p. 942.
Surgery of the Wrist and Hand. G. Ledderhose.—p. 943.
Technic and Diagnostic Value of Urinalysis. L. Casper.—p. 944.

Local Treatment in Rabies.—Baumgarten deplores the frequent tendency to neglect energetic treatment of the portal of entry of the rabies virus. It is well not to rely entirely on the antirabic vaccine but apply to the wounds the necessary prophylactic treatment, the most efficacious being for the patient to suck out the poison himself or have some one do this for him. To be effectual this has to be done very soon after the injury. According to Bollinger, fluid corrosives are better than the actual cautery as thereby all recesses of the wound are reached. Excision of the infected area, followed by cauterization, may still be regarded as effective. He deprecates the superficial use of a silver nitrate pencil. He emphasizes that when the bite is on the head antirabic vaccine may fail to establish immunity, and for this reason some antirabic institutes repeat the course of treatment. The experience at the Robert Koch Institute in Berlin has been that the percentage of late fatal cases is not thereby lessened.

Treatment of Tuberculosis of the Larynx with Finsen Light Baths.—Strandberg (Copenhagen) describes the technic and the excellent results of Finsen light baths in the treatment of tuberculosis of the larynx, tuberculous otitis media, tuberculous and other osteitis ossis temporalis, and lupus of the nose, mouth, pharynx and larynx. The whole body is subjected to irradiation with unconcentrated electric light. For sitting patients they use in the Finsen Institute in Copenhagen a room with floor space of 5.4 by 7 meters and a ceiling 4 meters high. As a protection to the eyes the walls are painted a dark blue. Two large carbon arc lights with no shade whatever are suspended 1.25 meters above the floor. The lamps have an amperage of 75, the usual voltage of the continuous current being from 50 to 53. Only a continuous, never an alternating, current is employed. From six to eight patients may be treated at once under two such arc lights. The patients change their position frequently in order that the different portions of the body may be reached by the rays. They sit as near to the light as the heat will permit—about a meter distant—and are entirely nude. Goggles are worn to protect the eyes. For recumbent patients three arc lamps of 20 amperes each are used. The lamps are suspended in a row and a patient may recline on either side, parallel with the lights, only two being accommodated at a time. For cachectic patients or in laryngeal tuberculosis, the first baths are for ten or fifteen minutes, increasing the time until the full period, which is here two and a half hours, has been reached. The light baths are given every other day. In some cases a bath every day might be better. Although a few patients are not materially benefited, about 50 per cent. are cured, if they take the full treatment. Recurrences may occur in some cases.

Epinephrin Tests in Differential Diagnosis. — Rothmann urges study of the variations in the blood pressure after intravenous injection of a weak solution of epinephrin as a valuable means for insight into the nature of nervous and other affections. He advises the plethysmograph as the simplest means for comparison of the effects.

Diagnostic Import of Discoloration of the Umbilicus.—Zum Busch reports the case of a woman of 60 with an ovarian cyst, which on removal proved to be much larger than a man's head. There was no intra-abdominal hemorrhage, and yet he noted a bluish-green discoloration of the umbilicus region closely resembling the discoloration illustrated in Cullen's article on the subject. It is therefore demonstrated that Cullen's sign is not always evidence of intra-abdominal hemorrhage, much less of an extra-uterine pregnancy.

Deutsche Zeitschrift für Chirurgie, Leipzig

July 1922, **172**, No. 1-4. Dedicated to G. Pommer

*Gastric, Duodenal and Peptic Ulcers. H. v. Haberer.—p. 1.
*Gallbladder Operations without Drainage. Haberer.—p. 78.
*Operative Treatment of Perforated Ulcer. E. Paul.—p. 94.
*Gastro-Enterostomy for Ulcer. O. Maier.—p. 117.
Hard Ulcer plus Primary Cancer in Stomach. S. Mitterstiller.—p. 152.
Experimental Fatty Degeneration of Kidney. O. M. Chiari.—p. 161.
Three Unusual Tumors. K. v. Dittrich.—p. 178.
*Microscopic Findings in Bone Cysts. F. J. Lang.—p. 193.
*Operative Treatment of Fracture of Humerus. W. Pfanner.—p. 211.
Fracture of Clavicle. W. Pfanner.—p. 217.
Treatment of Exophthalmic Goiter. H. Czermak.—p. 235.
Suprarenalectomy in Treatment of Epilepsy. O. M. Chiari.—p. 244.
Tympanism of Bladder. W. Pfanner.—p. 247.
Brain Disturbances After Ligation of Artery. H. Czermak.—p. 253.
Electric Excitability After Protein Therapy. O. M. Chiari and Gamper. —p. 265.

Gastric, Duodenal and Peptic Ulcers.—Haberer publishes here six lectures on this subject delivered by special invitation at two Spanish universities. His statements are based on 1,156 operative ulcer cases in which he has operated at Innsbruck. The group of resection cases comprises 810, with 71 pyloroplasty cases and 275 gastro-enterostomies. In his last 400 cases of gastric or duodenal ulcer, the ulceration was multiple in 145, sometimes in both stomach and duodenum. In one case he found thirty ulcers. In another there was a large ulcerating carcinoma of the pylorus with a hard ulcer in the lesser curvature. This was of several years' standing and the carcinoma was of recent development. Smooth recovery followed the resection. The mortality after resection in his later cases has been scarcely over 2 per cent. He never had a peptic ulcer develop after resection in a total of 810 cases, but 12 postoperative peptic ulcers were known in 71 pyloroplasty operations and in 3 of 275 gastro-enterostomy cases. In one case the interval was eight years. He has not had a peptic ulcer develop since he abandoned pyloroplasty, but he has operated in 30 cases for peptic ulcer after operations by other surgeons. He makes a point of resecting the excluded pylorus in these cases.

Cholecystectomy Without Drainage. — Haberer has been able to suture the abdominal incision at once, without drainage, in seventy-seven cases free from infectious complications, and there were no disturbances for which his immediate closure of the abdomen could be held responsible.

Perforated Ulcer.—In Paul's twenty-seven cases, the upper abdomen was drawn in, the depression shaped almost like a canoe, in all but three cases. There was pronounced and diffuse peritonitis in every case, but the patients recovered after resection except those practically moribund. Reexamination later showed better results after resection than after suturing the perforation plus gastro-enterostomy, while these indirect methods expose to danger of peptic ulcer. The decision as to choice of treatment should be based on the general condition rather than on the number of hours that have elapsed.

Disadvantages of Gastro-Enterostomy for Ulcer.—Maier cites some recent publications which demonstrate that a recent ulcer can become transformed into a chronic hard ulcer notwithstanding treatment by gastro-enterostomy; also that an established hard ulcer may persist unmodified by a gastro-enterostomy, and that the latter is powerless to prevent the recurrence of the ulcer and its perforation later. In Kreuter's 504 cases of gastro-enterostomy, malignant disease developed later in 7 cases. A relaparotomy is often necessary after gastro-enterostomy even without a peptic ulcer. In 15 of Maier's 20 relaparotomy cases the pylorus was found still patent; in 4 of these the pylorus had been supposedly closed. In 7 of the cases the ulcer had persisted apparently unmodified by the gastro-enterostomy during the seven weeks' to eleven years' interval. This and other palliative operations are liable to be followed by peptic ulcer. The verdict is thus decidedly unfavorable for gastro-enterostomy as treatment for gastric ulcer.

Cysts in Bones.—Lang's microscopic studies confirm that a traumatic hematoma is the first factor in the development of a solitary cyst in a bone.

Fracture of the Humerus.—Pfanner gives an illustrated description of a case of fracture just above the condyle in which he utilized the extensive callus that had formed, twisting it around and using it to bridge the gap of 5 cm. The lower end of the central stump had developed osteomyelitis and atrophy compelling resection. The elbow joint was not molested nor the distal epiphyseal cartilage. The periosteum had separated from the shaft, and this had entailed the redundant growth of callus.

Jahrbuch für Kinderheilkunde, Berlin

August, 1922, **99**, No. 2-3

*Epituberculous Infiltration of Child Lung. B. Epstein.—p. 59.
*Special Features of the Newly Born. B. Herzfeld.—p. 75.
*Endogenous Infection and Immunity in Infants. A. Adam.—p. 86.
Intestinal Flora and Intestinal Functioning. A. Adam.—p. 93.
*Acid Content of Urine During Tetany. P. György.—p. 104.
*Influence of Food on Urine in Infants. P. György.—p. 109.
*Influence of Hormones on Metabolism. H. Vollmer.—p. 133.
*Growth Pallor. II. K. Benjamin.—p. 147. Cont'd.

Epituberculous Infiltration of Child Lung.—This term has been applied to the condition in which there seems to be extensive pulmonary tuberculosis in children up to 3 years old, and yet the children recover. Roentgenoscopy shows an even, heavy shadow of the entire upper lobe, but the children's health seems very little impaired for months, and they finally recover. Necropsy after death from intercurrent disease has not cleared up this condition. A case is described in detail with illustrations in which necropsy showed that the infiltration was unmistakably tuberculous, and a primary tuberculous focus was found in the upper portion of the superior lobe. Enlarged bronchial glands on the same side are a constant finding. It is evident that a true tuberculous process in very young children—possibly with scanty tubercle bacilli—can run a mild, localized course under the clinical picture of an epituberculous infiltration. It calls for treatment like any tuberculous affection, and this should never be neglected so long as it is impossible to distinguish positively between a tuberculous and epituberculous infiltration. Possibly artificial pneumothorax might be indicated. At necropsies, the primary focus should be sought, and its relation to the epituberculous infiltration by pressure on a bronchus, atelectasis, etc.

The New-Born Child.—Herzfeld discusses the peculiarities of the newly born in respect to weight, temperature and jaundice. His experiences at Riga have convinced him that if there is any period of asphyxia during the expulsion stage, so that the child swallows the mixed vaginal and amniotic fluids, jaundice almost inevitably follows. Decomposition of the lochia is always noted in cases of this kind, although the woman may not show any other signs of morbidity. The vaginal bacteria are not virulent enough to affect the mother, but they induce jaundice when swallowed by the infant; there is almost always slight fever with the jaundice. He treats the infant with jaundice, therefore, with systematic purging and reduces the intake of breast milk, shortening the feedings and allowing only four instead of five. This explanation of icterus neonatorum as a "swallowing jaundice" throws light on the larger proportion of cases among the first-born. It also emphasizes the necessity for clearing out the mouth at once to prevent the swallowing; omitting this, he has had jaundice develop unfailingly. He clears out the mouth by aspiration with a soft catheter, warning against the danger of injuring the mucosa when the mouth is swabbed out with cloth and finger. This does not clear it completely, even at the best. He reiterates in conclusion that the liver is not to blame for icterus neonatorum, and that the more skilful the management of the delivery, the rarer the icterus.

Endogenous Infection and Immunity.—Adam explains that the freedom from bacteria of the small intestine is due to both a purely physiologic and a biologic immune process in young infants.

Elimination of Acid in Infants' Urine.—György discusses the influence of tetany and also the influence of the carbohydrates and fat of the food on the elimination of acid in the urine of infants, and the action of the buffer system.

Influence of Hormones on Intermediate Metabolism.—Vollmer fed or injected thyroid, parathyroid, suprarenal, thymus, pituitary or ovarian preparations in a large number of infants, and tabulates the metabolic findings thereafter. The research was done during the winter and stopped with the opening of spring as the metabolism is always speeded up during the early days of spring. The elimination of acid in the urine was reduced by all these treatments except parathyroid treatment, which increased it. He assumes from this research that all these organs, except the parathyroids, stimulate the metabolism, while the parathyroids depress it. This sustains the importance of the endocrine system in the pathogenesis of rachitis and tetany. A pathogenetic connection is further sustained by the hormonal spring crisis of the two diseases. The exogenous factors of each may influence the endogenous factors further. Tetany is liable when the metabolism tends to alkalosis; rachitis, when the trend is to acidosis.

Growth Pallor.—In this second communication, Benjamin discusses the changing proportions of the growing child in their effect on cardiovascular functioning, etc. He remarks that the greatest progress realized in the last thirty years in our knowledge of the physiology of the circulation is that the Fick law of muscular contraction has been found to apply to the muscle fibers in the heart as well as to striated muscle. He emphasizes that the growth in length of the heart fibers is as important as the growth in thickness.

Monatsschrift für Geb. und Gynäkologie, Berlin

July, 1922, **58**, No. 3-4

The Migration of the Ovum. E. Zweifel.—p. 119.
Development of Interstitial Gland. W. Lahm.—p. 128.
Etiology of Suppuration in the Symphysis. Benthin.—p. 141.
Rupture in Cesarean Section Scar. P. Schugt.—p. 146.
Management of Extra-Uterine Pregnancy. O. Khoór.—p. 154.
*Interrupted Tubal Pregnancy. K. Fink.—p. 166.
*Artificial Vagina from Intestine; Two Cases. Rosenstein.—p. 176.
*Laparotomy for Myoma. S. v. Wachenfeldt.—p. 184.
Cure of Chorio-Epithelioma Under Roentgen Rays. H. Naujoks.—p. 189.
*Actinomycosis of Female Genitals. E. Huffer.—p. 197.

Intratubal Termination of a Tubal Pregnancy.—Fink asserts that tubal pregnancy is probably more common than we imagine, the ovum dying and its elements being more or less completely resorbed. He describes some typical instances showing the variety of the modes in which a tubal pregnancy may thus be spontaneously terminated.

Artificial Vagina.—Rosenstein reports a second case in which a vagina was made from a loop of intestine. He adds that recent reexamination of his first case has confirmed the reliability and value of this method of making a new vagina.

Laparotomies for Myoma.—This fourth series brings to 700 the number of laparotomies for myoma at the Lund gynecologic clinic. The operative cases formed 42.8 per cent. of the total myoma material, and the uterus was removed in 98; supravaginal amputation was done in 537 and in 36 cases the myoma was enucleated and in 29 the pedicle was cut. Malignant degeneration occurred in 6 cases; all were sarcomas.

Actinomycosis of Female Genitals.—Huffer adds one more case to the records of actinomycosis of the uterus. His patient was a woman of 40 who had borne twelve children. The last delivery was two months before the actinomycosis was discovered and the uterus removed. The left ovary and tube seemed to be normal.

Münchener medizinische Wochenschrift, Munich

July 14, 1922, **69**, No. 28

Encephalitis and Postinfluenzal Encephalopathy. R. Jaksch-Wartenhorst. —p. 1033.
Antibody Studies in Tuberculosis. H. Heinemann.—p. 1035.
Droplet Infection in Tuberculosis. G. Seiffert.—p. 1038.
Recoverability of Impaired Function of Cerebrum. Von Mayendorf.—p. 1040.
Theory of Parenteral Protein Therapy. B. O. Pribram.—p. 1041.
*Freezing Point of Blood in Gastric Ulcer. Hofmann.—p. 1042.
Character of Cellular Immunity in Relation to Predisposition to Disease. A. Theilhaber.—p. 1044.
An Epidemic of Icterus. O. Beyreis.—p. 1044.
*Petruschky and Ponndorf Tuberculin Treatment of Tuberculosis. E. Hofmeister.—p. 1047.
Report on Sixty-Five Twilight Sleep Births. M. Werner.—p. 1049.
Metapneumonic Gluteal Abscess. W. Stoye.—p. 1050.
Case of Acute Articular Rheumatism Beginning in Larynx. H. U. Ritter.—p. 1051.
When and How to Treat Heart Pains. Grassmann.—p. 1052.

Freezing Point of the Blood with Gastric and Duodenal Ulcer. — Hofmann presents this preliminary report on the results of his investigations. The blood was obtained from patients, in almost every instance, at the time of operation. The findings ranged commonly between —0.50 and —0.60 C. In 15 cases of gastric ulcer he found two normal values of —0.56 C. He found in the 15 duodenal ulcer cases five normal values. In 10 cases he found abnormal values ranging down to —0.60 C. and up to —0.51 C. Similar variations were found in 13 cases of carcinoma and in 5 cases of perforated ulcer. In one case of perforated ulcer that resulted fatally the freezing point was —0.87.

Tuberculin Treatment of Tuberculosis by the Percutaneous and Scarification Methods.—Hofmeister reports that he has employed the Petruschky and the Ponndorf tuberculin methods in nearly 2,000 cases and he has never noted any injuries whatsoever resulting therefrom. With the exception of from 20 to 30 cases, an improvement in the patient's condition was noted. Systematic heliotherapy applied to various parts of the body was found to be an excellent aid in the treatment. He is convinced that the success of both the Petruschky and the Ponndorf methods is due solely to the action on the skin, and expresses the hope that before long the skin will be recognized and used as the chief organ of defense against infectious diseases in general.

Zeitschrift für Krebsforschung, Berlin

Aug. 10, 1922, **19**, No. 1

*Comparative Histology of Basaliomas. E. Krompecher.—p. 1.
Case of Primary Cancer of Bronchial Mucosa. K. Gutzeit.—p. 30.
*Tar Cancer. H. Jordan.—p. 39.
*The Anamnesis with Mammary Cancer. A. Simons.—p. 56.
Cancer Problems from Standpoint of Immunity. W. Caspari.—p. 74.
Physical Chemistry of Carcinoma. N. Waterman.—p. 101.

Basal Cell Tumors.—Krompecher states that the basal cell umors form a group apart as distinct as the adenomas, fibromas, acanthomas (prickle-cell tumors), lipomas, etc. The basaliomas may be of benign or malignant nature. The group includes multiple tuberous epitheliomas, cystic adenoid epitheliomas, the multiple basaliomas of the scalp, the single basaliomas of the face region, and basal cell cancers.

Occupational and Experimental Tar Cancer.—Jordan comments on the fact that the mechanical injury from coal dust does not induce cancer while there is no mechanical injury from coal tar, with which cancer is common, as also with soot. He reports that coal tar induced cancroids in four months in 100 per cent. of the white mice he treated with it. The residue of the tar after distillation induced production of the precancerous condition in half the time required for the whole tar.

Mammary Cancer.—Simons states that in 231 women and four men with mammary cancer from two to five years or more had elapsed since the tumor was first noted in 50.2 per cent. of the cases. There was recurrence after the operation in ninety of the 134 given radical treatment, and this included from 50 to 71.4 per cent. of those who had allowed such a long interval to elapse before they had applied for treatment.

Zeitschrift für Urologie, Leipzig

1922, **16**, No. 7

*Blood-Borne Disease of the Kidneys. Schlayer.—p. 297. **Conc'n.**
*Surgery of the Kidneys. A. v. Lichtenberg.—p. 301.
*Progress in Disease of the Bladder. Ringleb.—p. 308.
Tuberculin in Urologic Diagnosis. W. Karo.—p. 316.
Nephrolithiasis with Spondylarthritis plus Ankylosis. Israel.—p. 321.

Blood-Borne Kidney Disease.—Schlayer reviews the progress of the last ten years in this line. Nothing is known absolutely as yet as to the connection between high blood pressure and the kidneys. There is no evidence that a chemical agent is responsible for the high blood pressure, but testimony is accumulating that the kidneys may be responsible for it in various ways. It may develop further during anuria of mechanical origin, the outflow itself being apparently concerned in it. Anuria from clamping or otherwise shutting off both renal arteries does not raise the blood pressure. The war forced every physician to study the problems of the internal pathology of the kidneys. The danger is that certain things which are by no means fully established we are inclined to accept as absolute facts. Another danger is that in our zeal for classification we are crowding with more or less force each case of nephritis we encounter into the frame in which we think it should fit. He reiterates that, in the strict sense, "there are no kidney diseases, only persons with diseased kidneys." The great progress of the last ten years is mainly in the fact that instead of regarding merely the kidney alone we study the relations between them and the entire organism as the main problem.

Progress in Surgery of the Kidneys.—This and the preceding article were read at the tenth anniversary meeting of the Berlin Urologic Society. Lichtenberg emphasizes the present trend to be more conservative in operating, especially with hydronephrosis. Decapsulation of the kidney is a purely symptomatic measure. The indications for it and what to expect from it are questions for the future to decide. In eclampsia, it is still a question whether the cases with and without necrosis of the kidney cortex differ qualitatively. We are able now to detect infection of the calyx system in an early stage, and combat it by conservative operative measures, before the parenchyma is seriously involved. We have also learned that menacing infection of the kidney pelvis may harmlessly subside when we have cured or cut out the primary bacterial focus elsewhere. At present it is impossible to save a tuberculous kidney. The progress in this line has been in the earlier differential diagnosis, and he remarks that this has been much facilitated by sacral anesthesia to allow investigation of the irritable bladder in tuberculosis of the urinary apparatus. The causes and conditions entailing calculi in the kidneys are still unknown, and in about 10 or 15 per cent. of the cases there is recurrence of the lithiasis after removal of the calculi. This figure is probably too high, as in some cases existing concretions may have been overlooked, or fragments left. The indications with a calculus in the kidney may be regarded as the same as with a gallstone in the gallbladder or cystic duct; a calculus in the ureter, the same as one in the common bile duct. To wait for six months is decidedly risky. The malignancy of tumors in the kidneys is probably due to their being past the operable stage when first differentiated. Hematuria does not occur at any stage in more than 40 per cent. of the cases. The changes in the roentgen outline of the kidney pelvis and the displacement of the ureter are valuable aids in detection of the tumor. Most of the clinical symptoms, objective and subjective, are alike in all forms of kidney disease, and this uniformity of the clinical manifestations and the alternation of acute phases with silent periods are very baffling, and mislead both the patient and the physician to allow valuable time to slip past. It is in this line that we must make further progress.

Progress in Diseases of the Bladder.—Ringleb remarks that the war experiences seem to have settled that enuresis is a purely functional affection. He accepts that there are four centers in the brain cortex that govern bladder functioning: one, sensory, that perceives the pressure from the urine; a motor center that governs the relaxing of the sphincter, and another that governs its contraction, and, finally, a center in the frontal lobe which controls the above three centers. These bladder centers are symmetrically arranged in both hemispheres, and a functional neurosis may affect any one or all of the links in the chain. In treatment of disease of the urinary passages, antiserums and vaccines have displayed noteworthy results when the infecting agents have invaded the deeper tissues; processes in the epithelium yield better to local measures. Further progress has been with tuberculin treatment after an operation on the tuberculous bladder. He mentions as special progress the method of treatment by injection of calomel in oil into the bladder while potassium iodid is being taken internally. He has treated numbers of patients in this way, under careful cystoscopic control. He adds that not enough heed is paid to the danger of contagion from persons with vesical tuberculosis scattering tubercle bacilli by their abnormally frequent micturition.

Some have reported excellent results from heliotherapy in the painful tenesmus of vesical tuberculosis. Others have reported success with radiotherapy; several have reported good results in tuberculosis and cancer, but no absolute cures have been reported. Among the various methods for correcting exstrophy of the bladder he calls attention to the advantages of Lengemann's modification of Makkas' technic. The new bladder is formed from the entire ascending colon, cecum and a 30 cm. stretch of the ileum. The ureters with the trigonum are implanted in the cecum shut off completely from the passage of fecal matters. The appendix is used for the outlet for the urine. There is no traction or tension, and with this extraperitoneal procedure the operative risk is minimal. By excluding the entire ascending colon there is no back-stagnation of feces. Verhoogen applied a procedure something like this for cancer of the bladder. Fink and Roloff have further modified it. Schloffer made an artificial anus in a boy of 16 to correct exstrophy of the bladder, and closed the distal sigmoid flexure below. Three weeks later he united the bladder and the rectum, and drew up and sutured together the walls of the bladder so far as possible. Ringleb says of prostatectomy, "The consensus is still in favor of the suprapubic route, notwithstanding Voelcker's interesting method." (It was described in The Journal, Feb. 12, 1921, p. 487.) Progress has been realized in the construction of the cystoscope and its management.

Hospitalstidende, Copenhagen

July 5, 1922, **65**, No. 27

*Acute Poliomyelitis in Adult. K. Winther.—p. 429. Conc'n.

July 12, 1922, **65**, No. 28

*Chronic Alcoholism. E. J. Larsen.—p. 445.
*Recent Research on Ascaridiasis. V. Jensen.—p. 457.

July 19, 1922, **65**, No. 29

Gregor Mendel's Work. O. Thomsen.—p. 461.

Acute Poliomyelitis in Adult.—In Winther's case the clinical picture was entirely that of an extremely acute and grave Landry's paralysis. The case was sporadic, and the man died in eighteen hours after the onset of the paralysis. The paralysis was descending, the result of destruction of the cells governing motor function of the respiratory muscles.

Chronic Alcoholism.—Larsen was unable to find anything suggesting dysregulation in eleven cases of chronic alcoholism, including four with Korsakoff's psychosis. With genuine epilepsy, dysregulation is constant and pronounced. This difference in the metabolic findings seems to exclude any direct connection between alcoholism and a predisposition to epilepsy in the descendants. The degeneracy which predisposes to abuse of alcohol seems to be of another nature from that which predisposes to epilepsy. By "dysregulation" he means an inability to maintain the normal neutrality balance.

Recent Research on Ascarids.—Jensen refers in particular to Fülleborn's demonstration of living ascarid larvae in ascarid ova kept in liquor formaldehydi for four or five years. He reproduces one of Fülleborn's illustrations showing an ascarid larva in a blood vessel, the larvae making the round from bowel to lung in the blood vessels, and thence to the throat and the digestive tract. In the latter the sexual phase takes place. This migration of ascarid larvae has been traced in guinea-pigs but not in man as yet. Yoshida found the larvae in a scrap from a guinea-pig's lung, and seventy-five days later ascarid ova were numerous in the feces.

Ugeskrift for Læger, Copenhagen

July 27, 1922, **84**, No. 30

*Hermaphrodism. K. Sand.—p. 921.
Experimental Nystagmus. LXXXI. R. Lund.—p. 934.
Colloidoclasis, Especially in Asthma. S. Jørgensen.—p. 943.
*Arrhythmia Treated with Quinidin with Fatal Outcome. L. Holm.—p. 955.

Hermaphrodite Problems.—The child of 10 was assumed to be female at first, and then the male sex was supposedly recognized and the child was brought up as a boy. Certain feminine traits aroused apprehension then, and an exploratory operation was done. Even this failed to decide the question of the sex, as on one side the sexual gland seemed to be a testicle and on the other side it seemed to be an ovary. Each corresponded to an early fetal structure. Whether to remove the sexual gland on one side or the other is the question, and it has been decided to temporize. Puberty may reveal a decided trend to one sex, and then removal of the other sexual gland, gland grafting and plastic operations can be considered. In all such cases, Sand remarks in conclusion, the greatest caution and foresight are imperative before interfering in any way. We must not forget the danger of any arbitrary uprooting of deep seated tendencies.

Continuous Arrhythmia with Fatal Ending After Quinidin.—Holm gave quinidin to a woman of 55 who had been in the hospital for two months seeking relief from digestive disturbances from extreme gastroptosis. The arrhythmia was extreme, the pulse 180, and the patient was very nervous. She was given quinidin during one week, and the heart action became regular; the pulse gradually declined to 74, and the patient felt well and lively. Nine days after the last dose of quinidin there was sudden fatal collapse. No symptoms of failing compensation had been observed, and necropsy showed the auricles much dilated. No thrombosis. Holm queries whether the quinidin might have inhibited the functioning of the auricles.

Aug. 17, 1922, **84**, No. 33

*Urine Findings in the Tuberculous. J. Paludan.—p. 1036.
Serotherapy in Pneumococcus Sepsis; Recovery. A. Nyfeldt.—p. 1044.
*Hydronephrosis from Abnormal Renal Vessel. S. Hansen.—p. 1047.

Urine Findings in the Tuberculous.—Paludan states that albuminuria was found in 143 of the 2,787 tuberculous patients at the Silkeborg sanatorium. In 132 in this group the albuminuria was evidently due to toxic action from the tuberculosis. In 214 free from any signs of kidney disease tube-casts were found in 72 per cent., and the urine of 62.6 per cent. contained red blood corpuscles. The percentage of cases with tube-casts and microscopic hematuria increased in the advanced stages of the disease, and the same proportional increase was evident in the numbers of casts and of erythrocytes. He ascribes them to the toxic action of the tuberculous toxins.

Hydronephrosis from an Abnormal Blood Vessel.—The hydronephrosis was a necropsy surprise, the woman having died from sarcomatosis. The left kidney was enormous, and a branch of the renal artery and of the vein formed a cord lifting up the ureter. When this cord was cut the ureter straightened out. Such cases confirm the possibility of conservative treatment of hydronephrosis. No instance is known of infarction or necrosis following such an operation. The possibility of a supernumerary vessel should always be borne in mind in operating on the kidney for any cause.

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NITROGEN RETENTION IN CHRONIC INTERSTITIAL NEPHRITIS AND ITS SIGNIFICANCE *

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Facing the problem of kidney function, we are accustomed to consider mainly the purely excretory function in the strictest sense of the word; that is the passing over of a definite substance from one side of the kidney filtrum, from the blood, to the other side, the urine. This is equally true in health and in disease, and it forms the basis for most of the work hitherto carried out.

It must be remembered, however, that the kidney is not only a filtration apparatus but it acts also as a delicate chemical laboratory. Schmiedeberg,[1] in 1876, discovered the synthesis of hippuric acid from glycocoll and benzoic acid as a function of the kidney. According to the present day conception, this synthesis is not localized exclusively in this organ. It is interesting to note that this process as a kidney function test has recently been drawn into the field of clinical research, by Kingsbury.[2]

Another important chemical function necessarily localized in the kidney is the regulation of the reaction of the urine. From the constant slightly alkaline plasma, a urine is extracted which, compared with the plasma, may have in one hour a considerable alkalinity, and in another hour an even more marked acid reaction. The interesting point here is that when the urine is formed we have a change from the buffer system of the blood, the bicarbonate-carbon dioxid system, to a quite new buffer system of the urine, the phosphate mixture system. Benedict's [3] hypothesis concerning the ammonia formation in the kidney may be looked on from a somewhat related point of view.

We know very little about how these interesting processes of the kidney are affected in acute and chronic nephritis. In spite of pioneer work by Michaelis, Palmer and Henderson, and Peabody, carried out on twenty-four hour urines mostly, this field has not yet proved mature for clinical studies. First, we need to have the physiologic side of the problem thoroughly worked out. Moreover, there is little reason to believe that our knowledge of further chemical processes occurring in the kidney will not be increased in the future.

Returning to what I may call the purely excretory function of the kidney, we know that, among the main branches of metabolism, the kidney is engaged chiefly in removing the end-products of the protein metabolism. As far as the nitrogen elimination is concerned, we are dealing with, clinically, the most extensively and the most successfully studied field of kidney function. The removal of the end-products of protein metabolism includes, of course, the excretion of salts. When I mention especially the elimination of sulphates, it is only to point out that we here meet again a chapter on kidney function, the study of which, in pathologic conditions, is practically untouched.

While dealing with these as yet relatively little or not at all studied phases of kidney function, let me point out that it is not only in the diabetic person that the kidney is engaged in the excretion of products from the carbohydrate metabolism; on the contrary, in the glycuresis following every mixed meal, everybody excretes a little of unusable sugars and even polysaccharids. How these compounds are taken care of in cases of badly impaired kidney function, we certainly do not know—just as we do not know the significance of the high blood sugar level without diabetes, frequently reported in similar cases.

THE NITROGEN RETENTION

As a diagnostically and prognostically valuable phenomenon, only the disturbances in nitrogen elimination have yet been fruitful. In cases of nephritis, it was, of course, most natural to study nitrogen retention in the same medium in which you studied casts and output of albumin; but the tedious affair of a classic metabolic experiment covering from eight to fourteen days, as pointed out by von Noorden [4] in 1892, excluded completely a more extensive use, especially in days when a metabolism ward in a hospital was a most rare finding.

In 1902, Strauss [5] determined the nonprotein nitrogen of the blood serum, boiling it with acetic acid for the removal of the proteins. His conception of the determined nitrogen is that of "retained nitrogen," a definition based rather on the pathologic than on the normal findings; and he proved, in an extensive study, the increase of the retained nitrogen in different stages and in different groups of nephritis. Strauss' figures for the normal content of the retained nitrogen have been, in the main, confirmed by later work with more perfect methods. This is not true for Strauss' figures for uric acid and ammonia.

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[1] Bunge, G., and Schmiedeberg, O.: Arch. f. exper. Path. u. Pharmakol. **6**: 233, 1876-1877.

[2] Kingsbury, F. B., and Swanson, W. W.: Synthesis and Elimination of Hippuric Acid in Nephritis, Arch. Int. Med. **28**: 220 (Aug.) 1921.

[3] Nash, T. P., Jr., and Benedict, S. R.: J. Biol. Chem. **48**: 463 (Oct.) 1921.

[4] Von Noorden, C.: Beiträge zur Lehre von Stoffwechsel **1**: 118, 1892.

[5] Strauss, H.: Die chronischen Nierenentzündungen, Berlin, Hirschfield, 1902; Berl. klin. Wchnschr. **39**: 536, 1902.

There seem to have been two different factors working together, causing a delay of more than ten years, before this important step, taken by Strauss really became practically fruitful in the clinic of the diseases of the kidney. First, the methods were fairly laborious; second, before the works of Löehlein, F. Müller and especially Volhard and Fahr, there was no satisfactory classification of the different types of chronic interstitial nephritis, no way out from a puzzling mix up of interstitial and parenchymatous nephritis, of chronic hypertension of quite different genesis.

The methodological improvements, at least in this country, are closely correlated to the work of Folin and Denis,[6] begun from a quite different point of view and for another purpose in 1912. The later rapid outgrow of Folin's [7] system of blood analysis up to the very latest months has finally made possible a fairly comprehensive survey of the nonprotein nitrogen in its different constituents, in both blood and plasma.

Therefore, it seems more practical to omit at this time—without any underestimation of a great amount of earlier important work carried out both in this country and abroad—any detailed dealing with earlier figures, and instead to present some figures recently obtained in Folin's laboratory.

TABLE 1.—NORMAL MINIMUM, MAXIMUM AND AVERAGE BLOOD CONTENT OF NONPROTEIN NITROGENOUS PRODUCTS (FROM TWELVE YOUNG MEN)

	Whole Blood per 100 C.c.				Plasma per 100 C.c.				Corpuscles per 100 C.c.			
After a Night's Fast	Amino-acid Nitrogen, Mg.	Urea Nitrogen, Mg.	Undetermined Residual Nitrogen, Mg.	Total Nonprotein Nitrogen, Mg.	Amino-acid Nitrogen, Mg.	Urea Nitrogen, Mg.	Undetermined Residual Nitrogen, Mg.	Total Nonprotein Nitrogen, Mg.	Amino-acid Nitrogen, Mg.	Urea Nitrogen, Mg.	Undetermined Residual Nitrogen, Mg.	Total Nonprotein Nitrogen, Mg.
Minimum............	5.7	8.9	10.1	27.8	4.3	9.6	1.8	18.0	6.7	7.7	18.3	37.7
Maximum............	7.8	15.2	17.5	39.4	6.2	17.3	11.5	30.0	10.7	13.2	33.8	55.0
Average............	6.4	11.5	13.7	32.1	5.3	12.4	6.7	24.7	8.2	10.3	24.7	43.6

THE NORMAL NONPROTEIN NITROGEN

Considering the nonprotein nitrogen of the blood or plasma from a chemical standpoint, we recognize at once that it consists necessarily of a mixture of quite different compounds. Our present day knowledge of the general course of protein metabolism permits us to divide this variety of compounds schematically into two groups: those engaged in the building up or maintenance of the organism, in the anabolic processes, and those which represent the final or perhaps even the intermediate stages of the catabolic processes.

TABLE 2.—THE PARTITION OF CREATIN AND CREATININ BETWEEN PLASMA AND CORPUSCLES (NORMAL MEN)

	Whole Blood per 100 C.c.		Plasma per 100 C.c.		Corpuscles per 100 C.c.	
Fasting	Creatin, Mg.	Creatinin, Mg.	Creatin, Mg.	Creatinin, Mg.	Creatin, Mg.	Creatinin, Mg.
Minimum............	...	....	0.5	....	...	....
Average............	3.5	1.16	1.6	1.17	6.1	1.17
Maximum............	...	....	3.0	....	...	....

The demarcation of the former group, the free amino-acids, in the direction upward to larger molecules of peptid character, is of course not absolutely sharp, and it depends on the way of carrying out the precipitation of the proteins. Among the more commonly used methods, the precipitation with tungstic acid, according to Folin and Wu, or with heavy metal salts, such as mercuric chlorid, gives the smallest amount of these higher compounds.

The compounds of the latter group, including the unusable end-products of protein metabolism, attract the greater interest from the point of view of kidney function. Besides the urea, of whose character the end-product there is certainly no doubt, the uric acid and the creatinin have especially been studied. Tables 1 and 2 contain normal figures alone. I shall deal briefly with each of the different compounds.

Before direct methods for estimating the amino-acids in blood were available, several attempts were made to estimate the amino-nitrogen fraction of the nonprotein nitrogen by subtracting the urea nitrogen from the total nonprotein nitrogen. The direct determination of the amino-acid nitrogen, consistently giving considerably lower figures both with the Van Slyke method and with the recent method of Folin, has proved the unreliability of this indirect method of calculation. The plasma figures for the amino-acid nitrogen, fairly constant in the morning after the night's fast, show a small increase after each protein-containing meal, an increase that, after a large dose of gelatin, for instance, is taken, can reach 100 per cent.

The urea nitrogen figures show a similar behavior, with a difference in time, that, from the standpoint of the course of deamination, is of considerable interest. The top of the increase of the urea nitrogen after a meal comes much later than the peak of the amino-acids, about five to seven hours after the meal is taken, and is accompanied by a rapid return of the amino-acids to the starting level.

Turning to the creatinin figures, an interesting question is: What do the normal figures for the preformed creatinin really mean? The normal figures are always, when pure picric acid is used and the determination is carried out within a couple of hours after the blood was drawn, very low, about 1.0 to 1.3 mg. per hundred cubic centimeters of whole blood or plasma. Considering that the composition of the undetermined rest of the nonprotein nitrogen is unknown—a conception that I will discuss later—it may, of course, be admitted that possibly other compounds than creatinin, even under the conditions used in the method, may reduce the picric acid.

Benedict [8] certainly applies this criticism to the limit when he denies the presence of any creatinin at all in the blood. It, however, seems doubtful whether such a question ever can be definitely settled by strictly chemical work; that is, by isolation and identification.

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[6] Folin, O., and Denis, W.: J. Biol. Chem. **11**: 89, 1912.

[7] Folin, O.: J. Biol. Chem. **51**: 377 (April) 1922.

[8] Behre, J. A., and Benedict, S. R.: J. Biol. Chem. **52**: 11 (May) 1922.

This easily brings up the question of the value and eliability of the present blood chemistry as a whole. The situation is here an interesting one. A few years go, a leading chemist (Abderhalden) still denied the resence of amino-acids in the blood, and at about the ame time the first reliable quantitative determination f the uric acid in blood (by Folin) created an epoch n the history of blood chemistry. Today, we are sing a comprehensive system and require methods ccurate enough for a summarizing of the different ompounds and a consequent comparison of the sumary with the total nonprotein nitrogen. We do not ven fear to calculate the amounts present in the orpuscles from the three factors: whole blood, plasma nd corpuscles volume; all this not only as a play: we re trying to use the figures obtained in this way for more intimate study of different physiologic and linical problems. In the stress so put on the chemical ethods, the physiologic experiment has been used nd must be used as an auxiliary remedy. This is just e situation concerning the blood creatinin. A few ich experiments are recorded in Table 3. The figures learly demonstrate that the taking of pure creatinin y mouth in doses of from 1 to 10 gm. is followed by fairly proportional increase of the creatinin in the lood, and this rise by a corresponding but less proortional increase of the creatinin output.[9]

ABLE 3.—THE INCREASE OF THE BLOOD CREATININ AND THE CREATININ OUTPUT AFTER TAKING CREATININ BY MOUTH (H. B., AGED 33 YEARS, WEIGHT 90 KG.)

Time	Experimental Condition	Blood Creatinin per 100 C.c., Mg.	Urine per Hour		Comment
			Volume, C.c.	Creatinin, Mg.	
2/20	Creatinin-free diet	1.04	75	81	A 72-minute urine sample belongs to each sample of blood
10/20	After 1 gm. creatinin by mouth	2.27	26	250	
/13/20	After 3 gm. creatinin, 1 *	2.5	29	427	
/13/20	After 3 gm. creatinin, 2	2.12	96	582	
/17/20	After 5 gm. creatinin	4.75	30	460	
/21/20	After 10 gm. creatinin, 1	7.9	52	830	
/21/20	After 10 gm. creatinin, 2	6.15	58	485	
/22/20	After 10 gm. creatinin, 3	2.14	23	102	

* The figures 1, 2, 3 indicate the number of doses in which the subtance was taken: in one dose, in two doses, in three doses.

The experiments do not, of course, give any definite nformation about the presence of creatinin in normal blood; but they prove, in a conclusive way, that creatinin is easily accumulated in the blood, in fact, much more easily than any other compound with which I have been working. The difference between creatinin and creatin in this respect is outstanding, as shown by a comparison with Tables 4, 5 and 6; and the same is true in comparison with amino-acids, sugars, chlorids, uric acid and even urea. The taking of only 1 gm. of creatinin by mouth, less than half of the amount normally excreted by the subject in the experiment in the course of twenty-four hours, sufficed to raise the blood creatinin 100 per cent., and 10 gm. of creatinin, corresponding to five days urine retention, increased the blood creatinin nearly 800 per cent. If the creatinin is to be considered as a definite end-product in the human organism that cannot be further metabolized, certainly there is no reason to doubt its accumulation in the blood in cases of impaired kidney function.

I have just mentioned the creatin. From a metabolic standpoint, it certainly belongs to the anabolic nonprotein compounds, just as it normally does not appear in the urine of the adult. Usually, in the papers, it is given together with the preformed creatinin as total creatinin. If we felt uncertain about the normal creatinin figures, we ought to be much more so about the creatin. We notice in Table 2 the much higher figures in the corpuscles than in the plasma; and, furthermore, we notice the considerable range of variation of the normal figures in the plasma.

TABLE 4.—INCREASE (LATE) OF THE PLASMA-CREATIN AND CORRESPONDING CREATIN OUTPUT CAUSED BY TAKING CREATIN (4 GM.), THE PLASMA-CREATIN REMAINING CONSTANT (MR. W., AGED 24, WEIGHT 70 KG.)

May 11, 1921	Whole Blood per 100 C.c.		Plasma per 100 C.c.		Corpuscles per 100 C.c.		Urine per Hour			Comment *
	Creatin, Mg.	Creatinin, Mg.	Creatin, Mg.	Creatinin, Mg.	Creatin, Mg.	Creatinin, Mg.	Volume, C.c.	Creatin, Mg.	Creatinin, Mg.	
10:55 a. m.	3.4	1.1	1.9	1.1	4.9	1.1	42	0	73	
11:00 a. m.	...	...	...	...	...	...	...	..	..	Took 4 gm. of crystalline creatin + 200 gm. of glucose + 600 c.c. of water
11:52 a. m.	3.7	1.0	1.9	1.1	5.7	1.0				
12:00 m.	...	...	...	...	...	...	83	0	81	
1:08 p. m.	3.4	1.1	1.9	1.1	5.1	1.1				
1:15 p. m.	...	...	...	...	...	...	288	0	86	
3:00 p. m.	3.8	1.2	2.3	1.2	5.5	1.2				
3:05 p. m.	...	...	...	...	...	...	44	29	82	
4:35 p. m.	3.8	1.1	2.6	1.2	5.3	1.1				
4:44 p. m.	...	...	...	...	...	...	33	63	87	
5:50 p. m.	3.8	1.1	1.9	1.1	6.4	1.1				
6:00 p. m.	...	...	...	...	...	...	28	35	77	

* Fasting; urinated at 9:01 a. m.

If we assume that creatin normally is present in the plasma to any appreciable extent, we need at the same time to assume the existence of a renal threshold for creatin, since it does not normally appear in the urine. The assimilation limit for creatin of the human organism is well known to be very low, even on a carbohydrate-rich diet being less than 4 gm. to an adult. A thorough examination of Tables 4, 5 and 6 will show, however, that the taking of pure creatin by mouth in doses of 4 gm. is sooner or later followed by an increase in the creatin figures of the plasma: the smallest appreciable increase of the creatin in the plasma is accompanied by a creatin output in the urine, and this does occur without any relationship to the absolute height of the "creatin" level.

These findings may be summarized thus: There is no reason to assume the existence of anything like a renal threshold for creatin but there is very much reason to doubt the presence of any creatin at all in the normal plasma of the adult.

Concerning the uric acid, finally, I think the chemical determination does give much safer information than physiologic experiments dealing with the relationship between the concentration in blood or plasma and the excretion in the urine. Through the preliminary precipitation process of Folin and Wu, a complete proof was gained that the figures obtained in the determination of uric acid in the blood really do mean uric acid. The equal value of later methods using direct determination, either by S. R. Benedict's new arsenic reagent or with the harmless original Folin and Denis reagent, is, therefore, proved by their correspondence with this earlier method. Depending on the behavior of the uric acid in pathologic conditions, the determination of uric acid has to be carried out on the plasma rather than on whole blood. I am not prepared today to give definite figures for the normal uric acid content of the plasma, but I believe about 4 mg. per hundred cubic centimeters of plasma may be given as the upper normal limit.

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[9] Calculations according to Ambard, made at the time of the experi- ents, gave a lower "constant" than the "constant" for urea. that ould have come out according to Ambard, and this "constant" showed nsiderable variations in the different determinations.

TABLE 5.—INCREASE OF THE PLASMA-CREATIN AND A CORRESPONDING CREATIN OUTPUT CAUSED BY TAKING CREATIN (4 GM.), THE PLASMA-CREATIN REMAINING CONSTANT (H. B., AGED 34, WEIGHT 90 KG.)

Time	Whole Blood per 100 C.c.		Plasma per 100 C.c.		Corpuscles per 100 C.c.		Urine per Hour			Comment *
	Creatin, Mg.	Creatinin, Mg.	Creatin, Mg.	Creatinin, Mg.	Creatin, Mg.	Creatinin, Mg.	Volume, C.c.	Creatin, Mg.	Creatinin, Mg.	
June 27, 1921:										
11:57 a. m.	...	...	...	...	...	...	26	0	89	
1:00 p. m.	3.8	1.1	0.5	1.2	8.2	1.1				
1:10 p. m.	...	...	...	...	...	...	...	..	..	Took 4 gm. of crystalline creatin + 200 gm of pure glucose + 500 c.c. of water
1:35 p. m.	4.2	1.1	1.2	1.2	8.4	1.1				
1:50 p. m.	...	...	...	...	...	...	40	0	101	
1:58 p. m.	3.8	1.2	0.9	1.2	7.9	1.2				
2:13 p. m.	...	...	...	...	...	...	36	0	103	
2:20 p. m.	4.4	1.2	1.4	1.2	8.5	1.2				
2:39 p. m.	...	...	...	...	...	...	52	18	166	
3:15 p. m.	4.7	1.2	2.3	1.2	8.5	1.2				
3:26 p. m.	...	...	...	...	...	...	35	77	103	
4:43 p. m.	5.3	1.2	2.8	1.2	9.2	1.2				
4:55 p. m.	...	...	...	...	...	...	35	168	109	
6:25 p. m.	4.6	1.2	2.3	1.2	8.1	1.2	...	...	...	Vegetable dinner at 7:30 p. m.
6:43 p. m.	...	...	...	...	...	...	33	142	106	
June 28:										
9:52 a. m.	...	...	...	...	...	...	27	14	95	Fasting
12:00 m.	...	...	...	...	...	...	20	3	83	Fasting

* Patient urinated at 8:57 a. m.; at 9:30 a. m. he had breakfast, including four eggs.

TABLE 6.—INCREASE (IMMEDIATE) OF THE PLASMA-CREATIN AND A CORRESPONDING CREATIN OUTPUT CAUSED BY TAKING CREATIN (4 GM.); THE PLASMA-CREATIN REMAINING CONSTANT (MR. G. P. R., AGED 23, WEIGHT 90 KG.)

April, 1921	Whole Blood per 100 C.c.		Plasma per 100 C.c.		Corpuscles per 100 C.c.		Urine per Hour			Comment *
	Creatin, Mg.	Creatinin, Mg.	Creatin, Mg.	Creatinin, Mg.	Creatin, Mg.	Creatinin, Mg.	Volume, C.c.	Creatin, Mg.	Creatinin, Mg.	
11:00 a. m.	3.8	1.1	3.0	1.1	5.0	1.1	72	0	99	
11:05 a. m.	...	...	...	...	...	...	...	..	..	Took 4 gm. of crystalline creatin + 300 c.c. of predigested casein (12 gm. nitrogen)
11:48 a. m.	5.0	1.1	3.2	1.1	7.4	1.1				
12:04 p. m.	...	...	...	...	...	...	51	53	92	
1:15 p. m.	6.1	1.1	6.3	1.1	6.0	1.1				
1:30 p. m.	...	...	...	...	...	...	88	421	112	Took 100 gm. of glucose at 1:45 p. m.
3:05 p. m.	5.5	1.0	3.8	1.1	7.7	1.0				
3:30 p. m.	...	...	...	...	...	...	80	176	105	
4:45 p. m.	4.5	1.1	3.6	1.1	5.7	1.1				
5:00 p. m.	...	...	...	...	...	...	55	101	68	
5:35 p. m.	4.4	1.2	3.4	1.3	5.7	1.1				
6:00 p. m.	...	...	...	...	...	...	60	47	109	

* Fasting; urinated at 8:54 a. m.; meat-free supper the previous night.

THE NONPROTEIN NITROGEN IN PATHOLOGIC CONDITIONS

A few typical examples of the nonprotein nitrogen findings in pathologic conditions, will be found in Table 7. It will be noticed at once that the relation between the increases of the total nonprotein nitrogen and of the single waste products, the urea, creatinin and uric acid, is at least roughly the same in the different samples. The table contains one outstanding exception, however: the amino-acid nitrogen. It seems to be quite logical to expect that an increased accumulation of the end-product of the protein metabolism, of the urea, should delay the process of deamination and back up an increased amount of aminonitrogen from free amino-acids and even peptids in the plasma. This is, however, not at all the case. On the contrary, we find extremely low figures for the amino-acids. Even in Sample 7, taken three days before death from uremia, with a plasma urea nitrogen of 234 mg. per hundred cubic centimeters, we find only 7 mg. of aminonitrogen per hundred cubic centimeters.

This fact is made the more interesting by a comparison with the findings in acute yellow atrophy of the liver, in which the most rapid and extensive autolysis of body tissue known takes place. As far as it is possible to judge from the very rare cases hitherto studied by modern methods,[10] we meet here with quite the opposite development: a considerable increase of the aminonitrogen in the blood, while the urea nitrogen remains normal, or is very little increased. From this comparison, the third type of pathologic composition of the nonprotein nitrogen ought not to be excluded: the blood composition in gout. Briefly, we meet here an increased amount of uric acid in the plasma, simultaneous with a normal total nonprotein nitrogen.

Turning again to Table 7, we notice that increase of he creatinin to a considerable extent is found in the plasma. Concerning the uric acid, this predominance of the increase in the plasma is even more marked. So we find that, in a number of samples, the calculation gives as a result the nonexistence of any uric acid at all n the red corpuscles.[11] The further development of his state of partition in the last case in the table is of particular interest. A later sample of blood was drawn rom this patient, forty-eight hours after the sample recorded in the table and twenty-two hours before death, when the patient was nearly comatose and for more than twenty-four hours had showed a greatly increased respiration; the plasma carbon dioxid was 2 per cent. and the urine had turned alkaline. This ample showed a creatinin content of 21 mg. in the plasma and 17.5 mg. in the corpuscles, and a uric acid ontent of 20.6 mg. in the plasma and 11 mg. in the ells, all per hundred cubic centimeters. The total nonprotein nitrogen had increased from 306 to 348 mg. in he plasma and from 193 to 292 mg. in the corpuscles. A premortal breakdown of this surprising separative ower of the corpuscles seems here to be developing.

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[10] Feigl, J., and Luce, H.: Biochem. Ztschr. **79**: 162, 207, 1917; Stadie, W. C., and Van Slyke, D. D.: Arch. Int. Med. **25**: 693 (June) 1920.

It is, however, not only between the plasma and the corpuscles that this evidently highly developed separative power exists. Something similar seems to be the case between the plasma and the cerebrospinal fluid. This is demonstrated by a few determinations presented in Table 8.

I have already mentioned an undetermined residue of nonprotein nitrogen. After subtracting its two main fractions, the amino-acid and urea nitrogen, from the total nonprotein nitrogen, there is a remainder which cannot be accounted for by the creatinin or the uric cid. We find this residue in the normal blood to be present to a considerably greater extent in the coruscles than in the plasma (Table 1), just as we find here a greater amount of reacting amino groups. Concerning the possible nature of this residue, Folin and [12] have recently ventured the hypothesis that it consists, at least partly, of histons. This explanation is, however, less applicable to pathologic conditions. Here, we find an accumulation of unknown products in the plasma, an increase which may appear, as in Case 1 of Table 7, even before any rise of the urea nitrogen. In moderately severe cases of disturbed kidney function, these unknown compounds of the plasma may correspond to about 20 mg. of nitrogen, and, in uremia, may reach values of 50 mg. Concerning their nature, it is possible to say that the simultaneous low figures for the amino-acids exclude the possibility of higher compounds of polypeptid character. If I say that we probably deal with substances which belong to the catabolic processes of metabolism and either are of intermediary nature or are end-products, normally almost completely removed from the plasma, this is of course no explanation. Further research must throw light on this point.

Indican, whose accumulation in the blood in uremic conditions has been studied especially by German authors,[13] can hardly account for more than 1 mg. of nitrogen. Hippuric acid may perhaps be considered as a possibility. Perhaps substances of high toxicity and of specific importance in the development of uremia will be found in this fraction.

TABLE 7.—SUBSTANTIAL UNIFORMITY IN THE RETENTION OF THE SEVERAL NITROGENOUS WASTE PRODUCTS

	Whole Blood per 100 C.c.						Plasma per 100 C.c.						Corpuscles per 100 C.c.						
Case	Amino-Acid Nitrogen, Mg.	Urea Nitrogen, Mg.	Creatinin, Mg.	Uric Acid, Mg.	Undetermined Residual Nitrogen, Mg.	Total Nonprotein Nitrogen, Mg.	Amino-Acid Nitrogen, Mg.	Urea Nitrogen, Mg.	Creatinin, Mg.	Uric Acid, Mg.	Undetermined Residual Nitrogen, Mg.	Total Nonprotein Nitrogen, Mg.	Amino Acid Nitrogen, Mg.	Urea Nitrogen, Mg.	Creatinin, Mg.	Uric Acid, Mg.	Undetermined Residual Nitrogen, Mg.	Total Nonprotein Nitrogen, Mg.	Corpuscles, Volume, per Cent.
1	5.0	13	1.8	3.7	19	39	4.3	13.0	1.8	**3.7**	20	**39**	5.9	13.0	1.8	3.7	18	39	45
2	6.4	49	2.0	4.5	7.4	65	5.8	47	2.3	**6.4**	18	**74**	7.2	52	1.5	1.6	...	51	50
3	4.5	49	3.0	4.7	22	78	3.5	52	3.0	**6.1**	18	**77**	7.4	41	3.0	0.9	31	81	27
4	5.8	60	7.7	4.8	37	107	5.4	71	8.1	**6.8**	21	**103**	7.2	26	6.5	0.0	86	122	23
5	7.6	91	7.2	6.4	41	144	6.2	109	8.1	**9.3**	23	**144**	11.8	38	4.4	0.0	93	144	25
6	8.4	174	12.9	13.6	75	267	7.5	214	14.5	**18.4**	52	**285**	9.7	113	10.5	6.1	109	238	39
7	7.3	193	16.0	12.0	48	258	7.3	234	19.2	**21.0**	51	**306**	7.3	138	11.7	0.0	43	193	42

TABLE 8.—A COMPARISON BETWEEN PLASMA AND CEREBROSPINAL FLUID

	Plasma per 100 C.c.						Cerebrospinal Fluid per 100 C.c.					
Condition	Amino-Acid Nitrogen, Mg.	Urea Nitrogen, Mg.	Creatinin, Mg.	Uric Acid, Mg.	Undetermined Residual Nitrogen, Mg.	Total Nonprotein Nitrogen, Mg.	Amino-Acid Nitrogen, Mg.	Urea Nitrogen, Mg.	Creatinin, Mg.	Uric Acid, Mg.	Undetermined Residual Nitrogen, Mg.	Total Nonprotein Nitrogen, Mg.
Nonnephritic.................	...	...	....	....	..	...	2.0	11	0.9	0.8	3	17
Uremia (Case 6, Table 7)....	7.5	214	14.5	18.4	52	285	2.8	218	6.1	4.5	0	222
Uremia (Case 7, Table 7)....	6.7	...	22.0	22.6	..	324	2.6	...	6.3	2.6	...	238
The same one, 24 hours later	7.1	...	21.3	20.6	..	348	3.0	272	8.5	2.6	0	279

SIGNIFICANCE OF CHANGES IN THE NONPROTEIN NITROGEN CONTENT

We have not yet discussed the significance of an increase in the nonprotein nitrogen content of blood or plasma in chronic interstitial nephritis. Our fairly simple conception that such an increase is due to a direct mechanical retention by an impaired kidney, in the original sense of Strauss, is, of course, as a whole, the correct one. There is, however, at least the possibility, argued especially by German authors, that an elevated nonprotein nitrogen in certain cases represents only a higher level, at which a complete nitrogen equilibrium is maintained; and in chronic cases, with moderately elevated nonprotein nitrogen persisting for months at the same level, another interpretation seems hardly possible. This type of case deserves a special interest from the dietetic standpoint; if there is no response of the nonprotein nitrogen on a decreased protein intake, the value of a very restricted diet seems questionable.

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[11] As a fact, the calculation points to a loss of some uric acid the whole blood filtrate. Further work is needed on this point.

[12] Folin, O., and Berglund, H.: J. Biol. Chem. **51**: 395 (April) 1922.

[13] Haas, G.: Deutsch. Arch. f. klin. Med. **121**: 304, 1917; München. med. Wchnschr. **64**: 1363, 1917. Rosenberg, M.: München. med. Wchnschr. **63**: 117, 1916; Arch. exper. Path. u. Pharmakol. **86**: 15, 1920.

This brings up the question of the influence of the diet on the level of the nonprotein nitrogen in normal persons. Contrary to a fairly common statement of its independence of the diet, I feel that it is important to point out that a high protein intake—a common finding in wealthy patients—in a person who, clinically, may be considered normal, may give a nonprotein nitrogen content as high as from 40 to 45 mg. in the whole blood and from about 30 to 35 mg. in the plasma; that is, about 75 per cent. higher than the figures from the same individual after a few days of a low protein diet. The point of practical importance to be emphasized is that the change from a high to a low level does not immediately follow the change in the diet. If the lowest possible nonprotein nitrogen figure is wanted in a person on the boundary of the abnormal, it is, therefore, not sufficient merely to have him drop in any morning before breakfast to have his blood tested.

The usefulness of the nonprotein nitrogen determinations, or of the determination of one or another of its constituents for a differential diagnosis between different forms of chronic interstitial nephritis, is a favorite subject of discussion. In general, it has not proved at all possible as yet to apply the physiologic or pharmacologic theories as to kidney function on the functional disturbances of the different anatomic types of kidney lesions. Further, the considerable interest given to a physiologic differentiation between glomerular and tabular activity cannot be further cultivated in the clinic, since we have to admit the fact, especially emphasized by Löhlein, that a disturbance of the glomerular function, due to anatomic lesions, is necessarily followed by a functional disturbance of the tubular activity, as a consequence of the anatomic unity of the blood supply.

Furthermore, there is reason enough to doubt whether a functional disturbance is always accompanied by any appreciable anatomic lesion at all. In the earlier discussion of the character of nonprotein nitrogen retention, attention was called to the difference between the type mainly discussed in this paper, with a fairly uniform retention of the different waste products, and the types of nonprotein nitrogen accumulation in acute yellow atrophy of the liver and in gout. Certainly, the waste product retention cannot be satisfactorily interpreted in any other way than as a result of a deficient kidney activity. The validity of this interpretation is, therefore, independent not only of the simultaneous occurrence of anatomic lesions but even of the occurrence of other clinical signs of kidney disease. Therefore, when reliable observations are reported of a slight elevation of the amount of waste products in the blood in cases of a decompensated heart, or when moderate or even high figures for the blood urea nitrogen are reported in such different types of disease as epidemic (lethargic) encephalitis (Umber) [14] and acute intestinal obstruction (Louria),[15] this does not diminish the clinical value of the determination of the nitrogenous waste products of the blood. On the contrary, the knowledge so gained means an objective, reliable information about kidney function, independent of the presence or absence of other clinical symptoms.

PRESENT STATUS OF BLOOD NITROGEN IN SURGICAL LESIONS OF THE KIDNEY *

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ST. LOUIS

Since Folin and Denis,[1] in 1913, initiated methods for the rapid determination of the nonprotein blood nitrogen, a great mass of work has been done, especially in chronic nephritis, and its value has been demonstrated repeatedly. It has been shown that uric acid in the blood is retained in some cases very early, but not constantly so; that urea is retained at a later stage in the course of nephritis, and that creatinin is retained shortly before death in the great majority of cases.

Before entering further into the discussion of nitrogen retentions, it is well to state our findings as to normal levels. Two years ago, we placed four of the hospital staff on high protein diets. These diets were prepared in the diet kitchen on the metabolic unit. The blood nonprotein nitrogen of these young men before they were given a high protein diet was from 28 to 38 mg. per hundred cubic centimeters. After three days of high protein diet (protein from 150 to 175 gm.) the fasting (before breakfast) blood nitrogen rose in all cases about 5 mg., the highest found being 45 and the lowest 33.[2]

TABLE 1.—CASES SHOWING A NONPROTEIN NITROGEN OF 50 MG. OR MORE PER HUNDRED CUBIC CENTIMETERS OF BLOOD

	Nonprotein Nitrogen *		Results While in Hospital †	
Condition	Became Normal; Number of Patients	Unchanged or Increased; Number of Patients	Died; Number of Patients	Improved; Number of Patients
Chronic nephritis, twenty-six cases..................	2 (9%)	20 (83%)	15 (63%)	8 (30%)
Myocarditis, fifteen cases..	4 (50%)	4 (50%)	9 (60%)	6 (40%)
Enlargement of prostate, twenty cases ‡...........	6 (43%)	8 (58%)	7 (44%)	10 (59%)
Pyelonephritis and pyelonephrosis, ten cases §....	5 (50%)	4	5 (50%)	5 (50%)
Total, seventy one cases...	17	36	36	29

* Only cases having more than one determination are included in percentages.

† Only cases treated included.

‡ Three cases were carcinoma of prostate. Two cases showed a rise as result of operation.

§ Three cases were due to obstruction by carcinoma.

Folin,[3] in his last paper, reported a case of high protein feeding whose fasting nitrogen was 43 mg. The normal level on the average diet is from 25 to 38 mg. per hundred cubic centimeters of blood. Certainly, the blood nonprotein nitrogen must be above 40 mg. per hundred cubic centimeters before retention can be said to be present.

There is considerable difference in the interpretation of the retention of blood nitrogen in the different classes of kidney disease. In chronic nephritis, such as is seen in the medical wards of any hospital, there has been a gradual destruction of kidney tissue, analogous, from the functional standpoint, to the experimental surgical removal of kidney tissue; while, in the infectious and obstructive processes of the genito-urinary tract seen by urologists, the loss of kidney function may be, in a large measure, of a functional nature. After drainage and removal of the obstructions, the functional loss may be partially regained. If these latter conditions have gone on long enough, permanent loss of kidney function results, just as in the case of chronic nephritis.

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[14] Umber, F.: Deutsch. med Wchnschr. **47**: 261 (March 10) 1921.

[15] Louria, H. W.: Blood Urea Nitrogen in Acute Intestinal Obstruction, Arch. Int. Med. **27**: 620 (May) 1921.

* Read before the Section on Urology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] Folin and Denis: J. Biol. Chem. **14**: 29, 1913.

[2] This work was done by Dr. A. E. W. Ochsner.

[3] Folin, O., and Berglund, H.: J. Biol. Chem. **51**: 395 (April) 1922.

TABLE 2.—CASES IN WHICH NONPROTEIN NITROGEN BECAME NORMAL FROM A LEVEL OF 50 MG. OR MORE OF NITROGEN PER HUNDRED CUBIC CENTIMETERS OF BLOOD

Case and Diagnosis	Highest Nonprotein Nitrogen, Mg	Time to Become Normal, Days	Outcome
1. Pyelonephritis..........	156	30	Well after two years
2. Congenital kidney disease and hydronephrosis................	67	7	Nephrectomy
3. Enlargement of prostate....................	58	3	Punch operation
4. Congenital kidney; hydronephrosis..........	74	14	Nephrectomy
5. Pyelonephritis; pyelonephrosis.............	58	3	No operation
6. Enlargement of prostate....................	58	3	Prostatectomy
7. Enlargement of prostate....................	118	7	Not operated on
8. Enlargement of prostate....................	72	30	Prostatectomy
9. Enlargement of prostate....................	92	6	Following prostatectomy
10. Carcinoma of rectum; pyelonephrosis........	63	12	Operation for carcinoma
11. Enlargement of prostate....................	60	30	Prostatectomy
12. Carcinoma of prostate	59	4	Prostatectomy

The chemical laboratory of Barnes Hospital, in the course of a year, performs more than 800 determinations of the nonprotein nitrogen. Of patients on whom these determinations were made in the past two years, there were 100 who showed values above 50 mg. per hundred cubic centimeters of blood. The value 50 mg. per hundred cubic centimeters was selected because it shows definitely developed retention of urea. Table 1 presents the difference between the course of cases while in the hospital as regards the nonprotein nitrogen, as well as the clinical outcome.

The cases of chronic nephritis were not materially improved, as shown by the failure of the nonprotein nitrogen to go down after having reached this level, and by the high death rate. Cardiac patients show a decided difference from nephritic. With them, recovery from retention of nitrogen depends entirely on how well the heart will respond to treatment. Still better are the results of kidney disease due to obstructive and infectious processes. Table 1 presents the fact already well appreciated by the urologist. To those interested in the functional ability of the kidney, it shows that obstructive and infectious processes do not injure the kidney cell to the extent that it will not regain some of its function. Johnson's[4] experimental work on this point showed that, with complete obstruction of the ureter and subsequent removal of ligation, function can be regained even after two weeks of complete obstruction. He demonstrated that it required 150 days for complete restoration of function in a kidney whose ureter has been ligated two weeks. These results agree with clinical observations. An important point to the urologist is the length of time required to reduce retention cases.

Analyses of these cases, reported in Table 2, show that if the blood nitrogen does not reach normal level within a month of hospital treatment, it will never do so.

Not only can infectious processes depress kidney function when these processes involve both kidneys, but also, with only one kidney diseased, systemic intoxication may result, so that the function of the opposite kidney, and not the main site of disease, is seriously affected. That systemic intoxications can severely depress kidney function has been most strikingly demonstrated experimentally by Whipple[5] and his co-workers. These observers, while investigating intestinal obstruction, found that there was a great increase in nitrogenous catabolism, as shown by the excretion of nitrogen in animals with experimental obstruction. The blood of these animals showed an increase in nonprotein nitrogen and urea and a small increase in animo-acid and polypeptid nitrogen.

They further showed that the accumulation of nitrogenous products in the blood was accompanied by a definite loss of kidney function, as shown by the rate of urea excretion and by the excretion of phenolsulphonephthalein; also that the intoxication as observed in the animals paralleled the loss of kidney function. They further found that this loss of function was temporary and that rapid recovery followed the removal of the obstruction. But, most interesting of all, they found that on sectioning these kidneys there was, by all the staining methods at their command, no apparent lesion of the kidney cells.

They found the same results as far as urinary nitrogen was concerned in sterile abscesses and in experimental peritonitis and pleuritis. The same effect on kidney function was also noted when the proteose obtained from obstructed intestinal loops was injected into animals.

Whipple's work suggests the possibility that, in the case of unilateral disease of the kidney causing systemic intoxication, it would be possible so to injure temporarily the good kidney that much increased loss of renal function might result. That such cases do occur can be clearly shown by the following case histories.

TABLE 3.—FINDINGS IN CASE 1

Date	Phenolsulphonephthalein in Two Hours per Cent.	Nonprotein Nitrogen per 100 C.c., Mg.	Clinical Notes
November 3...........	..	41	Temperature, 100 F.
November 11..........	50	74	Chills; white blood cells, 9,000; temperature, 103 F.
November 25..........	50	36	Temperature, 100 F.
Nephrectomy, left:			
December 5............	65	35	

REPORT OF CASES

CASE 1.—S., a white man, aged 40, complained of pain in the left flank, radiating down the leg, with tenderness and muscle spasm in the left lower quadrant, where a mass was felt. Cystoscopic examination and pyelogram revealed an ectopic kidney lying behind the bladder, with a considerable degree of hydronephrosis, the ureter being kinked on itself. The urine showed blood and pus.

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[4] Johnson, R. A.: J. Exper. Med. **28**: 193 (Aug.) 1918.

[5] Whipple, G. H., and Van Slyke, D. D.: J. Exper. Med. **28**: 213 (Aug.) 1918. Cooke, J. V., and Whipple, G. H.: Ibid. **28**: 223, 243 (Aug.) 1918. McQuarrie, I., and Whipple, G. H.: J. Exper. Med. **29**: 397 (April) 1919.

Congenital kidney disease left (ectopic kidney), hydronephrosis, left, and pyonephrosis, left, were diagnosed. Experimental findings and clinical notes are presented in Table 3.

Case 2.—S., a colored boy, age 8 years, who had undergone appendectomy one year previously, was referred, December 13, because of pyelitis. There were resistance and tenderness in the right kidney region, but no mass. Muscle spasm was present, especially on the right side. The third day in hospital, he suffered a chill, following which he ran a septic temperature for nine days. Abdominal rigidity increased. Nephrostomy was performed, December 18, purulent urine being drained off; a congenital kidney condition was found. Nephrectomy was performed, January 5, with uneventful recovery.

Congenital kidney, right, hydronephrosis, right, and pyelonephritis, right, were diagnosed. Findings and clinical notes are presented in Table 4.

TABLE 4.—FINDINGS IN CASE 2

Date	Phenolsulphonephthalein in Two Hours per Cent.	Nonprotein Nitrogen per 100 C.c., Mg.	Clinical Notes
December 14.......	40	..	Abdominal spasm
December 16.......	..	67	Chill; temperature, 102 F.; white blood cells, 16,000
December 17.......	55		
December 18.......	Nephrostomy, right		
December 23.......	..	32	Temperature normal
January 3.........	45	33	
January 5.........	Nephrectomy, right		
January 24........	55		

Case 3.—S., a white woman, aged 23, an American, had chills and fever, with pain in the right side of the abdomen. The right kidney was tender and enlarged, and there was marked abdominal spasm. The left pole was not so tender. Soreness had been felt in right side for many years. Acute onset occurred five days previously. The temperature was 102 F; pulse, 128; white blood cells, 13,000, later, 23,000. There was pus from both kidneys in large amounts. The right ureter was blocked; cystitis was marked. The patient was treated with forced fluids and hexamethylenamin. There was no surgical treatment.

Pyelonephritis, right and left, nephroptosis, right, and pyelonephritis, right, were diagnosed. The findings and clinical notes are presented in Table 5.

TABLE 5.—FINDINGS IN CASE 3

Date	Phenolsulphone, phthalein in Two Hours per Cent.	Nonprotein Nitrogen per 100 C.c., Mg.	Clinical Notes
February 3	19	100	Abdominal spasm; temperature, 102 F.; white blood cells, 23,000
February 7	25	116	Temperature normal
February 16	..	59	
March 2	13	...	Patient up
May	..	30	

Cases 1 and 2 show that infection in one kidney, with such insufficient drainage as to cause severe systemic manifestations, will depress the function of the opposite kidney to the extent of causing urea retention. These clinical observations are quite analogous to Whipple's experimental work.

Case 3 shows bilateral infection of a much more severe type, but with partial improvement in function following drainage and subsidence of systemic symptoms. It is possible, in infection of one kidney without obstruction, to impair the function of the other; but such situations are not usual. The most important value of the nonprotein nitrogen is the help it gives in estimating the extent of disease. This is especially important to the surgeon.

Pearce,[6] in 1908, showed that dogs could be kep in nitrogen balance when one half, and in some instance three fourths, of the total kidney substance had bee removed. His work, unfortunately, was done befor the present tests for kidney function were in use.

Rowntree and Geraghty,[7] in their report on th use of phenolsulphonephthalein in functional tests demonstrated that removal of one kidney did no materially affect the excretion of the dye, even a early as twenty-four hours after operation, and, i surgical cases, they demonstrated that, three week after nephrectomy, the kidney function as shown b this test was normal. We have found that there is fairly constant relation between phenolsulphonephthalein in excretion and blood nitrogen. Cases o nitrogen retention which showed a normal phenolsulphonephthalein excretion have not been observed. I fact, it is extremely rare to see nitrogen retentio unless the phenolsulphonephthalein excretion is 4 per cent. or less in two hours. This holds good in an type of low kidney function.

Reid,[8] in 1918, showed that one kidney might b destroyed by experimental hydronephrosis without an increase of nonprotein in nitrogen in the blood.

Addis [9] and his co-workers have done very extensiv work on the excretion of urea and the factors tha control it, and have shown that, from the standpoint o urea and of the ability of the kidney to excrete urea the kidney substance can take care of seven time the amount of urea ordinarily excreted. In othe words, they find, by the process of overburdening th kidney with injected urea, that there is sevenfol the capacity for the excretion of this product that i ordinarily needed. Presumably, then, only one sevent of the kidney substance is ordinarily used.

Certainly more than 50 per cent. of kidney functio must be lost before the phenolsulphonephthalein elimination is decreased, and probably more than 60 pe cent. before nonprotein nitrogen is increased. If thi is true, the retention of urea always means bilatera disease, whether anatomic or functional. In 250 surgical cases involving the kidney in the past two years we have never seen retention of nitrogen withou bilateral disease.

SUMMARY

The interpretation of the retention of urea depend on the nature of the disease present, and especially o the presence of systemic intoxication.

With retention of urea, bilateral disease is alway present, whether anatomic or functional or both.

Wall Building—University Club Building.

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[6] Pearce, R. M.: J. Exper. Med. **10**: 632, 1908.

[7] Rowntree, L. G., and Geraghty, J. T.: The Phthalein Test, Arch Int. Med. **9**: 284 (March) 1912.

[8] Reid, M. R.: Bull. Johns Hopkins Hosp. **29**: 55 (March) 1918.

[9] Addis, T.; Shevky, A. E., and Bevier, J.: Am. J. Physiol. **46**: 1 (April) 1918.

Smallpox in 1922.—Reports from twenty-four Americai states and 190 cities show that the smallpox prevailing durin the first six months of 1922 is far more virulent than the typ of disease which prevailed during the same period of 1921 The number of cases was 72 per cent. less this years i twenty-four states combined, and 74 per cent. less in 19 American cities. In these cities, however, the number o deaths during the first six months of 1922 was nearly fou times the number reported in the same period of 1921. . . No American city can be assured of safety in view of th record this year in cities which prior to 1922 had not ha experience with the virulent type of the disease.—*Statistica Bulletin, Metropolitan Life Insurance Co.*, August, 1922.

HE VALUE OF THE ESTIMATION OF UREA, NONPROTEIN NITROGEN AND CREATININ

AS AN INDEX OF RENAL FUNCTION *

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Our knowledge of blood chemistry, so far as it conerns renal disease, is of comparatively recent origin. he development of simplified methods of estimating he amount of the various substances in health and sease has rapidly led to the accumulation of enormous ata concerning their variations. Estimations of total trogen by the Kjeldahl method have been made for a umber of years, but this method is too intricate for eneral clinical use and can be carried out only by ained chemists in well-equipped laboratories. From he determinations made by this method, however, was well known that in advanced renal disease he total nitrogen in the blood was greatly increased, nd later observations have shown that this increase is ue in great measure to the retention of nitrogenous nd-products, normally excreted by the healthy kidney. s urea is the most prominent of these substances, ood urea determinations were at first, naturally, udied most carefully.

The work of Folin and Denis in the development of simplified technic for the accurate estimation of blood ea gave probably the first great impetus to this invesgation, and later the introduction of the urease ethod of blood urea determinations by Marshall gave a simple, practical and accurate procedure. These terminations by this method are perfectly feasible for ny modern, well-equipped clinical laboratory, and the chnic of the procedure can be readily mastered.

The normal urea content of the blood is subject to nsiderable variation. It is recognized as varying rmally from 20 to 40 mg. per hundred cubic centieters, although a figure of 50 mg. cannot be consided abnormal in persons on a high nitrogenous diet. We have observed patients with definite impairment of nal function on a moderate protein diet whose blood ea ranged between 60 and 80 mg., who, following striction of their diet, would promptly reach a urea vel below the upper limit of normal. These patients, n the resumption of a high nitrogenous intake, would on show their former blood urea level. The practical lue of this point is that, in the interpretation of the ood urea content in a given case, the diet of the tient should be taken into consideration. It is at nce apparent that a blood urea of 50 mg. in a person n a nonprotein diet has not the same significance as e same level of blood urea in a person whose protein take is high.

Another factor which should receive consideration in e interpretation of the blood urea level is the fluid take. It has been noted repeatedly and also observed by urselves that a high blood urea content can be noticely and even markedly reduced in many instances ollowing the ingestion of large amounts of water. he amount of urea excreted can be shown to vary conderably with the amount of urine output; and this is especially true when the renal damage is not extreme. These two factors, diet and fluid intake, do not have to be considered in the matter of phenolsulphonephthalein, as the amount excreted is not influenced by either factor.

A rise of blood urea above normal is to be interpreted as an index of bilateral renal insufficiency; but it has been our experience that, not infrequently, patients can maintain a fair degree of health for a considerable period of time with a urea of 80 mg., and in occasional cases a point considerably higher. On the other hand, cases are occasionally seen in definite uremia with a blood urea not higher than that noted above, so that an accurate prognosis cannot always be drawn from the urea alone, it being frequently necessary to take other factors into consideration.

When the blood urea rises to 100 mg. or higher, the prognosis becomes increasingly grave. An amount above this level can seldom be maintained for any considerable period without the exhibition of grave symptoms of renal insufficiency. In acute renal processes or in acute exacerbations of chronic renal disease, the urea level may rise to an astonishingly high figure without a necessarily fatal termination. We have observed cases of acute suppurative kidneys with oliguria or anuria, in which the urea rose to 250 mg., with subsequent recovery and a return of the urea to the normal level. Numerous instances of figures even higher than this have been reported. These high figures are rarely attained in cases of chronic renal insufficiency, and when they occur nearly always terminate fatally. The same observation has been made regarding phenolsulphonephthalein excretion. When a patient has a persistently low excretion of phenolsulphonephthalein and suddenly develops symptoms of acute insufficiency with a sudden drop to zero or but a trace of the dye, he rarely survives. On the other hand, the development of an acute renal condition in a person who has previously had a moderately good or high phenolsulphonephthalein excretion, even though during the acute process the output may drop to zero, does not necessarily lead to a fatal termination.

Estimations of nonprotein nitrogen are utilized in some laboratories instead of estimations of blood urea. The technic, however, for the estimation of nonprotein nitrogen is considerably more complicated than is that for blood urea, while the information of clinical value derived from them does not seem to us to be superior to that furnished by the blood urea.

Quantitative determinations of blood creatinin, an end-product of endogenous metabolism, would seem, theoretically, to be an ideal means of estimating the degree of renal insufficiency. The amount of creatinin in the blood is not influenced, as is urea, by the protein intake, so that it would be expected that a rise of creatinin above normal would be a truer index of renal disturbance. It has been found by Squier and Myers, and we have been able to corroborate their findings, that creatinin is much more readily excreted than urea and uric acid, and that considerable diminution in renal function can occur before there is any rise in the creatinin level.

The normal blood content of creatinin averages about 2 mg. per hundred cubic centimeters, and as a rule there is no appreciable increase in this amount until well marked renal insufficiency, as determined by blood urea and phenolsulphonephthalein, is present. When a marked increase of creatinin occurs, say 5 mg. or more, there is present a very serious disturbance of

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* Read before the Section on Urology at the Seventy-Third Annual ssion of the American Medical Association, St. Louis, May, 1922.

renal function. The combination of a high blood urea with a high creatinin offers a distinctly graver prognosis than the same amount of urea with a normal creatinin content. It is at once apparent that the value of this determination as a functional test is rather limited and is by no means as delicate an index of renal function as the estimation of blood urea. It furthermore seldom gives information which is not obtained by the determination of urea.

The finding of an increase above the normal level of blood urea and the other substances considered can be taken as an indication of bilateral renal disease. However, it gives no information regarding the presence of a unilateral functional disturbance, nor does it exclude the presence of a bilateral renal lesion. When there is a rise above normal of these substances in the blood, it indicates a functional disturbance of considerable degree and is a contraindication to an operative procedure which will permanently decrease the amount of renal tissue in the individual. The estimation of blood urea is not a test of the excretory capacity of the kidney, but is merely a means of determining the degree of retention of a substance normally eliminated. The excretory capacity of the kidneys is most simply and accurately determined by means of phenolsulphonephthalein. The test can be employed in determining not only the total functional capacity but also the individual functional value of each kidney in conjunction with ureteral catheterization. In estimating total renal function, a decrease of the amount normally excreted in a given time indicates bilateral renal disturbance. Whether this reduction is permanent or temporary and the cause thereof can be determined only by other methods of examination. Thus, a marked reduction in function can occur in bilateral calculous disease and still no indication of this functional disturbance will be shown by the blood urea estimation, as the kidneys may maintain an excretory capacity necessary for the work they are called upon to perform.

The total estimation of function by means of phenolsulphonephthalein will give us, more or less accurately, the amount of reduction in excretory capacity, but it does not necessarily tell us whether the excretory capacity is sufficient to take care of the elimination. It has been our experience that when the phenolsulphonephthalein excretion is normal, the blood urea will almost invariably be found at the normal level. When the phenolsulphonephthalein excretion is reduced approximately one half, there may or may not be retention of the various substances in the blood; but when the phenolsulphonephthalein output is markedly reduced, say to 10 or 15 per cent., the blood urea will nearly always be found considerably increased, and there will exist in many instances what may be termed an inverse parallelism between the degree of retention on the one hand and the excretory capacity on the other.

Phenolsulphonephthalein estimations are carried out as a routine in our clinic in all cases. If the phenolsulphonephthalein excretion is found to be much reduced, blood urea estimations are made in order to determine the degree of retention, if any, which is present. It has been our experience that patients with a certain phenolsulphonephthalein excretion but with an increase in the blood urea above the normal level are far worse surgical risks than patients having the same phenolsulphonephthalein output and normal blood urea.

When one comes to consider the application of blood retention tests and of excretory tests in the determination of the separated renal functions, their values are not comparable. The information furnished by the excretory tests is incomparably superior, as it gives us not only the function of one kidney as compared with that of the other but also the total excretory capacity.

To say that one test is superior to the other as an index of renal function indicates a lack of appreciation of the character of information which each test is supposed to furnish, as the data supplied by each test are largely corroborative of the other. At times, the estimation of blood urea gives us information regarding the degree of retention present which is not furnished by phenolsulphonephthalein. On the other hand, the measure of the excretory capacity of the kidneys by means of phenolsulphonephthalein gives us data which estimations of blood urea do not furnish. Consequently, in doubtful cases, the greatest amount of information will be derived from both tests. This truth is now well recognized by men most familiar with renal functional work.

SUMMARY AND CONCLUSIONS

Practically all the information of clinical value gained by estimations of total nitrogen, nonprotein nitrogen, uric acid and creatinin is furnished by the estimation of the blood urea content.

Estimation of blood urea by the urease method of Marshall is accurate and comparatively simple.

The excretory capacity of the kidney for the estimation of the total and separated function is best determined by the phenolsulphonephthalein test.

In certain cases of bilateral renal disease, the greatest amount of information is obtained by an estimation of the blood urea and a measure of the excretory capacity by means of phenolsulphonephthalein.

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SIGNIFICANCE OF CHEMICAL BLOOD FINDINGS IN UROLOGIC CONDITIONS *

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Before surgical procedures are undertaken on the kidneys, bladder or prostate, it is essential that the normality of kidney function be ascertained, since disease of these organs not infrequently leads to impairment in renal function. The introduction of the phenolsulphonephthalein test by Rowntree and Geraghty,[1] in 1910, afforded a relatively simple means of measuring kidney function, but the difficulty of securing accurate collections of urine in cases with obstruction has tended to impair the value of the test in this type of case. The advent of simple methods of blood analysis, however, has made it possible to ascertain the functional activity of the kidneys without recourse to tests on the urine. The various chemical blood tests unquestionably furnish a much broader appreciation of renal function than that obtained by the phenolsulphonephthalein test alone. However, they only mea-

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* Read before the Section on Urology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] Rowntree, L. G., and Geraghty, J. T.: J. Pharmacol. & Exper. Therap. **1**: 579-661, 1910.

ure the function of the kidneys as a whole, and in the fferentiation of the activities of the two kidneys, the henolsulphonephthalein test still appears to be the ethod of choice.

The use of chemical blood analysis as a means of easuring kidney function was begun in the urologic ervice in 1914, and has been routine since 1915. uring this time, observations have been collected in ore than 600 cases, about 400 being cases of prostatic ostruction. The various determinations made have cluded the urea and nonprotein nitrogen, creatinin, ric acid, chlorids, carbon dioxid combining power and ugar. Of the different tests, we have found the urea e most valuable. It furnishes rather more informaon than the nonprotein nitrogen and is not so difficult carry out. Since creatinin is normally the most adily eliminated of the nitrogenous waste products, s retention does not occur until after the urea has oubled or more than doubled the normal. For this ason, the creatinin is significant only in those cases hich show a definite urea retention. The normal dney does not excrete uric acid with ease, and a rise the blood uric acid appears to be one of the earliest gns of impaired function. Although most cases of rostatic obstruction, for example, show high figures or uric acid, it is of much less value in preoperative sts than the urea and creatinin. Relatively few of e urologic cases studied have shown any increase in e blood chlorids. This test does not appear to be gnificant except in a limited number of cases, espeally the more severe cases with nitrogen retention. he chief value of blood sugar in urology is in inditing diabetic tendencies, although it should be noted at most cases with nitrogen retention show mild ough definite hyperglycemias. The carbon dioxid ombining power should be ascertained in all cases owing any evidence of nitrogen retention or yperglycemia.

The strict normals for these different determinations ay be taken as from 25 to 35 mg. of nonprotein trogen per hundred cubic centimeters of blood; from 2 to 15 mg. of urea nitrogen; from 1 to 2.5 mg. of eatinin; from 2 to 3.5 mg. of uric acid; chlorids calulated as sodium chlorid in whole blood, from 0.45 to 50 per cent.; sugar, from 0.09 to 0.12 per cent.; and arbon dioxid combining power, from 55 to 75 c.c. per undred cubic centimeters of plasma.

Our routine at the present time includes the estimaon of urea and sugar in all cases, creatinin, when the ea nitrogen exceeds 20 mg., and carbon dioxid hen any abnormality exists in either the urea or the ugar. Other determinations are made only in special ases. The methods we have employed are described sewhere.[2]

Our experience indicates the necessity of having eoperative information on the chemistry of the blood all surgical conditions of the kidneys, bladder or rostate. It not infrequently furnishes information in e least suspected cases.

PROSTATIC OBSTRUCTION

We have now collected preoperative, and, in some ases, postoperative figures on about 400 cases of rostatic obstruction. Uncomplicated cases show on e average urea nitrogen figures which are definitely oove the normal of from 12 to 15 mg. per hundred ubic centimeters of blood. The average is probably about 18 mg., with a range of from 11 to 25 mg. Twelve illustrative cases are shown in Table 1. These are recent cases and were selected because they also had figures for the chlorids. The average for the ureas, however, is slightly below that generally found.

TABLE 1.—ILLUSTRATIVE CHEMICAL BLOOD FINDINGS IN UNCOMPLICATED CASES OF PROSTATIC OBSTRUCTION

			Blood Analyses				Phenolsulphonephthalein, per Cent.
Case	Age	Date	Urea Nitrogen, Mg.	Creatinin, Mg.	Sugar, per Cent.	Chlorids as Sodium Chlorid, per Cent.	
1. M. K.	54	4/20/21	13.2	1.8	0.125	.....	..
2. C. D.	60	5/ 2/21	12.0	1.8	0.100	.....	..
3. A. R.	57	5/ 6/21	13.1	2.1	0.121	.....	..
4. J. C.	45	8/26/21	21.3	...	0.166	.....	21
5. L. V.	63	9/10/21	29.0	2.0	0.172	0.450	..
		9/12/21	24.9	2.6	0.142		
6. R. T.	66	9/15/21	13.9	...	0.166	0.475	23
7. S. L.	59	10/13/21	15.0	...	0.187	0.475	..
8. W. K.	49	10/17/21	19.5	...	0.150	0.563	..
9. L. M.	60	11/22/21	12.4	...	0.136	0.500	..
10. G. D.	67	11/23/21	22.5	3.3	0.150	0.500	30
		11/25/21	20.4	3.1	0.103		
11. H. F.	74	11/28/21	10.2	...	0.150	0.488	8
12. M. McG. ..	67	12/ 7/21	11.4	...	0.136	0.525	35

In our first paper,[3] we stated that:

> Cases showing urea nitrogen figures under 20 mg. per 100 c.c. of blood may be regarded as good operative risks so far as the kidneys are concerned. When the urea nitrogen figures are found between 20 and 30 mg., and especially between 25 and 30, the patient should be operated on with considerable caution, and best after a period of preliminary treatment directed to relieve the nitrogen retention. . . . The data here recorded indicated that with urea nitrogen figures over 30 mg. the operative prognosis is bad.

The last statement should be modified in the light of our more extensive experience. Since it was made, we have had occasion to deal with a number of patients with considerable nitrogen retention, urea nitrogen figures being as high as 50 mg. in several instances. After a more or less prolonged period of preoperative treatment, which favorably influenced the blood urea, these patients have been operated on with favorable results. Data on four such cases are given in Table 2.

TABLE 2.—THE INFLUENCE OF PREOPERATIVE TREATMENT ON THE BLOOD UREA IN PROSTATIC OBSTRUCTION; PROSTATECTOMY WITH GOOD RESULTS

			Blood Analyses					Suprapubic Prostatectomy Date
Case	Age	Date	Urea Nitrogen, Mg.	Creatinin, Mg.	Sugar, per Cent.	Carbon Dioxid, C.c.	Chlorids as Sodium Chlorid, per Cent.	
1. J. S.	60	4/22/20	46.6	4.3	.....	..	.....	5/ 5
		4/27/20	42.6	4.8				
		5/ 4/20	19.0	2.4				
2. S. M.	62	7/ 7/20	51.0	3.2	0.128	42	.....	7/12
		7/16/20	49.0	2.6	0.100	43		
		7/29/20	29.0	2.4	0.128			
3. J. McD. ..	61	5/11/21	28.8	3.5	0.114	..	0.507	5/19
		5/18/21	24.9	2.6	0.115			
		6/ 1/21	22.5	...	0.150	..	0.450	
4. G. B.	62	3/23/22	52.0	5.3	0.166	44	0.575	4/17
		3/25/22	55.9	8.9	0.170	..	0.600	
		3/29/22	35.0	5.0	0.140	47	0.563	
		4/ 1/22	37.5	7.5	0.133	48	0.553	
		4/ 7/22	20.6	5.0	0.130	..	0.500	
		4/12/22	23.4	4.5	0.138	62	0.538	
		4/15/22	22.0	4.2	0.109			

The blood urea and creatinin have been taken as the index of the duration of the preoperative care. A knowledge of the carbon dioxid combining power has been found of considerable preoperative value in these cases, since patients in whom there is a reduction in the alkali reserve withstand operative interference better after receiving alkaline medication. One should remember, however, that patients with marked nitrogen retention who do not readily yield to treatment are suffering from advanced renal disease and are obviously poor surgical risks (Table 3). Serial figures which we have collected on uncomplicated cases of prostatic obstruction have shown that operative interference almost invariably provokes a rise in the blood urea, for example, from 15 to 30 mg. Three such cases are presented in Table 4. It is easy to comprehend this effect on a badly damaged kidney.

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[2] Myers, V. C.: Practical Chemical Analysis of Blood, St. Louis, V. Mosby Company, 1921.

[3] Squier, J. B., and Myers, V. C.: J. Urol. **2**: 1-21 (Feb.) 1918.

TABLE 3.—PROSTATIC OBSTRUCTION IN WHICH OPERATION WAS INADVISABLE

			Blood Analyses				
Case	Age	Date	Urea Nitrogen, Mg.	Creatinin, Mg.	Sugar, per Cent.	Carbon Dioxid Combining Power, C.c.	Comment
1. J. S.	69	5/ 4/17	89	9.4	0.165	..	Cystotomy and drainage of bladder only on 5/5; died, 5/19
		5/15/17	104	7.5	0.201		
2. E. W.	69	2/ 8/17	45	4.9	0.132	34	Prostatectomy on 2/12 under procain; died, 2/20
		2/ 9/17	44	4.2	0.117		
		2/15/17	104	6.7	0.165		
3. F. S.	54	5/16/21	136	4.6	0.157	..	Retention not much influenced by diet; died, 6/1
		5/23/21	122	7.9	0.156	29	
		5/31/21	75	12.5	0.225	26	

TABLE 4.—INFLUENCE OF PROSTATECTOMY ON THE BLOOD UREA IN CASES WITH NORMAL PREOPERATIVE FINDINGS AND UNEVENTFUL RECOVERIES

			Blood Analyses				
Case	Age	Date	Urea Nitrogen, Mg.	Creatinin, Mg.	Sugar, per Cent.	Carbon Dioxid Combining Power, C.c.	Operation
1. F. D.	72	4/ 6/20	18.1	1.7	0.117	..	Prostatectomy
		4/ 7/20	30.8	3.5	0.105	39	
		4/16/20	16.8	2.2	0.093		
2. J. B.	63	4/ 9/20	12.1	1.7	0.120	..	
		4/10/20	....	...	.....	..	Prostatectomy
		4/12/20	30.2	2.5	0.107		
		4/16/20	17.8	2.2	0.102		
3. G. B.	58	4/15/20	14.4	1.8	0.130		
		4/17/20	....	...	.....	..	Prostatectomy
		4/19/20	21.0	1.8	0.097		
		4/22/20	16.9	1.8	0.111		

VESICAL NEOPLASMS

The blood findings in vesical neoplasms, whether malignant or nonmalignant, are similar to those found in prostatic obstruction, the urea nitrogen on the average being only slightly increased, if we except those cases which show definite evidence of nitrogen retention. Our experience would indicate that urea nitrogen figures of over 30 mg. afford an unfavorable prognosis in carcinoma of the bladder, irrespective of the therapeutic procedure. Cases illustrating some of the points are given in Table 5.

TABLE 5.—VESICAL NEOPLASMS

			Blood Analyses					
Case	Age	Date	Urea Nitrogen, Mg.	Creatinin, Mg.	Sugar, per Cent.	Carbon Dioxid, C.c.	Diagnosis	Result
1. J. G. ...	61	9/24/19	23.8	2.0	0.094	..	Papilloma	Cured
2. E. P. ...	74	9/25/19	14.0	2.2	0.139	..	Carcinoma	Improved
		10/ 1/19	23.0	2.6	0.165			
		10/13/19	15.3	1.7	0.120			
3. J. L. ...	60	10/22/19	20.4	...	.....	..	Papilloma	Improved
4. F. C. ...	57	12/12/19	56.2	4.5	0.120	43	Carcinoma	Died
5. W. F. ..	66	1/ 5/20	52.8	4.5	0.093	..	Carcinoma	Died
6. E. McC.	43	8/ 3/20	15.0	2.3	0.110	..	Papilloma	Improved
7. W. L. ..	65	8/28/20	8.5	1.5	0.121	54	Carcinoma	Improved
8. C. C. ...	58	12/ 7/20	22.2	2.2	0.116	..	Carcinoma	Improved
9. A. O. ...	62	1/ 8/21	10.6	2.5	0.135	..	Carcinoma	Improved
10. S. G. ..	56	3/18/21	15.0	2.5	0.107	..	Carcinoma	Improved

DOUBLE POLYCYSTIC KIDNEY

It is of interest to note that at the time when patients having a double polycystic kidney apply for medical aid, they almost invariably show quite marked nitrogen retention, the figures being comparable with advanced interstitial nephritis, although the retention of creatinin in proportion to the urea is higher, if anything, than in chronic nephritis.

LESIONS REQUIRING NEPHRECTOMY

While blood analyses indicate the condition of both kidneys, they are of value in determining the operability of patients with unilateral renal lesions. In such cases, the blood findings are usually within normal limits. The findings in several nephrectomy cases are given in Table 6. However, in lesions necessitating nephrectomy, the toxemia produced by the renal infection sometimes temporarily impairs the function of the other kidney, so that the urea nitrogen may be 30 mg. or more. When the diseased kidney has been removed, however, the urea drops to normal. In bilateral nephrolithiasis in which nephrotomy and nephrectomy are indicated, the information obtained from the blood, coupled with the separate phenolsulphonephthalein excretion, is of great prognostic value.

TABLE 6.—RENAL LESIONS NECESSITATING NEPHRECTOMY

			Blood Analyses			Phenolsulphonephthalein		
Case	Age	Date	Urea Nitrogen, Mg.	Creatinin, Mg.	Sugar, per Cent.	2-Hour Output, per Cent.	Diagnosis	Result
1. H. C. ..	18	11/ 4/19	23.5	1.9	0.120	50	Congenital cyst	Improved
		11/26/19	17.4					
2. M. G. ..	43	12/ 2/19	24.1	2.0	0.125	48	Hypernephroma	Died
3. A. N. ...	27	12/12/19	17.5	2.0	0.102	64	Nephrolithiasis	Cured
4. A. H. ..	23	12/17/19	14.7	1.9	0.083	50	Tuberculous kidney	Improved
5. S. L. ...	31	12/27/19	14.4	1.8	0.094	42	Tuberculous kidney	Improved
6. B. McG.	39	1/ 5/20	11.9	1.6	0.093	44	Arteriosclerosis	Improved
7. M. R. ..	44	3/19/20	11.5	1.5	0.106	..	Pyonephrosis, nephrolithiasis	Improved
8. T. F. ...	34	4/15/20	13.0	2.0	0.111	..	Pyonephrosis	Improved

SUMMARY AND CONCLUSIONS

Preoperative information on the chemistry of the blood should be secured in all surgical conditions of the kidneys, bladder or prostate. The information is of more value in prostatic than in other urologic lesions.

Of the different chemical blood tests, the urea is the most helpful, although, with urea retention, the creatinin or carbon dioxid combining power may be more significant.

Patients presenting urea nitrogen figures over 25 mg. should be operated on with caution, and best after a period of preliminary treatment directed to relieve the nitrogen retention. This applies particularly to any lesion inhibiting the output of urine.

Infant Mortality in Lima.—According to Dr. Osma, the mortality among infants under 1 year of age was 1,146 in 1917; 1,312 in 1918; 1,209 in 1919, and 1,352 in 1920; the death rate per 10,000 inhabitants being, respectively, 218, 208, 189 and 198. In 1921, out of 6,957 births, 1,900 took place at the Maternity and Public Beneficence Hospital.

COMPARATIVE VALUES OF INDIGO-CARMIN AND BLOOD BIO-CHEMICAL TESTS

IN THE ESTIMATION OF KIDNEY FUNCTION *

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A comparison of the value of indigocarmin and the rious blood biochemical tests with any idea as to ıich may be the most accurate or reliable in the deter-nation of kidney function is probably, on *a priori* ›unds, doomed to failure. Indigocarmin is, as we all ow, a dye employed to test the ability of the kidneys, health or disease, to excrete an artificially introduced ·eign substance—a so-called test of elimination. The ›od biochemical tests, three of which we have elected study in comparison, urea nitrogen, total nonprotein rogen, and creatinin, are determinations of the rogen content of the blood in one combination or other, which is held in the blood normally or in :ess in the event of disease, especially of the kidneys, :refore, so-called tests of retention.

Harrison[1] has found the provocative urea concen-.tion most useful. He says that the "urea concentra-n factor" indicates that sometimes a "normal" or most normal" urea concentration in the urine may due to excessive blood urea, and he demonstrates : importance of estimating simultaneously the urea ıcentration of blood and of urine. The alleged lacies of Ambard's urea constant as a functional ıal test, demanding its rejection, are universally :ognized. Addis[2] finds that by analyzing three ıples of blood, drawn periodically while the rate of :a excretion is measured, and dividing the rates of :a excretion per hour by the amounts of urea found the blood taken in the middle of each period, the el of the curve of blood urea concentration may be ›re accurately determined. He concludes that, normally, there is approximately fifty times more urea excreted in one hour's urine than is found in 100 c.c of blood removed during this time, and that this is independent of the actual level of blood urea concentration; furthermore, the depression of the ratio is frequently observed in destruction of actively secreting kidney tissue, although the blood urea concentration remains normal; hence, the superior value of the ratio in the estimation of renal disease. Admittedly, the only knowledge derived from a determination of the residual nitrogen of the blood is the amount present in the blood at the particular moment the blood is taken. If we consider the sources from which these substances are derived, it becomes apparent that they are quite variable. Barát and Hetényi[3] point out that doubtless a part is due to retention of nitrogen in the blood itself in consequence of impaired renal function, and a part results from the process of protein decomposition in the tissues. Then there is the possibility of reentry into the tissues of certain nitrogenous and other waste products retained in the blood. Monokow[4] first demonstrated that an increase of residual nitrogen is possible without exogenic accumulation; namely, when there is an excessive decomposition of protein occurring in the organism and secretion is unable to keep pace with the increased requirements. Nitrogen retention, therefore, may be inferred only in those cases in which there is no increased decomposition of protein in the organism. Falte[5] found that, in the case of uremia patients, residual nitrogen is always present in the red blood corpuscles; whereas, normally, these contain not a trace; and he looks on uremia as a poisoning of the parenchymatous cells by nitrogenous products.

Although, for a long time, it has been contended that the positive or negative nitrogen balance is the decisive factor in the determination of the present status and prognosis of renal function, it would seem that enough evidence has been cited above to indicate that the blood biochemical determinations of nitrogen as infallible proof of true urea concentration of the blood and kidney insufficiency must be viewed with grave suspicion. It is not uncommon to note certain incongruities or serious discrepancies between the clinical aspect of cases and laboratory analyses. Experience,

TABLE 1.—NORMAL KIDNEY CASES

	Indigocarmin								Blood Chemistry			
	Intramuscularly				Intravenously							
'ase	Date	Onset in Min.	Quantity in 3 Hrs., per Cent.	Index	Date	Onset in Min.	Quantity in 1 Hr., per Cent.	Index	Date	Urea Nitrogen, Mg. per 100 C.c.	Total Nonprotein Nitrogen, Mg. per 100 C.c.	Comment
B. M.	1/ 7/17	10	24.5	4.0	....	..	.....	....	1/ 8/17	15	30	Bilateral epididymitis; urine neg.
Z.	5/ 9/17	10	23.31	3.5	....	..	.....	....	5/ 9/17	10	31	Spermatocystitis; urine negative
H. C.	1/ 7/22	10	31.26	2.01	1/11/11	4½	54.13	3.79	1/ 7/22	12	30	Gonorrheal arthritis; urine neg.
G. B.	1/ 9/22	13	23.88	3.84	1/14/22	4	35.57	4.49	1/ 9/22	11	27	Inguinal adenitis; kidneys normal
O. C.	1/10/22	10	45.16	4.22	1/16/22	5	62.97	4.35	1/10/22	13	30	Inguinal adenitis; kidneys normal
J. B.	2/20/22	8½	19.52	2.73	2/11/22	3½	50.69	3.15	2/20/22	11	29	Urethral stricture; kidneys normal
B. S.	2/21/22	7½	39.74	4.12	2/11/22	4	48.99	4.67	2/21/22	12	30	Chronic urethritis; kidneys normal
C. N.	2/25/22	10½	28.21	1.82	2/13/22	6½	36.6	2.85	2/25/22	10	30	Chronic urethritis; kidneys normal
J. S.	2/27/22	9½	17.41	3.29	3/10/22	6½	34.53	3.44	2/27/22	10	26	Chronic urethritis; kidneys normal
J. M.	10/ 3/21	..	10.5	3.12	10/ 6/22	6	45.63	2.53	10/ 3/21	22	27	Lumbago; urine negative; indigocarmin intravenously 10/3/22, 4 right, 3½ left, cystoscopically
A. C.	2/ 4/16	**10**	15.96	**1.9**	....	..	.....	....	1/31/16	**18**	..	Epididymitis; urine cloudy with albumin, hyaline casts
W. J.	3/ 4/22	..	36.5	**1.2**	....	..	.....	....	3/ 3/22	**15**	32	Syphilis; neo-arsphenamin reaction; urine: specific gravity 1.008; no albumin, sugar nor casts

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* Read before the Section on Urology at the Seventy-Third Annual sion of the American Medical Association, St. Louis, May, 1922.

* Because of lack of space, this article is abbreviated in The Journal, omission of most of Table 2. The complete article appears in the nsactions of the Section and in the author's reprints.

1. Harrison, G. A.: On Urea Tests of Renal Function, Brit. J. ›er. Path. **3**: 28 (Feb.) 1922.

2. Addis, Thomas: Determination of the Extent and Nature of the ıal Lesion, in Bright's Disease, California State J. Med. **20**: 90 arch) 1922.

3. Barát, and Hetényi, Géza: Nonprotein Nitrogen in the Blood and Tissues in Renal Diseases, Deutsch. Arch. f. klin. Med. **138**: 154 (Jan.) 1922.

4. Monokow: Quoted by Barát and Hetényi, Footnote 3.

5. Falte: Quoted by Barát and Hetéyni, Footnote 3.

on the other hand, has demonstrated beyond question that the blood chemical tests, either alone, collectively or in conjunction with certain of the tests of elimination, are of great, if not indispensable, value in the estimation of renal function and surgical risk. Quantitative metabolic study, concededly, is the most accurate test of kidney function; but, because of its impracticability, at least for the surgeon, it has long since passed into the discard. It is with righteous concern, therefore, that the urologic surgeon views the work and recommendations of Addis[2] whereby the determination of urea concentration becomes further complicated. Certainly, the laboratory determinations of nitrogen retention in the blood are already sufficiently technical, laborious and time-consuming; and, unless it can be shown that these retention tests possess decided value and advantage over certain of the tests of elimination, it becomes questionable whether they merit the confidence at present reposed in them. All things being equal, the most practical test is the best and is the one that will survive the longest. We are convinced that the time will never come when any functional kidney test will be found infallible, or when reliance can be placed, without exception, on a single one to the exclusion of all others. Obviously, none of the tests of elimination, dependent on examination of the urine, necessarily obtained by catheter, can be relied on or utilized in all cases, notably those possessing impassable or forbidden urethras. Under such circumstances, one or more of the blood chemical tests admirably supplies the required information and invariably suffices to determine satisfactorily the degree of blood urea concentration and functional activity of the kidneys.

TABLE 2.—PATHOLOGIC CASES

	Indigocarmin, Intramuscularly				Blood Chemistry				
Case	Date	Onset in Min.	Quantity 3 Hrs., per Cent.	Index	Date	Urea N., Mg. per 100 C.c.	Total N. P. N., Mg. per 100 C.c.	Creatinin, Mg. per 100 C.c.	Comment
1. S. R.	8/ 8/15	20	12.78	1.9	8/ 8/15	..	42	...	Prostatic hypertrophy; residual urine, 14 ounce prostatectomy; recovery
	8/10/15	20	21.83	1.8	8/10/15		32		
2. J. H.	12/23/15	8	24.85	5.1	12/24/15	10	..	...	Prostatic hypertrophy; prostatectomy; recovery
3. M. T.	4/ 3/16	23	2.75	1.3	4/ 3/16	23	..	...	Prostatic hypertrophy; prostatectomy; recovery
4. W. H.	12/28/15	16	26.14	0.4	12/29/15	..	33	...	Prostatic hypertrophy; prostatectomy; recovery
	12/31/15	13	26.20	2.9					
5. S. C.	2/10/16	20	20.07	1.07	2/ 7/16	22	64	...	Prostatic hypertrophy; prostatectomy; recovery
	2/21/16	18	21.56	4.06	2/17/16	18	56		
6. W. B.	3/17/16	85	6.16	0	3/13/16	..	81	...	Prostatic hypertrophy; prostatectomy; recovery
	3/27/16	40	13.51	0.5	3/18/16	30			
	4/ 8/16	18	17.38	1.5	3/27/16	..	67		
					3/28/16	18	..	2.2	
					4/ 6/16	..	60		
					4/ 8/16	19			
					7/12/16	28	58	3.2	Prostatic obstruction; prostatectomy; recovery
7. E. K.	7/12/16	61	11.58	0	7/24/16	10	34	2.8	
	7/24/16	16	25.20	1.5					
8. S. B.	8/15/16	33	34.33	2.1	8/16/16	26	44	...	Prostatic hypertrophy; urine normal; prostatectom recovery
9. W. S.	9/25/16	11	29.54	1.4	9/25/16	8	22	...	Prostatic hypertrophy; prostatectomy; recovery
10. R. P.	10/18/16	50	16.56	1.0	10/18/16	11	56	...	Prostatic hypertrophy; prostatectomy; recovery
	10/26/16	10	21.4	2.8	10/26/16	8	40		
11. B. B.	10/25/16	22	25.40	1.5	10/25/16	18	..	...	Chronic prostatitis and hypertrophy; prostatectom recovery
12. G. L.	1/18/17	55	19.28	1.3	1/17/17	24	44	...	Prostatic hypertrophy; myocarditis; blood pressur systolic 240, diastolic 165; hyaline and granu casts; died
13. A. G.	5/30/17	26	14.50	1.2	6/ 4/17	17	..	...	Prostatic hypertrophy; prostatectomy; recovery
14. J. R.	5/27/19	35	5.9	0.33	5/25/19	24	..	...	Prostatic hypertrophy; blood pressure: systolic 1 diastolic 125; myocarditis; prostatectomy; died
	5/30/19	18	11.74	0.39					
	6/ 2/19	14	16.4	2.59					
15. H. M.	5/26/19	11	4.22	?	5/25/19	21	..	...	Prostatic hypertrophy; paralysis agitans; no oper tion

It is our purpose to compare the findings of the indigocarmin functional kidney test with those of three of the commonly employed blood chemical tests: urea nitrogen, total noncoaguable nitrogen and creatinin. We have never claimed that indigocarmin is the best agent for the determination of combined kidney function, but we believe that, when properly employed, it is superseded by no other. Moreover, in unilateral dete minations and from the standpoint of practicabilit and reliability, in many instances, it has no peer; fo in not a few cases, we have employed it with satisfa tion when no other test was applicable.

The present comparative study comprises a revie of these functional tests in a series of patients wit supposedly normal kidneys (Table 1), and a series c pathologic cases embracing diverse affections of th urogenital tract (Table 2). One, two or occasionall all three of the biochemical blood tests have bee applied to each patient, usually on the same day th indigocarmin was employed, although this has not bee possible in many instances, which may account fc certain disparity in the results. In the employment c indigocarmin, three methods of injection have bee practiced: the intramuscular, the intravenous and th cystoscopic. By the last is meant chromo-ureteroscop or the observation of the onset of the elimination of th dye from the respective ureteral orifices, followin intramuscular or intravenous injection. Obviousl this may be combined with the quantitative determin tion of the dye, intramuscularly or intravenously. I our employment of indigocarmin, if possible three fa tors are considered in estimating the functional activit of the kidney: the onset of elimination, the quantit tive output and the index of elimination; and greate of these is the index. It is the most important becaus its determination depends on the onset of eliminatio and the quantitative output for alternate periods. It i a well-recognized fact, that, in the event of damage kidneys, the onset of the dye excretion is delayed, it quantitative output diminished, and its duration o elimination prolonged. Therefore, the quantity col lected during the third part of its period of maximur elimination may, and in the case of damaged kidne usually does, exceed that for the first third of thi period. The average normal in ambulatory persons i approximately five times as much in the first as in th third part of this period. In inactive or bedridde patients, this ratio may fall as low as one. Any valu low one places the patient in the negative phase and ntraindicates surgical intervention, except at great unwarranted risk.

We believe that the index of elimination of indigo- rmin furnishes, from a single determination, a more liable guide as to the stability of renal function than y single quantitative determination for the entire riod. It is true that the stability of function may be ged also by comparative repeated quantitative deter- inations; but the index estimated conjointly portrays en more graphically the rise or fall into the positive the negative phase of renal activity and surgical sk.[6] It would also appear that the mere onset of mination of the dye parallels precisely the nitrogen tention tests, and would seem to be of equal value ere it possible always to determine the true onset; but cidents interfering with catheter collections are one to occur, and necessarily mar or nullify the sults. In order to overcome certain objections to the tramuscular method, namely, catheter tolerance, for ree hours, and its attendant mishaps,[7] muscular pain d subsequent tenderness associated with the intra- uteal injection of 20 c.c. of solution and an unneces- ry consumption of time, we recently have been timating the index following intravenous injection, ploying one quarter of the intramuscular amount, 5 c.c. of a 0.4 per cent. solution of indigocarmin; d I can report that the results are even more satis- ctory than with the intramuscular method. Intra- nously, the specimens are collected at intervals of enty minutes, instead of hourly as is necessary for e intramuscular use of the dye, and the index is termined by taking the ratio of the first and third enty-minute outputs. The comparative values for rmal kidneys may be judged by reference to Table 1, d the close parallelism between the intramuscular d intravenous indexes noted. Parenthetically, it ould be stated here that we have in course of publica- n an article[8] showing that phenolsulphonephthalein, r those who prefer its use, can be utilized with equal not superior advantage in the determination of the dex of elimination.

A review of Table 1, showing normal cases, reveals strikingly close parallelism between the results of the digocarmin and the blood nitrogen retention tests. tramuscularly, the dye appeared (by catheter) in om seven and a half to ten and a half minutes. The rcentage output for three hours varied from 10.5 to .16. The index ranged from 1.2 to 4.22. Intra- nously, the onset (by catheter) occurred in from ree and a half to six and a half minutes. The per- ntage output, for one hour, varied from 34.53 to .97. The index ranged from 2.53 to 4.67. Cysto- pically, after intramuscular injection we have served the dye appearing at the ureteral orifice in three minutes, and as early as two minutes following intravenous injection. If it does not appear in twenty minutes after intramuscular injection, or in ten minutes after intravenous administration, the kidney should be regarded, probably, as functionally insufficient or seriously diseased. The estimations for blood urea nitrogen varied from 10 to 22 mg. per hundred cubic centimeters; those for total nonprotein nitrogen from 26 to 32 mg. per hundred cubic centimeters of blood.

Neither time nor space permits a detailed critical review of the ninety pathologic cases tabulated in Table 2. Suffice it to say that the parallelism existing, excepting in a few instances in which errors crept in to mar the results, between the values for indigocarmin intramuscularly, intravenously or cystoscopically, and those for the three blood biochemical tests employed, is most striking. A careful analysis of the tabulated cases will reveal the fact that indigocarmin, as employed, has proved itself eminently reliable as a gage of kidney function; also, that the three blood chemistry tests likewise have proved their reliability; that of these, if there be any choice, urea nitrogen is probably the most practical and best; that, if a supplementary or confirmatory test to indigocarmin or one of the elimination tests is indicated, as is not infrequently the case, one of the blood biochemical tests, notably the urea nitrogen should be employed; that both tests of elimination and retention are indispensable for the proper and best conduct of our work, and that if the values for indigocarmin are found to be normal, any other test is superfluous.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. BERGLUND, OLMSTED AND CAULK, FRONTZ AND GERAGHTY, SQUIER, BANDLER AND MYERS, AND THOMAS

Dr. L. G. Rowntree, Rochester, Minn.: When depending on the urea method alone, it is essential to run controls occasionally, a procedure too often neglected. Urea is not always as active as it might be. But for general purposes, I believe that blood urea is the most useful and practicable of the various blood determinations. All of our work goes to confirm the results of Myer and Chase. The relative ease with which urea, creatinin and uric acid are excreted is of peculiar significance. Uric acid is the first to accumulate. I believe that I have seen at least one case of gout of renal origin due to the inability of the kidney to excrete uric acid. Creatinin is the most significant from the prognostic point of view. The blood urea is subject to change from the standpoint of diet and so forth, which failed to affect the creatinin level. In 1,500 cases studied at the University Hospital, Minneapolis, there were seventy-three cases with 5 mg. or more and thirteen with 10 mg. or more of creatinin for each 100 c.c. Of these thirteen patients, nine died in the hospital under observation, and three of the others died within three or four months after leaving the hospital. Twelve of the thirteen died inside of four months. The only patient to recover was one on whom prostatectomy was performed. This patient was in fair condition, with fair renal function at the end of a year. I have followed one patient with chronic nephritis, who has lived one and one-half years subsequent to the creatinin peak reaching 16 mg. for each 100 c.c.; but this is extremely unusual. The carbon dioxid combining power of the blood is of importance in relation to acidosis and alkalosis. Dr. Tucker became interested in a form of nephritis which is encountered sometimes subsequent to gastro-enterostomy. It is related in some way to duodenal stasis, and may develop under either the surgical or the medical care of ulcer. It is characterized by renal insufficiency, and a tendency to alkalosis and to tetany. Edema is usually absent. The blood chemistry is characterized by the usual evidences of renal insufficiency by a high carbon dioxid combining capacity of plasma and a low chlorid content. Pathologically, it is a degenerative process. Recognition of certain principles has played a part in this progress. Fixation of urine accompanies renal insufficiency: the loss of ability of the kidney to dilute and concentrate the urine. This is of great importance in nephritis. In testing this function, we have utilized as a routine the methods as outlined by Volhard and Fahr. Fixation occurs in disease; also in relation to the excretion of acid and alkali. Leathes has shown that in health there is a constant morning alkaline tide, and that this is affected in acute nephritis. McCorvie has found that in chronic nephritis also the alkaline tide is decreased or absent, and in some instances he has encountered instead an acid tide. Three or four patients showing this phenomenon died. Marshall and Davis showed that urea is distributed in apparently the same concentration throughout all the tissues of the body, with the exception of fat, bone and skin. Dr. Hench has been interested in the distribution of urea in the various secretions of the body. His findings in relation to saliva are of unusual interest. When urea accumulates in the blood in renal insufficiency, it is excreted in increasingly larger quantities by way of the saliva. Whereas, normally, the combined urea and ammonium nitrogen of the saliva is not more than 13 mg. for each 100 c.c., in uremia it may exceed 150 mg., indicating a salivary urea of more than 300 mg. Since urea is subject to hydrolysis, the combined nitrogen rather than the urea nitrogen is determined. The saliva may yield all the information necessary relative to urea retention. Hench's work promises to be of practical importance to medicine.

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[6] Thomas, B. A.: The Rôle of Functional Kidney Tests and Pre- rative and Postoperative Treatment in the Reduction of Prostatectomy rtality, J. A. M. A. 63: 1909-1915 (Nov. 28) 1914.

[7] Too much emphasis cannot be laid on the necessity for the accurate ection of specimens of urine during the period of elimination of igocarmin. Improper catheter drainage or block must be avoided l, at the termination of the hourly or twenty minute periods, an erienced attendant must make certain that the bladder is emptied completely as possible. It is our practice to require that the son making the colorimetric quantitative readings record and report k with the colorimetric findings the exact amount of urine collected each of the three periods and sent to the laboratory. This serves a valuable check in locating and rectifying errors of technic, which erwise may render the results worthless.

[8] Thomas, B. A., and Min Hsu, W. I.: Studies on the Output Indigocarmin and Phenolsulphonephthalein After Intravenous and ramuscular Injections; With Special Reference to the Index of nination as a Control of Surgical Risk, Urol. & Cutan. Rev., to published.

Dr. William Engelbach, St. Louis: We all agree as to the absolute value of these tests, particularly in the chronic types of kidney disease, or in any condition in which the kidney is affected secondarily, as it frequently is in genito-urinary conditions. I was struck early in the development of these tests, however, with the very good apparent function, or, at least, the very good ability the kidney had to excrete dyes and to take care of the retention products in the acute renal lesions seen so frequently by general practitioners and internists. One is surprised in these very acute cases in which there is a classical urine with casts, etc., that the phenolsulphonephthalein test will be practically normal. That is true in all cases, but in quite a number a repeated blood nitrogen test runs below 30. I think that bears out to a considerable extent the course and duration we may expect in those cases. As long as we have these normal blood products and normal dye excretions, we can feel pretty sure that the prognosis is not particularly bad. In these acute cases, these specific estimations can be used as indicative of the prognosis more than of the actual damage of the kidney lesion. We are very fortunate in having these aids in the chronic cases in which we have the so-called negative urinary findings, although if we go into the detailed interpretation regarding kidney function we certainly have a good deal of evidence on which to make a diagnosis of at least a renal cardiovascular lesion.

Dr. Hugh Cabot, Ann Arbor, Mich.: This group of papers seems to show two things: the amount of work being done, and the very general agreement between the men who have been studying the problems. Those examinations that can be carried out only by the very specially equipped laboratories are of little value to the general medical man. It has been clearly brought out that of the various tests of blood nitrogen, one, on the whole, is far superior for most purposes to the others, and that is the determination of urea. I entirely agree that the phenolsulphonephthalein test of Rowntree and Geraghty, and the test for blood urea, are the tests most valuable for the physician in general medicine, and that those two tests do not test the same thing. It has been brought out very strikingly that the phenolsulphonephthalein test will show changes in the kidney which have been going on for a very short time, a time at which changes in the blood will not occur. There is, I think, among many who are using the tests a tendency to regard changes in blood chemistry as of far more importance than is usually the case. For instance, a high blood urea does not necessarily mean a bad prognosis for the patient if properly handled. The prognosis does not depend on what the blood urea is today but what it will be a week or a month from today under appropriate methods of treatment. It is not a contraindication for operation, except at a particular time or by a particular method. Trivial operations may be done; for instance, suprapubic opening of the bladder, when the use of the in-lying catheter is for some reason not to be considered. We cannot give a prognosis in the sense that we might were we dealing with the question of chronic nephritis. It is a very different problem and one not to be measured by examination on any one occasion. I do not find myself able to go the distance with Dr. Thomas, for it appears to me that with the phenolsulphonephthalein test we have a method that is more easy of management for the patient, less unsettling both to his consciousness and to his insides, and, on the whole, more accurate—not subject to so many variations. There is a definite field in which this test is of value, but not so much as a test of the condition of the kidney as an aid to finding ureter orifices. I find that my young associates resort to the use of the indigocarmin test more than I do. It is of value as an aid to the cystoscopist, but not, I think as a test of kidney function.

Dr. Victor C. Myers, New York: The phenolsulphonephthalein test beautifully supplements the various blood tests. This is particularly true in cases in which there is no urinary obstruction. The surgeon or internist who cannot personally give attention to the details of the collection of the urine may occasionally be misled by the test, however, and, partly for this reason, it is possible to place greater reliance on the blood findings. Dr. Berglund has presented some data which I think we shall appreciate better after a few years than we do now, just as we appreciate the work of Folin better now than we did ten years ago. Both Dr. Rowntree and Dr. Cabot have referred to the necessity of having the various tests controlled. This cannot be overemphasized. It occasionally happens in the urea determination, which is the most useful one urologically, that the urease is inactive. I have had people tell me that they were getting figures around 8 and 9 mg. Most likely their difficulty was in the urease. In any case urease preparations should be controlled with pure urea. Blood chemistry requires very careful work, and persons who do not understand biochemistry should not undertake these determinations. Dr. Rowntree mentioned the fact that the urea of the saliva has the same concentration as in the blood. We have also made this observation, but it seems that the saliva also contains some ammonia, and this is a factor that may need to be taken into account. As Folin and others have pointed out, the blood contains only a mere trace of ammonia. It may be possible, however, to secure information regarding the blood urea in a very few minutes from the saliva. I do not say that this is true, but it may be true.

Dr. Russell Wilder, Rochester, Minn.: The point that Dr. Berglund emphasized, namely, that some light was being thrown on the unknown fraction, nonprotein nitrogen of the blood, was extremely interesting.

Dr. Benjamin S. Barringer, New York: In one case, similar to those referred to with high blood urea, a carcinoma of the prostate became very much diminished. Only a very small quantity was passed every little while. The blood urea went up slowly, and in two weeks it had reached 129, and the creatinin was 27 or 28. At that time the patient began to pass a little more urine, and in the course of a week or two the blood picture was very nearly normal. It is interesting to know that any patient could have as much retention as that and still get back to normal. I think if any operation had been attempted at this period, he would have died. He died about two months later. One point in comparison of the blood chemistry with indigocarmin or other determinations, irrespective of what one may be using them for: The blood urea should be more accurate. One draws so much blood, and if the estimation of the chemist is right one may depend on it, while with phenolsulphonephthalein one has 5 per cent. error in the reading. If the house staff is careless, the patient may not have been catheterized to get the specimen, which error invalidates the test if the patient has sidual urine. I think one can depend absolutely on the ›od estimation but not absolutely on the phenolsulphonethalein test; but the safest method is to use both.

Dr. George Lee Eaton, San Francisco: The majority of are competing against the pathologic condition within the imal economy. What are the reasons for these biologic oducts within the blood? Do we have to use the kidney ›nction alone to determine that they are the signal lights danger, where on the other hand, we may be confronted th uremic symptoms without any changes in the output the kidney? Many times these cases with high urea tention will show a high amount of water but a low amount urea. These papers have touched very little on endoinology. It was two or three years ago that I tried to ›p a hemorrhage of the kidney by using epinephrin, and und it had a vital function on the kidney and on the cirlation of the heart. Along that line we carried on experients in terminal cases in which urea retention was up to or 60, and within a short time after the injection of epiphrin into the kidney by the ureteral catheter the blood ›sion went down markedly when high. It is remarkable w epinephrin will influence the blood pressure when it injected into the kidney.

Dr. Louis E. Schmidt, Chicago: In all of this compara›e work there has been an effort to establish a method of termining the function of the kidney as well as the reten›n products of the blood. I have always attempted to bring the question of some of the physical methods of examina›n, and I have particular reference to cryoscopy. These pers have demonstrated to me more than ever that cryospy is of value. It was originally stated that cryoscopy of e blood was of no value, but it is being admitted today at estimation of blood urea, nonprotein nitrogen, creatinin d sugar are important factors. Frequently, attempts have en made to show a definite relationship between the varis retention problems. I am inclined to believe there is ne. I believe there is a rather definite relationship between total blood chemistry, not of the individual retention oducts, and the blood cryoscopy. When many people object the period of time that is required in these tests, and as a eat deal of this blood chemistry cannot be done except by chnicians, I would recommend that blood cryoscopy be done, it can be carried out with ease and accuracy. There are ›n who have done blood cryoscopy for thirty years and ring all this time have considered it of the greatest value. ›e most marked exponent is Kümmel of Hamburg. I am ›lined to believe that many examinations such as these ›uld add materially to the value of these papers in coming more definite conclusions as regards the prognosis in cases which operations are being considered.

Dr. Henry J. Scherck, St. Louis: In 1917, in conjunction th Dr. Gradwohl, I read before the American Urological sociation a report on forty or fifty cases in which we had empted to make a definite study between the phenolsulonephthalein output and the blood chemistry in obstruction ›ditions of the lower urinary tract. I am glad to hear lay that many of the conclusions we reached have been ›ified. In his early work in experimental nephritis, Folin ›nd a great discrepancy between the phenolsulphonethalein output and the blood chemical findings. We found same discrepancies. We reached two conclusions: The enolsulphonephthalein indicated the function for the ›ment, and the blood chemistry indicated the real working ›wer of the kidneys. The same opinion was brought out two of the authors today. Another conclusion was that ›re are three sets of conditions which would make us pause accepting the kidney function from the phenolsulphonethalein test alone. This seems to emphasize the necessity correlating the two and taking them together. Our obser›tion of the two methods has forced us to the conclusion ›t the function of the kidney cannot be estimated in sur›ry, except by the function as shown by the phenolsulphonethalein test and by blood chemistry together. It is not the mediate knowledge we get from the test that furnishes us basis on which to decide a reasonable prognosis, but both gether and by the repeated use of both in suitable cases. The findings and figures brought out by Dr. Thomas are practically the same as we brought out then; that is, when the creatinin got above 4 we thought and proved and believed that in the majority of cases the death rate would be extremely high, and the knowledge of retention of creatinin is more indicative of danger than the other forms of nonprotein nitrogens.

Dr. Hilding Berglund, Stockholm, Sweden: The question of the importance of control has been emphasized. Besides the need of checking up the urates, we must also remember that the acidity of the filtrate is to be controlled so that one does not work with a too acid filtrate that kills the rays.

Dr. B. A. Thomas, Philadelphia: I did the best I could to demonstrate what I believed to be the comparative value of indigocarmin versus the blood chemistry tests. I believe I have shown that indigocarmin possesses value the equal of the blood chemistry tests. I have never contended that it supersedes any other test. There are certain things which should place the balance in favor of phenolsulphonephthalein for combined kidney function, but I feel that one can apply indigocarmin to all conditions, surgical and medical, and if I had to select one test to the exclusion of all others I should select indigocarmin. I would call attention to the fact that there are certain surgical conditions, particularly ureteral conditions, in which I believe it is without a peer; also in the determination of the side affected, particularly in tuberculosis of the kidney. I have seen many cases in which it has been impossible to catheterize one or both ureters when no other test has been able to measure up to the requirements as indigocarmin has done.

BONY BRIDGING IN TUBERCULOSIS OF THE SPINE *

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Bony bridging of the vertebrae in spondylitis has been considered, since the advent of roentgenology, a distinct evidence of the nontuberculous nature of the disease. Hypertrophic changes and bony ankylosis have long been known to occur subsequent to mixed infections resulting from incision and drainage of cold abscesses produced by tuberculous infection, but the fact that such bony changes occur when no drainage has been established has been considered sufficient evidence to rule out tuberculosis, and has been generally accepted as pathognomonic of certain other types of infection. Tuberculous spondylitis has been frequently and necessarily confused with such conditions as spondylitis deformans, traumatic spondylitis and other vertebral affections in their incipience; but as soon as hypertrophic bony changes were manifest, the possibility of the lesion being tuberculous was dismissed and the condition has generally been treated as a nontuberculous disease.

The fallacy of this deduction was first brought forcibly to my attention in November, 1917, when an Italian laborer, aged 24, was admitted to the orthopedic service of the Cincinnati General Hospital complaining of pain in the lower portion of the back and right thigh. Examination revealed a retraction of the right psoas muscle, and rigidity of the lumbar spine, with an inability to bend forward and to the right. A roentgenogram taken on admission revealed bone destruction in the bodies of the second and third lumbar vertebrae, with a distinct bony bridge extending from the second to the third lumbar on the right side. Soon after admis-

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* Read before the Section on Orthopedic Surgery at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

sion, a cold abscess developed in the psoas sheath; this was aspirated with aseptic precautions and the pus was inoculated into a guinea-pig, which promptly developed tuberculosis.

This and similar cases [1] led to a more careful observation of other patients suffering with spondylitis, whose roentgenograms revealed the presence of bony bridging previous to aspiration or drainage of the cold abscess, and also in others who never developed an abscess, yet in whom the true tuberculous nature of the disease was substantiated by every other sign and symptom present. In at least one out of every ten cases of tuberculosis of the spine, the roentgen ray disclosed a deposit of lime salts projecting from the body of the diseased vertebra or joining it with its fellow in the form of a bony bridge.

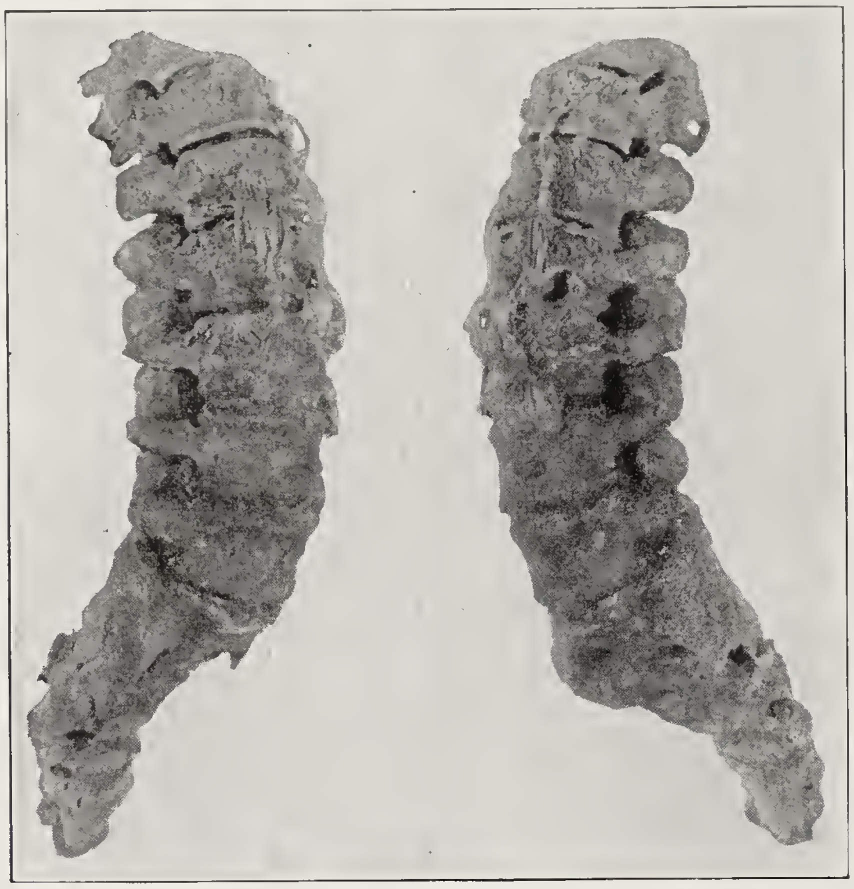

Fig. 1.—Two views of a case of tuberculosis of second lumbar vertebra, with abscess from which tubercle bacilli were obtained before secondary infection had occurred; bony bridging and periosteal production of new bone.

It appears that bony bridging in tuberculosis of the vertebrae most often occurs from a calcareous deposit in either an anterior or a lateral intervertebral ligament, which presents in the roentgenogram a hornlike protrusion springing from the edge of the diseased vertebral body and extending toward the one adjacent to it, or which may form in the middle portion of the intervertebral ligament and extend in both directions until the vertebrae are united. Bony bridging of the vertebrae may occur also by a process of periosteal production of new bone extending from the body of one vertebra toward its adjacent fellow, and this process may extend until it completely encapsulates the disk, producing a solid external fixation of the two vertebrae. It has also been observed that bridging is not necessarily confined to the region in which the carious destruction has taken place, but may unite two or more of the vertebrae on either side of the tuberculous lesion.

Analogous conditions in other joints affected by tuberculosis are not so often observed; however, we do occasionally see an attempt at bony fixation by calcification of the ligaments or tendons which control the diseased joint; this is especially true of the knee joint.

There are many factors which may influence the production of new bone in tuberculosis of the spine. It has not been observed in children, the youngest patient having been 23 years of age and the oldest 60. There is no evidence that the human or bovine types differ in this respect, but the virulence of the tubercle bacillus or the immunity and resistance of the individual may play an important rôle. It is doubtless true that many cases of tuberculosis of the spine among the laboring class, who have superior physical strength, develop slowly and often go unobserved for prolonged periods. This may be a contributing cause, or the bridging may explain why these cases remain symptomless. Hypertrophic bone changes occur coincident with low grade, chronic infections; and, since tuberculous infection of the vertebrae frequently simulates very closely some of the other chronic infections, there is no reason why similar pathologic changes may not take place.

It is a common observation that mixed infections will often cause hypertrophic changes to occur in tuberculous lesions of the spine; may it not also be possible for a similar condition to result from secondary infection originating from some septic focus harbored in the body and carried by the blood stream in like manner as the tuberculous infection, and thereby find lodgment in the diseased vertebra? Thus, the patient may be harboring two entirely different infections at the same time, one prone to produce an atrophic arthritis, and the other hypertrophic changes in the diseased articulation.

It is possible that the spinal articulations react differently to infection and inflammation than to other joints of the skeletal structure. Presumably the same type of infection produces hypertrophic arthritis of the hip and knee joints that produces ostearthritis of the spine. However, the hip and knee will be limited in motion only by the mechanical obstruction produced by the hypertrophic changes about the joint, but the spine will be firmly ankylosed, producing a poker back. Is it not possible, therefore, that the same type of infec-

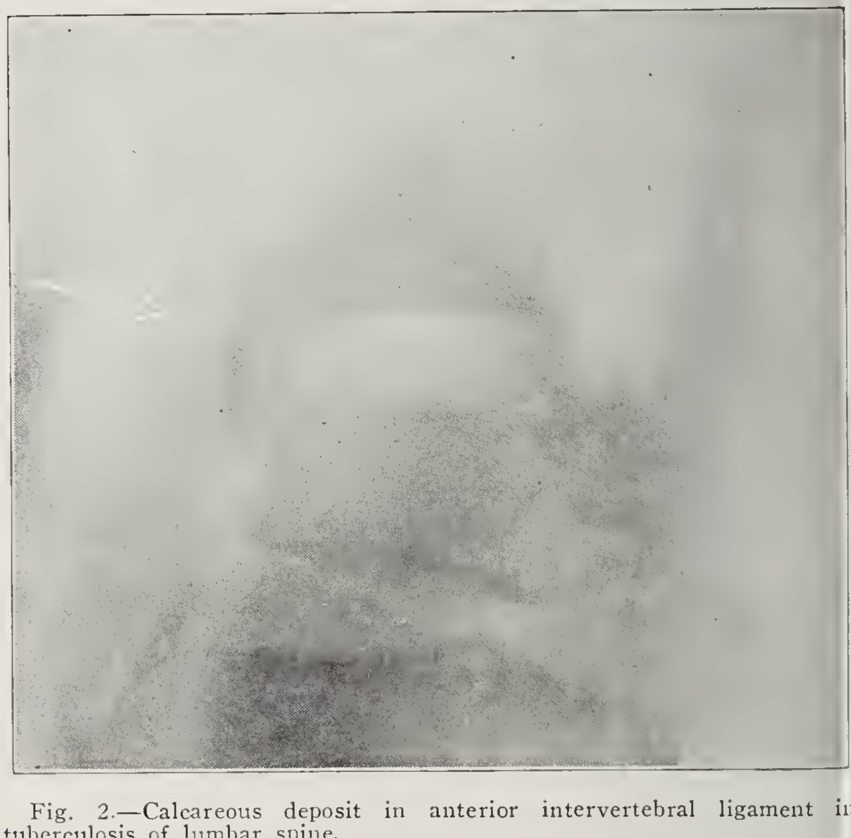

Fig. 2.—Calcareous deposit in anterior intervertebral ligament in tuberculosis of lumbar spine.

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1. Cofield, R. B.: J. Bone & Joint Surg. **4**: 332-341 (April) 1922.

tion may at times produce a different reaction in different regions of the body? Since that portion of bone lying in close relation to the periosteum possesses the greatest osteogenic function, it is possible that a tuberculous inflammation occupying the superficial portion of the vertebra will be more likely to be productive of new bone than a lesion farther removed from the surface. The location of the lesion in the vertebra, therefore, may be a determining factor, especially in the periosteal production of new bone.

There is still another factor which may have a very important influence on the production of new bone in the region of diseased joints; that is, the mechanical or static influence. Any chronic inflammatory process produced by an actual or referred injury calls forth a series of changes with an attempt to repair. Bone growth ceases only because its development has produced a structure such that mechanical stimuli no longer influence it to grow; but if one places unusual strain on bones, unusual development will at once take place. Bony bridging in tuberculosis of the spine has been most commonly observed to occur in the region of the dorsolumbar and lumbar vertebrae. It is possible, therefore, that this unusual attempt to repair is seen most frequently in the dorsolumbar region because this particular portion of the spine sustains the strain of greatest weight bearing and motion.

It makes little difference whether bony bridging in spondylitis is produced by the tuberculous infection or by some other agency acting in conjunction with it; the fact remains that certain cases of spondylitis which present bony bridging are tuberculous in character, and the presence of new bone is not sufficient evidence to rule out the possibility of a tuberculous lesion.

Fig. 3.—Tuberculosis of third lumbar vertebra, with anterior bony bridging between second and third lumbar vertebrae.

ABSTRACT OF DISCUSSION

Dr. F. C. Kidner, Detroit: The further we go in the diagnosis of bone lesions, the less we can say about their appearance in the roentgenogram. The same lesions vary much in appearance. At the same time, it is unfair to say that, because we have not the typical appearance in the spine, we are not dealing with tuberculosis. Many other factors may enter. Traumatism may produce a calcified area of bone or ligaments and, as Dr. Cofield said, infection somewhere else may produce an overgrowth of bone in the region of the tuberculosis. We ought to keep our feet on the ground in these cases and remember that most tuberculosis does not show hypertrophic overgrowth. If we do not, we are going to be in great danger of diagnosing tuberculosis when it really is not there at all.

Dr. Willis C. Campbell, Memphis, Tenn.: Unquestionably, bone tissue may react in a similar manner to different irritants. Mr. Fraser pointed out a number of years ago that we might have new bone formation in tuberculosis of the bone. Consequently, it is quite possible that these spurs may be associated with tuberculosis. In fact, I have seen spur formation not only in tuberculosis but also in other atrophic types in spondylitis. In 1916 I described a certain type of local spondylitis that gave very similar symptoms to tuberculosis. I am absolutely sure that the type that was mentioned by me was not tuberculosis. There was no atrophy whatever in the bone. It was apparently an infection of the intravertebral disks. The condition is very acute and often follows an acute infection such as pneumonia or typhoid fever. A typhoid spine may show spur formation. I am equally certain that there may be an overgrowth of bone and osteophytes in tuberculosis. I do not think that it occurs with any degree of frequency, but I am positive, from my own experience, that such may be the case. However, that the origin is from a secondary focal infection, I am by no means certain.

Dr. Robert Cofield, Cincinnati: We have been taught that any hypertrophic change occurring in spondylitis is not tuberculous in nature. The twelve cases which I have had all showed definite bony bridging and, by every means possible in making the diagnosis, we were as certain as we reasonably could be that they were tuberculous cases. I have no proof, however, of the different factors which I mentioned in the paper as being the causation of the bony bridging other than the tuberculosis. I firmly believe that tuberculous infection in the vertebrae can of itself produce bony bridging, almost the same type of bony bridging we see in hypertrophic arthritis or osteartlhritis, as it is often termed. After an Albee bone graft operation, a bridge connecting the vertebrae on the anterior surface was noted, showing that more than the Albee bone graft helped to stabilize the spine. I would not hesitate, however, to do a fixation operation, an Albee or other spinal fusion operation, even though there was some bony bridging, because I do not believe the bridge is always of sufficient strength to produce the fixation that we like to see in the spine in order to accomplish a cure quickly. Many of these patients have had abscesses, and I have attempted in practically all cases to find the tubercle bacillus and other organisms in the pus. In only two cases have I been able to isolate the tubercle bacillus, and in none have I been able to isolate any other organisms.

Cholera and Plague in 1921.—The *Klinische Wochenschrift* cites some recent official data which state that Australia and America escaped cholera during 1921, while there were 150,000 fatal cases in India and 180,000 known cases of cholera in Russia. Germany had some laboratory infections at Königsberg. British India paid the heaviest tribute to plague, with 125,000 fatal cases. Netherlands India reported 10,000 deaths from it in Java alone; Indo-China, 1,000. Manchuria was affected more than the rest of China, and there were 356 cases in Eygpt and 1,789 in the Senegal. Small foci developed in certain South American countries and the Azores and Australia also had cases. A few cases, up to 14 at Constantinople, were observed at Naples, Rome, Venice, Lisbon, Paris and Clichy on the Seine.

THE CIRCULATION OF THE CEREBROSPINAL FLUID

ITS IMPORTANCE IN ACUTE CRANIAL INJURY *

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Within the last decade, much progress has been made toward a better understanding of the origin and circulation of the cerebrospinal fluid. During the last three or four years, this knowledge has enabled the open-minded student of surgical pathology to correlate the antemortem and the postmortem findings in acute cranial injury, with the result that a more rational theory of pathogenesis and a more successful method of treatment have been evolved for these hitherto troublesome and refractory cases.

I shall endeavor, in this paper, to review our knowledge of the cerebrospinal fluid circulation, and to show the effect of cranial trauma on it. I shall then indicate what appears to me to be the best method of treatment for its relief. This study is based on my observations of more than 400 cases of brain injury, at the Cook County Hospital, during the last three years.

THE CEREBROSPINAL FLUID

Sources. — Although the origin of the fluid that is found within the ventricles and aqueducts of the brain, and of that bathing the surface of the brain in the subarachnoid spaces, has long been in dispute, most authorities agree today that its chief source is an active secretion of the choroid plexuses. This secretion may receive accretions from the ependymal cells lining the ventricles, from the pituitary body, and from metabolic products of the brain cells themselves, through their perivascular channels.

Circulation.—For a long time it was thought that the cerebrospinal fluid acted mechanically only as a water bed for the brain to preserve it from injury within the unyielding bony walls of the cranium; that its amount remained more or less stationary, much as the lubricating synovial fluid in a joint. The cerebrospinal fluid, however, also has a definite circulation through a regular pathway which leads from the ventricles by a series of aqueducts, flumina and cisterns toward the cerebral sinuses, into which it empties.

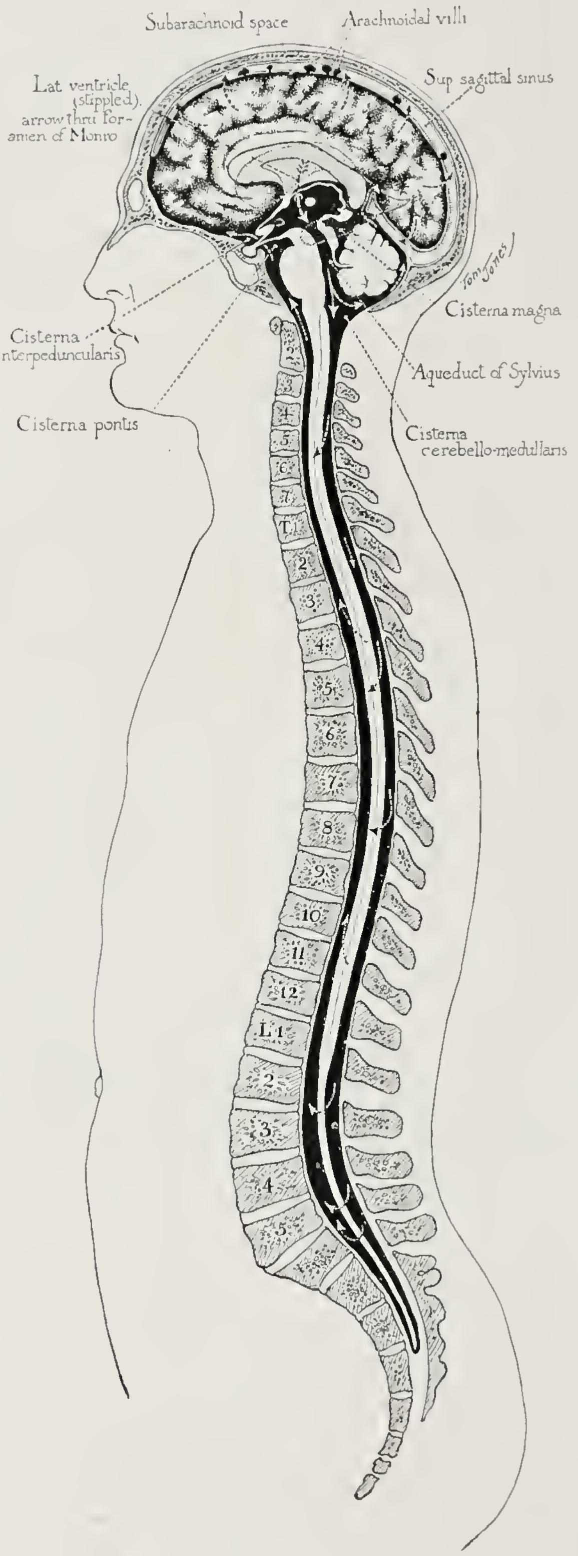

Fig. 1—Lateral view, sagittal section, semidiagrammatic, of cerebrospinal subarachnoidal spaces; direction of circulation of fluid indicated by arrows.

From its origin in the lateral ventricles, the fluid passes through the foramina of Monro to the third ventricle, and thence along the aqueduct of Sylvius to the fourth ventricle, where it escapes through the terminal opening of Magendie and the lateral clefts of Luschka to the subarachnoid spaces at the base of the brain beneath the tentorium cerebelli. Here are located the large cisterns of the pons, medulla and cerebellum, which are susceptible of great dilatation when the paths of absorption above the level of the tentorium are obstructed. From these cisterns the fluid follows two main paths. The larger part rises over the surface of the midbrain through the narrow incisura tentorii to bathe the surfaces and sulci of the cerebrum and to receive accretions from its perivascular channels; it finally is mainly absorbed into the large venous sinuses through the mechanism of the arachnoid villi (pacchionian bodies). A small portion is absorbed by lymphatics along the cranial and spinal nerves.[1]

Another smaller portion descends along the ventral aspect of the spinal cord to the cauda equina, and returns along its dorsal aspect to augment that stream which bathes the cerebrum. These two streams along the cord are only partially separated by the ligamenta denticulata and the spinal nerves, between which they communicate along the length of the cord.

Thus it is seen that the main path of circulation is from within the cavities of the brain downward to the cisterns about the medulla, and then over the surface of the midbrain upward through the cleft in the tentorium cerebelli, spreading out over the surface of the cerebrum in the subarachnoid spaces.

Amount of Fluid. — The total amount of fluid is variable and difficult to state accurately; however, it is approximately correct to state that there is, in all, from 120 to 150 c.c., thus distributed: ventricles and aqueducts of brain, from 30 to 60 c.c.; subarachnoid spaces of brain, 60 c.c.; cord, from 20 to 30 c.c. When absorption is interfered with, this amount is increased by continued secretion of the plexuses.

Forces.—While there is no pump analogous to the heart to maintain the circulation, the fluid finds its way about much as does the venous blood from the extremities. There is the force exerted by the secretion of the plexuses. This is materially assisted by gravity and by the pulsation of the brain. It has also been determined that the pressure in the dural sinuses is lower than that of the subarachnoid fluid, so that a negative pressure here is of some assistance.

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* Read before the Section on Miscellaneous Topics at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] For experimental data and bibliography, the reader is referred to the author's article on "The Management of Acute Cranial Injuries by the Early Exact Determination of Intracranial Pressure and Its Relief by Lumbar Drainage," Surg., Gynec. & Obst. **34**: 494-508 (April) 1922.

DISTURBANCES OF CIRCULATION DUE TO TRAUMA

The normal circulation of the cerebrospinal fluid may be interfered with by a number of factors causing obstruction to the flow in any part of its course. For example, tumors, inflammations or parasites may obstruct the aqueduct of Sylvius, or close any of the foramina, and cause a dilatation of the ventricles by the continued secretion of the choroid plexuses. In this paper I shall consider the traumatic causes alone. In 95 per cent. of all severe head injuries with or without the presence of fracture of the skull, there is contusion of the brain or meninges. This is usually of the contrecoup variety, affecting in most cases the cerebrum so that opposite sides of the brain are involved. There always results hemorrhage and swelling of the brain, tending to the obliteration of the subarachnoid spaces. This leads to more or less complete stasis of the cerebrospinal fluid, and its circulation ceases to a greater or less degree, depending on the extent and severity of the trauma.

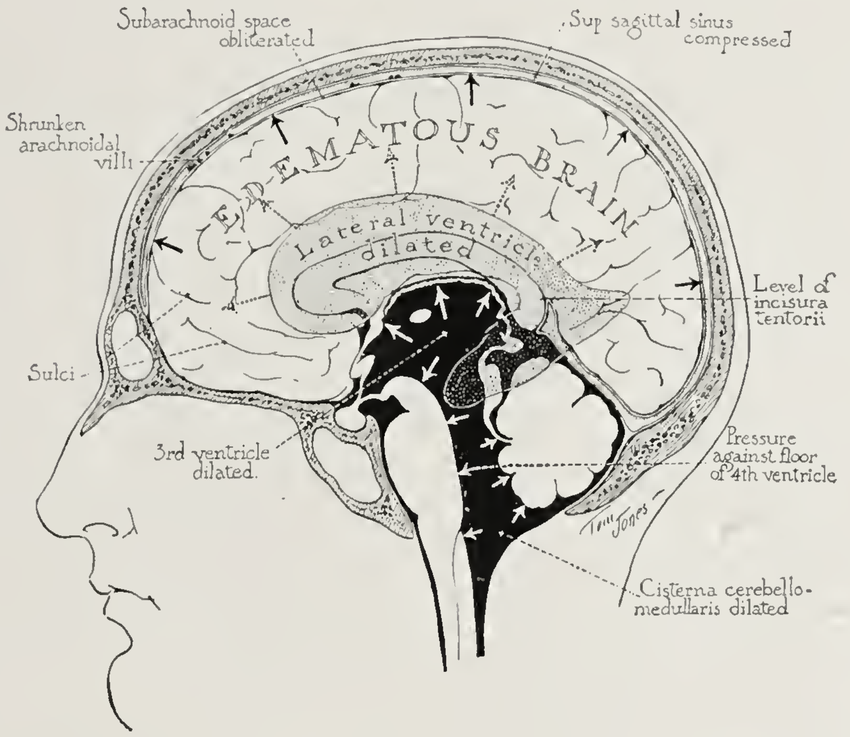
Subarachnoid space obliterated
Sup sagittal sinus compressed
Shrunken arachnoidal villi
EDEMATOUS BRAIN
Lateral ventricle dilated
Level of incisura tentorii
Sulci
3rd ventricle dilated.
Pressure against floor of 4th ventricle
Tom Jones
Cisterna cerebello-medullaris dilated

Fig. 2.—Sagittal section of edematous brain. Arrows indicate direction of pressure excited by swollen brain and dilated ventricles. Cisterns below level of the tentorium cerebelli are enlarged. Cerebral subarachnoidal spaces and sinuses are obliterated, blocking absorption of the cerebrospinal fluid.

Hemorrhage. — This may occur in one or more of the coverings of the brain, or within its substance or ventricles. It is most commonly subarachnoidal, less often subpial; occasionally it is subdural or extradural. Extradural hemorrhages, commonly middle meningeal or sinus hemorrhages, are not considered in this paper, as they must be relieved by local measures. They constitute less than 5 per cent. of all cases.

The location of the hemorrhage, if due to severe impact, is directly under the part subjected to trauma and at a point directly opposite. Thus, a severe blow to the left parietal region also affects the right parietal; a blow to the occiput also shows trauma to the frontal lobes; a blow to the vertex affects secondarily the base of the brain. The amount of blood exuded is not large, as a rule. This is due to the fact that small vessels are usually torn, and that the intracranial pressure, due to swelling of the brain on the nonexpandable dura, serves to stop bleeding early. Forty grams is an average amount even in fatal cases, and amounts of from 1 to 10 gm. are usual. In very severe cases the amount rarely exceeds 100 gm.

If a lumbar puncture is done a few hours after injury, the cerebrospinal fluid is intimately mixed with blood. After twenty-four hours of rest, the cerebrospinal fluid is less bloody, and after three days clear or yellowish fluid is usually obtained by lumbar puncture. In subarachnoid bleeding, the blood is rather evenly distributed throughout the meshes of the subarachnoid tissue, and is not easily drained by local operative measures. Thus it is seen that subdural hemorrhage, per se, is usually not a dreaded complication of cranial injury. Most of the effused blood can be drawn off, in cases seen early, by lumbar drainage. Should any large clot persist in severe cases seen after twenty-four hours, a cyst may develop or adhesions be formed in the organizing clot, but this is not usual.

Swelling of the Brain (traumatic edema).—A common and potent factor in intracranial pressure that has not received the attention it deserves is traumatic edema. It practically always follows trauma. A similar condition, but nontraumatic in origin, may also be seen in the intoxications of uremia and alcoholism. The swelling begins to appear shortly after the trauma, and reaches its maximum in from twenty-four to forty-eight hours. It then subsides gradually, and disappears in from three to seven days in favorable cases. During this time the intracranial tension is raised, and the paths of cerebrospinal fluid circulation are obstructed. Swelling is most pronounced in the vicinity of the areas of contusion. The causes of the edema have been variously interpreted. Perhaps the most important cause is that of swelling of the brain cells and neuroglia tissue analogous to edema following injury elsewhere, with the difference that the brain, being incased in a nonexpandable dura mater under a rigid bony vault, swelling can proceed only to a limited degree, and then only by encroachment on the ventricles and subarachnoid spaces. Then pressure on its vessels must occur. As the arterial circulation is interfered with by continued swelling of the brain and hemorrhage, more or less anemia of the brain occurs. The pressure is further augmented by the inability of the normal excretions of the brain cells to find exit in the perivascular channels.

At operation or necropsy, one notices a general enlargement of the brain. The weight is increased from 25 to 100 gm. The sulci are obliterated; the convolutions appear flattened, and are tightly pressed against the dura mater so that bulging of the brain occurs as soon as the dura is incised, and rupture of the cortex may occur.

If a subtemporal decompression should be performed at this time, any fluid or blood that is imprisoned in the subarachnoid or subdural spaces will gush out under great force at the time of operation. The brain will then bulge into the cranial defect, effectively plugging it, the edges of the bony defect leaving their imprint on the brain substance. The consistency of the brain is decreased, and in extreme cases a sense of pseudofluctuation may even be obtained. The cortical vessels are pale and anemic. On cut section of the brain, one sees a pale, wet surface from which clear fluid exudes.

Microscopically, the tissues appear spread apart by the imprisoned fluid. The cells of the cortex are hydropic and vacuolated. The perivascular channels are enlarged and engorged with fluid.

As the brain enlarges, it is pressed against the dura more and more until the subarachnoid spaces are obliterated over the cerebrum. The cerebrospinal fluid continuing to secrete in the ventricles, perhaps at a decreased rate due to back pressure, fills first the cisternae at the base of the brain below the tentorium cerebelli. This makes pressure on the medulla and brain stem, forcing it upward and tending to occlude the narrow subarachnoidal spaces in the incisura tentorii. Both of these factors tend to imprison the secretion of the choroid plexuses within the ventricles, causing them to dilate (internal hydrocephalus). The dilatation of the ventricles pressing out in all directions against an already swollen cortex adds to the pressure of the brain against the dura, obliterating any of the subarachnoid spaces that may have escaped the direct trauma. When this stage is reached, complete stasis of the cerebrospinal fluid circulation occurs, and pulsation of the brain ceases.

Unless this vicious circle is broken at a point below the tentorium early enough to relieve the medulla, death must occur. If it is allowed to continue to press on the cortex of the cerebrum even before the medulla is endangered, degenerative changes take place in the anemic cortical cells with resultant gliosis.

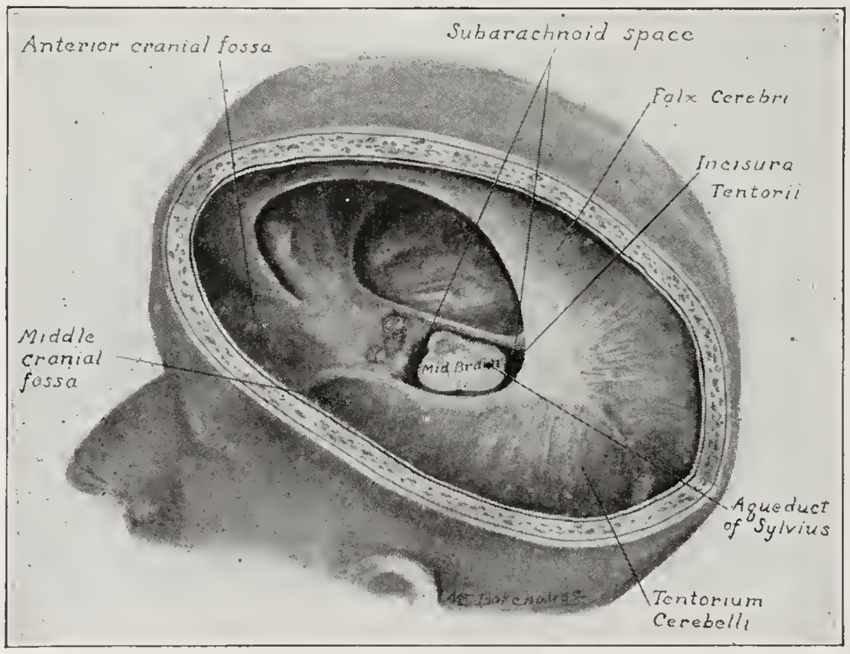

Fig. 3.—Dissection of head to disclose dural compartments above the level of the tentorium cerebelli and the narrow subarachnoid spaces about the midbrain. Subtemporal decompression is performed in the middle cranial fossa, and whatever relief to the medulla is afforded by this operation must come by way of the incisura tentorii.

SYMPTOMS OF ACUTE CRANIAL INJURY

From 80 to 90 per cent. of my cases of head injury are those with contusion of the brain, a large majority being due to automobile and street car accidents. The patients with moderate to severe contusion of the brain usually enter the hospital in shock and are unconscious, with low blood pressure and rapid pulse. It is important to examine for and rule out depressed fracture by direct palpation and by roentgen ray. Linear fractures are the rule, however, and radiate through the anterior, middle or posterior fossae to the base of the brain. In many cases of contusion of the brain, the victims escape skull fracture. There are no further symptoms of cerebral intracranial pressure until the medulla is involved. This takes place after stasis of the cerebrospinal fluid occurs. The symptoms of vomiting, high blood pressure, slow pulse and respiratory difficulty are due to pressure on the medulla, and are comparatively late, unless the injury affects the medulla primarily.

Pressure on the cerebrum indicating hemorrhage and swelling of the brain consequent on contusion can be diagnosed early by determination of the cerebrospinal fluid pressure, as indicated on a manometer attached to the spinal needle inserted for lumbar drainage.

The pressure of this fluid which, as I have shown above, is in direct continuity with the fluid in the basal cisterns, gives one an accurate idea of what is going on within the cranium. A bloody fluid under increased pressure indicates hemorrhage and edema of the brain, and interference with the normal circulation and absorption of cerebrospinal fluid. The normal pressure estimated in millimeters of mercury is from 7 to 9 in the adult and from 5 to 7 in the child. Pathologically, it may rise to 20, 30, 40, 50 and 60 mm. In most of the severe cases of contusions of the brain, it ranges between 25 and 50 mm., or from three to six times the normal pressure. This increase in pressure may be determined within from six to twelve hours after injury, or as soon as the shock of the accident has subsided. To wait until symptoms of pressure on the medulla arise is to allow deadly pressure on the cerebrum for many hours. The gliosis of the cortical cells that follows as little as twelve hours of this pressure anemia is responsible for the many cases of "traumatic neurosis" that we see after brain injury. Early relief, on the other hand, of pressure on the cerebrum not only prevents gliosis, but the symptoms of medullary pressure do not usually appear. The teaching of most of our textbooks regarding symptoms of intracranial trauma are misleading and have been responsible for the poor results obtained by operation in these conditions. Moreover, the operation usually advised, after medullary pressure symptoms appear, is that of subtemporal decompression. As I have indicated above, this operation, supratentorial in location, does not give adequate relief to the cerebrum; nor can it give adequate relief to the medulla, which is infratentorial in location, first, because the operation is usually undertaken too late, and secondly, because of the swelling of the cerebrum, which bulges into the decompression opening. In several cases in which I performed subtemporal decompression, I still found the pressure of the cerebrospinal fluid to be high by lumbar puncture.

TREATMENT

After a careful consideration of the effects of contusion of the brain, with concomitant hemorrhage and edema, on the cerebrospinal fluid circulation, the following method of treatment has been evolved:

1. In all suspected cases of injury to the head, lumbar puncture is performed within six to twelve hours to determine accurately the extent of the injury.

Gas or local anesthesia is used in unruly patients. Most cases require no anesthesia. The patient is placed on the right or the left side on a hard, unyielding surface, with the knees drawn up and the shoulders bent forward. The sagging of a patient in bed may make lumbar puncture difficult. Puncture is made in the median line in the third or fourth lumbar interspace with a sterile needle, the skin having been prepared with iodin and alcohol. The spinal mercurial manometer is held in readiness at the level of the spine by an assistant; the stylet is withdrawn from the needle and the connection of the manometer immediately attached before any fluid is allowed to escape. Then readings of the intraspinal pressure are taken on the manometer. The escape of even a few drops of fluid lowers the reading considerably. With the technic as described above, I and my assistants have performed, during the last three years, about 1,000 lumbar punctures without danger to the patient. The possibility of herniation of the medulla into the foramen magnum that is present in cases of brain tumors does not obtain in the acute traumatic cases. If the manometer reading is above 12 mm. of mercury the stopcock at the side of the needle is opened and the cerebrospinal fluid is allowed to drain away until the pressure is reduced one half or to normal. I usually withdraw from 10 to 20 c.c. of fluid. In some cases it has been necessary to allow from 30 to 40 c.c. to escape before the pressure reading is reduced sufficiently. While the fluid is being withdrawn, the mercurial manometer remains attached to the needle, and the level of the mercury is seen to descend. Should the fluid be bloody, hemorrhage is indicated. Increased pressures remaining after the fluid becomes clear indicate that the edema of the brain has not wholly subsided. Withdrawal of fluid can be made every twelve to twenty-four hours, depending on the height of the original pressure found and also on the rapidity with which it reforms after each drainage. I have tapped on six to eight successive days, in severe cases, each time succeeding in permanently reducing the pressure from 4 to 6 mm. Then I have repeated the puncture every second or third day until the pressure finally remained normal. In most cases of severe grade, this can be accomplished within ten days. The patients are kept in bed for two or three weeks after the spinal pressure has become normal. Headaches and stupor are relieved by the withdrawal of fluid in these pathologic states. I have never seen a recurrence of hemorrhage after lumbar drainage with the technic I have described; instead, the fluid appears less bloody with each puncture.

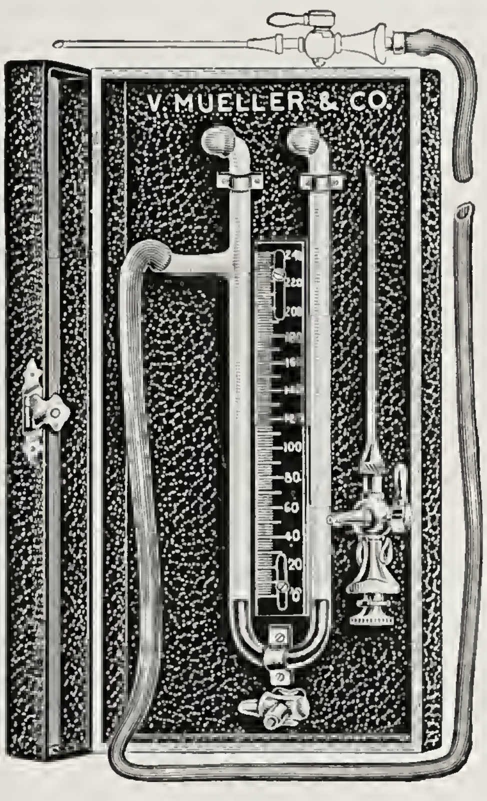

Fig. 4.—Spinal mercurial manometer and spinal needle with two-way stopcock.

The late results of this method of treatment are of importance. I have followed many of my cases for two to three years, and shall report their history in a later communication. It is gratifying to note at this time, however, that the hitherto rather common late effects, known as traumatic neurosis, have been generally avoided. This complex, as I have stated above, is due to the prolonged pressure anemia of the cerebral cortex with its resultant gliosis that follows the plan of watchful expectancy for medullary symptoms recommended by most of our textbooks.

ILLUSTRATIVE CASE REPORTS

Case 1.—F. de M., a man, aged 33, brought unconscious to Cook County Hospital by the police, Oct. 1, 1921, one-half hour after being struck by a street car, and discharged, October 25, was bleeding from the nose, mouth and left ear. Both eyes were ecchymotic. The pupils were equal, and reacted slowly to light and accommodation. The left clavicle was fractured. Fracture of the skull, hemorrhage and contusion of the brain were suspected. The pulse varied between 60 and 70; the temperature was 98; the respiration, 18. The systolic blood pressure was 150; the diastolic, 70. Spinal puncture yielded bloody fluid in three tubes. The pressure was 20 mm.; the removal of 20 c.c. of fluid resulted in a reduction of the pressure to 10 mm. Roentgen-ray examination revealed linear fracture of the left parietal bone, extending to the base of the skull.

Spinal puncture was performed daily, with estimation of pressure and removal of fluid.

October 2, the patient was unconscious; pulse, 62; blood pressure, 130 systolic and 70 diastolic; spinal fluid pressure, 24 mm. On the removal of 30 c.c. of bloody fluid, the pressure was reduced to 12 mm.

October 3, the patient was still unconscious; blood pressure, 125 systolic and 76 diastolic; spinal fluid pressure, 28 mm. On removal of 30 c.c. of less bloody fluid, the pressure was 14 mm. The pulse was 56; temperature, 101.

October 6, the pulse was 68; temperature, 100; blood pressure, 125 systolic and 75 diastolic; spinal fluid pressure, 18 mm.; 20 c.c. of yellow fluid was removed and the pressure was reduced to 8 mm.

October 12, the pulse was 72. The patient could now be aroused from his stupor. The temperature was 99; spinal fluid pressure, 8 mm.; 10 c.c. of clear fluid was removed and the pressure was reduced to 5 mm.

October 24, the pulse was 72; mentality, clear; spinal fluid pressure, 7 mm.; 5 c.c. of clear fluid was removed.

October 25, the patient was discharged from the hospital, making no complaints.

Lumber puncture a few hours after entrance to the hospital revealed a bloody fluid under marked pressure, establishing positively the diagnosis of hemorrhage and edema of the brain.

Repeated punctures disclosed that the pressure was increasing till the third day, when it began to fall, reaching normal on the twelfth day. This was an unusually severe case with fracture, which terminated in recovery in four weeks.

Case 2.—W. R., a man, aged 65, struck by an automobile and brought to Cook County Hospital by the police, entered the hospital department, Sept. 3, 1921, and was discharged, October 8—a stay of thirty-five days. On entrance the patient was unconscious; pulse, 100; blood pressure, 150 systolic and 90 diastolic; right pupil contracted; ecchymosis of right eye. The roentgen ray did not reveal fracture. Spinal puncture yielded a clear fluid under 25 mm. pressure; on withdrawal of 10 c.c., the pressure was reduced to 15 mm.

September 4 the pulse was 60; fluid pressure, 22 mm.; on removal of 10 c.c. of bloody fluid, the pressure was 10 mm.

September 7, the patient was more clear mentally; motor aphasia was now present. Dr. Hassin gave an unfavorable prognosis because of the patient's age and the presence of aphasia and chronic nephritis. The pulse was 72; spinal fluid pressure, 12 mm.; on removal of 5 c.c. of bloody fluid, the pressure was reduced to 6 mm.

September 10, the pulse was 100; the patient's mentality was clearing. The spinal fluid pressure was 15 mm.; on withdrawal of 10 c.c. of yellow fluid, the pressure was reduced to 6 mm.

September 18, the patient was able to speak a few words with difficulty. Pressure still was 15 mm. On the withdrawal of 10 c.c. of clear fluid, the pressure was 6 mm.

September 28, speech was a little easier. The pressure was 10 mm.; the fluid was clear; 5 c.c. was removed.

October 7, the patient was in good general condition, able to walk about and to go home. The power of speech was improved.

November 15, the patient was examined at home. Speech was fully restored. Spinal puncture disclosed a pressure of 15 mm.; on removal of 10 c.c. of clear fluid, the pressure was reduced to 6 m.m. The patient felt good; he went out walking alone; he had no headache.

December 15, there were no complaints.

This old man made a remakable recovery, not only from hemorrhage and edema of laceration, but also from his aphasia. It is to be remarked that the spinal fluid was clear on the first puncture and bloody on the second puncture.

Case 3.—A. S., aged 19, who entered the hospital in the police ambulance as having skull fracture, March 13, 1922, at 9 p. m., and was discharged, April 9, had been struck by a street car. The patient was disoriented, and complained of headache. There was a scalp laceration over the left parietal region. The nose showed dried blood. The ears were normal. The eyes showed slight divergence. The pupils were equal and reactive. The patellar and abdominal reflexes were absent.

March 14, the patient was drowsy and irritable and vomited. Spinal puncture revealed bloody fluid under a pressure of 30 mm., which was reduced to 15 mm. by withdrawal of 20 c.c. of spinal fluid. The reflexes were now present; pulse, 52; respiration, 15; temperature, 98.

March 15, the patient was stuporous; the pulse, from 48 to 52. There were no focal symptoms. The patient answered questions now. The temperature was between 100 and 101; respiration, 24. Lumbar puncture revealed the fluid still bloody, but less so than the day before. The pressure was 23 mm., reduced to 10 mm. by the removal of 20 c.c. of fluid. The patient was given 150 grains (10 gm.) of sodium chlorid in capsules coated with phenyl salicylate to reduce intracranial pressure.

March 16, the pulse was from 54 to 56; temperature, from 99 to 100; respiration, from 24 to 28. The patient was still drowsy, but less irritable. Puncture yielded 20 c.c. of salmon colored fluid; pressure of 18 mm. was reduced to 10 mm. The sodium chlorid had no marked effect.

March 17, headache was still present. Pressure of 28 mm. was reduced by removal of 25 c.c. of light salmon colored fluid to 8 mm. The pulse was 44 before puncture and 60 afterward. The blood pressure was 130 systolic and 110 diastolic.

March 18, the temperature was 98; pulse, 72; respiration, 20. There was less headache. The patient responded to questions more readily.

March 19, the pulse was 62; temperature, 97; respiration, 20. Headache was moderate. Removal of 20 c.c. of clear fluid reduced the pressure from 14 to 8 mm.

March 21, the pulse was 72; temperature, 97; respiration, 20. Headache was almost gone.

March 22, the pulse was 70. The patient was reading.

March 23, the pulse was 72. There was soreness in the head, but no headache except on sitting up.

March 29, the patient was sitting up in bed. The pulse was 80; blood pressure, 118 systolic and 75 diastolic.

April 5, after spinal puncture, the pressure was 8 mm. The roentgen ray revealed a linear fracture in the left temporal region.

SUMMARY

This theory of the pathogenesis of intracranial pressure is based on the modern conception of the cerebrospinal fluid and the pathologic lesions seen at operation and at necropsy. The diagnosis is made early by the exact estimation of intracranial pressure with the mercurial manometer. A rational method of treatment based on this theory and applied early, when indicated by an exact diagnosis in more than 300 cases of contusion of the brain, has given satisfactory results both immediate and remote. The immediate results are borne out by a reduction in mortality from 50 to 25 per cent. The remote results are seen in the absence of continued headaches, nervousness, irritability, vertigo and inability to work. Lastly, the treatment advocated leaves no mutilating skull defect, and is without danger.

ABSTRACT OF DISCUSSION

Dr. E. J. McKesson, Toledo, Ohio: Dr. Jackson has brought us a new thought in handling brain injuries in that he advocates the relief or the prevention of the so-called cardinal signs of these conditions as we have known them today. His reasoning is perfectly logical. I should like to ask him regarding spinal pressure in operations on the skull (not necessarily following injuries), whether he has noticed the brain of some patients with low spinal pressure to be considerably reduced in volume, that is, on opening the skull whether the brain, instead of being close to the skull, is very much receded. In a recent case in which an operation was performed at the request of the family and the patient because of some mental disturbances, prior to the operation the pressure was 6 mm. in the sitting posture; when the skull was opened, the brain was much receded from the skull, leaving a very large space.

Dr. F. H. Mechan, Avon Lake, Ohio: We should all go away with the lesson that in most skull injuries there is not only an element of increased spinal pressure but also a medullary edema. I regret that Dr. Jackson and his associate, Dr. Beck, did not perform some further experiments on the animals that had been submitted to brain injuries or in which brain edemas had been produced. A Scandinavian investigator, von Kuhlman, found that in acute alcoholism, as well as in saturation from anesthetics, in the presence of edema of the brain, the choroid plexus function could be suppressed, and, with the tremendous increase of the spinal pressure due to the edema of the brain, the anesthetic no longer circulated but was precipitated as a raw chemical in the spinal fluid; that is, chloroform and ether, as such, could be recovered from the spinal fluid when used as anesthetics in patients with brain edema. To show the relation of reduction of the spinal pressure and the handling of brain edemas in brain surgery, I wish to refer to a paper, recently read at a meeting of the Pacific Coast Anesthetists at Yosemite, in which it was shown that in those cases which were inoperable under blood pressure rules and in which there was a dangerous degree of increased spinal pressure as well as edema, the use of the rectal drip, from the time the patient was placed on the table and continuously throughout the entire course of the operation, reduced the usual average mortality rate of more than 68 per cent. in these extrahazardous risks to less than 21 per cent. When we can secure such a tremendous reduction in the death rate simply by alkalization and a reduction of the edema and a consequent reduction in the spinal pressure, it is certainly a technic which all operators in brain surgery, and particularly anesthesists, would do well to follow out. We were shown yesterday by Dr. Martin H. Fischer that it required only a 5 per cent. increase in edema of the brain to jeopardize existence. One can readily see, therefore, why a reduction or a withdrawal of 10 or more cubic centimeters of spinal fluid in order to reduce the pressure of normal, or alkalization, has a profound influence in reducing the mortality of brain and skull operations in bad risk patients.

Dr. Harry Jackson, Chicago: It is most interesting to hear what Dr. McMechan has said regarding Fischer's theories in reducing edemas. I have put into practice the ideas of some of the men in the East to reduce edemas by using concentrated solution of sodium chlorid intravenously and by intestinal absorption. Fluid will be withdrawn from all tissues of the body, including the brain. If we can do the same thing by means of alkalis which are not so dangerous as sodium chlorid, that may be a better method and worth trying. However, these methods do not remove blood from the cranial cavity, as does the method of simple puncture, which is a factor that must be considered.

Roentgenologic Indications of Malignancy.—There are but two varieties of ulcerous gastric lesions which evince any noteworthy roentgenologic indications of malignancy. One is the ulcerating cancer with the meniscus-like crater. The other is the niche type of ulcer with an unusually large crater.—R. D. Carman.

COUGH

BRONCHOSCOPIC OBSERVATIONS ON THE COUGH REFLEX *

CHEVALIER JACKSON, M.D.
PHILADELPHIA

Cough may be either a voluntary or an involuntary act; perhaps most often it is an involuntary act reinforced by volition. Semicough,[1] commonly called "clearing the throat" and expressed in lay literature as "ahem," is always voluntary, though nerve-cell habit may make it an almost subconscious act. It is only the involuntary cough of purely reflex character that will be considered here.

The following brief and clear statement of the physiologic mechanism of cough by my colleague Prof. Albert P. Brubaker is authoritative: "The cause of the cough is an irritation in the area of distribution of the glossopharyngeal, the trigeminal and perhaps other sensory nerves as well. In the unconditioned or purely reflex cough, the local irritation develops nerve impulses which are transmitted by the vagus from the air passages."

My colleague Dr. F. J. Kalteyer, in a personal communication, calls my attention to the fact that MacKenzie[2] contends that "the cough in affections of the lung arises only when the secretion has been carried by the contractions of the bronchial muscles, and by the cilia of the respiratory tract, so far upward as to reach the sensitive region about the larynx." My bronchoscopic observations show the error of MacKenzie's opinion. As to the internist's point of view, Kalteyer states that:

> There is abundant clinical evidence in support of the view that the pulmonary parenchyma is devoid of terminal afferent nerves essential to this reflex arc.

The bronchoscopic observations that I have made corroborate this.

Both physiologists and clinicians seem to have overlooked the fact that a condition of tolerance is quickly established that lessens and often entirely obliterates temporarily the reflex excitability of the bechic excitation areas.

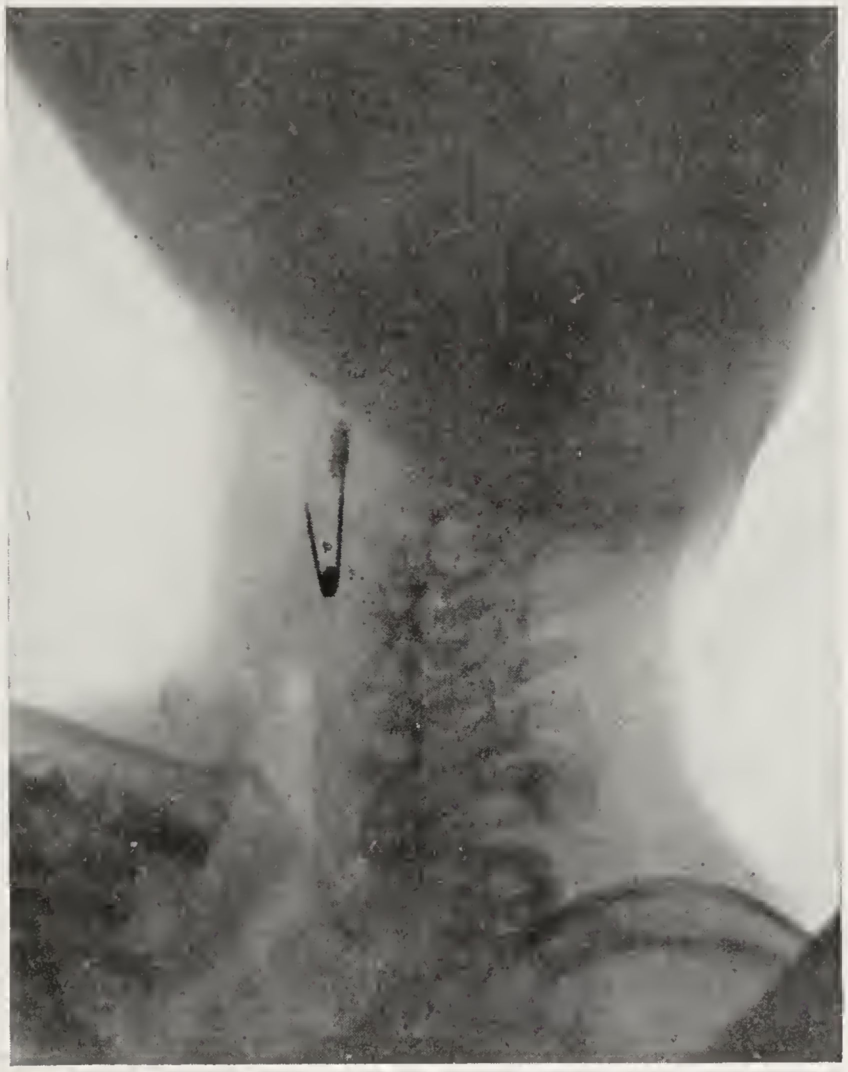

Fig. 1.—A case of total absence of the cough reflex from the presence of a safety pin in the trachea of a girl, aged 6 years. The foreign body was in situ four days. The only symptom was dysphagia. (This roentgenogram and those reproduced in Figs. 3, 4, 6 and 7 were made by Dr. Willis F. Manges.

COUGH IN DISEASE OF THE TRACHEOBRONCHIAL TREE

In certain cases, usually in children, the cough reflex may be entirely absent. I have reported[3] cases in which this occurred, notably in toxic conditions, particularly influenza. The bronchoscope was passed without any anesthesia, general or local, yet its presence excited no cough. In some of the cases, the absence of the cough reflex led to the patient drowning in his own secretions, a condition that, when temporary, can readily be tided over by bronchoscopic aspiration. It is a curious fact noted in a number of cases that in adults with an acute influenzal tracheitis with much subjective pain, distress and strangling cough, the trachea does not seem hypersensitive to the contact of the tube, and both adults and children seemed to be relieved by the aspiration of secretions, and the spraying in of an oily preparation of monochlophenol of a strength of 4 drops to the ounce, though I would not go so far as to urge bronchoscopy except in cases in which secretions need to be aspirated. In cases of lobar pneumonia, bronchopneumonia, tuberculosis, acute and chronic bronchitis, abscess, bronchiectasis and benign and malignant growths, the cough reflex from tubal contact seems diminished rather than increased. These observations would seem to indicate that there is an essential physiologic difference between contact cough and inflammatory reflex cough.

Cough During Bronchoscopy Without Anesthesia. — One of the most interesting observations in bronchoscopic work deep down in the lung without sedatives or anesthesia, general or local, is the tolerance established after a few minutes of mucosal contact of the tube. When the bronchoscope is first introduced into, say, the left bronchus, cough is excited. This subsides in a few minutes, and the left bronchus remains tolerant as long as the bronchoscope remains in that bronchus. After tolerance is established, movement of the bronchoscope does not excite cough, unless the tube-mouth is brought into contact with new areas of mucosa by deeper insertion or its equivalent in rotating the bronchoscope so that the long end of the slanted lip reaches a mucosal area previously out of contact. If now we withdraw the bronchoscope and work for five minutes or longer elsewhere, say, in the right bronchus, on our return to the left bronchus with the tube-mouth, we find that the previously established tolerance has vanished, and that as much cough is excited on mucosal contact of the tube as when the left bronchus was entered for the first time.

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* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] Jackson, Chevalier: Moss-Agate Tracheal Sputum, Pennsylvania M. J. **25**: 613 (June) 1922.

[2] MacKenzie, James: Symptoms and Their Interpretation, Ed. 4, London, Shaw and Son, pp. 212, 309.

[3] Jackson, Chevalier: Influenzal Tracheitis, Laryngoscope **22**: 88 (Feb.) 1912; Peroral Endoscopy and Laryngeal Surgery, St. Louis, Laryngoscope Company, 1915, pp. 482 et seq.

These observations have a very important clinical bearing as they explain curious phenomena frequently noted clinically. One of these phenomena, abundantly proved by frequent observation, is that a fixed foreign body causes very little cough as compared to a movable foreign body. The logical inference is that the fixed foreign body establishes a tolerance by remaining in contact with the same mucosal surface, whereas the movable foreign body is frequently coming in contact with areas untouched, or not recently touched. Another clinical fact explained by the bronchoscopic observation is the now well-known symptomless interval, first pointed out by me, that nearly always ensues after the initial choking and coughing when a foreign body is first aspirated. This symptomless interval in nonobstructive foreign bodies not derived from the vegetable kingdom may last for days, even weeks, in cases of metallic bodies; and has been the chief factor in the diagnostic mistake of excluding foreign body on the inference that a large sharp foreign body could not be present in the bronchi without exciting cough.

Cough During Bronchoscopy Under Local Anesthesia. — In children, bronchoscopy is done in the Bronchoscopic Clinic without anesthesia, general or local; but in adults, local anesthesia is used. In the latter, it has been noted, hundreds of times, that cocain anesthesia of the larynx permits the introduction of the bronchoscope through the glottis without exciting cough; but just as soon as the orifice of either main bronchus is reached, cough, usually severe, is excited, unless a local application has been made to the region of the bifurcation. As the larynx has been eliminated as the source of afferent impulses in the bechic cycle, it is clear that MacKenzie's statement that "the respiratory tract below the larynx and the lung tissue seem to be incapable of originating the stimulus" (i. e., for cough production) is an error.

When the cough reflex has been temporarily abolished in the larynx and bronchi by cocain, for the introduction of a bronchoscope, the reflex does not reappear so long as the bronchoscope remains in contact with the same surfaces, indicating that the abolition by the drug has been followed by the abolition by tolerance. If, however, the bronchoscope is introduced into a previously uninvaded and unanesthetized bronchus, cough is excited. That this movement is not due to the sliding movement of that part of the bronchoscope that lies in the larynx is indicated by the fact that so long as the vertical excursion of the distal end of the bronchoscope does not exceed the extent of the cocainized area, no cough is excited. Another observation that eliminates the movement of the bronchoscope in the larynx as the source of the tussive excitation is that a rotatory movement of the bronchoscope, which necessarily is associated with a sliding of the bronchoscopic surface over the locally anesthetized laryngeal mucosa, does not excite cough if the tube-mouth is not moved vertically so as to enter a new or unanesthetized area of bronchial mucosa.

COUGH IN CASES OF FOREIGN BODY IN THE AIR AND FOOD PASSAGES

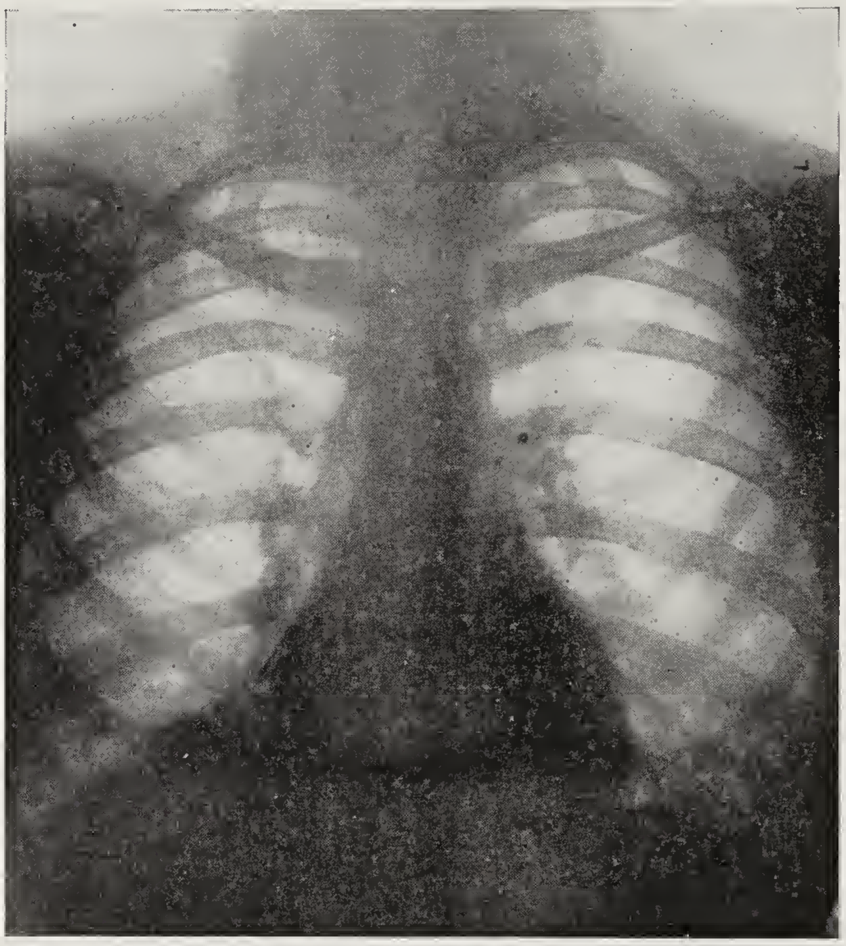

Fig. 2.—A case of total absence of the cough reflex from the presence, during a period of two months, of a safety pin in the lung of a woman, aged 18. The inference is that afferent bechic impulses are not generated in this peripheral portion of the lung after tolerance is established. Productive cough started two months after aspiration of the pin. (Roentgenogram by Dr. James F. Kelly.)

Foreign Bodies in the Bronchi.—So far as I am aware, there is in the literature no distinction between the cough produced by the foreign body and that produced by the secondary pathology set up by the foreign body. That such separation is essential is evident when it is recalled that under practically all conditions of normally active reflexes, the presence of secretions in excess of normal mucosal moisture will excite the cough reflex for expectorative purposes. This is the normal activity of the cough reflex, which is "the watchdog of the lungs," not only in the sense of repelling intruders attempting to enter, but also in expelling dangerous elements generated within the lungs.[4] Since the latter phase of the question is quite similar to the expectorative cough in all secretion-producing diseases of the tracheobronchial tree and alveolar extensions, separate consideration is not necessary here, except mention of the previously noted [5] great variation in the extent of the pathologic condition and pathologic secretions produced by foreign bodies of different character, more especially as to two factors, namely: (1) the nature of the foreign body, and (2) the amount of obstruction to drainage and aeration that results from its size, shape, position and location. Apart from the matter of secretion, the mucosal inflammation, it is logical to assume, excites the cough reflex in a manner parallel to that of the nasal sternutatory reflex, in which an afferent impulse is excited by the irritation of the nerve endings in the nasal mucosa by either inflammatory processes or the noninflammatory mechanical or chemical irritation of those same endings by contact with any substance, foreign or native. This is paralleled in the pulmonary tussive reflex by an afferent impulse arising either from the irritation of the nerve endings by a mucosal inflammatory process or by mechanical or chemical contact of some substance, foreign or native, with the mucosa. It is the afferent impulse thus excited, plus the resulting efferent impulse to the respiratory musculature, that completes the cycle that makes the cough reflex the watchdog of the lungs.

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[4] Jackson, Chevalier: Postulates on the Cough Reflex, Therap. Gaz. **44**: 609 (Sept. 15) 1920.

[5] Jackson, Chevalier: Pathology of Foreign Bodies in the Air and Food Passages, Mütter Lecture, Surg., Gynec. & Obst. **28**: 201 (March) 1918.

Since foreign bodies were almost always immediately removed when found, there has been no opportunity for making in the same case consecutive studies, at intervals, of the reaction to the presence of foreign bodies in the trachea and bronchi. The following observations, therefore, are based on observations in different cases presenting different lengths of sojourn. The abundant material at the Bronchoscopic Clinic presented the opportunity for observation in cases closely parallel as to nature of the foreign body, site of lodgment, etc.

Cough Caused by Mechanical Contact of a Foreign Body.—The histories of hundreds of cases, with foreign bodies of widely different character, indicate clearly the following points:

1. The first contact of a foreign body with the mucosa of the laryngotracheobronchial airway sets up a violent coughing attack.
2. This cough quickly subsides, in cases of foreign bodies not derived from the vegetable kingdom, if the foreign body remains fixed in one place.
3. If the foreign body is constantly being moved by the respiratory or bechic blasts so as to touch previously untouched mucosal surfaces violent paroxysms of cough are excited.

The foregoing observations are interesting in connection with the fact noted elsewhere in this article in regard to the quickly established tolerance of the bronchoscope so long as it remains in one location, and the quickly lost tolerance after the bronchoscope has been removed.

Cough Due to the Inflammatory Reaction Following the Lodgment of Foreign Body.—In cases of nonobstructive foreign bodies, after an interval ranging from a few hours to a few days, there is, in some cases, a slight cough, and in these cases there was noted at bronchoscopy a moderate degree of mucosal inflammation in the immediate neighborhood of the foreign body. If the foreign body remains unobstructive, and especially if it is of a metallic nature, little or no cough appears for an interval of many weeks, even months in some instances, notably that of a dental root canal reamer. In this instance, the metallic instrument was in the left upper lobe bronchus for three months.

A study of the roentgenograms reproduced in Figures 2, 3 and 4, together with their legends, will show that the extreme periphery of the tracheobronchial tree is not a source of production of afferent tussive stimuli until secondary inflammatory changes have resulted in pus formation; whereas the main bronchial trunks are sources of bechic excitation. Except for this, foreign body lodgment gives no certain indication of the existence of constant definite excitation areas; nor of definite areas incapable of excitation of the tussive reflex. The illustrative plates are selected from many similar ones.

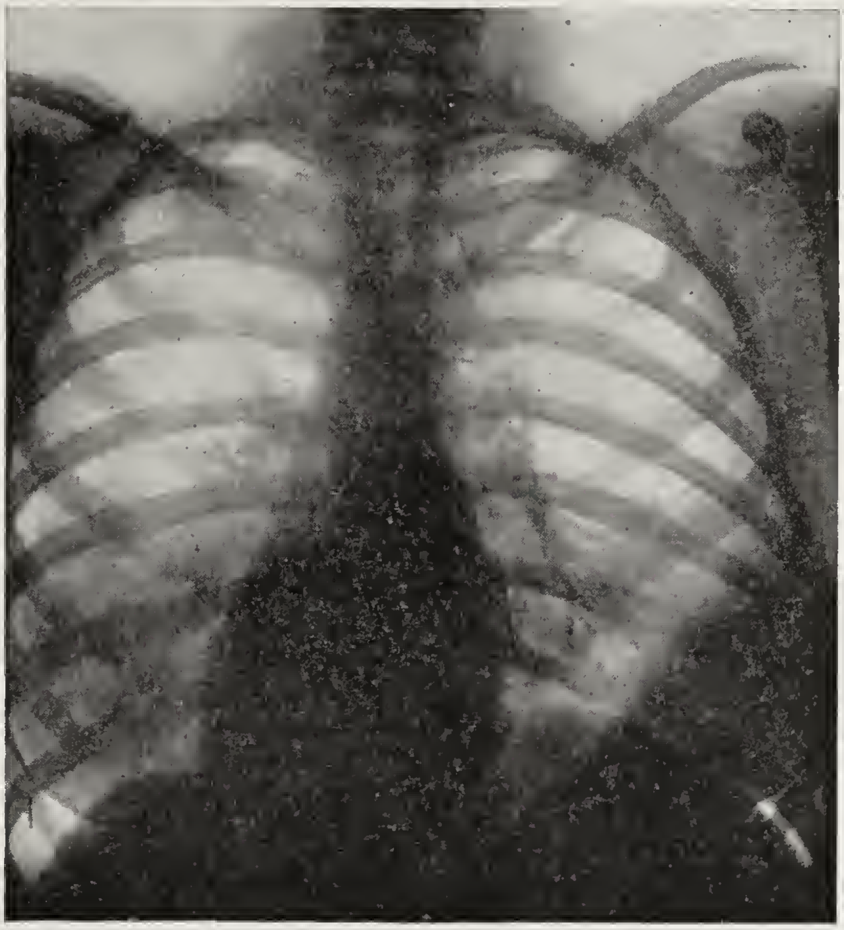
Fig. 3.—A case of total absence of the cough reflex during a three-day sojourn of a pin in the lung of a girl, aged 15 years. Tolerance was established within a few minutes after the subsidence of the initial laryngeal protective reflex. Thereafter there was no cough, no pain, no expectoration or other symptom during the entire sojourn of one month.

Cough Excited by the Presence of Secretions.—This is one phase of the subject on which it has been exceedingly difficult to obtain conclusive data with the bronchoscope. No one doubts that the presence of secretion in the bronchi excites cough for expectorative riddance. The inference has been that the cilia waft up the secretions to a certain point at which the bechic reflex is excited to complete the expulsion; but this is not proved by bronchoscopically visible evidence. When a patient whose lung contains pus coughs, the pus is seen to come up from the smallest visible as well as the largest bronchial orifices. This has the appearance of having been forced up by the squeezing of the lung during the expulsive compression. When this secretion is removed, its place is taken by more secretion brought up from below. This is repeated until the peripheral portion of the lung is emptied. This is the method the bronchoscopist uses to empty the lung in that numerous class of cases in which the pus or secretions are scattered throughout the passages in a section of lung. It is exceedingly rare that there is a single cavity or several cavities that can be emptied, as is the case with abscesses in other regions. Usually, the pus is contained in a large number of bronchi or fistulous remnants of bronchi, and these are more or less completely filled with exuberant granulations.

Two points are very clear: (1) in all cases of foreign bodies, whatever their location, when associated with the production of pus, cough was a prominent symptom, and (2) in most instances it did not differ materially from the cough present in any other condition associated with secretion of a similar amount and character.

Cough in Cases of Arachidic Bronchitis.—The more than seventy cases in which peanut kernels, grains of maize, watermelon seeds and other vegetable substances were the causal factors indicate clearly that such substances, even when not movable, excite severe and frequent coughing attacks. The symptomless interval is very short in cases of very young children and may be absent altogether. The prompt outpouring of thick tenacious mucopurulent or purulent secretion is so prompt that cough for expectoration supervenes almost at once.

Cough in Cases of Foreign Body in the Larynx.—To anyone who has experienced, as probably everyone has, the choking, strangling cough that follows the entrance of a drop of water or a crumb of bread into the larynx, it is an amazing thing to note the tolerance of the organ to the prolonged sojourn of foreign bodies. For instance in one case, a cockle bur was lodged for twenty-four hours in the larynx of a man, aged 25. At the time of the accident it had caused a degree of choking, gagging, coughing and vomiting, which subsided in fifteen minutes, after which there was no cough. There was no pain, but a desire to "clear the throat" to restore the voice, the patient being entirely aphonic. The bur was found, sticking into the mucosa at the anterior commissure (Fig. 5), from which position it was removed by direct laryngoscopy. When one considers the sharp needle-like, hooklike thorny spines on a cockle bur and that these spines were buried in the traumatized mucosa, the absence of cough after the first fifteen minutes can be explained only on two hypotheses: (*a*) that a condition of tolerance was established after fifteen minutes of contact; or (*b*) that the bur was first in the posterior region of the larynx and that the anterior portion of the larynx was incapable of exciting afferent bechic stimuli. The decision as to which of these was responsible cannot be based on the clinical evidence in this case, but the following case of a safety pin in the larynx indicates that tolerance was the factor. This is further indicated by a case in which a cockle bur was located in the central zone of the larynx for three days without cough after the paroxysm that accompanied the initial choking and gagging. In this connection, the cases of sandspurs reported by Dr. H. M. Taylor [6] are interesting.

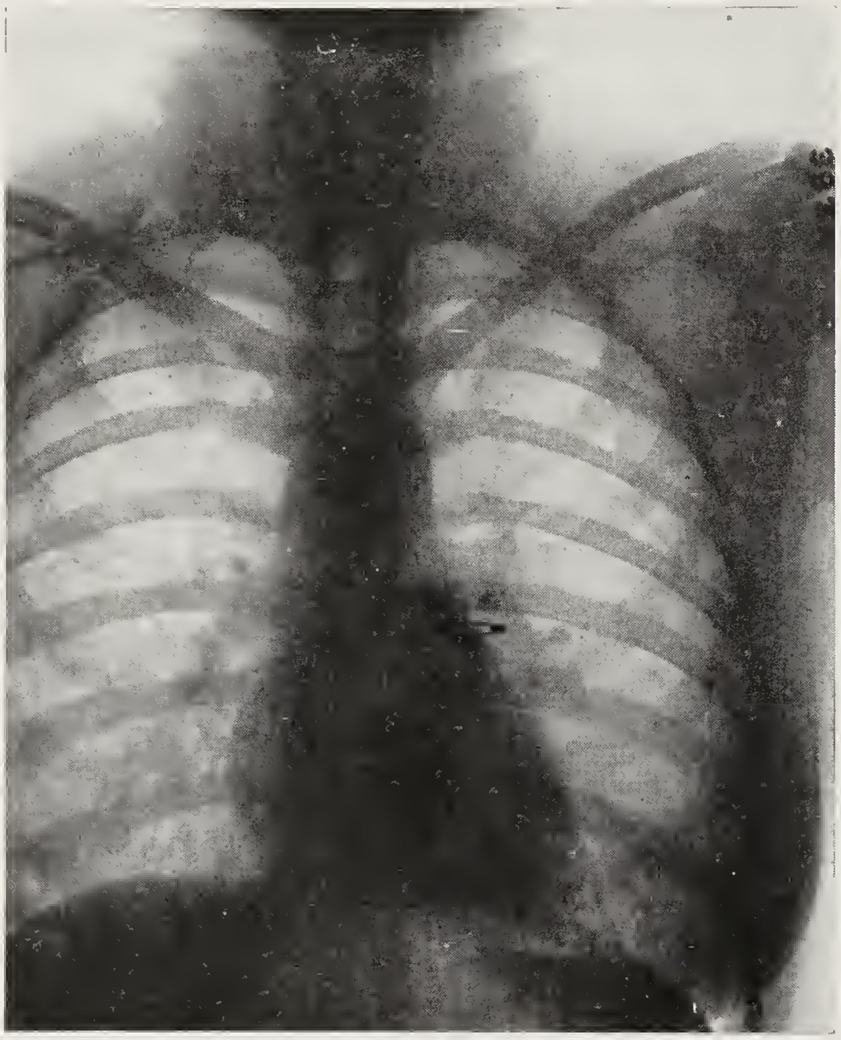

Fig. 4.—Very active cough was present from a safety pin in the left upper lobe bronchus of this patient, a woman aged 20. Comparing this case with those illustrated in Figs. 1, 2 and 3, the inference is that the neighborhood of the orifice of the upper lobe bronchus is a bechic excitation area. Tolerance was, however, becoming established even in this case.

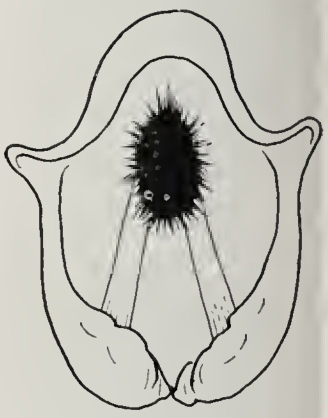

Fig. 5.—Drawing illustrating the total absence of cough reflex excitation in the anterior portion of the larynx of a man, aged 25. The cockle bur was in situ for twenty-four hours without any cough after the first fifteen minutes following its aspiration. Aphonia was present from mechanical obstruction to cordal approximation.

In another case, a child, aged 10 years, aspirated a safety pin into the larynx. There were coughing and choking, but in the subsequent three weeks there was no cough, though the child was hoarse. The pin was found in the sagittal plane, the keeper being pressed by the spring tightly into the posterior commissure. It was readily removed by direct laryngoscopy. This case, I think, shows that tolerance is established by continuous sojourn of a foreign body in the larynx. The keeper in the posterior commissure which is supposed to be productive of bechic excitation indicates that the region invaded by the bur in the previously cited case was not accountable for the absence of cough. This case was closely paralleled by the five other cases of safety pin in the larynx in the Bronchoscopic Clinic, and by the cases of Dr. Henry B. Orton.[7] The establishment of tolerance of the larynx to the presence of foreign bodies was shown by O'Dwyer in the development of intubation, and is now a matter of common observation in intubated cases, as it is also in bronchoscopy without anesthesia.

Cough Following Lodgment of Foreign Bodies in the Esophagus.—Of the nearly 500 cases of foreign body in the esophagus seen in the Bronchoscopic Clinic, cough was never noted in any case of nonobstructive foreign body in the esophagus. On the other hand, cough was a very frequent, in fact quite a constant symptom, in cases of obstructive foreign body in the esophagus. The cough in these cases is due to the secondary laryngotracheobronchitis from overflow into the larynx of secretions and food that cannot quickly get down the esophagus. Such a case is illustrated in Figure 6. No one realizes the amount of saliva that normally drains away into the stomach by subconscious swallowing. This alone, when overflowing into the larynx, can set up not only cough but bronchopneumonia. The same thing can happen from ulceration of a foreign body through the party wall into the trachea with consequent intrapulmonary aspiration of the leakage. Cough of purely reflex origin from a foreign body in the esophagus must be exceedingly rare as it was suspected in only a few instances in the more than 500 cases of esophageal foreign body in the

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[6] Taylor, H. M.: Endoscopic Removal of Sandspurs from Larynx and Tracheobronchial Tree, J. A. M. A. **77**: 685 (Aug. 27) 1921.

[7] Orton, H. B.: Laryngoscope **31**: 233 (April) 1921.

Bronchoscopic Clinic, and, in all of these, other origin of the cough could not be excluded.

CONCLUSIONS

1. Etiologically, cough as encountered by the bronchoscopist may be divided into contact cough, inflammatory cough and productive cough.

2. The contact of a bronchoscope in any of the larger bronchi excites cough if no anesthetic, general or local, is used. This excitability is lost, and a condition of tolerance is established, if the tube remains in situ a few minutes. This condition of tolerance disappears in a few minutes after the tube is withdrawn. If a few minutes later, the previously tolerant bronchus is reentered, cough is as readily excited as when it was entered in the first instance.

3. The first contact of a foreign body produces a paroxysm of coughing, which quickly subsides if the foreign body remains fixed in one location and position.

4. This condition of tolerance is established after a sojourn of the foreign substance for a time, varying from a few minutes to many hours, depending on many factors, chiefly the nature of the foreign body and its location. After this condition of tolerance is established, the cough may be totally absent or only occasional and it is not paroxysmal. It is usually, for a time, dry and unproductive, except in cases of vegetable substances. This is the explanation of the clinically deceptive "symptomless interval." After pus forms cough appears.

5. In cases of vegetable substances (arachidic bronchitis) the cough is early, loose, productive, and is often associated with dyspnea, cyanosis and strangling, because of the difficulty in expulsion of the thick tenacious mucus.

6. Shifting of the foreign body to a new location, or the shifting of the position of the foreign body in such a manner as to bring any part of it into contact with a previously untouched part of the mucosa, practically always excites cough.

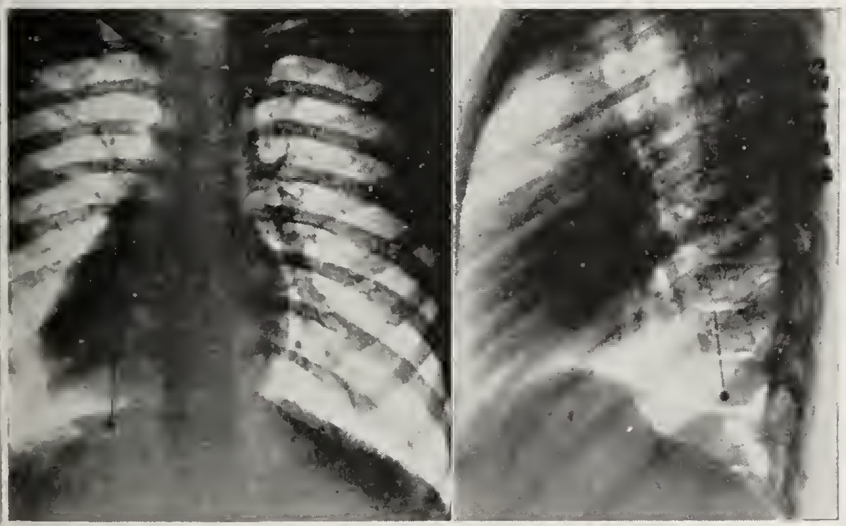

Fig. 6.—Illustrating absence of cough from a shawl-pin deep in the left lower lobe of a girl, aged 10 years. The apparently warranted inference is that the periphery of the lung is not a source of tussive afferent impulses. This seems curious in view of the fact, observed in this and other cases by Prof. Thomas McCrae, that unilateral limitation of expansion without bronchial obstruction indicates the presence of nontussive afferent impulses.

7. Violent paroxysms of coughing in cases of foreign body in the lung usually mean that the foreign body is not fixed, but is being knocked about so as to come in contact frequently with new areas of mucosa. This sign is diagnostic of movable foreign body.

8. There is no bronchoscopic evidence going to show that the mucosa in some locations in the tracheobronchial tree is so much more sensitive than are others as to be worthy of being called bechic excitation areas.

The contact of the bronchoscope shows that all areas in the trachea and larger bronchi are subject to individual variations and exceptions. The trachea from a point about 1 cm. below the larynx to another point about 1 cm. above the bifurcation seems slightly less provocative of cough from contact with the bronchoscopic tube; but tubal contact here will cause moderate cough until tolerance is established. No difference in reaction to contact stimuli has been noted between the anterior and posterior wall.

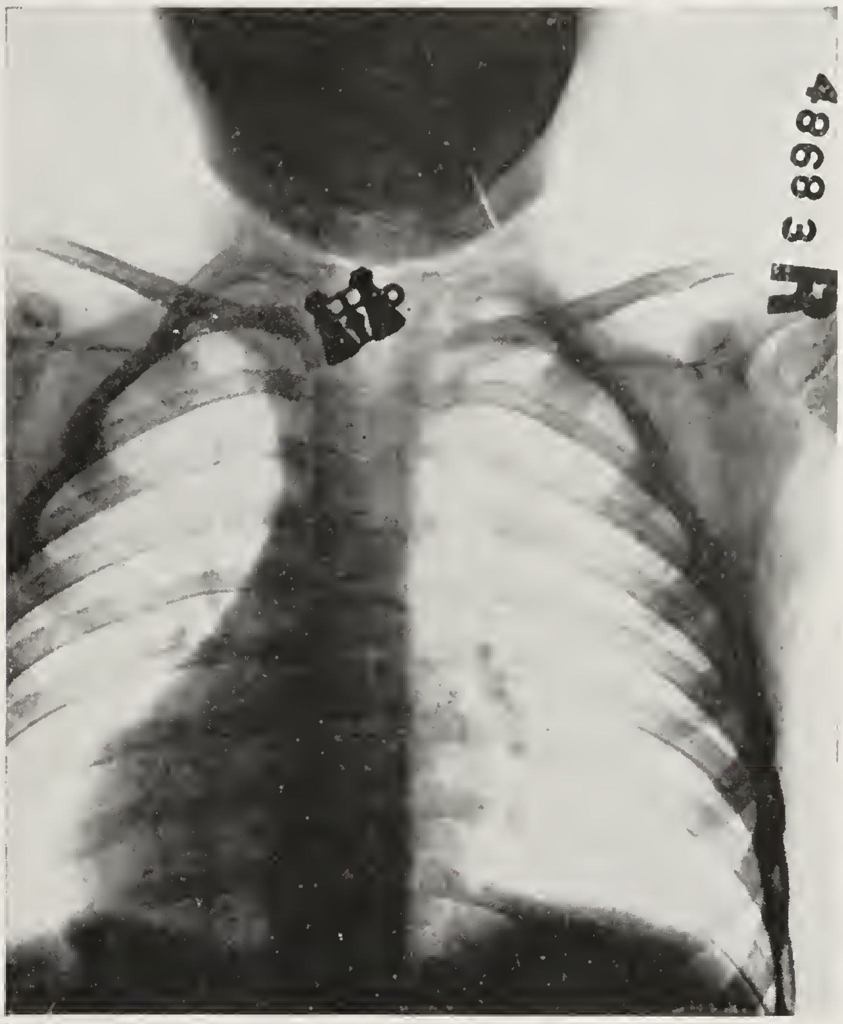

Fig. 7.—Cough was active in this case of foreign body in the esophagus of a boy, aged 4 years; but it was due to overflow of secretions into the larynx and tracheobronchial tree caused by the obstruction of the esophageal lumen. No case of proven purely reflex esophageal cough has been noted in the Bronchoscopic Clinic.

9. There is no bronchoscopic evidence of the existence of areas in the bronchoscopically enterable portions of the tracheobronchial tree that normally yield no bechic reflex on first contact of a foreign body; but tolerance is quickly established in any and all areas, and, in the case of certain diseased states of the tracheobronchial tree, the cough reflex may be totally abolished.

10. The finer subdivisions of the tracheobronchial tree, which together with the alveoli are not enterable with a bronchoscope, but are enterable with a slender instrument, show decidedly less cough production from instrumental contact, and in most cases all peripheral areas show no cough reflex unless the proximity of the visceral pleura is reached and pushed on. This pleural reflex is very rarely observed, and its existence is somewhat doubtful.

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ABSTRACT OF DISCUSSION

Dr. Samuel Iglauer, Cincinnati: Foreign bodies in the esophagus do not cause cough. In this instance clinical experience agrees with *a priori* reasoning. One would expect a foreign body in the esophagus to cause gagging and vomiting, but not cough. One of the discomforts of the patient during esophagoscopy may be due to some of the saliva trickling into the larynx where it may produce irritation and cause cough. Dr. Jackson has distinguished between contact cough, inflammatory cough and productive cough, illustrating the point that after a time contact will not cause cough. We all know that violent coughing occurs as soon as the cannula is introduced, but in a few minutes the cough subsides. But if the next day one should remove and then put the cannula back, coughing is set up again. I can see no particular difference between inflammatory cough and productive cough. Inflammatory cough is due to irritation of the terminal filaments of the nerves in the mucosa. When that inflammation leads to secretion, the secretion becomes a foreign body which by ciliary action is brought into contact with new parts of the mucosa, and a combination of inflammatory and contact cough is seen. Dr. Jackson used the word "tolerance." I suppose he means that after a foreign body has been in place for a certain time mere contact is insufficient to excite the cough reflex. This tolerance, then, must be due to the fact that the stimulus is not sufficient to overcome the threshold. The physiologists speak of a minimum stimulus to produce a reflex. After the same stimulus has been applied a certain number of times, the reflex is exhausted; and unless the stimulus is increased, there is no reflex. I think that tolerance means falling below the threshold necessary for stimulation.

THE CAPILLARIES OF THE EXTREMITIES IN ACROCYANOSIS

BLOOD PRESSURE AND MORPHOLOGY *

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NEW YORK

The pathologic physiology underlying the condition known as acrocyanosis is not thoroughly understood. In recent years considerable attention has been directed to the part that disorders of the capillaries and venules may play in causing this symptom.

In 1918, Grace Briscoe[1] published observations on the venous and capillary pressures of soldiers, at the Hampstead Military Heart Hospital, who were suffering from "irritable heart." It is well known that such patients often exhibit acrocyanosis to a striking degree. Her method of determining the capillary pressure is similar to that of von Basch. By this method a capsule is affixed to the skin, and air is forced into it until the skin becomes blanched and a further rise of pressure produces no more whitening. The manometric reading at this point is taken as the capillary blood pressure. Using this technic, Briscoe found the capillary blood pressure distinctly elevated in these patients when the hands were blue. When the hands were normal in appearance, the capillary pressure approximated that of the normal controls. Her figures are: Capillary pressure in millimeters of mercury for normal controls, 17.3; for patients when the hands were normal, 19.0, and when the hands were blue, 27.1. The venous pressure in all three groups was about the same.

From these observations, Briscoe concluded that there must be a constriction of the venules sufficient to cause a high capillary pressure without alteration of the venous pressure. She further considered the possibility of a simple dilatation of the capillaries, but believed it hardly probable.

In 1920, Danzer and Hooker[2] discussed the wide errors inherent in the method of von Basch, as well as in the other procedures that have been employed in the measurement of the capillary pressure, and described a microcapillary tonometer, by means of which the capillary blood pressure may be estimated with considerable exactitude and with the avoidance of the errors of the older methods. I have discussed the possible inaccuracies of their method elsewhere.[3] While engaged in a general study of the capillary blood pressure by means of Danzer and Hooker's instrument, I have had the opportunity to examine twelve patients who exhibited acrocyanosis from the mildest to the more severe degrees. The technic of the original authors was carefully followed, except that the finger of the patient was not scrubbed, for fear of introducing a complicating factor. The hand was held at the level of the heart during the examination. The results of ten examinations are recorded in the accompanying table.

RESULTS OF EXAMINATION IN TEN CASES OF ACROCYANOSIS

No.	Sex*	Range of Capillary Pressure, Mm. Hg	No. of Readings	Appearance of Capillaries	Blood Pressure		Appearance of Hands
					Systolic	Diastolic	
1	♂	2 to 3	5	Long; large subpapillary plexus; slow streaming	115	60	Cold, pale, cyanotic
2	♂	7 to 13	13	Very thick, especially at venous end; many bizarre and convoluted with anastomoses; many rows; slow streaming	220	130	Cold, cyanotic, moist
3	♂	5 to 15 24 in two capillaries	14	Thick and convoluted; many large, slow streaming	105	70	Dusky red; slow return of color after momentary pressure
4	♂	3 to 5	20	Numerous, thick and blue, especially the venous loop; many tortuous and bizarre; slow streaming; much stasis	110	80	Cold, moderate cyanosis
5	♀	12 to 15	3	Thick and convoluted	...	...	Cold, moist, red
6	♂	13 to 21	8	Long, somewhat looped; several rows	110	75	Cold, moist, red
7	♂	10 to 13	10	Numerous, not thick; few tortuous; some anastomoses; slow streaming	120	70	Warm; slight cyanosis
8	♂	5 to 13	10	Long, large, thick, especially at venous end; somewhat tortuous; many rows; slow streaming	105	70	Warm, dry; slight cyanosis
9	♂	6 to 10	19	Long, large, thick, especially at venous end; somewhat tortuous; many rows; slow streaming	110	80	Cold, dusky red, moist
10	♀	3 to 7	8	Numerous; many rows; many convoluted and bizarre	125	90	Cold, pale; not cyanotic

* In this column, ♂ denotes male, and ♀ female.

It is evident that in every case the capillary blood pressure is low. The normal capillary pressure, as determined by this method, varies from 20 to 30 mm. of mercury. Another striking feature is the lack of variability of the capillary pressure. In patients with normal or high capillary pressure, the readings made on different capillaries usually show a variation of about 20 mm. of mercury. In this series the difference between high and low readings never exceeds 10 mm., and in most instances is much smaller.

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* From the Medical Division of the Montefiore Hospital for Chronic Diseases.

[1] Briscoe, Grace: Observations on Venous and Capillary Pressures with Special Reference to the Raynaud Phenomena, Heart **7**: 35, 1918-1920.

[2] Danzer, C. S., and Hooker, D. R.: Determination of the Capillary Blood Pressure in Man with the Microcapillary Tonometer, Am. J. Physiol. **52**: 136 (May) 1920.

[3] Boas, E. P., and Frant, Samuel: The Capillary Blood Pressure in Arterial Hypertension, Arch. Int. Med. **30**: 40 (July) 1922.

A further study of some of the individual cases is instructive. The capillary blood pressure varied with the appearance of the hands. Thus, in Case 1, twenty-one readings taken on different capillaries, Aug. 18 and 25 and Sept. 13, 1921, when the hands were normal in appearance, ranged between 13.5 and 26 mm. of mercury. September 8 and October 5, the hands were very cold, pale and cyanotic. The capillary pressure in ten readings registered 2 or 3 mm. of mercury, and in one capillary only was a reading of 17 mm. obtained. The cold hand was then immersed in very hot water and became bright red in color. The capillary pressure, determined immediately, was from 19 to 20 mm. As the hands slowly cooled and again became pale and blue, the readings dropped first to 13 and then to 8.5 mm. It was striking, too, to observe the change in the blood flow in the capillaries. When the hands were cold and blue, the streaming was very sluggish and irregular; but after the hot water bath it became very rapid, and the capillaries became full. Similar observations were made in Cases 8 and 10. In Case 8, after the hand was warmed, the pressure rose from a range of from 5 to 13 mm. of mercury to a range of from 20 to 27. In Case 10, the pressure before warming was from 3 to 7 mm., and after warming from 7 to 13 mm. In Case 2, thirteen readings, when the hand was cyanotic, ranged between 7 and 13 mm. During the examination the hand became warm, the capillary flow became accelerated and the pressure rose to between 17 and 23 mm.

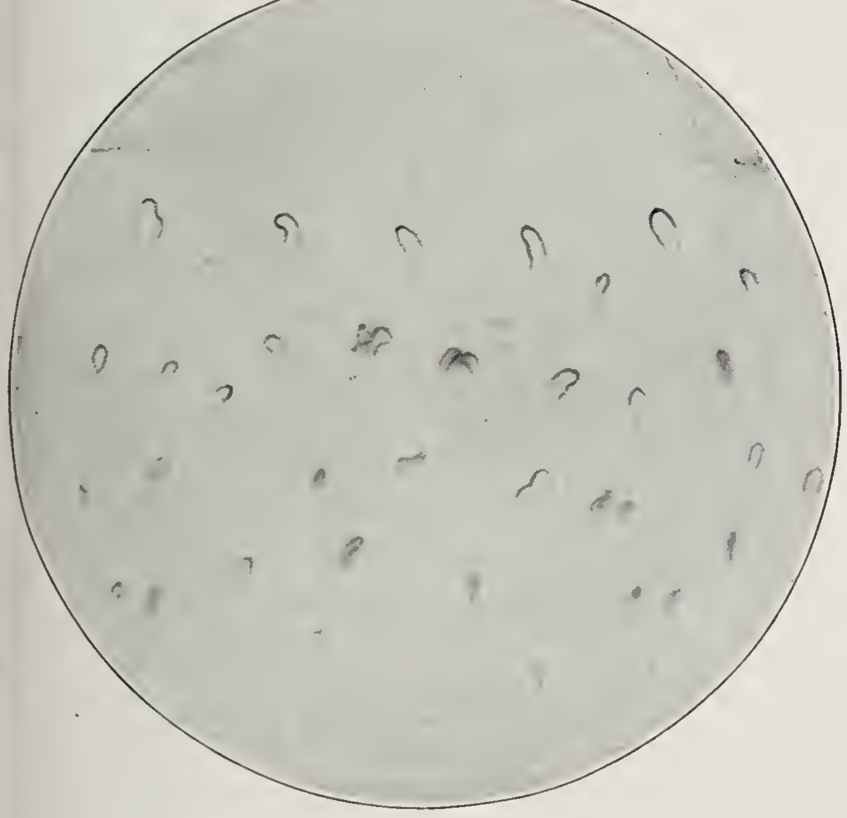

Fig. 1.—Normal appearance of capillaries.

It is evident from these observations that when the hands are cold and cyanotic, the capillary blood pressure is low and the flow sluggish. This cannot be due to a constriction of the venules, but must depend on a constriction of the arterioles or a marked dilatation of the capillaries. It is significant, too, that the capillaries become fuller when the hands are warm. If the venules were constricted, the capillaries would be engorged during the period of cyanosis.

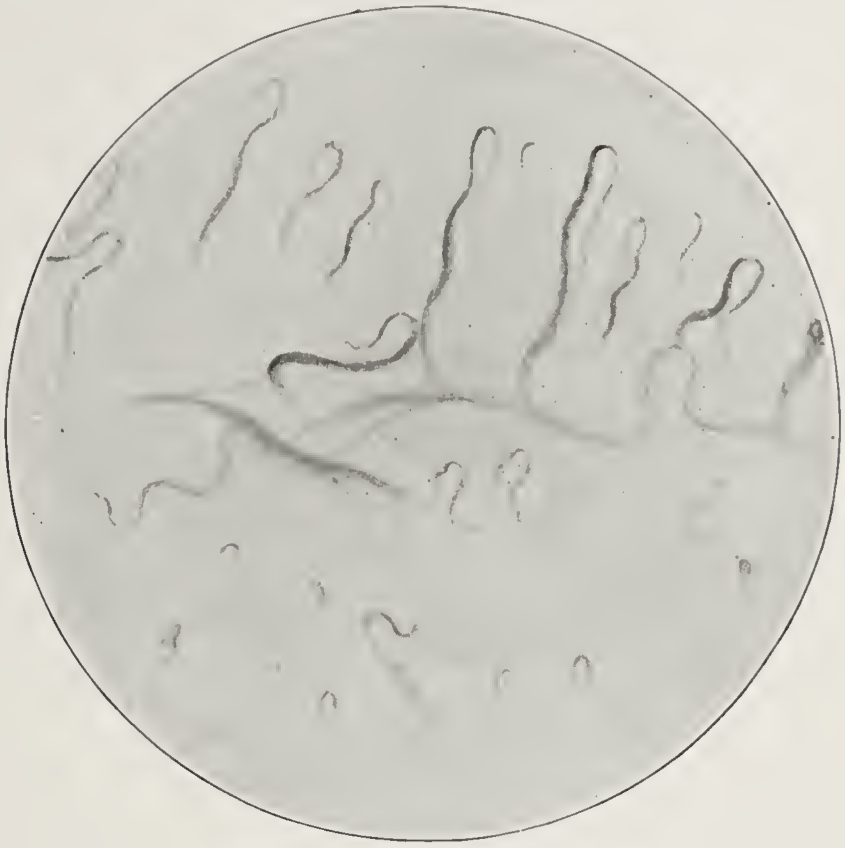

Fig. 2.—Capillaries of normal person with slight vasomotor disturbances of the hands.

A number of observations on the capillary blood flow and on the appearance of the capillaries in acrocyanosis have been published. Weiss [4] noted that in patients of an asthenic build, who often exhibit acrocyanosis, the capillaries are more tortuous than normal, particularly in the venous portion, and that the blood stream is slow and may even at times be completely arrested. In the vasoneuroses he saw contractions of the arterial limb of the capillaries in ischemia, and a dilatation of the venous limb when the hands became blue. The appearance of the capillaries, as well as the speed of the blood stream, may vary from moment to moment. Warming the hand accelerates the blood flow in the capillaries.

Mertz [5] found long and tortuous capillaries in children with vasomotor instability. Parrisius [6] observed a movement, which he likened to peristalsis, in the venous arm of the capillaries in a patient with local asphyxia of the feet. This caused an interruption in the continuity of the blood column. He also noted changes in the form of the capillaries in the vasoneuroses. In a case of Raynaud's disease, Weiss saw very wide capillary loops, which exhibited variations in caliber. In a similar case, Pribram and Henius [7] observed a capillary spasm associated with ischemia. Halpert [8] described in detail the capillary changes in a patient with a typical Raynaud's syndrome. She found increased tortuosity of the capillaries, as well as groups of capillaries from three to five times larger than normal. The blood flow was slow. During an attack the giant capillaries became fuller, especially in their venous portion and exhibited changes in contour, such as projections and strictures. The blood appeared to be pushed through the vessel by a peristaltic-like wave. In a severe attack the blood became completely stagnant and blue. These observations correspond strikingly to the explanation originally offered by Raynaud.[9]

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[4] Weiss, E., and Holland, M.: Zur Morphologie und Topographie der Hautkapillaren, Ztschr. f. exper. Path. u. Therap. **22:** 108, 1921.

[5] Mertz, A.: Kapillarbeobachtungen an Säuglingen, Deutsch. med. Wchnschr. **46:** 480, 1920.

[6] Parrisius, W.: Zur Frage der Contractilität der menschlichen Hautkapillaren, Arch. f. d. ges. Physiol. (Pflüger's) **191:** 217, 1921.

[7] Pribram and Henius: Bemerkungen zum Kapillarbild bei Raynaudscher Krankheit, Berlin klin. Wchnschr. **57:** 67, 1920.

[8] Halpert, A.: Ueber Mikrokapillar beobachtungen bei einem Fall von Raynaudscher Krankheit, Ztschr. f. ges. exper. Med. **11:** 125, 1920.

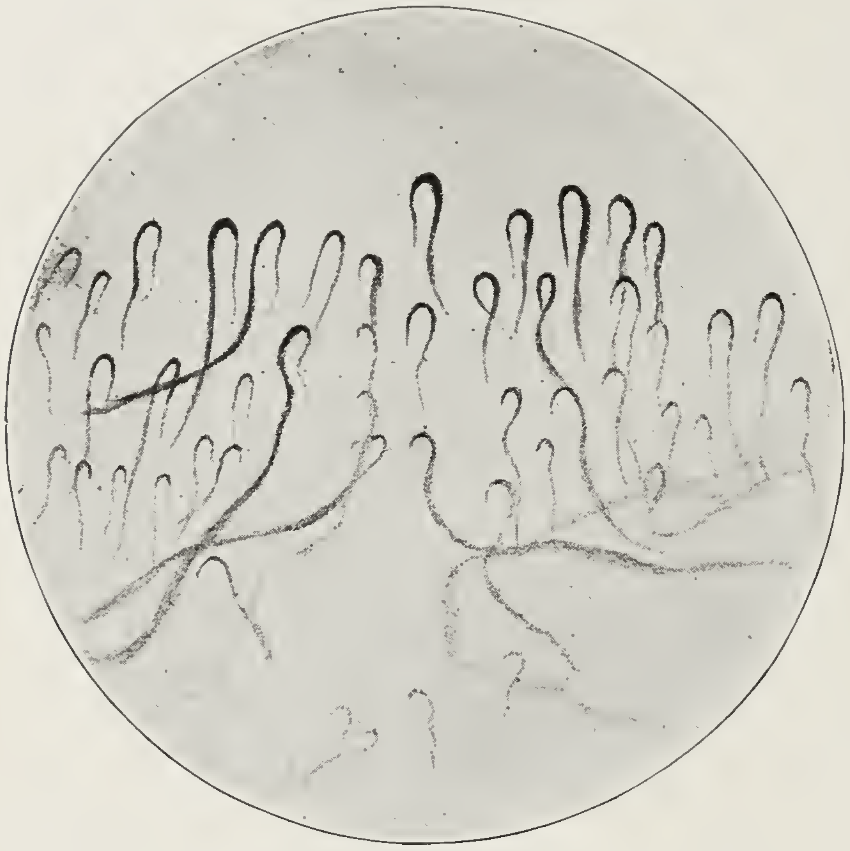

Fig. 3.—Appearance of capillaries in case of acrocyanosis.

I myself have not observed evidences of contractility of the capillaries in patients with vasomotor disturbances of the hands, but I have not had the opportunity of studying a case with a typical Raynaud's syndrome. However, changes in the form of the capillaries are very striking, as is apparent from the table and from the accompanying illustrations. It is difficult to describe the normal appearance of the capillaries at the base of the finger nail, because of their great variability in structure. Figure 1 represents perhaps the usual picture in healthy persons. Here are seen one or two rows of simple loops near the cuticle, and below them many rows of shorter, more comma-shaped vessels. In patients with chronic vasomotor disturbances of the extremities, the capillaries are usually longer and thicker than normal, particularly in their venous portion, and not infrequently exhibit many convolutions and quite a bizarre arrangement. The rate of the blood flow varies in different vessels, and usually is slow. The streaming may be completely arrested in groups of capillaries.

Some experiments of Lapinsky[10] suggest a possible cause for this alteration in structure. He studied the capillary circulation in the web of a frog's foot after the corresponding sciatic nerve had been severed. For a short period after the nerve had been cut, the blood flow was slow and the vessels empty. In a few days the capillaries became dilated, and the blood stream became rapid. Later the capillaries became wide and tortuous, and the blood flow again became slow. Lapinsky attributed the change in the form of the capillaries to a loss of elasticity and contractility, which resulted in a widening and a lengthening of the vessel. The convolutions are thus dependent on an increase in length of the capillary, just as the tortuosity of one of the peripheral arteries is dependent on an increase in length. It seems rational to suppose that the morphologic and functional changes in the capillaries of patients with vasomotor disorders are due to a disturbed innervation, which affects them in a similar manner.

CONCLUSIONS

In patients with vasomotor disturbances of the extremities, the capillary blood pressure in the fingers is low and the capillary flow is retarded during the period of ischemia or cyanosis. With the return of a normal color of the hands, the capillary pressure, as well as the blood flow, rises and approaches the normal. In most of these patients the capillaries of the fingers are longer and wider than in healthy persons, and often exhibit many convolutions and a bizarre architecture.

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[9] Raynaud, M.: On Local Asphyxia and Symmetrical Gangrene of the Extremities, translated by T. Barlow, London, Selected Monographs, New Sydenham Society, 1888, p. 144.

[10] Lapinsky, M.: Studien über die locale Blutcirculation im Bereiche gelähmter Nerven, Arch. f. Anat. u. Physiol., Physiol. Abth., 1899, suppl. 477.

A PLEA FOR CLOSER RELATIONS BETWEEN CARDIOLOGIST AND ROENTGENOLOGIST

A MODIFICATION OF CARDIAC MEASUREMENTS, WITH A SIMPLE TECHNIC FOR LOCALIZATION OF THE HEART'S APEX BY MEANS OF THE CARDIOGRAM

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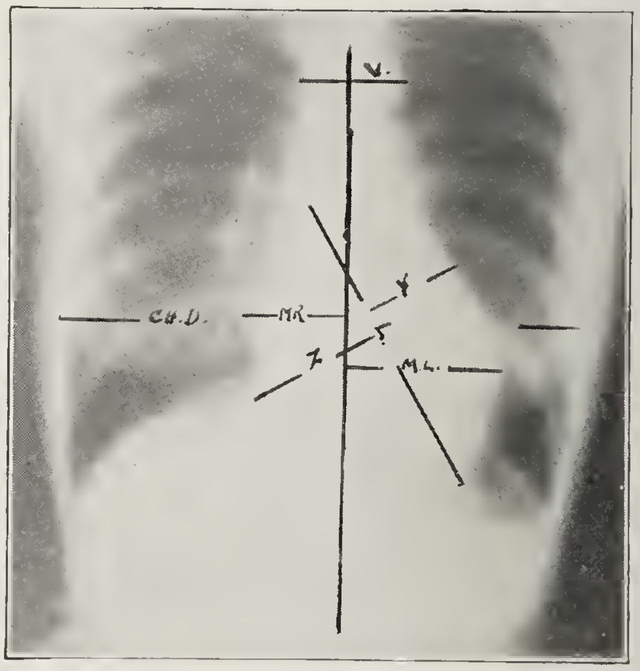
Cardiologists in private and institutional work are coming closer and closer to their colleague the roentgenologist, in an effort to isolate certain cardiac anomalies by means of the cardiogram. It can safely be stated that few internists now call the cardiac examination complete until an accurate measurement of the heart's silhouette has been made.



Seven foot plate with seidlitz powder technic. The clavicles were included in the original plate. This important landmark was lost in the process of reducing, together with much of the detail. T = MR + ML.

There are two schools for the examination of the heart by means of the roentgen ray. The French, through Vaquez and Bordet, rely entirely on the fluoroscopic findings, and the American, through Crane, Holmes and others, interpret the findings through a combined study, by the cardiographic and fluoroscopic means. Both schools have their advantages, though the former requires considerable more accuracy and is, therefore, more susceptible of error. Examination by means of the fluoroscope requires a costly installation, while an examination by means of the cardiogram, when carefully made by experienced hands, will give to the clinician the information he is seeking, that is, the change in volume of the cardiac chambers. It is true that the cardiogram will never show those modifications of the ventricular pulsation or the quality of the apical impulse. This the clinician can find by means of other methods.

TECHNIC

In the laboratory of U. S. Veterans' Hospital No. 36, the transformer is adjusted to feed the tube 60 milliamperes with a 5 inch spark gap. The patient stands before a 14 by 17 double screened film, 7 feet away from the tube, which is focused exactly in the midspinal line at a level with the spine of the eighth thoracic vertebra. The patient is given a glass of water followed by a tablespoonful of a solution of the white and a tablespoonful of a solution of the blue Seidlitz powder, separate, thus producing a large air bubble over a flat fluid level at the cardiac end of the stomach, which affords an excellent background for the exhibition of the heart's apex on the plate. The patient is ordered to take a full breath and to hold it, and a flash exposure is given. As it is important to register on the plate the full width of the thorax, the cassette is placed transversely, it being made sure that the clavicles are included in the field, as this is the best guide we have to know that the rays have been properly focused. Plates revealing distortion of the relation between the shadows of the proximal ends of the clavicle and the median line are discarded. After the plate is dried, lines are drawn, with a soft blue pencil, as in the accompanying illustration. The median line runs from above downward, started at a point equidistant to the proximal ends of the clavicle. At a right angle from this line a second one is drawn to the right border of the heart's silhouette (*MR*, middle right), another from the midline to the left border (*ML*, middle left). Then a fourth line is drawn from a hypothetic point placed 2 cm. internal to the junction of the third rib with a continuation of the curve of the right auricle, this point corresponding to the region where the uppermost portion of the right ventricle overshadows the origin of the aorta, downward to the visible apex (*L*, longitudinal), and finally two lines are drawn at right angles to *L*, one extending downward to the apex of the right cardiophrenic angle, and the other upward and to the left to the middle portion of the left border of the left auricular appendage. Then the internal chest diameter is measured at a level with the fifth rib in front, and the resultant figures are registered on a corner of the plate.

OTHER METHODS

This method, though based on the same principles, varies to a certain extent from that used by others in his respect. They determine the exact location of the apex by fluoroscopy, while we register it on the plate by means of the simple Seidlitz powder technic. Their longitudinal measurement consists of a line drawn between two hypothetic points, one at the right side ust as the right auricular curve blends with the median shadow, and the other at the left costophrenic angle. We consider these two points hypothetic, because of the constant variance of the heart's posi-ion. It is obvious that the Seidlitz powder technic allows one to detect an enlargement or displacement of the heart downward without the aid of the luoroscope.

DIAGNOSIS

The clinician pays little attention to a systolic murmur unless it is accompanied by a cardiac enlargement; and regardless of the skill in the art of percussion, time and again the cardiogram reveals a hypoplastic heart in a patient who has lived through the restrictions of a cardiac life because of a systolic murmur, the result of overcrowded valvular structures in an unusually small heart accompanied, perhaps, by a series of symptoms of nervous origin first described by Dr. Thomas Lewis under the name of "effort syndrome." My experience has been that a diagnosis of organic heart lesion in a young person should be made with great reluctance and never after a cardiogram has failed to show a disturbance in any given measurement, or a cardiothoracic ratio above 50 per cent.

We believe that the diagnosis of pericarditis with effusion is rather conclusively made from the cardiogram alone, for no other condition will make the heart's silhouette assume the characteristic "flask shape." When this is discovered, we usually take additional cardiograms with the patient standing, forcibly bent toward the right or left side and lying down on either side, thus bringing about a disfiguration of the heart's silhouette due to the change of fluid level. In early cases, however, when the fluid is scanty, it is safer to check up on the plate findings with a fluoroscopic study, in which the diffuse, feeble, far off cardiac action, with an almost imperceptible apical impulse and perhaps the loss of auricular and ventricular markings, will tell the tale. Sometimes an acutely dilated heart will give a similar picture; but the change in shape of the heart with change of position of the patient will differentiate effusion from acute dilatation. Then, too, the latter is of very short duration.

Myocardial degeneration usually shows roentgen signs which, though not altogether conclusive, constitute at least an important link in the diagnostic chain on this morbid entity; for in time it brings about a definite cardiac enlargement, and the curves representing the left auricular appendage and the pulmonary artery are not discernible in most cases.

A beef-tongue-like heart silhouette means, almost always, a senile heart, the "dying myocardium" of cardiosclerosis. In these cases, the longitudinal diameter is increased out of proportion to all others. This also happens with the cylindric, vertical, hypoplastic heart of the undernourished; but the senile heart invariably assumes a transverse position. Persistent hyperthyroidism of long standing may cast a heart shadow showing clearly the cardiac enlargement with an increase of the longitudinal diameter, thus resembling closely the senile heart; but in contrast with the absence of the curve of the left auricular appendage, we find here a very marked increase of the *Y* measurement, out of proportion to all others, denoting an enlarged left auricle. These changes are probably the result of the toxemia bringing about a persistent tachycardia which does not allow the proper, timely emptying of the auricle, in turn giving rise to an ultimate hypertrophy and dilatation of this chamber.

The mechanism of valvular disease, generally speaking, does not seem to be interfered with by the causative factors, although we are well aware of the fact that in an aortic lesion, in all probability, we are dealing with syphilis, while rheumatism clearly predominates in mitral lesions. The diagnosis of mitral disease is relatively easy to make by means of the roentgen ray. The fact that a leaking valve reveals a certain amount of stenosis, and vice versa, does not seem to change the picture; for, regardless of which condition predominates in well established mitral disease, the cardiogram will invariably reveal an enlarged heart, with the *Y* and *T* measurements increased out of proportion to all others; an increase above 50 per cent. of the proportional area occupied by the heart's silhouette in relation to the internal chest diameter (cardiothoracic ratio), and last, but by no means the least, a disturbance in the ratio between the *T* and *L* measurements. According to my personal observations, this constitutes what I dare to call the pathognomonic roentgen sign of mitral disease. In a normal heart the *L* measurement is in the neighborhood of 2 cm. longer than the *T*. The *L* measurement, having been taken from the junction of the right ventricle shadow with that of the aorta at its origin, to the apex, is an expression of the length of the heart by the way of the right ventricle, and, naturally, is not affected by an enlargement of the left heart, the resultant of mitral disease. On the other hand, the *ML*, which, as shown in the diagram, is a component of the *T*, is increased because of the increase in volume of the left ventricle. Lesions of the right heart and cardiorenal disease may bring about an increase above 50 per cent. of the cardiothoracic ratio, but never in our experience disturb strikingly the ratio between the *T* and *L* diameters. This disturbance is shown occasionally in cases of aortic lesion, though not quite so marked; but in these cases there are no changes in the *Y* measurement because the mechanism of the left auricle is not affected. It is obvious that this pathognomonic sign appears rather late in mitral disease, the increase in the *Y* measurement appearing much before this sign is in evidence. Later in the disease, when the pulmonary blocking is well established, a cardiogram places before us the characteristic picture of cardiorenal disease, with all measurements equally increased as the result of the enormous size of the cardiac silhouette.

Mitral stenosis, in its incipience and when occurring alone, reveals no cardiac enlargement, judging from the cardiothoracic ratio and from the ratio between the *T* and *L* measurements, for the simple reason that in this type of cardiac lesion in its early stages the ventricles are not affected. The only cardiographic sign discernible is the excessive length of the *Y* line. Later on, as the disease progresses, the curve of the pulmonary artery becomes quite prominent, and the *Z* measurement increases, denoting increase in volume of the right ventricle.

Extensive rheumatic endocarditis with involvement of all the valves brings about a uniform cardiac enlargement. The heart's silhouette resembles in shape that seen in cases of cardiorenal disease, but the enlargement is not nearly so pronounced.

Pure aortic stenosis offers a cardiogram showing a moderate enlargement of the left ventricle with increased *ML* distance, slight disturbance in the ratio between the *T* and *L* measurement, a cardiothoracic ratio slightly above 50 per cent., and at times an excessive prominence of the aortic knob. The remaining measurements are not disturbed.

Vaquez and Bordett attribute the dilatation of the pulmonary artery to pathologic changes at the pulmonary valve. Although this condition has been detected by us in a considerable number of cases, we have failed on physical examination to find any distinct cardiac murmur, though the majority of cases showed a reduplicated loud pulmonary sound, accompanied by a symptomatology that led one to suspect the presence of an organic cardiac lesion before the examination. As to Vaquez and Bordett attributing this dilatation of the pulmonary artery to pathologic changes at the pulmonary valve, how could it be explained mechanically? Is such a lesion as pulmonary stenosis or insufficiency recognized by our authors as an isolated condition? We believe that it is not. It is considered an uncertain pathologic entity, to such an extent that it has been denied a place in cardiac pathologic circles by well known cardiologists. I have found little literature on this subject; but during the first few months after the armistice, I found in U. S. General Hospital No. 2 a moderate enlargement of the pulmonary artery almost constant in bronchial patients who had inhaled deleterious gases. I think that the dilatation could readily be explained in those cases as being due to the congestion of the lung parenchyma and the subsequent blocking of the blood stream.

The roentgen-ray findings of tricuspid disease, although not always conclusive, are rather confirmative, once the disease has been established clinically. The right auricle is seen bulging to the right at its middle portion, giving rise to the lengthening of the *MR* line. The moderate enlargement of the right ventricle is shown by an increased *Z* measurement, and in advanced cases the increased length of the longitudinal diameter takes place.

I earnestly believe that a cardiographic examination in patients offering cardiac symptomatology is well worth while. It helps the clinician in the difficult task, not only of arriving at a definite diagnosis, but also in outlining a defensive course for his patient; for it is the condition of the heart muscle, as revealed by hypertrophy or dilatation, that concerns him most.

No roentgenologist, regardless of his experience, should attempt the diagnosis of cardiac lesions on roentgen-ray findings alone, just as a clinician cannot make a diagnosis based on a few symptoms or on scattered signs. All factors should be considered, and, bearing the interest of the patient at heart, the cardiologist and the roentgenologist should march hand in hand striving for a better understanding of heart disease.

I have tried to show in this cardiographic study, in a general way, how much information can be furnished to the cardiologist by careful tracings on a cardiogram. The findings should be cautiously considered in their intrinsic, scientific value, because it is to be remembered that we are dealing with a human organ, the size, shape and position of which varies with the individual. If these factors were constant, so also would be the different measurements, and the proportions among one another; and our findings would be definite, conclusive and accurate. Hence my plea for closer relation between the cardiologist and the roentgenologist.

Examination of Food Handlers.—According to a recent bulletin of the New York City Department of Health, the usefulness of the food handler activities of the bureau of preventable diseases has again been demonstrated. In the course of a year in the Manhattan Occupational Clinic alone, 32 cases of active pulmonary tuberculosis and 18 inactive cases were discovered. In Brooklyn, 4 active cases and 93 inactive ones were discovered, and in Queens only 2 inactive ones were brought to light. In addition, 15 cases of inactive syphilis were found in Manhattan, and 15 active and 76 inactive ones in Brooklyn. In the course of the year, 5 typhoid carriers were found in Manhattan and 2 in Queens.

THE CONCENTRATION OF UREA IN SALIVA*

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In order to determine whether the concentration of urea in the saliva is of clinical importance in the diagnosis and prognosis of nephritis, quantitative urea estimations were made on the saliva of a small group of nephritic patients under observation at the Mayo Clinic during the last three months. The quantitative excretion of urea in the urine and its concentration in the blood have been studied extensively. Various observers have recognized that urea is excreted in the sweat, gastric juice, feces and saliva of nephritic and uremic patients; but such work has consisted mainly in qualitative estimations, and few quantitative estimations are on record.

Schöndorff[1] has given a comprehensive review of the early work on this subject. Pettenkoffer[2] and Wright[2] were the first to note that urea is present in appreciable amounts in the saliva of healthy persons and in patients with nephritis. Later, many isolated quantitative estimations were made by Picard,[2] Poisseuille,[2] Bechamp,[2] Gréhant[2] and others; but the inexact method of their day (the sodium hypobromite method) gave data, some of which are unreasonable in the light of modern technic. In individual instances, however, Picard and Gréhant found 35 mg. of urea per hundred cubic centimeters, and Bechamp 30. Fleischer[2] did not recover urea from the saliva of a healthy person after pilocarpin administration; but he demonstrated its presence in the saliva of persons suffering from nephritis. Debove and Dreyfous[3] obtained 5 gm. of urea in 400 c.c. of saliva from a uremic patient after the injection of pilocarpin.

Kyle[4] and Le Roy[5] have made observations of clinical importance with regard to the chemistry of saliva in normal persons. Herzfeld and Stocker[6] have studied the presence of uric acid in saliva. Anrep,[7] Wolf and Barcroft[8] have carried out metabolic studies on the salivary glands of animals. With these exceptions, the metabolism of the salivary gland and the chemistry of saliva are given little consideration in the literature.

We have constantly found a certain amount of nitrogen in the saliva of man, which we believe to be derived wholly or mainly from urea. The amount of urea in the saliva bears a very close relationship to the amount of urea in the blood. This suggests that urea reaches the saliva by diffusion, and the physical properties of urea are such that its diffusion is to be expected.

Anrep considered the saliva as both a specific and a nonspecific excretion. The specific fraction contained mucin nitrogen, while the nonspecific fraction contained nonmucin nitrogen. As electrical stimulation of the chorda tympani of a dog progresses, the total nitrogen diminishes, the specific excretion, which includes mucin nitrogen, soon becomes exhausted, and the nonmucin nitrogen fraction alone continues (Chart 1). Anrep determined that the excretion of the nonmucin nitrogen, which remained constant, was independent of the mucin nitrogen. This was in accord with the studies of Pavlov,[9] and in contradistinction to the views of Heidenhain[9] and Langley,[9] who believed that the turning out of all the organic substances by the gland cells is accompanied, but not at the same rate, by a formation of all kinds of fresh cell substances. In the experiments of Anrep, an exercised and exhausted gland, when compared to the unexercised gland on the opposite side, was found to have lost nitrogen, but to a less extent than the nitrogen found in the saliva. He concluded, therefore, that the gland takes up protein during excretion. It is equally possible that the constant nonmucin nitrogen fraction which Anrep believed to be derived from an unlimited source, the lymph, is, in reality, urea constantly passing as such from the blood to the saliva. Our experiments support the latter view.

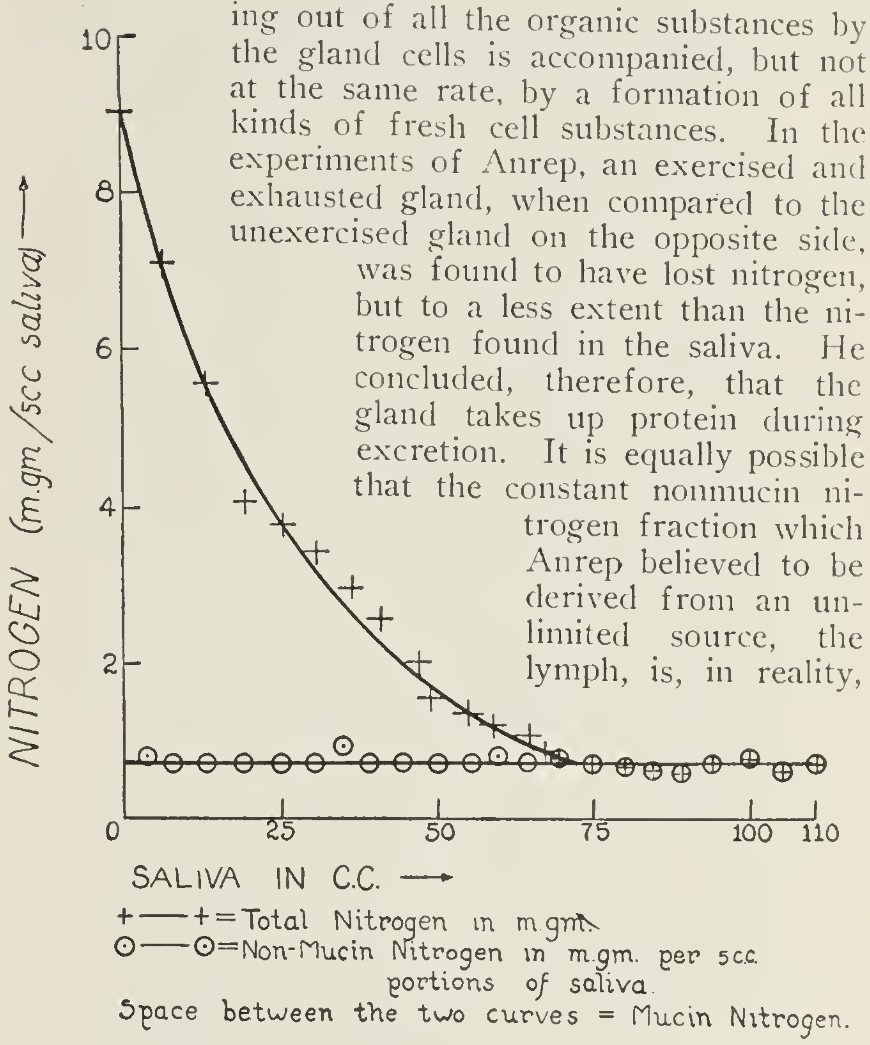

Chart 1.—Salivary gland metabolism (from Anrep).

We have centered attention on the combined urea and ammonia nitrogen value, which will be referred to as the combined nitrogen. That combined nitrogen is the proper basis for comparison is obvious, since if the urea nitrogen only is computed, an inconstancy of values is inevitable, owing to the tendency of urea to hydrolyze rapidly into ammonium carbonate. In individual cases, subtraction of the free ammonia nitrogen from the combined nitrogen often reduces the urea nitrogen to a trace, whereas our experiments show that in these cases the ammonia nitrogen is derived largely or entirely from urea. Factors influencing the amount of urea breakdown are the length of time the saliva has remained in the gland, and the hygiene of the mouth. It has been noted by Le Roy and others that there is more ammonia in a filthy, than in a clean, mouth. Since the urea values, as determined, are

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[*] From the Division of Medicine, Mayo Clinic and Mayo Foundation, Rochester, Minn. Similar studies have been carried out on the gastric contents of a like group of persons, and the results will be published in a subsequent paper. Quantitative studies of salivary creatinin are also being attempted, with rather unsatisfactory results.

[1] Schöndorff, B.: Die Harnstoffvertheilung im thierischen Organismus und das Vorkommen des Harnstoffs im normalen Säugethiermuskel, Arch. f. d. ges. Physiol. **74**: 307-356, 1899.

[2] Quoted by Schöndorff (Footnote 1).

[3] Debove and Dreyfous, quoted by Achard, C.: Le rôle de l'urée en pathologie, Paris, Masson et Cie, 1912.

[4] Kyle, D. B.: Chemistry of Saliva in Relation to Hay-Fever, J. A. M. A. **49**: 402-406 (Aug. 3) 1907.

[5] Le Roy, B. R.: Colorimetric Analysis of the Saliva, with the Clinical Significance, New York M. J. **87**: 448-450, 1903.

[6] Herzfeld, E., and Stocker, A.: Ueber das Vorkommen von Harnsäure im normalen und pathologischen Speichel, Zentralbl. f. inn. Med. **34**: 753-757, 1913.

[7] Anrep, G. V.: The Metabolism of the Salivary Glands. I. The Relation of the Chorda Tympani to the Nitrogen, J. Physiol. **54**: 319-331 (March) 1921.

[8] Wolf, C. G. L., and Barcroft, J.: The Metabolism of the Salivary Gland. I. The Nitrogen Metabolism of the Resting Gland, J. Physiol. **49**: 95-112, 1915.

[9] Quoted by Anrep (Footnote 7).

likely to be misleading and inconstant, the combined nitrogen values are considered as the index and basis of comparison, as the fulcrum on which the ammonia and urea values change in the process of urea hydrolysis.

TECHNIC AND FINDINGS

The determinations of ammonia and urea nitrogen were made by the urease method of Marshall,[10] and of Van Slyke and Cullen.[11] Chart 2 is the curve of salivation for one hour in a patient with urea retention. In it is contrasted the marked variation in the estimated urea values with the relative constancy of the combined nitrogen values. Table 1 also demonstrates this point. In Case 9, there was only a trace of urea nitrogen, whereas the combined nitrogen was a high normal value.

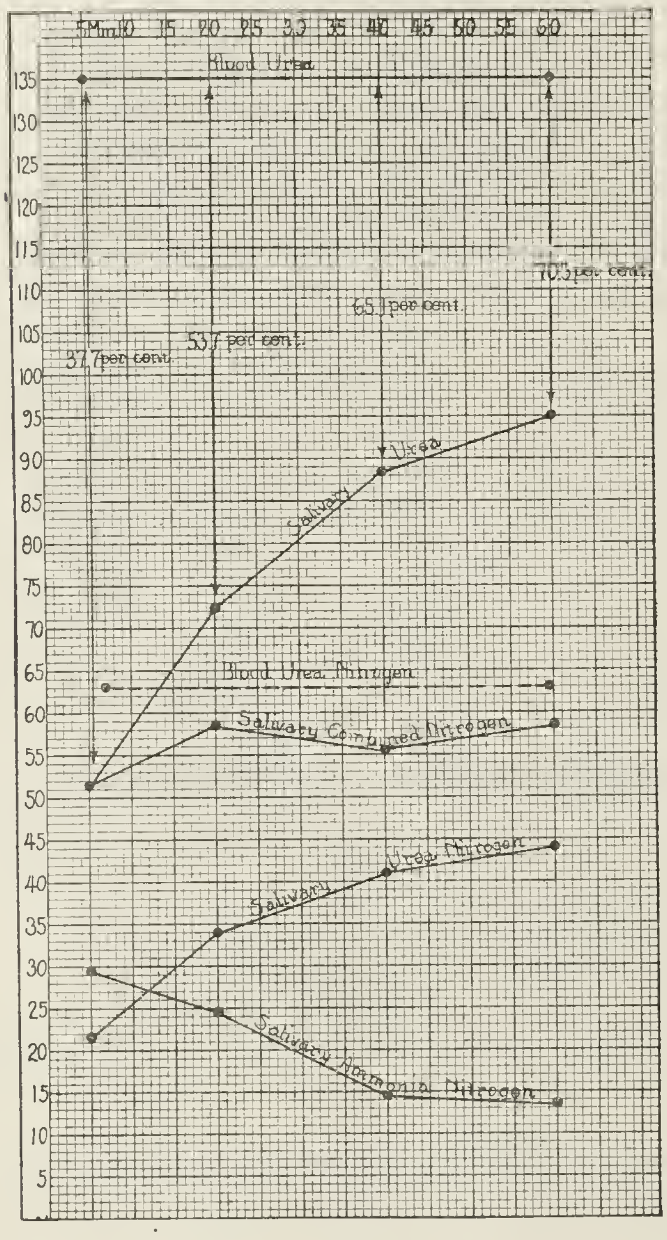

Chart 2.—Curve of salivation for one hour in a patient with urea retention. The figures represent milligrams for each hundred cubic centimeters.

Table 2 indicates that the ammonia nitrogen in the saliva is derived from urea. In the saliva from an unwashed mouth the ammonia nitrogen fraction is high, as the saliva has been acted on by urea-splitting agents, such as bacteria, while, after the mouth has been washed, the ammonia nitrogen fraction is low. In both the washed and the unwashed mouth, the combined nitrogen values are practically constant and within normal limits.

According to the data in Table 3, there is no exhaustion of the combined nitrogen fraction of the salivary excretion, and there is no factor of dilution as salivation progresses. Table 4 demonstrates that the administration of pilocarpin does not change the constancy of the combined nitrogen or introduce dilution factors. Table 5 again emphasizes the constancy of the combined nitrogen value. On allowing the saliva to stand outside the mouth for a short time, little change in the various normal values is obtained. When, however, it remains outside the mouth for several hours, the urea may be split; the urea nitrogen value is lowered to the profit of the ammonia nitrogen, but the combined reading remains constant.

TABLE 1.—CONSTANCY OF COMBINED UREA AND AMMONIA NITROGEN VALUES AND INCONSTANCY OF UREA VALUES OF THE SALIVA OF NORMAL PERSONS

Case	Ammonia Nitrogen, Mg. for Each 100 C.c.	Combined Nitrogen, Mg. for Each 100 C.c.	Urea Nitrogen, Mg. for Each 100 C.c.	Urea, Mg. for Each 100 C.c.
1	0.98	6.03	5.05	10.8
2	5.67	6.19	0.52	1.11
3	3.06	6.45	3.39	7.3
4	1.12	6.87	5.75	12.1
5	6.75	7.23	0.48	1.02
6	4.06	7.56	3.5	7.49
7	3.92	8.1	4.18	8.95
8	6.65	9.25	2.6	5.55
9	11.6	12.5	0.9	1.92

TABLE 2.—EFFECT OF ORAL HYGIENE ON AMMONIA NITROGEN, UREA NITROGEN AND UREA VALUES OF THE SALIVA: SALIVARY PERIODS ONE HOUR EACH

	Mouth Not Washed				Mouth Washed			
Time, Minutes	Ammonia Nitrogen, Mg. for Each 100 C.c.	Combined Ammonia and Urea Nitrogen, Mg. for Each 100 C.c.	Urea Nitrogen, Mg. for Each 100 C.c.	Urea, Mg. for Each 100 C.c.	Ammonia Nitrogen, Mg. for Each 100 C.c.	Combined Ammonia and Urea Nitrogen, Mg. for Each 100 C.c.	Urea Nitrogen, Mg. for Each 100 C.c.	Urea, Mg. for Each 100 C.c.
5	8.34	9.24	0.9	1.92	1.62	6.72	5.1	10.9
10	8.0	8.84	0.84	1.8	1.62	8.1	6.48	13.95
20	4.48	9.24	4.76	10.2	0.84	7.0	6.16	13.2
40	2.94	8.82	5.88	12.6	1.9	8.0	6.1	13.0
60	2.24	9.2	6.96	14.8	1.7	7.76	6.06	12.95

Estimation of the Salivary Combined Nitrogen of Normal Persons (Chart 3).—Sixty-four estimations of the combined nitrogen of the saliva were made on healthy persons without any relation to meals or oral hygiene. Sixty-two estimations fell between 6 and 13 mg. One abnormally low and one abnormally high value were encountered, which may possibly have been due to technical error.

TABLE 3.—CONSTANCY OF COMBINED UREA AND AMMONIA NITROGEN VALUES OF THE SALIVA OVER PERIOD OF SALIVATION WITH PARAFFIN

Time, Minutes	Amount of Saliva in Each Specimen, C.c.	Combined Urea and Ammonia Nitrogen, Mg. for Each 100 C.c.
3	22	9.5
10	30	9.1
20	40	8.7
50	100	9.5

Estimation of the Combined Urea and Ammonia Nitrogen in the Saliva of Nephritic Patients (Chart 4).—Forty combined nitrogen estimations were made on the saliva of patients with urea retention. The combined nitrogen value was constantly above 13 mg., with one exception, in which the reading was 13 mg.

The Relation Between the Combined Nitrogen and the Blood Urea Nitrogen Values of the Saliva of

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[10] Marshall, E. K., Jr.: A New Method for the Determination of Urea in Blood, J. Biol. Chem. **15**: 487-494, 1913.

[11] Van Slyke, D. D., and Cullen, G. E.: A Permanent Preparation of Urease and Its Use in the Determination of Urea, J. Biol. Chem. **19**: 211-228, 1914.

Twenty-Four Persons (Chart 5).—This curve shows that in all persons who had a normal blood urea nitrogen value, 16 mg. or less for each hundred cubic centimeters, the combined nitrogen of the saliva was less than 13 mg. for each hundred cubic centimeters. However, as soon as urea retention is evidenced by a rise in blood urea nitrogen above 16 mg. for each hundred cubic centimeters, the combined nitrogen value of the saliva also ascends in a curve which shows a tendency to follow the blood urea nitrogen curve. More data on comparative estimations are necessary in order to determine the exact relationship between the two curves. Two estimations are apparently abnormally high. The mouths of both patients were very filthy and the increased ammonia may have been due to pollution.

TABLE 4.—CONSTANCY OF COMBINED UREA AND AMMONIA NITROGEN VALUES OF THE SALIVA WITH ACTION OF PILOCARPIN, ONE-FIFTH GRAM BY MOUTH

Time, Minutes	Amount of Saliva in Each Specimen, C.c.	Combined Urea and Ammonia Nitrogen, Mg. for Each 100 C.c.
5	10	7.8
10	20	6.5
20	32	7.5
40	60	7.2
60	65	7.7

POSSIBLE SOURCES OF ERROR

In most of the estimations, the saliva was collected without any relation to meals or oral hygiene. Nevertheless, the constancy of results speaks against any great source of error on this account. In future investigation, it would be well to improve the technic as follows: The patient should be required to rinse the mouth well with water or dilute acetic acid, and to chew paraffin. After two or three minutes, about 25 c.c. of saliva should be collected, filtered through three or four thicknesses of gauze, and estimations made on 5 c.c. of the filtrate, neutralized approximately to methyl red.

TABLE 5.—EFFECT OF ALLOWING SALIVA TO STAND AT ROOM TEMPERATURE FOR TWO, FIVE AND EIGHT HOUR PERIODS *

Case	Time	Ammonia Nitrogen, Mg. for Each 100 C.c.	Combined Ammonia and Urea Nitrogen, Mg. for Each 100 C.c.	Urea Nitrogen, Mg. for Each 100 C.c.	Urea, Mg. for Each 100 C.c.
Normal	Immediately	0.98	6.44	5.46	11.7
	After two hours	2.66	8.5	5.84	12.5
Normal	Immediately	5.07	8.71	3.64	7.7
	After five hours	6.3	9.38	3.08	6.1
Nephritic	Immediately	13.3	29.7	16.4	35.0
	After standing over night	27.7	30.8	3.1	6.7

* A slight increase in the combined ammonia and urea nitrogen values is noted after standing. It is possible that other reactions than that of the conversion of urea into ammonia are concerned in this increase.

Any extraneous sources of ammonia other than that from the saliva would increase the combined nitrogen value.[12] Such sources might be a filthy mouth and tobacco smoke, which contains a small amount of ammonia. Any substance, such as mercuric chlorid in the mouth wash or tooth paste, which might retard or destroy the action of the urease, would appear to lower the combined nitrogen value, since the fraction of urea failing to undergo hydrolysis would be missed.

The excretion of ammonia by the lungs may be disregarded. Experiments by Weisman,[13] Amoss,[14] Rosenau and Amoss,[15] and Krogh [16] show that there is no urea excreted by the lungs and only a faint trace of ammonia, if any. On analyzing the condensation liquid collected from five hours of respiration, Amoss recovered only 1.9 mg. of organic matter, all of which be considered to be ammonia. Even so, it is questionable whether the ammonia thus obtained was from droplets of saliva, or from nasal excretion.

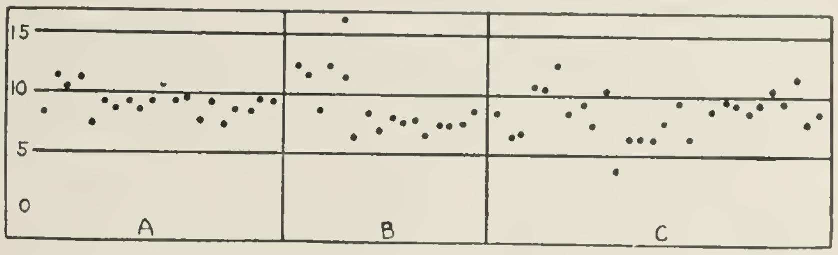

Chart 3.—Estimation of the salivary combined nitrogen of normal persons: *A*, twenty observations of combined nitrogen, in a normal person, over a period of three months; *B*, seventeen observations of combined nitrogen, in a normal person, over a period of three months; *C*, twenty-seven observations of combined nitrogen, in different normal persons. The figures represent milligrams for each hundred cubic centimeters.

POSSIBLE THERAPEUTIC IMPORTANCE OF FINDINGS

Whether salivation as a therapeutic procedure may ever become of value in urea retention is uncertain Values as high as 338 mg. of urea for each hundred cubic centimeters of saliva have been obtained. In many cases, it has been possible to salivate patients to the extent of 200 c.c. of saliva each hour, showing that from 3 to 4 gm. of urea can be disposed of by this method during the day. This is a considerable amount, since, in certain cases of uremia, no more than this is excreted by the urine. Prolonged salivation, which is

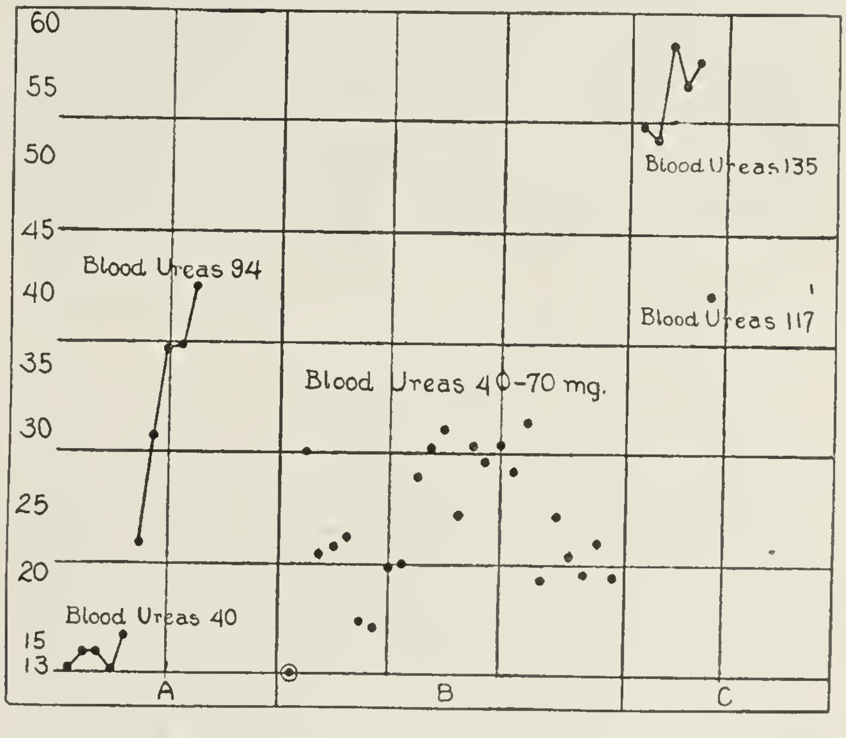

Chart 4.—Estimation of the combined urea and ammonia nitrogen in the saliva of nephritic patients: *A*, the same patient at different periods; *B*, twenty-four different nephritic patients; *C*, six observations on two nephritic patients. The figures represent milligrams for each hundred cubic centimeters.

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[12] Vaubel, W.: Ammonia Content of Tobacco Smoke, Chem. Abstr. **6**: 667, 1912.

[13] Weisman, C.: Biochemical Studies of Expired Air in Relation to Ventilation, Biochem. Bull. **2**: 558, 1912-1913.

[14] Amoss, H. L.: Organic Matter in the Expired Breath with Especial Reference to Its Inhibiting Power on Oxidizing Ferments, J. Exper. Med. **17**: 132-151, 1913.

[15] Rosenau, M. J., and Amoss, H. L.: Organic Matter in the Expired Breath, J. Med. Res. **25**: 35-84, 1911-1912.

[16] Krogh, A.: Experimental Researches on the Expiration of Free Nitrogen from the Body, Skandin. Arch. f. Physiol. **18**: 364-420, 1906.

often aggravated in those patients to whom it might be of real value, is, however, so incommodious that its use therapeutically is questionable.

CONCLUSIONS

1. The results thus far obtained in normal persons indicate that the combined urea and ammonia nitrogen values of the saliva are normally between 6 and 13 mg. for each hundred cubic centimeters, representing between 13 and 27 mg. of urea for each hundred cubic centimeters. The combined urea and ammonia nitrogen values of the saliva closely approximate those of the urea nitrogen of the blood.

2. In urea retention, the combined urea and ammonia nitrogen of saliva always increases with an increase in the blood urea nitrogen.

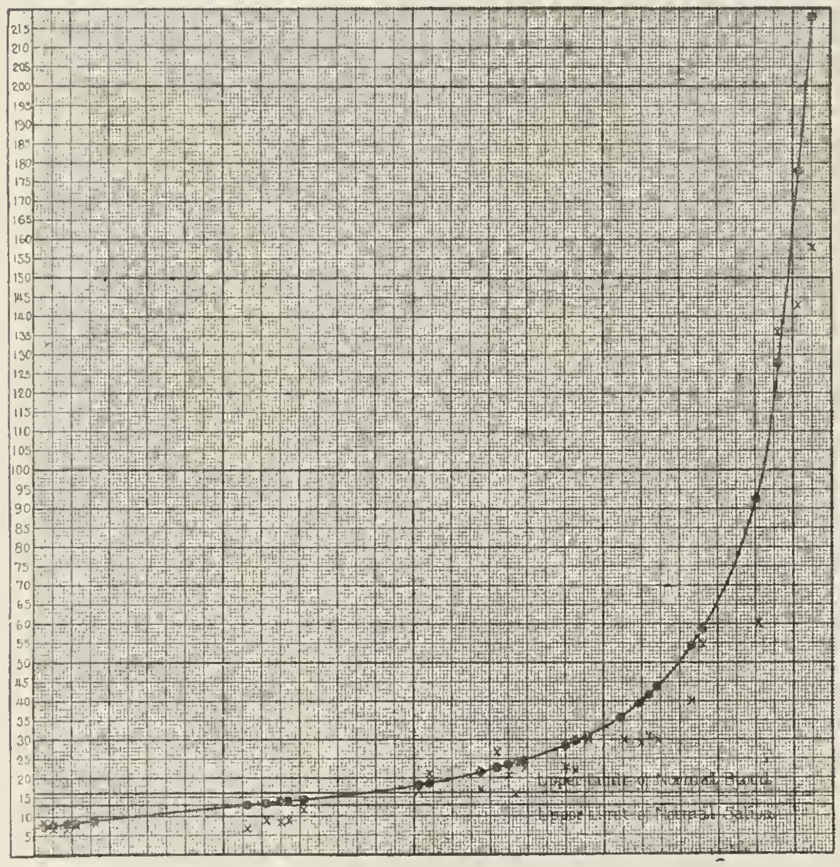

Chart 5.—Relation between the combined nitrogen and the blood urea nitrogen values of the saliva of twenty-four persons. The figures represent milligrams for each hundred cubic centimeters.

3. The combined nitrogen of saliva is a valuable index of renal functional capacity.

4. The determination of the combined nitrogen of saliva may precede or replace blood urea nitrogen determinations, especially in children and other persons difficult to bleed. The finding of a normal combined nitrogen value in the saliva excludes the possibility of an abnormal blood urea value. High combined nitrogen values in the saliva indicate the need of studies of the blood.

Child Care in Rural Communities.—In a report just issued by the U. S. Department of Labor through the Children's Bureau, entitled "County Organization for Child Care and Protection," the most recent administrative advances in the local care of dependent, defective and delinquent children are described. It is stated that care for these children by local boards of citizens, employing trained workers and aided by state boards, is gaining approval in an increasing number of states. The greatest difficulty about these organizations is securing executives trained for such work, it is stated. State universities, now, however, are preparing students to return to their home communities and take up this career, and state boards make possible the interchange of experience through conferences, publications and other means.

CENTRAL RETINITIS WITH RECOVERY OF NORMAL VISION *

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Retinal inflammations incident to serious constitutional diseases have been of interest to general practitioners and ophthalmologists ever since the invention of the ophthalmoscope made their observation and study possible. The importance justly attributed to the early recognition of such lesions has not been due primarily to the possibility of saving eyesight but rather their significance in the diagnosis and prognosis of the general malady.

Not infrequently an active and apparently healthy person, aroused by an impairment of vision, shows on ophthalmoscopic examination such characteristic lesions that the oculist is almost enabled to name the disease and predict the outcome. Unfortunately, the treatment then undertaken by the internist or family physician may be limited to belated and more or less hopeless efforts to save life. The loss of eyesight which gave the first warning naturally becomes quite a secondary matter. Perhaps an exception should be noted among cases of threatened blindness due to albuminuric retinitis of pregnancy. Under these circumstances the induction of premature labor with sacrifice of the immature fetus to save the mother's eyesight has been performed and may be fully justified. However, it is not only the eyesight of the mother but the danger to her life as well which demands this procedure.

The purpose of this report is to emphasize the possibility of saving eyesight by accurate diagnosis and prompt and proper treatment when the retinitis is due to certain localized infections and is not actually caused by a constitutional disease which may happen to be present or suspected.

Neither the presence of glycosuria nor albuminuria precludes the possibility that the retinal lesion may be caused by a focal infection. In fact, it appears in two cases here reported that the glycosuria and albuminuria, as well as the ocular lesion, were due to the focal infection.

With reference to the relation between localized infections and ocular tuberculosis, personal clinical observations seem to justify two conclusions: (1) A focal reaction in certain nasal sinuses occurs simultaneously with the focal ocular reactions in most cases after hypodermic test injections of tuberculin; (2) radical treatment of the focal infections in the nose or throat is followed by control and cure of the ocular lesion.

This applies as well to the more frequent lesions of the uveal tract or cornea as to those of the retina. So satisfactory has been the result of the immediate elimination of focal infections, such as diseased tonsils and infected sinuses accompanying these tuberculous ocular lesions, that the therapeutic use of tuberculin has rarely been required.

When syphilis is known to be present, there is a strong tendency to attribute all local ocular disease to the constitutional infection. In the majority of cases this is quite correct, but possible exceptions must be given due consideration.

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* Read before the Section on Ophthalmology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

In old age, loss of vision due to degenerative changes in the macula may be merely a local manifestation of general arteriosclerosis. It may also be caused by the effect of toxins generated by inflammations in the accessory nasal sinuses. Notable improvement in vision following the treatment of the sinus may be accepted as proof of the etiology.

The list of cases has been limited to those in which there was a return to normal vision, with such direct improvement following the treatment of the focal infection that the etiologic relation might be deemed unquestioned.

REPORT OF CASES

Case 1.—Miss T. L., aged 23, white, first examined, Nov. 23, 1909, had had "disturbed" vision of the right eye for two weeks. The patient and her relatives were alarmed by the grave prognosis as to life and eyesight, by an oculist in an adjoining state, based on ophthalmoscopic examination, urinalysis, etc. Vision of the right eye was 16/12; of the left eye, 16/12. The field of vision for the right eye showed retraction above and below and a paracentral scotoma about 5 degrees in width extending through 60 degrees of arc in the lower temporal quadrant about 10 degrees from the center. The field of vision for the left eye was practically normal.

Ophthalmoscopic examination of the right eye revealed hemorrhagic retinitis, numerous small superficial retinal hemorrhages, and patches of white fibrinous exudate most abundant about the macular zone; the disk margins were not obliterated, but the vessels were somewhat elevated and tortuous; physiologic cupping was quite deep; the media were clear. The media of the left eye were clear, and the fundus was normal.

The general history was negative. The patient had occasional headaches. There were bloody and purulent discharges from the nose. The patient had been advised two years before to have an obstruction in the right nostril removed, but nothing had been done. She was referred to Dr. Greenfield Sluder for nasal examination and to Dr. William Rush for urinalysis.

November 24, the second day, there was no change in the ocular condition. Dr. Sluder reported severe sphenoidal suppuration on the right side for which he instituted treatment. The left side was normal.

November 25, the third day, vision in the right eye was less clear (16/19 +). The ophthalmoscope revealed a fresh hemorrhage near the macula of the right eye. Dr. Rush reported the specific gravity of the urine 1.024. A trace of albumin was present. The sugar was between 0.5 and 1 per cent., and there was one granular cast. The patient had had some polydipsia, also pruritus and mental hebetude for several months.

November 28, the sixth day, vision was no longer blurred subjectively, and on trial showed 10/10 + for each eye. The ophthalmoscope revealed no fresh hemorrhages, and pulsation of the vein was clearly visible at the bottom of a physiologic excavation measuring 3 diopters in the right optic disk. Dr. Rush reported no albumin, and sugar less.

December 1, the ninth day, vision remained excellent. The fields of vision were normal in outline, and scotoma was smaller. The ophthalmoscope revealed the retinal details more clear. About this time, without any restriction or change in the diet, the urine no longer showed abnormal contents.

Jan. 24, 1910, at the end of the second month, the patient had been constantly under the care of Dr. Sluder. On two occasions an acute "cold" was followed by several fresh retinal hemorrhages, but ophthalmoscopic examination of the right eye revealed the fundus practically restored to normal, with mere traces of the former hemorrhages. Vision was 16/10 + for each eye. Haitz cards revealed no central scotoma. A nasal operation to provide better permanent drainage was to be performed.

At the last examination, Sept. 16, 1915, after more than five years, the patient was in excellent general health, with no disturbance of vision. Right eye vision was 16/10; left eye vision, 16/10. The field of vision was normal, right and left. The ophthalmoscope revealed the fundus normal and media clear, right and left. The condition has been reported unchanged during the past year.

Evidently the very unfavorable prognosis was conscientiously advanced by the first oculist consulted in this case because he suspected a diabetic or albuminuric neuroretinitis. The glycosuria in this case may be explained by the close anatomic relation between the pituitary gland resting on the sella turcica just above the sphenoidal cell.

Macleod [1] states that pituitary extract "has a distinct effect on carbohydrate metabolism. After its intravenous or subcutaneous injection, a marked lowering in the tolerance for sugar is observed (page 652), usually to such an extent that glycosuria becomes established. Cushing and his pupils have concluded that the posterior lobe contributes an autacoid which stimulates the utilization of sugar in the body. Confirmatory evidence for this view is furnished by the observation that mechanical stimulation of the posterior lobe, such as is produced by puncturing it with a needle, is followed by a temporary glycosuria, which is said to be as pronounced as that following puncture of the diabetic center, provided glycogen is present in the liver. The production of this carbohydrate autacoid would appear to be under the control of the sympathetic nervous system, for it has been found by Cushing and others that stimulation of the superior cervical ganglion, which has been known for many years to be frequently followed by glycosuria, has this effect only provided the posterior lobe of the pituitary is intact. Even surgical manipulation of the pituitary may excite a hypersecretion of the pituitary extract, which would account for the glycosuria often observed after experimental excision or partial destruction of the pituitary. A similar irritation may be set up in disease of the gland."

It is quite conceivable that the presence of an active suppuration in the sphenoidal cavity may supply sufficient toxic irritation to produce a reaction in the pituitary gland similar to that noted in the preceding paragraph. This assumption is apparently confirmed by certain observations in the following case.

Case 2.—H. H. H., a white man, aged 48, married, first examined, Dec. 2, 1915, reported the sight of the left eye blurred for five days. He had been confined to the house for about two months by a "bronchial cold." There had been some coryza for the last two weeks. There was no history of injury. He had never used glasses. Right eye vision was 16/60; left eye, 3/48. The right field of vision was normal, the left somewhat contracted above, with central scotoma extending about 5 degrees vertically and 10 degrees horizontally. The ophthalmoscope revealed papilledema, right and left, and a patch of retinal swelling between the macula and the disk in the left eye. The blood pressure was systolic, 150; diastolic, 95. The personal history was negative. There had been six children, of whom four were living. The patient's wife had one miscarriage, the cause of which was unknown. Urinalysis, a Wassermann test and nasal examination were advised. Dr. F. C. Simon reported sphenoidal suppuration on the left side, with a copious discharge, for which treatment was begun. The patient was given directions for some nasal treatment at home, as he could not remain in the city.

December 5, the fourth day, he returned to St. Louis, bringing the report of the family physician that a small amount of sugar was present in the urine, which was otherwise normal. Right vision was 16/30; left eye, 16/75. The patient noticed a marked improvement. Ophthalmoscopic examination with dilated pupil revealed fine irregularities in the retinal pigment near the macula of the right eye and more extensive pigment disturbance and a faint yellowish reflex from infiltration between the macula and disk, which now appeared to involve the choroid more than the retina in the left eye, especially when viewed with the stereoscopic ocular of a large Gullstrand ophthalmoscope. There was a small patch of infiltration near the temporal equator of the right eye. Papilledema of the right eye was more pronounced; of the left eye, slight. The patient was to remain at St. Luke's Hospital.

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[1] Macleod: Physiology and Biochemistry, in Modern Medicine, Ed. 2, 1919, p. 770.

December 6, the fifth day, Dr. Simon reported a purulent discharge now present in the right sphenoid also, while the secretion from the left sphenoid was diminishing. Urinalysis at St. Luke's Hospital revealed tests for sugar positive.

December 7, the sixth day, the hospital laboratory reported the test for sugar negative.

December 8, tests for sugar were reported negative, but a trace of albumin and a few hyaline and granular casts were present in the urine. Right eye vision was 16/24; left eye, 16/38. Nasal treatment was continued by Dr. F. C. Simon.

December 11, the tenth day, right eye vision was 16/15; left eye, 16/30+. The patient went home for two days.

December 13, he returned. Right eye vision was 16/24; left eye, 16/30. Nasal treatment was resumed.

December 16, right eye vision was 16/19; left eye, 16/30+. The ophthalmoscope revealed beginning cicatricial delimitation of retinochoroidal infiltration between macula and disk in the left eye. A hypodermic test injection of old tuberculin, 1/2,000 mg., was made.

December 17, right eye vision was 16/24; left eye, 16/38. The ophthalmoscope revealed an edematous swelling in the retinal infiltrates near the temporal equator and macula of the right eye and at the nasal side of the macula of the left eye.

December 18, right eye vision was 16/24; left eye, 16/30. The ophthalmoscope revealed the reaction noted the day before subsiding. Dr. Buhman reported the Wassermann test positive (four plus). The patient went home for a few days. Mercuric ointment, 1 dram (4 gm.), daily, and 5 drops (0.25 c.c.) of saturated solution of potassium iodid, with daily increase, was prescribed.

December 21, right eye vision was 16/19; left eye, 16/24.

December 22, vision was the same. The field of vision was practically normal in outline for each eye, with only a tiny scotoma at the temporal edge of the point of fixation for the left eye.

December 28, right eye vision was 16/12; left eye, 16/24.

Jan. 4, 1916, the end of the first month, right eye vision was 16/15; left eye, 16/24+. The ophthalmoscope revealed moderate papilledema of the right eye and a well defined retinal scar in the left eye. There were beginning symptoms of ptyalism. The patient was directed to use the mercury inunctions only every two days, and increase the potassium iodid to 25 drops (1 c.c.).

January 12, right eye with +0.50 Cyl. Ax. 135° V. 16/12; left eye with +0.50 Sph., V. 16/24+. Lines of astigmatism chart were broken to left of center for the left eye. The ophthalmoscope revealed continued improvement in the appearance of the fundus. There was some maxillary tenderness. The interval between inunctions was increased to three days. The potassium iodid was to be continued, 25 drops three times a day.

January 25, the right eye vision with the same correction was 16/15; left eye, emmetropic, 16/19. The ophthalmoscope revealed the papilledema of the right eye slightly increased. Dr. Simon reported secretion again present in the right sphenoid.

February 8, the end of the second month, right eye vision with correction was 16/12; left eye with −0.50 Sph., 16/19+. Dr. Simon reported improvement in the right sphenoid. Constitutional treatment was continued.

March 14, the end of the third month, right eye vision was 16/12; left eye, 16/12.

May 10th, the end of the fifth month, vision was the same in each eye. The ophthalmoscope revealed the fundus normal right and left except for slightly irregular pigmentation at the right macula and a small retinochoroidal scar of triangular outline at the nasal margin of the left macula. The Haitz stereoscopic cards failed to detect any scotoma, right or left. Dr. Ravold reported, on general examination, no evidence of syphilis. Dr. Harris reported the Wassermann test negative.

November 1, the patient reported that he had been entirely well.

November 4, Wassermann tests made by three serologists showed, respectively, three plus, two plus and negative reactions. The patient refused to continue antisyphilitic treatment.

February, 1917, there was no change in the ocular condition. Right eye vision was 16/12; left eye, 16/12.

December, 1921, the patient reported his health and eyesight excellent.

The primary etiologic importance of the double sphenoidal abscess in relation to the ocular disease in this case appears to be established clinically beyond question. While vision continued to improve after the antisyphilitic treatment was begun, by far the greatest improvement occurred during the first ten days while the patient was receiving treatment only for the sinus infection. During this time the right eye gained in vision from 16/60 to 16/15, and the left eye gained from 3/48 to 16/30+. Nasal treatment was not discontinued when antisyphilitic treatment was begun, about the nineteenth day.

One might also find a suggestion for the diagnosis of retinal tuberculosis in the slight diminution of vision and noticeable increase in the retinal swelling following a test injection of 1/2000 mg. of tuberculin. The strongly positive Wasserman test obtained about the same time completely overshadowed it. The subsequent history shows that tuberculosis as a factor in this case was properly disregarded. If ocular tuberculosis and syphilitic infection are both present, as, for instance, in cases of hereditary syphilis, personal experience has demonstrated that treatment with tuberculin is likely to be a disappointment unless the general health is first improved by vigorous antisyphilitic treatment. The academic question whether this man had syphilis at all or not may be left to the serologists. Convincing clinical evidence was conspicuous by its absence.

The retinal inflammation in the macular region was much more pronounced in the left eye, while the papilledema was more evident in the right. Both sphenoidal sinuses were involved. Knowing the possible variability in size and relation of these cavities to the optic canal, it becomes a matter of interest whether such a variation is the cause for the difference in the ocular manifestations in the two eyes.

Not the least interesting fact about both of these cases is the glycosuria present during the active stage of the localized sphenoidal sinus infection, which cleared up under treatment of the latter condition without corrective diet, etc.

The first case, which was monocular, bore some resemblance in ophthalmoscopic appearance to diabetic retinitis. The second, in which both eyes were affected, did not.

A report from Uthoff's clinic by Momoji Kako [2] indicates that nineteen out of forty-five cases of diabetic retinitis were monocular. A pertinent question, then, is, If the focal infection in the sinuses had been ignored, would these cases eventually have been classified as diabetic neuroretinitis? If so, how many cases that are thus classified might be traced to a similar origin if the sinuses had been examined?

In the next two cases, the direct influence of the sinusitis on the ocular condition causing the loss of vision was not complicated by any sign or symptom of constitutional disease.

Case 3.—W. B., white, aged 19, a student at Princeton, whose home was in St. Louis, was first examined, April 27, 1921. Eighteen days before, while brushing his hair, he noticed that he could not see well with the right eye. Later the same day he noticed that his game of tennis was off, as he could not locate the ball. He consulted Dr. L. Webster

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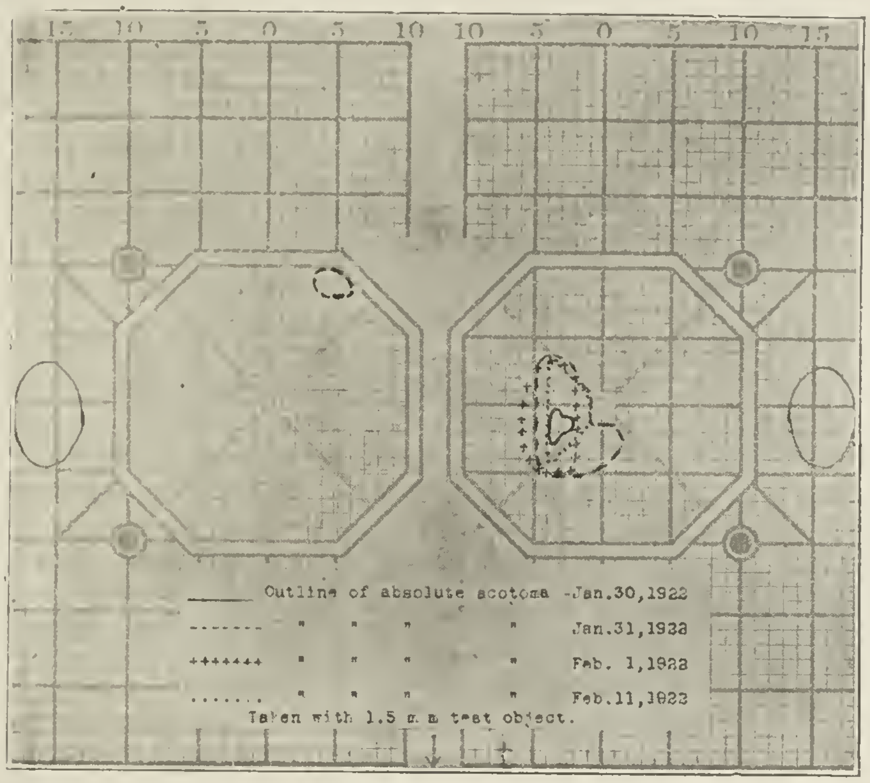
[2] Kako, Momoji: Klin. Monatsbl. f. Augenh., 1903.

Fox of Philadelphia, who sent a chart of the visual field of the right eye showing central scotoma occupying the nasal half of the inner ten degree zone, and a very slight contraction in the outline of the extreme temporal limits. Dr. Fox enclosed a rough sketch indicating the size of the retinochoroidal lesion at the macula. Comparison with the present ophthalmoscopic appearance indicates progressive increase in the size of the lesion and pigment proliferation. Right eye vision was 16/192; left eye, 16/12+. Dr. Fox had eliminated the possibility of macular injury due to a blow on the right eye. He also had an examination made of the accessory nasal sinuses, and received a report that the examiner found everything normal. Not finding a more satisfactory solution of the question of etiology, Dr. Fox forbade the use of tobacco, and prescribed hydriodic acid. Dr. Fox had found the left eye normal in every respect, which was confirmed at this examination. An outline of the macular field of the right eye on Haitz stereoscopic charts with a 2 mm. test object revealed an absolute central scotoma extending fully 6 degrees downward, nasally and temporally, and irregularly about 3 degrees upward. A measurement of the size of the retinochoroidal lesion was made with the Gullstrand ophthalmoscope and measuring ocular. We advised a general physical examination, a Wassermann test, and special examination of the nose, throat and teeth.



Scotoma in Case 4.

April 28, the second day, Dr. Greenfield Sluder reported sphenoidal inflammation without pus on the right side, for which he had begun treatment. The ocular condition was unchanged.

April 29, the third day, Dr. Andrews reported the general physical examination negative. All constitutional treatment was discontinued. Right eye vision was 16/120; the patient noted positive improvement. The ophthalmoscope revealed retinochoroidal infiltration more sharply defined, with appearance of normal tissue between the proliferated pigment granules.

May 2, the sixth day, the Wassermann test was negative. Daily treatment by Dr. Sluder had been uninterrupted. Right eye vision was 16/24, a gain from 16/192 in less than one week.

May 7, the eleventh day, the right eye vision was 16/15. There was good depth perception with the stereoscope. Fundus examination of the right eye with dilated pupil with the Gullstrand ophthalmoscope revealed much normal retinal tissue between proliferated pigment. Measurement of the outer points of the outline revealed contraction in the size of the lesion.

May 12, the sixteenth day, right eye vision was 16/12; left eye, 16/10. Test with the Haitz stereoscopic chart revealed a zone of relative lack of clearness with the 2 mm. test object about one-third as large as the original absolute scotoma.

May 24, the end of the first month, right eye vision was 16/10; left eye, 16/8.

June 21, the end of the second month, right eye vision was 16/10+; left eye, 16/8 (apparently emmetropic). The ophthalmoscope revealed a thin scar moderately pigmented. Haitz cards showed no scotoma, either absolute or relative. There had been no further visual disturbance in this case.

Comment as to the probable etiology of the retinal condition seems superfluous in connection with the clinical history. It is manifestly our duty to insist on repeated examinations of the nasal cavity, in spite of negative reports, when no other satisfactory cause can be found to explain particularly lesions in the macular region.

Case 4.—F. W. S., a white man, aged 32, single, previously examined for slight ametropia, when — 0.50 Sph. — 0.62 Cyl. Ax. Vertl. was prescribed for each eye in 1919, with which vision was 16/12, right and left, received a small superficial, scleral wound in the right eye, about 5 mm. below the limbus, from the corner of a screwdriver while tinkering with his automobile in August, 1920. A moderate traumatic iridocyclitis was followed by recovery without injury to visual acuity.

Jan. 30, 1922, he reported for examination on account of a spot near the center of vision of the right eye. With glasses, right eye vision was 16/15 (uncertain); left eye, 16/12+. Ophthalmoscopic examination of the right eye, with dilated pupil, revealed a tiny superficial yellowish white infiltration just above and to the temporal side of the macula. Test with the stereocampimeter revealed a triangular absolute scotoma covering several degrees below and to the nasal side of the center of fixation, as in the accompanying chart. General physical examination and immediate rhinologic examination was advised.

January 31, the second day, Dr. T. P. Brookes reported nothing abnormal in the patient's condition. Dental examination was negative. Dr. Greenfield Sluder reported postethmoidal and sphenoidal inflammation, with very thin pus, for which treatment had been instituted. Right eye vision was 16/120. The stereocampimeter revealed absolute scotoma very much increased in size, as indicated on the chart. The ophthalmoscope revealed a hazy, edematous swelling of the retina, with borders not definable, involving the macula and enveloping the apparent terminus of a tiny retinal blood vessel approaching the macula from the upper temporal direction, a second superficial infiltration was visible about one disk diameter removed, temporarily surrounding a tiny branch of the same retinal vessel.

February 1, the third day, right eye vision was 16/75. The ophthalmoscope revealed a beginning demarcation of the retinal swelling, with first signs of pigment cell proliferation. The stereocampimeter revealed absolute scotoma, diminished in size by 30 per cent., as indicated on the chart.

February 2, the fourth day, right eye vision was 16/38. The ophthalmoscope revealed the lesion more sharply defined and the swelling less.

February 3, the fifth day, right eye vision was 16/24.

February 7, the ninth day, the ophthalmoscope revealed definite cicatrization; the patient was examined also by Dr. F. E. Woodruff and Dr. E. H. Higbee.

February 10, the twelfth day, right eye vision was 16/38+; left eye, 16/10.

February 11, the thirteenth day, right eye vision was 16/24 (variable); left eye, 16/10. The ophthalmoscope revealed the presence in the right eye of a sharply defined retinochoroidal scar. In the left eye there was tiny infiltration with some pigmentation along the macular end of a small retinal vessel below and on the temporal side of the macula. Hitherto the left eye had shown no pathologic change. The stereocampimeter revealed a slight change in outline of the absolute scotoma for the right eye and a new absolute scotoma covering several degrees above and to the nasal side for the left eye.

On account of this extension to the left eye, Dr. Sluder decided that a radical double postethmoidal and sphenoidal operation was necessary. He operated, February 14, sixteen days after the first lesion was noticed.

February 17, fourth day after operation, the ophthmalmoscope revealed marked improvement, that is, definite cicatrization and shrinking of outlines of lesions right and left.

February 21, the eighth day after operation, the ophthalmoscope revealed a tiny shrunken retinal scar at the temporal side of the macula of the right eye, and no evidence of a retinal lesion of the left eye, with undilated pupil. The stereocampimeter revealed a small scotoma, not absolute, in the right eye, and no scotoma in the left eye.

February 25, the twelfth day after operation, right eye vision was 16/19; left eye, 16/15.

March 1, one month after the first attack, right eye vision was 16/12; left eye, 16/12 +. There was no evidence of any central scotoma, right or left.

The last case was seen early enough to confirm what Fuchs has emphasized in his recent lectures on pathologic conditions of the eye: that these retinochoroidal lesions in the macular zone probably most often begin in the retina.

Consideration of the anatomic relations makes it easy to understand how the toxic products, and possibly bacteria, of postethmoidal or sphenoidal inflammations can be conveyed by the perivascular lymphatics along the branches of the ophthalmic artery. Perhaps none of them supply a tissue more sensitive—that is, more likely to become inflamed by contact with these toxins, than the retina. We may assume that the diminished vascularity of the retina in the macular zone means greater vulnerability. Other regions of the retina may be affected, but the invasion of this most important zone for visual purposes, the macular region, gets more attention from the patient.

These cases all showed a return to normal conditions. In none of them had the loss of vision been noted quite three weeks, and in the last case scarcely more than twenty-four hours. Other cases showing destruction of central vision by extensive atrophy and cicatrization in the macular region when disease in the nasal sinuses was the probable cause have been and could be produced. Their negative evidence, however, could not be more convincing than the positive benefits obtained from nasal treatment, as outlined above.

CONCLUSIONS

1. Justice to the patient demands that possibility of focal infection be considered, even when symptoms of constitutional disease are present.

2. A negative report after a nasal examination is not final. The examination should be repeated in all ocular conditions susceptible of influence by disease in the accessory nasal sinuses, unless some other etiologic factor fully explains the case.

ABSTRACT OF DISCUSSION

Dr. Greenfield Sluder, St. Louis: Dr. Luedde brings out well how syphilis, albuminuria and diabetes may confuse nasal examination. The cases he reported gave me an opportunity to investigate. They were not obvious sphenoid cases. The changes were so slight that they might readily have been overlooked. In the first case, the sphenoid was opened and the glycosuria ceased. The second case was in a normal boy, aged 18, a simple nonsuppurative sphenoiditis. The outlet was in all probability a propitious one, and phenolized oil placed in the sphenoidal fissure under such circumstances (pressure) will overflow and go into the sphenoid. The treatment was exceedingly simple and the response was very prompt. Recovery was complete. The third case was submitted to operation immediately, because of the involvement of the other eye. The disturbance in the nose was scarcely more in evidence than in the second case. The response was prompt there also. As I recall it, the reaction following immediately in the wake of the sphenoidal surgery was enough to make the intraocular manifestation slightly more pronounced. That lasted two days, and subsided. It is timely to emphasize the small changes that may be responsible for ocular infection. Some years ago, Dr. Ewing sent me a man who had iritis with perception of light remaining. The same changes appeared in his nose that appeared in these cases. He did not get better with tentative treatment, so I opened his sphenoid cell which fortunately happened to be of large size. The shock of the surgery lowered his blood pressure, and the bleeding ceased. It was a perfectly dry operative field; I had a comprehensive opening and the ethmoid and nasal outlet were completely removed. I introduced a pharyngoscope and I saw on the optic canal a lesion with vessels focusing to its center, and the epithelium had a dirty gray appearance which faded out to normal at a radius of 1 cm. The patient wound up with 3/20 vision.

The question arises, too, What really is the relationship between postnasal disease and optic disorders? There are three basic observations on record in this association. One is that of Uffenordi who, in 1907, determined the anatomic connection of the optic canal and the sphenoidal sinuses. The second is the clinical observation I outlined in Dr. Ewing's case. The third observation was by Kleijn of Utrecht, made postmortem, in which he demonstrated the diplococcus in the membrane of the sphenoid and within the optic sheath and optic nerve. That sounds rather convincing. How does the infection proceed? Forward; almost never backward. Were it to proceed backward as often as forward, the infection would cause meningitis more often. I cannot offer any explanation of this fact.

Dr. J. W. Charles, St. Louis: I wish to sound a warning against the treatment of syphilis when sphenoiditis is connected with any of the ocular manifestations. A few years ago I sent a patient to Dr. Sluder because he had a slight papilledema on the nasal margin of one optic disk with slight dimunition of vision. The other eye was perfectly normal. Dr. Sluder found that he had a sphenoiditis. I advised the man to be operated on, but he wanted to put it off. Having in the meantime had every test made, including the Wassermann, which was four plus, I thought I would send the patient to an institution where he could be treated for syphilis, until he would consent to operation. He was given a dose of arsphenamin 0.5 gm., and immediately the vision in that eye became worse, and the other eye became involved. The patient became blind within a week and never recovered. I determined that it was a case of a Herxheimer reaction in the sphenoid which had involved the optic nerves.

Dr. A. E. Ewing, St. Louis: I wish to sound another note of warning, and that is that when you have these nasal cases you should place them in the hands of men who understand nasal work. I know of one instance in which one eye was lost completely and the other eye severly injured from a sphenoidal operation.

Dr. Edward C. Spitze, East St. Louis: Years ago I saw a patient with hemorrhagic retinitis, and a large pocket of blood behind the retina. A diagnosis of kidney disease had been made. A good laboratory diagnostician had found albumin and casts. I examined the eye and said that this diagnosis must be correct. For some reason his people were not satisfied and the patient came to Dr. Luedde. He had her sinuses investigated, and found a severe suppurative sinusitis. Examination of the urine was negative. Another case under my care now is that of a man who had a slight trace of albumin, with intense neuroretinitis in one eye. The albuminuria was treated and cleared up, but the eye condition became worse until we found we had a bilateral sphenoiditis and ethmoiditis. It took several weeks' treatment before he began to improve.

Dr. Joseph S. Richtenberg, Kansas City, Mo.: Two years ago, at the meeting of the American Academy of Ophthalmology and Oto-Laryngology, with Dr. Loric, I reviewed a series of twenty-five cases of eye disease due to intranasal conditions. The points we made were: (1) that in the early iagnosis of these conditions one of the most prominent ymptoms is the enlargement of the blind spot; (2) that in ases in which nasal examination and the roentgen ray were egative, the rhinologist is perfectly justified in exploring he sinuses, and (3) that in some of the cases the sphenoid inus goes from one side to the other, and the eye on one ide would be affected by the disease in the opposite side of he sphenoid sinus.

Dr. C. D. Wescott, Chicago: These cases certainly show he importance of complete examination of patients in the tudy of any intra-ocular condition. We must not conclude hat because the Wassermann reaction is positive the eye sion is due to syphilis, or that because the patient reacts tuberculin the eye lesion is tuberculous. Unfortunately, ve all have not the opportunity for such skilled assistance s Dr. Sluder has given in these cases. I believe great harm as been done by ill advised intranasal surgery.

Dr. Oliver Tydings, Chicago: In every case of eye trouble hat comes under my observation, if there is any question bout it, I always examine the nose. I cannot agree with r. Sluder in every case of eye pathology that we should perate on the sphenoid. I have operated on a large number f sphenoids without any disturbing symptoms but when I nd the nose normal and have investigated the sphenoid, and here is no evidence of any pathologic condition, I think I m justified in withholding operation. I believe there is one erious source of trouble in all of these conditions which he medical profession has not taken into consideration, and hat is the disturbance due to the vasomotor system on ccount of irritation produced at various points.

Dr. Greenfield Sluder, St. Louis: I have been misundertood. My statement was that painstaking examination of he nose will reveal the presence of the disorder many times f the examiner has sufficient experience, and that the postthmoidal sphenoid operation is not to be trifled with; that t should not be undertaken as a routine or performed lightly.

Dr. W. H. Luedde, St. Louis: The important thing is that ll these patients got well and retained perfectly normal ision. The scotomas disappeared and the vision cleared up nder treatment of the focal infection in the nasal sinuses. Ve see so many cases with central retinochoroidal scars hat have never been explained satisfactorily that the report f these four cases in which the identical ocular inflammaion began but subsided without the usual destruction may e of interest. No one would hold the sphenoid responsible or all such troubles, but the value of most careful examnation and reexamination cannot be overestimated. Dr. luder's painstaking care and skill in diagnosis were strikngly illustrated by my experience in the case of a onesided ptic neuritis with serious loss of vision in a young school eacher. A tonsillectomy had been performed a month before. ler original rhinologist was ready with an absolutely final egative diagnosis within five minutes after the case was eferred to him. Neurologic examination was negative. On ie following day, after an hour of repeated observations, r. Sluder made the positive diagnosis of sphenoidal suppuraion on the affected side. A sphenoid operation resulted in estoration of good vision and cure of the optic neuritis. lence the warning, not to rush too eagerly for a negative iagnosis. I know that Dr. Sluder does not operate in every phenoid case. In the three cases of this series under his are, only one operation was done. In that case he did not perate until an extension developed, involving the other eye. he rule has been that when vision is improving and the asal condition is subsiding satisfactorily under treatment, n operation is not recommended. Operative intervention as been regarded as the last resort. With reference to the reater frequency with which these sphenoidal infections seem travel forward, I wish to offer the following explanation. he intimate anatomic relation of the optic canal is well nown. Through this canal and foramen pass the optic nerve nd the ophthalmic artery. The ophthalmic vein returns by ie sphenoidal fissure and does not pass through the optic anal. The perivascular lymph currents everywhere coincide ith the direction of the flow of blood within their respective vessels. Therefore, infectious matter and toxins reaching the optic nerve from these sinuses are more readily carried forward toward the ocular tissues by the perivascular lymphatics of the ophthalmic artery.

PRESENT-DAY STATUS OF SQUINT SURGERY *

A NEW OPERATIVE TECHNIC

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WASHINGTON, D. C.

Surgery of the ocular muscles for the relief of squint can be divided into two general classes: First, operations to weaken the overacting, or supposedly overacting, muscles. These have consisted of cutting the tendon or the belly of the muscle either entirely or partially, the object of which was to weaken or inhibit the pull of that muscle. Second, those operations whose purpose was to strengthen the weak or underacting muscles. This was accomplished by advancing the insertion of the muscle, by cutting off the end of the muscle and stitching it to the stump or to the sclera in front of the stump, and thus shortening it, or by some form of reefing or tucking. Before enumerating the virtues and defects of these methods I shall review the historical facts leading up to our present-day methods.

In 1737, the bombastic John Taylor—arch charlatan of his age—announced in the newspapers in Paris that he "could straighten squinting eyes by a slight and almost painless operation, and without fear of accident." What he did, or how, we shall never know.

Professor Stromeyer, in 1838, in a treatise on "Subcutaneous Orthopedics," described fully the procedure of tenotomy, but for want of courage or opportunity he had never performed his operation on the living subject. The first authentic tenotomy for the relief of squint was performed by Dieffenbach of Berlin, Oct. 26, 1839. Dieffenbach performed on the living subject the operation that had been performed on the cadaver by Stromeyer and which he described in his book in 1838.

The first tenotomies were tenotomies proper and not myotomies, in that they cut the muscle "close to the sclera." In their zeal to get more effect, they soon began to cut wider into the capsule and further back on the muscle. Dieffenbach himself was one of the first to do a myotomy. He says [1]:

> If the conjunctiva be divided over a greater arc and toward the back of the globe, if the cellular tissue be extensively separated, and the muscle be detached far back and divided at its middle, then the eye, even in cases in which the whole cornea was hidden in the internal angle, stands quite straight after the operation.

This cutting of the belly of the muscle and the complete detachment of the muscle and capsule were attended by such glaring deformities, external deviation, sunken caruncle, and exophthalmos, that the operation for squint came into bad repute. About this time, A. von Graefe admonished his colleagues to adopt a more conservative operative procedure. He described his method of operating, which differed very little from the original method of Stromeyer. He advised opening the conjunctiva closer to the cornea, making a small opening and doing a tenotomy as near the sclera as possible, and using afterward a conjunctival stitch. This operation is extensively practiced today.

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* Read before the Section on Ophthalmology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] Dieffenbach: Deutsch. med. Wchnschr., July, 1840.

These defects of tenotomy caused another operation to be developed: a strengthening of the weaker muscle. This was first devised by Dieffenbach to relieve an external deviation produced by a myotomy done by himself in 1842, but with little success. It was left for Guérin of Nancy in 1849 to give us a more practical procedure. This he applied in a case of secondary squint.

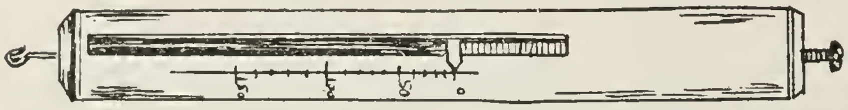

Fig. 1.—Scales for measuring pull of muscle.

The first accurate description of an advancement operation was by A. von Graefe in 1857. This was his famous "Faden operation." The same year, G. Critchett of London described his three stitch advancement operation, which Beard said "might be called the parent of most modern advancement operations." In 1897, Landolt made some improvements on Critchett's advancement, and his operation is extensively practiced at present. Almost every advancement operation since has been more or less of a modification of Critchett's or Landolt's.

The hope, aim and ambition of each and all (and their names have been legion) have been to shorten the weaker muscle so as to make it cope with the overacting one, and this was done by muscular advancements (Critchett, Landolt, Weber, de Wecker, Prince, Verhoeff, Worth et al.); capsular advancements (Knapp, de Wecker, Fox); resections (Vieusse, Schweigger, Prince, Reese); reefs (Savage, Valk, B. Harman et al.); and by tucks (Todd, Bishop, Bruns, Clark, Briggs et al.); but in one and all of these were the element of inexactness and want of proper gaging of the operation and hence a variance of the end-results obtained. Then to obtain results there was the partial tenotomy and advancement—a combination of operations, both of which were inaccurate and left just as much to be guessed as heretofore—and it was just this element of inexactness and want of definite measurements which prevented us from operating on children at an early age before the vicious habits were formed and before it was too late to secure the aid of nature in procuring that all important function—binocular vision, or fusion of the two images, to aid us in obtaining and maintaining straight eyes.

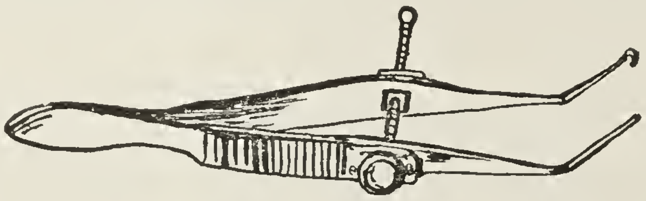

Fig. 2.—Calipers.

The advantages of tenotomy were its ease of execution, its slight reaction, and the time saved for the patient. Its disadvantages were its uncertain end-results, its bad after-effects, in way of sunken caruncle, external deviation, exophthalmos, and the interference with convergence. The latter is possibly the greatest fault, particularly in cases in which binocular vision can be secured.

The advantage of the tucking, advancement or resection operation is that we are restoring an eye to approximately normal function, by increasing the action of the weak muscle instead of decreasing the action of an overacting muscle, as in tenotomy. In other words, we are making a weak muscle stronger instead of making a strong muscle weaker. The disadvantages of this procedure as it has been performed are its inexactness, the amount of traumatism necessary to good advancement as compared to tenotomy, and the necessarily greater discomfort and delay from work, as well as after-redness and more prolonged recovery.

At present, in America, a slight tenotomy is preferred by many operators, while others do a combination of partial tenotomy and advancement, or resection, whereas a few men never do a tenotomy except for external deviation. In England, some form of advancement with a slight tenotomy, a weakening of the internus in severe cases, is the practice. While in France, largely as a result of the teaching of Landolt, advancement is the procedure of choice.

What we have been needing in our muscle surgery is a more exact measurement of the amount of advancement done in a given case, and a study of the amount of correction of a given deviation that a definite amount of shortening will produce.

Our trouble in the past has been twofold: In the first place we have not made sufficiently accurate, or a sufficient number of accurate measurements of our cross-eyed patients before submitting them to operation. We should measure the deviation under all circumstances: when the child is excited, when he is calm, when he is tired and when rested, with atropin and without, with glasses on and without glasses, and, finally, after glasses have been worn for months. It is my custom first to get the degree of deviation, atropinize the eyes ten days, take amount of deviation, order practically full refractive correction, then measure the deviation, and take a tropometric reading every thirty days for six months, using pads, atropin in the fixing eye, fusion training (Worth) and occlusion when necessary, and at the end of six months a study of one's records will tell him whether or not he must operate. If no improvement in vision, or fusion power, or decrease in the degree of deviation takes place, we not only should operate, but we must operate in all cases in which the patient is more than 3 years of age.

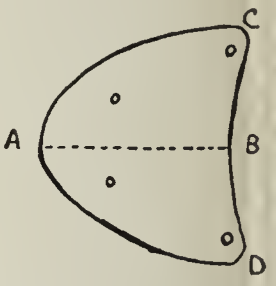

Fig. 3.—Strabismus brace: *A* to *B*, 11 mm.; *C* to *D*, 14 mm.; thickness, 0.5 mm.

Our second weak point in squint surgery was its inaccuracy. We hestitated to do a tenotomy, for no man could foretell its final result, no man could guess this in any case; hence we hesitated to assume the responsibility when the element of uncertainty was so great. Advancement operations gave us no more accurate, but perhaps less harmful results, even though at times some harm resulted. Thus, we found ourselves permitting patients to go till they were 10, 12 and 14 years of age before we would assume the responsibility of an operation. We waited until the hope of binocular vision was forever lost and the possibility of a functioning eye irretrievably gone.

To overcome the defects in squint surgery I have endeavored to devise an operation in which the exact amount of shortening of a muscle can be measured; one in which the sutures are sufficiently strong not to give way or slip while healing takes place, and one which is as devoid of danger as any resection, tucking or advancement operation yet introduced. In order to secure more definite end-results, I have devised scales to measure the pull of the muscle, a caliper to measure more exactly the amount of shortening done, and a brace to insure healing of the muscle where it is left at the conclusion of the operation.

The above mentioned scales I now use in all cases to determine the amount of pull or resistance offered by the strong muscle. The scales are graded in grams. I have found that the average pull to a squinting eye is about 60 gm. Many will pull as much as 120 gm., and a few 150 gm.

The method of using the scales is as follows: The stay suture for holding the brace is placed underneath the tendon of the internal rectus muscle, as elsewhere described. This thread is knotted and the hook of the scales is caught in the thread. The eye is now pulled out until the edge of the cornea is brought to the outer canthus. The weight of the pull required to bring the eye over is registered on the scales and recorded. In local anesthesia the patient is required to fix with the good eye as the squinting one is pulled outward till the cornea reaches the external canthus. Under ether, the same procedure is followed; but, of course, we have no fixing eye. The degree of anesthesia probably causes a variation in the pull; however, I have not found it so. I feel certain that a markedly overacting muscle will be thus detected despite that possible error. In cases with markedly overacting internal rectus I leave the brace in from ten to twelve days and take an extra millimeter of shortening.

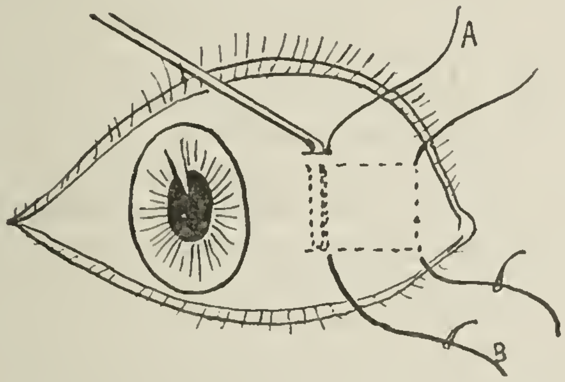

Fig. 4.—Method of introduction and position of stay sutures for strabismus brace.

In the event that there is an overcorrection—which I have had in two cases—the method of correction is by leaving off the glasses, and training the fusion faculty. In one case in which an error was made in setting the caliper by the inch scale instead of the metric, an overcorrection of 15 degrees was obtained. This was overcome by lengthening the muscle after the manner recommended by Bishop Harman.

I have found it important to get a tropometric reading in each case, as I have noted that in those cases in which there was a deficient movement of the eye outward there was usually a greater pull found when using the scales, and therefore I was forewarned to do a little more advancement.

I have used the Holzer-Priestly-Smith-tape method in measuring the degree of squint for near vision, and the tangent method for distance. It is all important to know what the average deviation is before sending the patient to the operating room, since carelessness in measurements would vitiate the ultimate result. As we must be accurate in the amount of advancement, even to 0.5 mm., so we must be exact, even to 1 degree in taking our measurements of the squint before we operate.

I had a small pair of calipers made. These are set beforehand to a certain number of millimeters, determined by the amount of deviation found in the case in which operation is to be performed. One arm of the calipers is rested on the forceps which hold the cut end of the muscle, and the other arm lies on the exposed muscle at the point where the suture is to be placed.

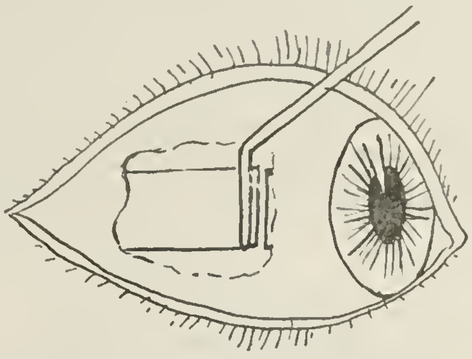

Fig. 5.—Exposure of external muscle, clamping with forceps, and cutting 1.5 mm. from insertion.

In order to have a firm hold that would not tear, the tendinous insertion of the muscle was used. That eliminated the scleral suture, which is admittedly dangerous at times and at times inefficient. By using this tendinous insertion we have a solid foundation to start with—an absolute necessity. Thus we have eliminated the two defects which have been our pitfalls in the past. We have accurate measurement and a firm hold on our advanced muscle; but to make ourselves doubly sure that healing will take place where we leave our advanced muscle—in order to make our accurate measurement worth while—I have devised a squint brace, which consists of a piece of lead plate which is anchored to the internal angle of the eye, the object of which is to stretch the internal rectus muscle, render the eye more or less immobile, and cause the eye to deviate from 12 to 18 degrees and thus take all tension off the advancement sutures and prevent any tearing or giving way of the sutures in the frail external rectus muscle.

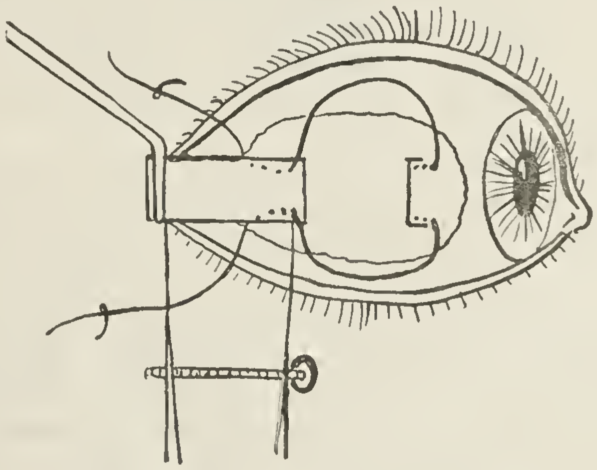

Fig. 6.—Cut external rectus laid back.

OPERATIVE PROCEDURE USED IN LAST SEVENTY-FIVE CASES

Figure 3 represents a strabismus brace which is to be anchored to the tendon of the internal rectus muscle. It consists of a semi-oval or shoe-heel shaped piece of flat lead, perforated in four places for the anchor sutures. Its dimensions are 14 mm. in its cross diameter, 11 mm. in the horizontal diameter, and 0.5 mm. in thickness. Its purpose is to stretch the overacting internal rectus and to fix the eye so as to prevent tearing of the sutures in the advanced external rectus muscle.

Figure 4 shows the method of introduction and the position of the stay sutures for the strabismus brace. A slight opening about 3 mm. long is made at either border of the tendinous insertion of the internal rectus muscle; a strabismus hook is inserted under the tendon, and the tendon is raised; then a thread, *A B*, is passed along beside the strabismus hook and out through the conjunctiva at the opposite edge of the tendon. Thus, the first thread, a No. 14 twisted silk, is placed underneath the tendon of the overacting internal rectus muscle; the second suture, a No. 8 twisted silk, is placed deep into the check ligament in the internal angle of the eye. These threads are now laid aside until after the resection of the external rectus has been completed, and then they are passed through the four perforations in the strabismus brace and tied.

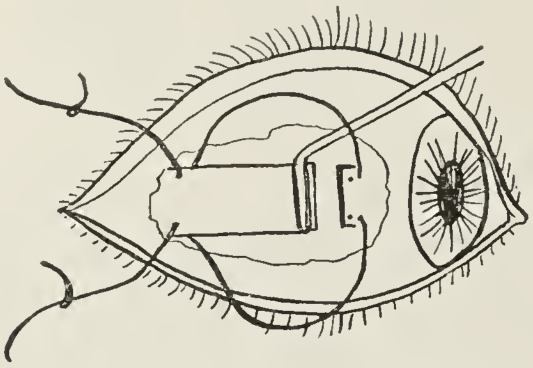

Fig. 7.—Thread in place and muscle held back in original position.

Figure 5 represents the exposure of the external muscle, its clamping with muscle forceps, and the cutting of the muscle 1.5 mm. from its insertion.

Figure 6 presents the cut external rectus laid back; a double armed OO twenty day chromic catgut is first introduced from within outward, one needle going through the upper fourth of the tendinous stump and the other needle through the lower fourth of the stump. The upper thread is now passed from within outward through the upper fourth of the belly of the muscle at a distance measured by the caliper as herein shown, it having been previously determined how much shortening shall be done and the caliper set at that distance. The lower thread is now passed through the lower fourth of the muscle at the same distance from its cut end as the upper thread.

Figure 7 shows the thread in place and the muscle held back in the original position, in order to show better the exact method of placing this suture.

Figure 8 shows the eye pulled up straight, the end of the muscle brought up to or overlapping the corneal margin, and the suture tied. A firm hold is secured on the muscle, and yet there is no dangerous scleral stitch.

Figure 9 shows the muscle advanced, the main suture tied, and the placing of the two auxiliary modified Critchett sutures to guarantee no curling back of the cut ends of the muscle, and also to guard against an accidental untying of the first or main suture. I use here a No. 5 silk suture. These two sutures pass through the conjunctiva and the capsule, through the upper and lower edge of the muscle respectively, in front of the main suture, and then through the conjunctiva. The main suture of 00 catgut is now cut, and the muscle is also cut about 3 mm. in advance of the Critchett sutures. The latter sutures are now tied, thus closing the conjunctiva.

Figure 10 shows the external wound closed, and the brace tied in the internal angle of the eye by the two anchor sutures.

The eye is now closed and bandaged. Daily dressings of hot boric acid solution, atropin and argyrol are used. The brace and the auxiliary or Critchett stitches are removed on the eighth day. The patient is permitted to be up and dressed after thirty-six hours, and may go about after the third day.

COMMENT

A study of the seventy-five cases in which operation has been performed during the last two years suggests that:

1. It is necesary to operate on children sooner than has been our practice in order that we may aid nature in securing binocular vision at an age when binocular vision may be acquired.

2. We are able to straighten any case of squint at any age without doing a tenotomy or in any way cutting or interfering with the function of the internal rectus. A tenotomy of any grade is contraindicated in squint in young children.

3. In cases of deviation of 24 degrees or less it is sufficient to advance the external rectus in the squinting eye only. In cases of higher degrees of deviation it is advisable to advance the external rectus muscles of both eyes.

4. In young subjects with low degrees of deviation it requires about 3 mm. shortening to each 5 degrees of deviation; i. e., in a case of squint of say 15 degrees in a child under 10 years of age it would require about 9 mm. of shortening of the external rectus to secure an accurate and permanent effect. In a case of from 20 to 25 degrees of deviation, each 0.5 mm. will correct 1 degree of deviation. In older subjects, 0.5 mm. of shortening will approximately correct 1 degree of deviation. This holds good except in the very low degrees up to 12 or 14 degrees. The lower degrees require the ratio of 3 mm. of shortening to 5 degrees of deviation.

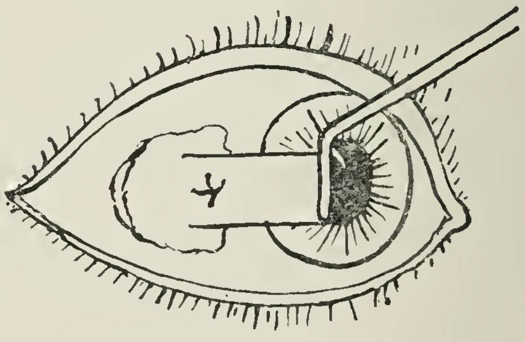

Fig. 8.—Eye pulled up straight, end of muscle brought up to or overlapping the corneal margin, and the suture tied.

In a few cases, I have shortened the external rectus 15 degrees and find that the ratio decreases; i. e., 15 mm. will correct from 30 to 35 degrees of deviation; however, I would advise against trying to advance a muscle so much because it is more difficult to do, and may restrict the movements of the eye, as well as produce some enophthalmos.

In cases with high degrees of deviation, say 40 degrees, it would require 10 mm. advancement of each external rectus. In cases as high as 50 degrees or more, the ratio increases; 12 mm. of advancement of each external rectus with the wearing of the brace ten days will correct as much as from 50 to 55 degrees of deviation, whereas, 12 mm. of advancement on one eye only will certainly not correct more than 25 degrees of deviation. It seems that when both eyes are operated on at the same time, the ratio of correction is somewhat increased.

5. An overcorrection is necessary in order to secure a permanent result. The eye should deviate about 8 to 10 degrees after the stitches are out and the brace removed. This is an advantage, as it aids the fusion faculty to secure binocular vision as the previously crossed eye is assuming its permanent position.

6. The use of the caliper or some definite measuring device is essential to accurate work. The method of suturing through the stump avoids the dangerous scleral stitch and secures a firm anchorage, while the placing of the suture in the well dissected muscle enables one to measure with a degree of exactness greater than in any other method the amount of shortening produced. The importance of this can readily be understood when we see that it will enable us to operate on children under ether with the same confidence that we can on the grown subject under local anesthesia. It will enable us to operate on children before fixed habits are formed, anatomic changes in the muscles take place, blindness of the squinting eye occurs, and the possibility of fusion training is lost.

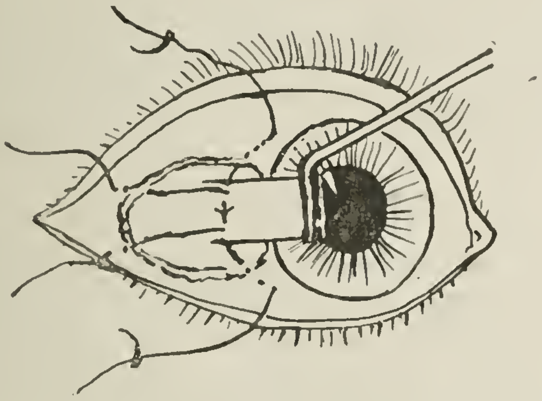

Fig. 9.—Muscle advanced, main suture tied, and two auxiliary modified Critchett sutures placed.

CONCLUSION

This new operation may have its faults, but I am sure it is a step in the right direction, and I hope it may help some more ingenious mind in perfecting a safe, sane and exact procedure which is so much needed in this most chaotic branch of surgery.

ABSTRACT OF DISCUSSION

Dr. G. C. Savage, Nashville, Tenn.: The brace Dr. Wil-inson presents stretches the internal rectus muscle, and that stretching kept up for a week or ten days certainly has a asting effect. His work has shown that the internal rectus can never resume the power it had before the stretching. The stretching by means of this plate is similar to the stretching practiced by one of our European confrères before loing a complete tenotomy. I want to endorse the use of he suture brace as against a complete tenotomy. No inter-ial or external rectus muscle; no superior or inferior rectus nuscle should be cut in two, but in some cases of esohyper-ropia of each eye there is nothing to do effectively but to cut the inferior oblique entirely across. My criticism of the work my confrère is doing is that instead of cutting the xternal rectus muscle in two and then advancing it, he ought to do one or another of the operations known as shortening. Briggs' operation on the externus would be far better han an advancement operation, and my tucking operation vould be still better, and some others almost as good. But the muscle should not be cut in two, either for the purpose of making it retract or for the purpose of bringing it farther forward on the eyeball. The danger is too great. That danger is minimized by the brace used by Dr. Wilkinson. Shortening will do everything that the most complicated advancement operation will do, and is far preferable. There is no question that demands study by the ophthalmologists of this country more than that of how to deal with the ocular muscles, not only in the tropias, but in the phorias as well. It pains me to see the slowness with which my confrères have taken hold of the task of mastering the study of ocular muscles.

Dr. J. M. Banister, Omaha: I agree with Dr. Savage on one point—muscle shortening. I have used that method ever since 1898. I have never used the technical advancement operation except when I found that a muscle that had been operated on had lost control of the eyeball. Then I do the Reese operation. But with all respect to Dr. Savage, I want to say that in cases of strabismus I do not hesitate to do a tenotomy on the overacting muscle, simply separating the muscle from its attachment and not interfering with Tenon's capsule. I then take a tuck in the antagonist to secure greater effect. I have never seen anything but the happiest results.

Dr. H. H. Briggs, Asheville, N. C.: Dr. Pannas of Paris introduced muscle stretching twenty-five years ago. In certain cases it still has a place. Dr. Wilkinson's splint serves the same purpose—it simply stretches the muscle. Like Dr. Savage, I seldom do a complete tenotomy; instead, I would shorten the opposing muscle, which could be done by my method of shortening as quickly as could the stretching. It would, moreover, be more rational than stretching in that it would tend to strengthen an impaired function rather than weaken the function of the muscle whose function ordinarily is not abnormal.

Dr. John Green, Jr., St. Louis: Some of you may assume that a foreign body in contact with the conjunctiva may cause undue reaction. It certainly does not. There is no question that the brace holds the eye very definitely in divergence. I feel, therefore, that there is no contraindication, from a surgical point of view, to the temporary presence of this foreign body attached to the internal rectus.

Dr. Meyer Wiener, St. Louis: I saw Dr. Wilkinson operate, and the use of this brace impressed me greatly. It certainly holds the eye in place and gives a chance for the wound to heal without any tension on the suture. I agree with most of the things Dr. Savage said, but I think there are exceptions to every rule, especially his rule about making a section of the internal or external rectus muscle. I do not believe it should be done unless it is necessary, but it can be done without any harm. In cases of convergence of less than 30 degrees I do an advancement operation without section of the opposing muscle; in cases of convergent squint of more than 30 degrees, unless I want to advance both muscles, or section the opposing one, I cannot get the desired result. Very few people will submit to two operations, so I do a section of the opposing muscle. It makes a tremendous difference how that section is made. If one makes a very small opening in the capsule of Tenon, the muscle will not slip back. It is only when you cut around the capsule of Tenon and disturb the fat of the orbit that you get bad results, with an ugly sinking of the caruncle.

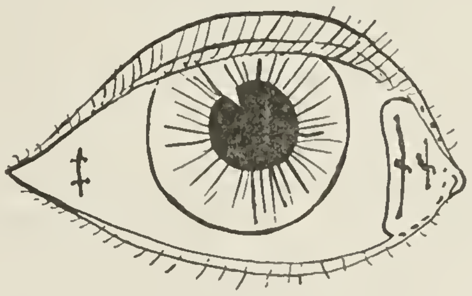

Fig. 10.—External wound closed, and brace tied in internal angle of eye by two anchor sutures.

Dr. Eldred B. Cayce, Nashville, Tenn.: I assisted Dr. Wilkinson at an operation and the results were ideal. The patient has binocular vision.

Dr. Oscar Wilkinson, Washington, D. C.: Dr. Savage said that we should do some form of shortening or tucking. What we should do is to try to arrive at something definite as to what we are doing. Dr. Savage can straighten crossed eyes by tucking; but when you do it, you do not get the same results. If we could get some method by which we can be more accurate. I think we can teach young men so they will get better results in squint. If one does not operate before the patient is 10 years of age he seldom gets binocular vision. I think it is our duty to devise some means of operating on children before they are that old. Dr. Savage spoke of the danger. I have had seventy-five cases, and in not a single case have I had any reason to regret using the brace. Advancement operations have not been satisfactory, and in the tucking operation the trouble is that one cannot accurately measure how much he has tucked up. It is the element of uncertainty as to what one is doing. There is the same uncertainty about a tenotomy. No man can tell what effect he is going to get with a tenotomy. But when we do get an accurate method we will in time bring this squint surgery out of the chaotic state in which it is today. The men of this country have an idea that it is necessary to do something with the internal rectus muscle. My idea is that, if we leave the internal rectus muscle alone and work with the external muscle, eventually we will arrive at something definite in squint surgery.

THE RACIAL DISTRIBUTION OF ISOHEMAGGLUTININ GROUPS *

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According to our present understanding of human isohemagglutinins, there exist in the blood two types of specific agglutinating substances, which may be designated a and b. In the red cells there are two specific types of agglutininogenic substances, which may be called A and B. The agglutinin of Type a will agglutinate only cells containing the agglutininogenic substance A, and Agglutinin b will agglutinate only cells containing Agglutininogen B. Obviously, one type of agglutinin will occur only in the absence of its corresponding agglutininogen, a fact utilized in classifying samples of blood. A given specimen of blood may contain either one of these specific agglutinins, or both, or neither. This distribution of agglutinins and agglutininogens makes it possible to divide all samples of human blood into four different groups.

One group contains both types of specific agglutininogens, but the serum contains no agglutinins. A second group contains Agglutinin b and Agglutininogen A. A third group contains Agglutinin a and Agglutininogen B. A fourth group contains neither agglutinin but contains both agglutininogens. There have been various designations of these four groups but, because of the resulting confusion and the accidents that occurred in the practical application of blood grouping to transfusion, the American Association of Pathologists and Bacteriologists and the American Association of Immunologists have adopted officially the classification as proposed by Jansky,[1] because of its logic and priority. The groupings that have been proposed by von Dungern and Hirschfeld[2] and by Moss[3] differ from that of Jansky only in terminology. The first of the foregoing groups is called Group I; the second, Group II; the third, Group III, and the fourth Group IV. This is also the numerical order in which they occur in human bloods. The Jansky grouping is presented schematically in Table 1.[4]

TABLE 1.—JANSKY BLOOD GROUPING

Group	Effect of Serum on Other Groups	Effect of Other Groups on Cells
I	Agglutinates cells of the three other groups; contains Agglutinins a and b	Inagglutinatable; contains no agglutininogen
II	Agglutinates cells of Groups III and IV; contains Agglutinin b	Agglutinated by serum of Groups I and III; contains Agglutininogen A
III	Agglutinates cells of Groups II and IV; contains Agglutinin a	Agglutinated by serum of Groups I and II; contains Agglutinogen B
IV	No agglutinative effect; contains no agglutinins	Agglutinated by serum of Groups I, II and III; contains Agglutininogens A and B

The study of the origin, distribution and significance of these as yet little understood substances will undoubtedly prove interesting. According to H. and L. Hirschfeld,[5] who examined about 8,000 samples of blood from the various races assembled in Europe during the recent war, the distribution of the four groups of hemagglutinins among these people varied extremely, but certain races could be grouped together because of the similarity in the distribution among them of the specific agglutinins a and b. This grouping of races corresponded somewhat to the grouping made on an anthropologic basis; it corresponded still more completely to the geographic distribution of the races. It was found that the European type, including Englishmen, Frenchmen, Italians, Germans, Austrians, Bulgarians, Serbians and Greeks, is characterized by the prevalence of Group II of the hemagglutinins and a low incidence of Group III. Among the Asio-African group, including Malagasies, Negroes, Anameses and Hindus, the incidence of Group II is low, while that of Group III is high. There is an intermediate type including Turks, Arabs, Russians and Jews, in which the two groups occur intermediate to that of the European and Asio-African types. The proportion of the prevalence of Agglutinin a and Agglutinin b in each race is expressed numerically as a biochemical race index. The race index for the European peoples varies between 4.5 and 2.5; for the Asio-African peoples it is 1 or less, while the intermediate type is characterized by a race index of from 1 to 2.

This is an important contribution to anthropologic methods because it is a characteristic with a biochemical basis and is therefore definite and susceptible of accurate study. Some of the uses that the method may serve are pointed out by the Hirschfelds. They seem to find evidence in their work that suggests two sources of origin of the human race, one in India, where Agglutinin a arose, and the other in western or central Europe, where Agglutinin b had its origin. It is believed that further examination of the northern races will lead to definite conclusions as to this view. The relations of races as indicated by the hemagglutinins are in some instances inconsistent with those previously

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* From the Otho S. A. Sprague Memorial Institute, and the Department of Pathology, University of Chicago.

[1] Jansky: Sborn. klin. **8**: 85, 1907.

[2] Von Dungern and Hirschfeld: Ztschr. f. Immunitätsforsch. u. exper. Therap. **8**: 526, 1911.

[3] Moss, W. L.: Bull. Johns Hopkins Hosp. **21**: 67, 1910.

[4] Ottenberg, Reuben: J. Immunol. **6**: 363 (Sept.) 1921.

[5] Hirschfeld, H., and Hirschfeld, L.: Lancet **2**: 675 (Oct. 18) 1919.

established by the usual methods of anthropology. For instance, Russians and Jews, who differ so much from each other in anatomic characteristics, mode of life, occupation and temperament, and because of this have been thought to be in different anthropologic groups, have exactly the same proportions of Groups II and III, their race index being 1.3. The Hindus, who are considered anthropologically near the Europeans, show the greatest difference from them in blood properties. The race index of the Hindus is 0.5, compared with 4.5 of the English and 2.5 of the Greeks, the highest and the lowest of the European race indexes. It more nearly approximates the index of the Negro and Anamese, 0.8, to whom the Hindus have a resemblance in skin pigmentation.

Prichard[6] defines a race as a collection of individuals representing more or less common features transmissible by heredity. Isohemagglutinins, the distribution of which characterizes a race, seem to be a biologic character that is inherited in true mendelian fashion. Von Dungern and Hirschfeld[7] first showed this to be true, and their findings have been amply confirmed by Ottenberg.[8] A given kind of specific agglutinin or agglutininogen never occurs in a child unless it is present in one of the parents, and when one of these substances is present in both parents it occurs in most of the children. When one of the substances occurs in only one parent, some of the children inherit it, and when neither parent has one of the substances no child ever shows it. This fact would seem to indicate that the findings of the Hirschfelds are not accidental but are true racial characteristics, the perpetuity of which is insured. Verzar and Weszeczky[9] found that several races (Germans, Slavs and Gypsies), living side by side in Hungary for several centuries but without intermingling, have retained their characteristic blood group distribution, it being identical with the distribution among the same races in other countries.

What happens on the intermixture of two races with different distributions of hemagglutinins has not been studied. Anthropologists, with their more established methods, are able to detect the derivation of races by isolating in them the characteristics which are known to belong to pure races. It might also be possible to determine the components of a given race from the study of the distribution of the hemagglutinin groups. As a prerequisite, one would desire to examine a mixed race, of which the constituents, as well as the distribution of hemagglutinins among these constituents, are known. Such an opportunity presents itself in America, where there has been a widespread intermixture of Negroes and Caucasians, both of whose biochemical indexes are known. The amount of such intermixture is difficult to estimate, but it is unusual to find an individual of African descent who does not show, or give a history of, intermixture with the Caucasian race.

As pointed out by Reuter,[10] the inheritance of Negro characteristics in Negro-white crosses overwhelms, and to a great extent obscures, many of the inherited white characteristics. Some years ago Dubois[11] estimated that one third of the American Negroes had some white blood. Because of the obscured intermixture and because of the constant increase, it is very probable that the present figure is greater than that given by Dubois. It would seem, then, of interest and of some possible importance to study the effect, on the distribution of hemagglutinins, of the intermixture of these two races which are anthropologically different and among which the hemagglutinin groups occur with such wide difference.

Blood samples from 270 Negroes were examined, and the group number for each determined. At first an attempt was made in each case to estimate the amount of white intermixture from the characters which are supposed to vary with the degree of intermixture, such as pigmentation, texture of hair and features. It was soon found that this was impossible, as these characters did not vary equally and quantitatively.

As among other groups of people, Group I of the hemagglutinins predominated. Forty-nine per cent. were found to belong to this group, which is larger than that found for other races. Group IV was the smallest, 5.53 per cent.; 26.9 per cent. belonged to Group II, and 18.4 per cent. to Group III. Table 2 presents the results in tabular form, for comparison with the results of other investigators.

TABLE 2.—BLOOD GROUPS IN THE NEGRO AND WHITE RACES

			Number	Groups			
Investigator	Locality	Race	Examined	I %	II %	III %	IV %
Hektoen *...............	Chicago	White	76	47	34	10	9
Moss [3]...................	Baltimore	White	100	43	40	7	10
H. and L. Hirschfeld [5]	England	White	500	46.4	43.4	7.2	3
H. and L. Hirschfeld..	Africa	Negro	500	43.2	22.6	29.2	5
Lewis and Henderson..	United States	Negro	270	49	26.9	18.4	5.5

* Hektoen, Ludvig: J. Infect. Dis. **4**: 297, 1907.

Table 2 shows that the percentage of Group II in American Negroes is much lower than in white persons, while Group III is much larger in the Negro. This finding, though approximating the findings of the Hirschfelds for African Negroes, differs from them in that the Group II figure is higher and the Group III figure is lower. In other words, the percentages of these two groups tend to approach those for white persons.

The Hirschfelds use, as the race index, the relation of the percentage of Agglutinin b (Groups II and IV) to the percentage of Agglutinin a (Groups III and IV). The index for African Negroes is 0.8. The index for American Negroes, as calculated from our results, is 1.4.

As no other factor is known which may change the distribution of hemagglutinin groups among a race, it is probable that the change that has been observed for negroes is the result of intermixture with the white race. It is all the more probable because the change in figures has been in the direction toward the figures for the white persons.

CONCLUSIONS

1. The distribution of isohemagglutinin Groups II and III among American Negroes is very different from that among the white race.

2. It approximates the distribution of hemagglutinin groups among African Negroes, but differs from the latter in an increase of the percentage of Group II and a decrease of the percentage of Group III.

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[6] Prichard, in Cowles, James: Physical History of Mankind, Ed. 4, London, Sherwood, Gilbert & Piper **1**, 1842.

[7] Von Dungern and Hirschfeld: Ztschr. f. Immunitätsforsch. u. exper. Therap. **6**: 284, 1910.

[8] Ottenberg, Reuben: Medicolegal Application of Human Blood Grouping, J. A. M. A. **77**: 682 (Aug. 27) 1921.

[9] Verzar, F., and Weszeczky, O.: Biochem Ztschr. **126**: 33, 1921-1922.

[10] Reuter, E. R.: The Mulatto in the United States, Boston, R. G. Badger, 1918.

[11] Dubois: Atlanta University Publications, No. 11.

3. Since the difference in the distribution of hemagglutinin groups among African and American Negroes lies in the direction of an approach to the distribution among the white race, it is assumed that the change is due to intermixture with the latter.

THE USE OF VEGETABLES IN THE DIABETIC DIET *

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Although different points of view are held on the subject of the dietary treatment of diabetes, all clinicians agree that there must be some regulation of carbohydrate intake. When the amount of carbohydrate allowed is small, the diet becomes restricted to comparatively few foods. In response to the need for foods low in carbohydrate, a great variety of so-called diabetic foods have appeared on the market, many of which contain large amounts of protein and fat, with varying amounts of carbohydrate. All of these foods are relatively expensive.[1] Even those low in carbohydrate are generally concentrated foods and greatly increase the amounts of the other food constituents in the diet. As Janney[2] has shown, from one half to three fourths of the protein may be converted to sugar in the diabetic organism, and consequently protein-rich diabetic foods indirectly increase the sugar in the diet, even though the foods may be carbohydrate free. For this reason there are times when it is desirable to restrict the diet generally, as well as the carbohydrate.

Among the most useful articles in the diabetic diet are those which contain little food value and especially little carbohydrate, since they help to allay hunger without exceeding the tolerance of the patient. Green vegetables fulfil these requirements well, since many of them are low in protein and carbohydrate and contain a negligible amount of fat; some of these are of value even in the raw state for patients with severe diabetes. Orton[3] has recently described a large number of vegetables which are suitable for diabetic patients and which are not commonly available to a large number of people. The added palatability given to a diabetic diet by such a variety of unusual vegetables is of sufficient importance to warrant their production in larger quantities.

It is generally accepted that some of the fuel value of vegetables is lost in cooking, although actual experimental data are not abundant. Joslin[4] compiled a table from various sources giving comparisons of certain fresh and cooked vegetables from the standpoint of carbohydrate content. From an inspection of this table one may conclude that cooked vegetables contain about two thirds of the carbohydrate present in the fresh state. Masters and Garbutt[5] and Denton[6] showed that greater loss of fuel value occurs in vegetables when they are cut into small pieces and when the time of boiling and the volume of boiling water are increased.

Allen,[7] in 1915, first advocated the "thrice boiling" of vegetables, in which, by changing the water twice during boiling, the carbohydrate was assumed to be removed more completely. Vegetables so prepared are now commonly used in the diets of diabetics with good results. However, only recently has any experimental evidence been produced as to the actual carbohydrate content of these thrice boiled vegetables. Wardall[8] has shown that increasing the number of extractions of certain vegetables with water aids in the complete-

TABLE 1.—CARBOHYDRATE CONTENT OF THRICE BOILED VEGETABLES

Vegetable	Ratio of Amount of Vegetable to Total Boiling Water	Total Available Carbohydrate (in Terms of Glucose), per Cent.	Recorded Total Carbohydrate Minus Fiber (Raw),* per Cent.
Canned spinach [12]	1:30	0.31	1.7
	1:60	0.20	
Fresh spinach [10]	L. E.†	0.00	2.3
Celery [10]	L. E.	0.00	2.0‡
Celery [12]	1:30	0.07	
	1:60	0.00	
Celery [14]	1:14.9	0.65	
Lettuce [12]	1:30	0.03	2.2
	1:60	0.00	
Canned asparagus [12]	1:30	0.24	2.3
	1:60	0.20	
Asparagus (total sugar):			
Thrice boiled [9]	1:6	0.18	2.5
Extracted at 60 C.[9]	1:22	0.13	
Rhubarb (total sugar):			
Thrice boiled [9]	1:6	0.05	2.5
Extracted at 60 C.[9]	1:6	0.08	
Rhubarb [10]	L. E.	0.00	
Vegetable marrow [12]	1:30	0.22	2.6
	1:60	0.00	
Brussels sprouts [12]	1:30	0.72	2.9
	1:60	1.31	
Sprouts [10]	L. E.	0.60	4.5‡
Canned string beans [12]	1:30	0.49	3.3
	1:60	0.41	
Cauliflower [12]	1:30	0.79	3.7
	1:60	0.51	
Cauliflower [11]	1:6	0.80	
Cauliflower [14]	1:8.3	0.56	
	1:5.4	0.79	
Cauliflower [10]—Stalk	L. E.	0.40	
Flower	L. E.	0.80	
Seakale [10]	L. E.	0.60	4.0‡
Pumpkin [12]	1:30	0.29	4.0
	1:60	0.41	
Cabbage [12]	1:30	0.45	4.5
	1:60	0.51	
Cabbage [11]	1:6	0.50	
Cabbage [14]	1:8.1	0.83	
Cabbage [10]	L. E.	0.50	
Chinese cabbage (total sugar):			
Thrice boiled [9]	1:6	0.11	
Extracted at 60 C.[9]	L. E.	0.05	
Swede [10]	L. E.	1.00	6.5‡
Turnip [10]	L. E.	0.00	6.8
Turnip [12]	1:30	0.72	
	1:60	0.20	
Squash [12]	1:30	6.90	8.2
	1:60	4.74	
Squash [14] (total sugar)	1:2.6	2.66	
Carrots [12]	1:30	0.60	8.2
	1:60	0.55	
Carrots [14]	1:5	0.79	
Carrots [10]	L. E.	0.00	
Carrots [8] (extracted at 60 C.)	1:15	0.70	
Canned green peas [12]	1:30	7.70	8.6
	1:60	3.10	
Beets [12]	1:30	1.17	8.8
	1:60	0.20	
Beets [10]	L. E.	0.40	
Onions [10]	L. E.	0.10	9.1
Onions [12]	1:30	0.52	
	1:60	0.14	
Parsnips [12]	1:30	6.53	11.0
	1:60	2.49	
Parsnips [10]	L. E.	0.60	
Artichoke [10]	L. E.	1.00	15.9
Potato [10]	L. E.	1.00	18.0

* Values from Atwater, W. O., and Bryant, A. P.: Chemical Composition of American Food Materials, Bull. 28, U. S. Dept. Agric., revised, 1906.

† L. E. indicates the use of a large excess of water.

‡ Values from Cammidge (Lancet 2: 1192 [Dec. 27] 1919).

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ness of removal of the carbohydrate. She has further recommended a modification of this process in which the vegetables are extracted at 60 C. for periods of from ten to fifteen minutes, repeating the extraction until the reducing substances are practically removed. Beets and parsnips were made practically sugar free in one hour by this method, carrots required one and one-half hours, egg plant two hours and pineapple three and one-half hours, while cabbage was little affected. Wardall found that the color, texture and palatability of vegetables are less impaired by this procedure than by repeated boiling. Bailey[9] showed that by repeated extraction of rhubarb, asparagus and Chinese cabbage with water at 60 C., and at the boiling point, there was a very marked decrease in reducing sugars, and a less conspicuous decrease in other nitrogen-free extract. Protein was not substantially changed, but there was considerable loss of mineral matter. Cammidge[10] was able to remove all of the carbohydrate by thrice boiling celery, rhubarb, spinach, turnips and carrots in a large excess of water, while small amounts were retained in the other vegetables studied. Olmsted[11] showed that there was about 0.5 per cent. available carbohydrate in thrice boiled cabbage and 0.8 per cent. in thrice boiled cauliflower, representing about 10 and 24 per cent., respectively, of the carbohydrate of the raw vegetables. O'Reilly and McCabe[12] have shown that if the volume of boiling water is sufficient (in each extraction 20 parts of water to 1 of vegetable), thrice boiling removes the carbohydrate completely from vegetable marrow, lettuce and celery, and approximately from canned spinach, canned asparagus, turnips, beets and onions. Canned string beans, cauliflower, pumpkin, cabbage and carrots still retain about 0.5 per cent. of available carbohydrate.

TABLE 2.—DIETARY 1 FOR PERSONS WITH SEVERE DIABETES

Food	Amount		Protein, Gm.	Fat, Gm.	Carbohydrate, Gm.
	Gm. or C.c.	Oz.			
Breakfast:					
Thrice boiled rhubarb	100	3.5	0.6	0.7	0.05
Thrice boiled asparagus	100	3.5	1.8	0.2	0.18
Eggs, 2	...	...	13.2	12.0	0.0
Cocoa, 1 cup	225	8.0			
Cream, 1 tablespoonful	15	0.5	0.7	5.1	0.7
Cocoa	4	0.1	0.8	1.1	1.4
Saccharin, ½ grain	1/30				
Water, ¾ cup	170	6.0			
Total for breakfast			17.1	19.1	2.3
Dinner:					
Skimmed chicken broth, 1 cup	225	8.0	1.2	0.1	0.0
Scraped beef balls	100	3.5	20.9	10.6	0.0
Butter	10	0.3	0.1	8.5	0.0
Canned tomato	100	3.5	1.2	0.2	3.5
Thrice boiled spinach	100	3.5	2.1	0.3	0.3
Thrice boiled cabbage	100	3.5	0.6	0.1	0.5
Lemon gelatin, ½ cup					
Gelatin, 1 teaspoonful	2.5	0.1	2.3	0.0	0.0
Lemon juice, 1 tablespoonful	15	0.5	0.0	0.0	1.3
Saccharin, ½ grain	1/30				
Water, ½ cup	113	4.0			
Total for dinner			28.4	19.8	5.6
Supper:					
Skimmed beef broth, 1 cup	225	8.0	2.4	0.1	0.0
White meat of chicken	50	1.7	16.1	2.2	0.0
Thrice boiled string beans	100	3.5	0.8	0.3	0.5
Thrice boiled carrots	100	3.5	0.5	0.2	0.6
Butter	10	0.3	0.1	8.5	0.0
Celery, raw	25	0.9	0.2	0.0	0.5
Lettuce, fresh	25	0.9	0.3	0.1	0.5
Total for supper			20.4	11.4	2.1
Total for day, 756 calories			65.9	50.3	10.0

Studies[13] on the carbohydrate content of various foods have been in progress in this laboratory for several years. In a paper by Myers and Croll,[14] a relatively simple method was described for the determination of soluble reducing and nonreducing sugars and total available carbohydrate in vegetables and fruits. By the use of this method and by comparison with recorded values, we showed that a large proportion of the available carbohydrate of some fruits and vegetables appears to be in the form of soluble sugars. This leads to the inference that it should be possible to remove a very large percentage of the carbohydrate in the boiling process. It was shown that the ordinary method of boiling vegetables for a minimum time and with a small amount of water removed from 23 to 66 per cent. of the carbohydrate, while from 62 to 88 per cent. was lost in thrice boiling when the proportion of "boiling water" to vegetable was relatively large. It was concluded that the soluble form of much of the carbohydrate, and the increase in time of boiling and especially in volume of boiling water, favor the removal of carbohydrate from vegetables.

Since it has been shown (Table 1) by various investigators that most of the available carbohydrate can be removed by proper regulation of conditions in boiling certain vegetables, the amount of such vegetables commonly considered suitable for the diabetic may be increased, and the introduction into the diet of vegetables containing in the raw form higher percentages of carbohydrate may be made with safety.

TABLE 3.—DIETARY 2 FOR PATIENTS WITH SEVERE DIABETES

Food	Amount		Protein, Gm.	Fat, Gm.	Carbohydrate, Gm.
	Gm. or C.c.	Oz.			
Breakfast:					
Grapefruit	100	3.5	0.8	0.2	10.0
Egg, 1	...	...	6.6	6.0	0.0
Bran muffin,* 1 small	...	...	2.3	2.6	2.2
Butter	10	0.3	0.1	8.5	0.0
Coffee, clear					
Total for breakfast			9.8	17.3	12.2
Lunch:					
Skimmed beef broth, 1 cup	225	8.0	2.4	0.1	0.0
Codfish, cooked	100	3.5	21.7	0.3	1.6
Thrice boiled beets	100	3.5	2.3	0.1	1.0
Thrice boiled brussels sprouts	50	1.7	0.7	0.1	0.4
Butter	15	0.5	0.1	12.7	0.0
Bran muffin, 1 small	...	...	2.3	2.6	2.2
Tea, clear					
Salad					
Egg, hard boiled, 1	...	...	6.6	6.0	0.0
Lettuce	25	0.9	0.3	0.1	0.5
Total for lunch			36.4	22.0	5.7
Dinner:					
Skimmed chicken broth, 1 cup	225	8.0	1.2	0.1	0.0
Roast lamb (lean)	75	2.6	14.8	9.5	0.0
Thrice boiled onions	100	3.5	1.2	1.8	0.5
Thrice boiled cauliflower	100	3.5	0.9	0.1	0.7
Thrice boiled turnips	100	3.5	0.3	0.1	0.7
Bran muffins, 2 small	...	...	4.6	5.3	4.5
Butter	20	0.7	0.2	17.0	0.0
Salad					
Lettuce	25	0.9	0.3	0.1	0.5
Raw tomato	100	3.5	1.2	0.2	4.0
Tea, clear					
Coffee gelatin, ½ cup					
Gelatin, 1 teaspoonful	2.5	0.1	2.3	0.0	0.0
Strong coffee, clear, 1 tablespoonful	15	0.5			
Saccharin, ½ grain	1/30				
Water, ½ cup	113	4.0			
Total for dinner			27.0	34.2	10.9
Total for day, 1,073 calories			73.0	74.0	28.8

* Recipe for diabetic bran muffins: 2 cupfuls of washed bran, ½ grain of saccharin, 2 eggs, ½ teaspoonful salt and 1 tablespoonful of butter or cooking oil. This is sufficient for twelve small muffins.

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[9] Bailey, E. M.: Diabetic Foods, Conn. Agric. Exp. Stat. Bull. 220, **2**: 293, 1920.

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[14] Myers, V. C., and Croll, H. M.: J. Biol. Chem. **46**: 537 (May) 1921.

Evidence has been presented by several investigators[15] to show that the water soluble vitamin in certain vegetables is not destroyed by the ordinary household method of boiling the vegetables for from thirty to sixty minutes, but that from 35 to 70 per cent. of the vitamin may be lost in the boiling water. The soluble mineral constituents of vegetables are likewise extracted in variable amounts in the boiling process.[5] It is to be presumed that large amounts of these water soluble constituents are removed by thrice boiling; consequently, small amounts of fresh fruits and vegetables containing mineral salts and accessory substances should be included in a diet depending largely on thrice boiled vegetables for bulk and variety.

The flavor of thrice boiled vegetables may be improved by the use of suitable seasonings, and by the combination of several vegetables into salads or other dishes. From the purely medical standpoint, this factor of palatability and variety in the diet should not be overlooked, since the success of the dietetic treatment of diabetes depends largely on the willingness and ability of the patient to keep within the food limits set by the physician.

Two dietaries for severe diabetics are shown to illustrate the variety such addition of vegetables gives to the diet, and to show the practical value of knowing the carbohydrate content of vegetables used. The values for carbohydrate in thrice boiled vegetables are taken from Table 1, which is a compilation of available data on thrice boiled vegetables. The figures selected are generally the highest values recorded, since some of the lowest values were obtained by using very large amounts of water in boiling, larger than might be practicable in the household. Obviously, if complete extraction of the carbohydrate is accomplished by having sufficient water, a larger amount of vegetable may be used in the diet. Values for other constituents were taken from Locke.[16]

Clinical Notes, Suggestions, and New Instruments

A SIMPLE METHOD FOR ADMINISTRATION OF IODIDS IN THE FOOD IN GOITROUS REGIONS *

Arthur D. Hirschfelder, M.D., Minneapolis

Simple goiter is endemic throughout those parts of the United States which are not close to the eastern or western seaboard. It is most prevalent in those regions which are poorest in iodin. The literature on this subject and the distribution of goiter in this country have been reviewed recently by McClendon[1] and by Hayhurst.[2] David Marine[3] has demonstrated conclusively that the development of endemic simple goiter is closely associated with lack of iodin in the food, and that its occurrence can be prevented by the routine administration of iodids.

Marine administered 2.0 gm. of sodium iodid in ten 0.2 gm. daily doses twice a year to more than 2,000 schoolchildren in Akron, Ohio, and found that after this treatment, new enlargements of the thyroid never developed, and, on the other hand, that 38 per cent. of the thyroids which were already enlarged decreased in size.

In the goitrous regions of Switzerland a similar campaign has been carried out during recent years, by various methods of administration, the most satisfactory of which is the giving of iodids in chocolate bonbons once a week. As little as 0.15 gm. of iodids given in the course of a year sufficed to prevent the development of goiter, according to Bayard,[4] Baumann[5] and Klinger.[6]

METHOD OF ADMINISTRATION

Since the lack of iodids is really a food deficiency, in certain respects similar to a lack of vitamins, it would appear that the simplest and, certainly, the easiest method is to supply this deficiency along with the food itself, particularly since Plummer[7] has demonstrated that the body requires only minute quantities amounting to about 1 mg. of iodin a day.

The most convenient method for the administration of small quantities of iodid continuously over a long period of time is to add it to the table salt. This does not alter the taste of the salt in the least, and therefore does not carry with it the opprobrium of a "medicine" to the patient; moreover, the easier the method of administration of such a substance the greater the probability of its extended use.

A simple method for household use is this: A stock of sodium chlorid to which 1 per cent. of potassium iodid has been added, "iodized salt," is kept on hand and is sprinkled over the ordinary table salt with an ordinary salt shaker. This may be used either for iodizing all the salt used both for cooking and at the table, or for the salt used at the table only. In the latter case, on the assumption that from one fourth to one third of the salt ingested is used from the table shakers, the table salt should contain four times as much iodid for each pound as the salt which is used for both cooking and table purposes.

DIRECTIONS FOR ORDINARY USE IN ALL THE SALT USED FOR COOKING AND TABLE SALT

The contents of a 5-pound bag of salt are spread on a flat tray or clean table in a thin layer. A salt shaker is emptied. Five teaspoonfuls of the iodized salt is poured into it. The lid of the shaker is put on, and the iodized salt is sprinkled evenly over all parts of the salt spread out on the tray until all the salt in the shaker is used. The salt that has been sprinkled is put into a big bowl, stirred with a spoon to mix thoroughly, and kept for all the uses of the family. This will furnish just as much iodin as the body requires.

To use in table shakers only when iodized salt is not put into the cooking salt, the same thing is done as for the cooking salt, but 2 tablespoonfuls of iodized salt is used to sprinkle over each pound (two large cupfuls) of common salt used, or half a tumblerful for a 5-pound sack, and then this quantity of the iodized salt is sprinkled over the ordinary salt.

The stock of "1 per cent. iodized salt" may be prepared by a pharmacist, or an intelligent housewife may purchase the 10 per cent. potassium iodid solution and prepare it herself.

PREPARATION OF THE STOCK "IODIZED SALT" CONTAINING ONE PER CENT. POTASSIUM IODID

A pound of ordinary salt is spread out in a large evaporating dish or enamel pan, and 50 c.c. of a 10 per cent. solution of potassium iodid in 60 per cent. alcohol is slowly sprinkled diffusely over it, from a pipet, or, still better, sprayed on from an atomizer spray, so as to be distributed as evenly as possible over the salt. It is then stirred well with a spoon, dried by evaporation over a water bath, and ground up in a mortar or crushed to a powder with a large spoon.

If the stock of 1 per cent. iodized salt is prepared in the home, it can be dried by leaving the pan on the top of the oven until the salt is about dry, and then heating gently over a small flame until perfect dryness is attained. It is then crushed to a powder.

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[15] Daniels, A. L., and McClurg, N. I.: J. Biol. Chem. **37**: 201 (Jan.) 1919. Miller, E. W.: ibid. **44**: 159 (Oct.) 1920. Whipple, B. K.: ibid. **44**: 175 (Oct.) 1920.

[16] Locke, E. A.: Food Values, New York and London, 1920.

* From the Department of Pharmacology, University of Minnesota.

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[2] Hayhurst, E. R.: The Present-Day Sources of Common Salt in Relation to Health, and Especially to Iodin Scarcity and Goiter, J. A. M. A. **78**: 18 (Jan. 7) 1922.

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[4] Bayard: Beiträge zur Schilddrüsenfrage, Basel, 1919.

[5] Baumann, Erwin: Zur Prophylaxe und Therapie des Kropfes, Schweiz. med. Wchnschr. **52**: 280 (March 16) 1922.

[6] Klinger, R.: Die Prophylaxe des endemischen Kropfes, Schweiz. med. Wchnschr. **51**: 12 (Jan. 6) 1921.

[7] Plummer, H. S.: Interrelationship of Function of the Thyroid Gland, and of Its Active Agent, Thyroxin, in the Tissues of the Body, J. A. M. A. **77**: 243 (July 23) 1921.

CONCLUSION

The use of the method described will facilitate the prophylaxis of simple goiter and, occasionally, the therapy of very early cases.

A CASE OF BRAIN ABSCESS OF UNUSUAL ETIOLOGY *

SAMUEL SILBERT, M.D., NEW YORK

Brain abscess usually results from one of three causes: (1) chronic purulent otitis media; (2) fracture of the skull, with or without external injury, and (3) abscesses of metastatic origin. The occurrence in civil life of a brain abscess resulting from direct introduction into the brain of an infected foreign body is sufficiently unusual to warrant publication. Furthermore, had the possible serious sequelae of the injury in this case been borne in mind, the presence of an abscess might have been suspected, and the child's life saved by a timely operation.

REPORT OF CASE

History.—A boy, aged 6 years, who had always been in good health, had stumbled and fallen, six weeks before admission, on a stick which he was carrying, causing a small wound on the left side of the face which bled profusely. This wound became infected and discharged considerable pus, but healed firmly in about eight days. The boy then seemed perfectly well and was taken to the country. Four weeks before admission, the child began to complain of headache and seemed a little feverish from time to time. He was taken to a physician, who considered it a gastro-intestinal case and prescribed cathartics and enemas. The headaches continued in spite of the treatment, but the child did not complain of feeling ill and played with the other children. Three days before admission, the headache became so severe and the fever so high, that the boy was put to bed. He did not vomit and had no convulsions. His condition became rapidly worse; he became delirious, and was brought into the hospital in a moribund state.

Physical Examination.—The boy was very sick with high fever and delirium. He muttered about severe headache and was very restless, with the head retracted and marked opisthotonos. The eyes showed no ptosis or palsies. The right pupil was larger than the left; both reacted sluggishly to light. There was marked stiffness of the neck. The lungs showed dulness, bronchial breathing and crepitant râles over the left upper lobe. There was a marked bilateral Kernig sign, and the deep reflexes were exaggerated.

Course.—The admission diagnosis was pneumonia, with pneumococcus meningitis. A lumbar puncture was made; 25 c.c. of purulent fluid under moderately increased pressure was removed and 20 c.c. of antimeningococcus serum given. A gram-positive diplococcus was reported in the fluid. The condition of the child became rapidly worse, and he died about half an hour after admission to the hospital.

Necropsy.—There was a small wound about 1 cm. in length and firmly healed on the left side of the face midway between the outer angle of the orbit and the external auditory meatus. On removal of the skull cap and reflection of the dura, the surface of the brain was found to be covered with thick purulent exudate. The left temporal lobe showed marked flattening of the gyri, and, on palpation, fluctuation was obtained. Section through this area revealed a large abscess cavity filled with thick purulent material. The dura overlying the abscess had a perforation less than 1 cm. in diameter, and a probe introduced into this opening led directly through a similar perforation in the squamous portion of the temporal bone to an abscess under the temporal muscle. The perforation through the bone was the site of a localized osteomyelitis, and from the tract two wooden splinters were recovered. The subtemporal abscess lay directly beneath the healed wound on the left side of the face. Microscopic examination revealed a dense purulent infiltration of the meninges. The organism was a staphylococcus.

Both pleural cavities contained about 100 c.c. of straw-colored fluid. The lungs were voluminous, and, on section, showed marked edema and congestion. No gross abnormality was found in the heart. The liver and kidneys showed marked passive congestion. The spleen was somewhat enlarged, and there was moderate increase in pulp tissue.

The anatomic diagnosis was acute purulent meningitis, brain abscess (left temporal lobe) and acute bronchopneumonia.

COMMENT

It is interesting to note that in spite of the presence of an abscess underlying the wound, complete healing took place. Had the diagnosis of brain abscess been made while the condition of the child was good, the healed wound would have exactly indicated the point for surgical approach. Drainage at this point could have been easily accomplished and complete recovery might have taken place.

35 East Eighty-Fourth Street.

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* From the Pathological Department, Mount Sinai Hospital.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

HAY FEVER TIMOTHY POLLEN EXTRACT-MULFORD.—A liquid obtained by extracting the proteins from the pollen of timothy (*Phleum pratense*) and standardizing the solution by estimating the amount of protein contained in it: 1 unit equals 0.00016 Mg. of pollen protein. Preserved with 0.5 per cent. phenol.

Actions and Uses.—See article on Pollen and Epidermal Extract Preparations and Biologically Reactive Food Proteins, N. N. R., 1922, p. 232.

Dosage.—See general article on Pollen and Epidermal Extract Preparations and Biologically Reactive Food Proteins, N. N. R., 1922, p. 232.

Manufactured by the H. K. Mulford Company, Philadelphia. No U. S. patent or trademark.

Hay Fever Timothy Pollen Extract-Mulford.—Marketed in sets of four syringes containing, respectively, 0.0025 Mg. (15 units), 0.005 Mg. (30 units), 0.01 Mg. (60 units) and 0.02 Mg. (125 units) of pollen protein; in single syringe packages, one syringe containing 0.02 Mg. (125 units), one syringe containing 0.04 Mg. (250 units), one syringe containing 0.08 Mg. (500 units) and one intradermal syringe containing 0.0016 Mg. (10 units) of pollen protein; also in single vial packages, one 5 Cc. vial and one 20 Cc. vial, each cubic centimeter containing 0.02 Mg. (125 units), and one 5 Cc. vial containing 0.04 Mg. (250 units) of pollen protein.

Series A: one intradermal syringe containing 0.0016 Mg. (10 units), and five consecutive doses (1-5 inclusive) containing, respectively, 0.002 Mg. (12.5 units), 0.004 Mg. (25 units), 0.008 Mg. (50 units), 0.012 Mg. (75 units) and 0.016 Mg. (100 units).

Series B: one intradermal syringe containing 0.0016 Mg. (10 units) and five consecutive doses (6-10 inclusive) containing, respectively, 0.020 Mg. (125 units), 0.024 Mg. (150 units), 0.028 Mg. (175 units), 0.032 Mg. (200 units) and 0.036 Mg. (225 units).

Series C: one intradermal syringe containing 0.0016 Mg. (10 units) and five consecutive doses (11-15 inclusive), each dose containing 0.040 Mg. (250 units).

Complete Series: the three intradermal syringes and the fifteen consecutive doses described in Series A, B and C.

The pollen, after being dried, is ground in a ball mill to destroy the cell membranes. It is then extracted with physiological solution of sodium chloride. This extract is dried and finally extracted again with physiological solution of sodium chloride. The soluble proteins being brought into solution, a nitrogen determination is made on this extract, and the preparation is then standardized according to the protein (nitrogen) content.

DIPHTHERIA ANTITOXIN, CONCENTRATED (See New and Nonofficial Remedies, 1922, p. 280).

E. R. Squibb and Sons, New York.

Purified Diphtheria Antitoxin (Antidiphtheric Globulin).—Marketed in syringe containers of 1,000 units (immunizing dose), and in syringe containers of, respectively, 3,000, 5,000, 10,000 and 20,000 units (curative doses).

NORMAL HORSE SERUM (See New and Nonofficial Remedies, 1922, p. 278).

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Normal Horse Serum.—(See New and Nonofficial Remedies, 1922, p. 279). Also marketed in packages of one 10 cubic centimeter syringe.

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SATURDAY, OCTOBER 21, 1922

A PANCREATIC HORMONE IN DIABETES

Less than half a century has elapsed since the pregnant discovery, by von Mering and Minkowski in 1889, of the highly important part which the pancreatic gland plays in the control of carbohydrate metabolism in the body. Their classic experiments demonstrated that if the pancreas is completely extirpated, hyperglycemia, glycosuria, and the complete loss of the power to burn glucose or other carbohydrates ensue. There are many reasons for believing that lesions of the pancreas in man lead to disturbances in the metabolism of sugar such as manifest themselves clearly in the diabetic. Whether the determining lesions are confined to the islets of Langerhans in the pancreas, as some pathologic histologists assert, or whether other groups of pancreatic cells may be concerned in the genesis of diabetes, cannot be definitely stated at present. It has become customary to postulate an internal secretion for the islets, and to make this responsible for the undoubted function of the pancreas in sugar metabolism. However, many cases of diabetes fail to reveal recognized defects in either the islets or the acinary cells, so that final pronouncements are unwarranted.

The general opinion is that sugar continues to be formed in the diabetic, from such precursors as are available, at the usual rate and to the usual extent. The defect in the metabolism relates to the subsequent destruction of the sugar. The disproportion between formation or mobilization of carbohydrate and its utilization in the organism is exemplified in the increased content of sugar circulating in the blood. Hyperglycemia is the most characteristic chemical symptom of diabetes. As might be expected, there have been numerous attempts—surely many, many more than the published literature would disclose—to supply the missing "regulator" of sugar combustion; and attention has naturally been centered on the pancreas in this connection. The most significant results thus far recorded have recently been secured in the Department of Physiology at the University of Toronto under the leadership of J. J. R. Macleod.[1] These investigators have prepared products from the pancreas by extraction with alcohol which apparently enable the diabetic animal and man to metabolize sugar better. The evidence lies primarily in the reduction of the hyperglycemia of such patients after administration of the suitable pancreatic extracts.

The latest experiments by the Toronto workers[2] bring the significant evidence that injections of the substance isolated lower the content of sugar in the blood of normal animals as well as those rendered diabetic. Its importance lies in the implication that the action of the active component or pancreatic hormone is a fundamental one in the control of the blood sugar. It is not difficult experimentally to effect a lowering of the blood sugar in a few hours, through high dosage, to a point at which serious symptoms attending the hypoglycemia ensue. These can in turn be combated by administration of glucose, a possibility also demonstrated for the hypoglycemia consequent on extirpation of the liver.

The pancreatic factor apparently does not unfold its characteristic effect in the blood stream itself, for it does not influence the glycolytic power of blood in vitro or the rate of postmortem glycogenolysis in the liver. According to the findings of Hepburn and Latchford[3] at Toronto, on the other hand, the influence of the new extract is exerted in the active tissues themselves. At any rate, it has the ability to increase the consumption of sugar in mammalian muscle, as demonstrated by the rate at which reducing substance disappears from nutrient fluid that has been repeatedly perfused through the surviving heart. The investigators are wisely withholding the product from general use while it is undergoing thorough trial by specially selected experts in metabolic diseases and in properly controlled hospitals.

The history of medicine warns us against undue haste in the acceptance of "specifics" applicable to bodily functions. Nevertheless, scientific progress should always challenge our enthusiasm, and may be excused if it awakens the hopes that spring eternal in the mind of man.

MORE FACTS ABOUT THE GALLBLADDER

Some of the uncertainty with respect to the function of the gallbladder is gradually being dispelled in the light of new experiments. The traditional view that the chief activity of this organ is storage has been supported, if not actually magnified, by Rous and McMaster's striking demonstrations of how much inspissation and concentration of bile may occur in the bladder, and how dilution can subsequently be accomplished through the secretion of "white bile" by the ducts through which the thick secretion may pass. Recently, too, attention was called to the possible service that the galbladder may render in protecting the bile ducts and sphincter from undue changes in pressure within the system. How and when the bladder discharges its occasional surplus contents is not so clearly understood. The results of investigation are often difficult to interpret because of the anatomic differences between the species of animals used for experimental investigations in this field; and the problems are not simplified by the fact that some species exist without any gallbladder whatever, while in others, including man, the surgical removal of the organ is not incompatible with comfortable existence.

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[1] Banting, F. G.; Best, C. H., and Macleod, J. J. R.: Am. J. Physiol. **59**: 479, 1922. Banting and Best: J. Lab. & Clin. Med. **7**: 251, 1922. Banting, Best, Collip, Campbell and Fletcher: Canadian M. A. J. **12**: 141, 1922.

[2] Banting, F. G.; Best, C. H.; Collip, J. B.; Macleod, J. J. R., and Noble, E. C.: The Effect of Pancreatic Extract (Insulin) on Normal Rabbits, Am. J. Physiol. **62**: 162 (Sept.) 1922.

[3] Hepburn, J., and Latchford, J. K.: Effect of Insulin (Pancreatic Extract) on the Sugar Consumption of the Isolated Surviving Rabbit Heart, Am. J. Physiol. **62**: 177 (Sept.) 1922.

Some of these debatable features touch on a phenomenon which has become the subject of active interest and debate in clinical medicine: the applicability of the principle of so-called "contrary innervation" to the biliary tract. Assuming, on this basis, that a relaxation of the sphincter at the ampulla of Vater is accompanied by the "reciprocal" innervation of the nerves going to the gallbladder, followed by a contraction of its musculature, it has been proposed to secure bladder contents as desired by initiating their expulsion on this principle. When magnesium sulphate is introduced into the duodenum within the neighborhood of the papilla through which the bile is discharged, a flow of the latter usually occurs. A group of clinicians have assumed that this secretion comes primarily from the contracting gallbladder, so that if it is removed by aspiration from the duodenum it can be subjected to chemical or bacteriologic examination. The columns of The Journal have presented many details with respect to the problem.

Into the prevailing uncertainty, Auster and Crohn[1] have injected experimental evidence gained through studies on the dog, which has a gallbladder resembling that of man in anatomic structure, of scanty musculature and of poor contractile power. The efficiency of its nervous control is also by no means clearly emphasized. By introducing easily detectable foreign dyes into the gallbladder, it was possible to follow the movements of the contents. According to Auster and Crohn, the application of concentrated solutions of magnesium sulphate to the duodenal mucosa and papilla of Vater of the dog causes a stimulation of bile flow as do numerous other substances, some of which have an alimentary significance; but—and this is the crux of the contention—they do not cause expulsion of bile from the gallbladder. The latter is not necessarily distended when an animal is in the fasting state, nor is there always a flow of bladder bile during the height of digestion. Consequently, these investigators conclude that the usual flow of bile originates in the liver and sweeps down the ducts into the duodenum, disregarding in main part the gallbladder. Such variations as occur are believed to arise in the liver in answer to various types of food stimuli. It does not seem to Auster and Crohn that the gallbladder enters into the physiology of bile excretion as an active organ. At any rate, they do not regard it as having an ejaculatory mechanism or the proper musculature for such a function in the same sense as that in which one speaks of the contractile urinary bladder. To them the outflow from the gallbladder appears to be in the nature of an overflow incontinence. Under pathologic conditions one knows that this organ is capable of great distention, acting at such times as a relief to intraductal pressure. Such a function, they conclude, is complementary to its great capacity to concentrate the bulk of bile by dehydration.

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[1] Auster, L. S., and Crohn, B. M.: Notes on Studies in the Physiology of the Gallbladder, Am. J. M. Sc. **164**: 345 (Sept.) 1922.

INTEREPIDEMIC INFLUENZA

The study of epidemiology is awakening a greater interest, and enlisting larger efforts in its behalf, than ever before. In his History of Medicine, Garrison speaks of it even today as "the infantile science of epidemiology, just emerging from the descriptive stage."[1] The predisposing factors of many epidemics of the medieval period, such as the crowded condition and bad sanitation of the walled towns, "the squalor, misrule and gross immorality occasioned by the many wars, by the fact that Europe was overrun by wandering soldiers, students and other vagabond characters, and by the general superstition, ignorance and uncleanliness of the masses"—many of these have gone, let us hope, forever. If some epidemic diseases have almost vanished, or at least become greatly modified in severity or distribution, there are, nevertheless, others still with us to take their victims, and consequently to demand renewed investigation.

Among the earliest of the great medieval pandemics was influenza; it was prevalent in the eighteenth century; the ravages of the great epidemics of 1890 and 1918 are still fresh in the memories of present-day physicians. They should be further aware that the term influenza occupied a conspicuous place among the reported causes of death during intervening periods. In some years the death rate attributed to it has actually been greater than that ascribed to either diphtheria or typhoid, for example. Every physician realizes that there is considerable looseness and inaccuracy in the use of the term influenza. From the standpoint of epidemiology, it is highly important to know whether the so-called influenza of interepidemic years, such as those between 1890 and 1918, is the same disease as that of the pandemic periods.

The crux of the problem is expressed by a recent writer, who asks whether there actually still exists in Europe and North America a residue of cases and deaths from true influenza which keeps a thread of continuity between the great outbreaks. It will be readily admitted that the name influenza is used to cloak much that is not identical bacteriologically or clinically with the memorable epidemic disease. This may be due to faulty or indifferent diagnosis. It may also be due to a change in the type of the disease from decade to decade. There have been times when it has been somewhat fashionable in scientific circles to speak of alterations in infectivity or variations in virulence. In a De Lamar lecture delivered at the Johns Hopkins University, Jordan[2] insisted that there is no escape from the conclusion that the so-called influenza of interepidemic years is in whole or in part different from the influenza of the great epidemics of 1918 and 1890. A great many of the deaths, he adds, are certainly not due to the same microbic causes as those occurring in epidemic years.

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[1] Garrison, F. H.: History of Medicine, Philadelphia, W. B. Saunders Company, 1921, p. 748.

The available statistics, so far as they can be utilized for comparison, show many items of similarity between the epidemics of 1890 and 1918. The age incidence, for example, is similar, whereas it is sharply differentiated from that of the influenza of interepidemic years. Difference in racial mortality also occurs; thus, the greater relative increase in the mortality from influenzal pneumonia in the white as compared with the negro race constitutes a distinguishing feature of the 1918 epidemic, and serves to mark it off from the influenza of the preepidemic years. It also seems to Jordan that there is a lack of correspondence between influenza and pneumonia rates in the different periods sufficiently significant to be stressed, even if it cannot be included in the more compelling statistical evidence. The problem here involved is a highly complex one that demands the resources of the most expert, and invites the critical attention of the most skeptical. The uncertainty which remains regarding the real nature of the etiologic microbial agents involved is one of the greatest stumbling blocks in the road to progress. Whether or not one agrees with Jordan's main thesis, there will be no contradiction of his plea that localized outbreaks and, indeed, individual cases of influenza-like disease and of all mild respiratory diseases seem to demand more searching study than they have yet received, bacteriologically, epidemiologically and clinically.

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[2] Jordan, E. O.: Interepidemic Influenza, Am. J. Hyg. **2**: 325 (July) 1922.

Birth and Death Statistics.—The Census Bureau has issued figures on the death and birth rate in the registration areas of the United States for the year 1921. The death rate was a record low one, the figure being 11.7 per thousand inhabitants in 1921 as compared with 13.1 per thousand inhabitants for 1920. The infant mortality rate also decreased from 86 per thousand inhabitants in 1920 to 76 per thousand inhabitants in 1921. The registration area includes a population in this country of 70,425,000. Figures on the birth rate show 24.3 per thousand for 1921, as against 23.7 in 1920. The statement of the Census Bureau further shows 1,714,261 births for the year, and 823,511 deaths, of which 129,588 were of children.

Current Comment

THE METABOLISM OF PREMATURE INFANTS

The intelligent management of premature infants obviously presupposes some knowledge of the physiology of the organism under the conditions characteristic of such early birth. Lately a number of independent evidences have been secured indicating that the basal metabolism of premature infants tends to be low.[1] According to Talbot and his collaborators, the figures are low whether they are calculated on the basis of body surface, the present conventional method, or in relation to other factors. Hence they argue that the reduced metabolism is dependent on the fact that there is a very small amount of active heat-forming tissues in these incompletely developed infants. Of the infants observed by Murlin and Marsh, those exhibiting very low basal metabolism died; hence these investigators remark that as basal metabolism is the best single measure of vitality yet found, it is probable that this test will prove to be an important means of prognosis in prematurity. In explanation of the metabolic phenomena of premature infants, which are quite in contrast with the relatively high metabolism at more mature stages of childhood, Talbot and Sisson believe that the active, heat-forming, "protoplasmic" tissues are unable to respond to the excessive heat loss from the body, and, as a result, there is a subnormal temperature; that the amount of heat formed depends on the amount and tone of the active protoplasmic tissues and not primarily on the size of the surface of the body of these infants. In the cases studied, the children did not gain in weight until they were able to digest approximately 200 calories daily. The only food completely assimilated to accomplish this was human milk. A relatively large proportion of the food intake goes to form new body tissue. The large excess of the caloric intake over the basal metabolism was necessary because of the relatively greater amount of growth essential for the normal development of these babies.

CAPILLARY BLOOD PRESSURE IN HYPERTENSION

Renewed and improved study of the circulation of the capillaries has demonstrated the necessity of revising some of the prevailing views of the functional activities of these vessels. Hooker,[2] in pointing out that we must reorganize our conceptions of functional peripheral resistance, has remarked that it has heretofore been limited to the arteriole, the caliber of which is controlled by a muscular coat subject to nervous and chemical influences. The resistance to the flow of blood by the capillary and venule has been regarded as essentially fixed. Now we know, he adds, that beyond the arteriole the capillary and venule function actively, and must therefore participate directly in vascular reactions. It was doubtless considerations of this sort that led Boas and Frant[3] of the Montefiore Hospital for Chronic Diseases, New York, to examine the part the capillaries may play in the causation of hypertensive states. Not until the more recent investigations of capillary functional changes has it seemed likely that the capillaries themselves may be concerned in the maintenance of high arterial pressure. According to Danzer and Hooker,[4] the normal capillary blood pressure of man ranges from 18 to 22 mm. of mercury, and rarely exceeds 30 mm. Boas and Frant have found, however, that patients with hypertension fall within two groups that cannot be differentiated clinically. In the first group the capillary pressure ranges between 21 and 70 mm. of mercury, rarely higher and only very exceptionally lower. Most of the readings fall between 30 and 60. In the second group the capillary pressure falls within the range of normal, with a tendency to be low rather than high. In essential hypertension, the capillary pressure is low; but it is suggested that patients who exhibit high capillary pressures may be suffering from a general capillary disease with a glomerulonephritis as one of the manifestations. This is, of course, still mere conjecture. Nevertheless, in view of the great uncertainty and confusion still existing with respect to the interrelation of hypertension and kidney disease—a confusion in which cause and effect are not readily differentiated—the facts just discovered suggest that newer methods of studying the capillaries may yet lead to developments of fundamental significance for the study of blood pressure and its pathologic manifestations.

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[1] Talbot, F., and Sisson, W. R.: Basal Metabolism in Relation to Body Surface at Different Ages, with Special Reference to Prematurity, Proc. Soc. Exper. Biol. & Med. **19**: 309 (April) 1922. Murlin, J. R., and Marsh, Elizabeth: Basal Metabolism of Premature and Undersized Infants, ibid., p. 431. Talbot, F. B.; Sisson, W. R.; Moriarty, Margaret E., and Dalrymple, Alice J.: The Basal Metabolism of Prematurity, II, Relation of Basal Metabolism to Caloric Intake and Weight Curve, Am. J. Dis. Child. **24**: 95 (Aug.) 1922.

[2] Hooker, D. R.: Evidence of Functional Activity on the Part of the Capillaries and Venules, Physiol. Rev. **1**: 112 (Jan.) 1921.

THE CAUSE OF INFLUENZA

In a recent extensive review of our knowledge of the cause of influenza, about which so much has been written during the last three or four years, Zinsser[5] devotes special attention to the relation of the influenza bacillus to the disease whose name it carries. Zinsser defines influenza as a mild fever of a few days, with sudden onset, characteristic pains in the head, back and limbs, and great prostration. Slight sore throat, mild bronchitis and conjunctival injection may be either primary or secondary. This is the form in which influenza makes its first appearance; as such, and free from complications, it causes few deaths, and to find the cause of this basic disease, which may be followed by highly dangerous secondary respiratory infections, is the etiologic problem of influenza. In favor of regarding the influenza bacillus as the essential cause, Zinsser mentions its frequent isolation from early and simple cases; the frequency of its presence in complications, both early and late, and its peculiar distribution in the bronchi in fatal cases; its wide distribution among the population at the time of influenza epidemics, followed by a gradual diminution as they subside; and, finally, the fact, recently announced, that the influenza bacilli can produce poisons potent enough to explain the symptoms. Against regarding the influenza bacillus as the primary cause of influenza, Zinsser places the frequent failure to find it in the early stages of the disease; its presence in healthy persons and in patients with other diseases than influenza, notably measles, in which it may be found in as many as 65 per cent. of the cases; its occurrence, according to some observers, in a prodigious number of distinct strains with different antigenic properties, an observation, inviting further study, that does not harmonize well with the idea of the bacillus being the cause of a specific disease; and, finally, the failure of human inoculations with influenza bacilli to produce reactions like that of epidemic influenza, as well as the failure of injections of vaccines of the bacilli to protect against influenza. Added to these considerations is the further circumstance that several reports have been made of the production in human beings of influenza-like diseases with apparently bacteria-free filtrates of materials from the respiratory tract of influenza patients. And here it may be pointed out, too, that almost the same kind of statement as this in regard to the influenza bacillus could be made for and against the etiologic relationship to influenza of streptococci, especially of the viridans group, which some might think Zinsser has neglected. In our editorial discussions of influenza at the time of the 1918 epidemic, it was maintained that the influenza bacillus had not been shown to be the cause of influenza, and that wholesale injections of vaccines of this bacillus for the purpose of prevention were not warranted. The correctness of this view is upheld by the subsequent developments now summarized by Zinsser, whose primary friendliness to the cause of the influenza bacillus is obvious. The cause of influenza still remains an unsolved problem. In view of the ease with which complicating organisms like the influenza bacilli and streptococci gain foothold apparently almost as early as when the primary infection sets in, the hope of solution of this etiologic problem lies in the study of adolescent epidemics rather than of epidemics already in full swing.

THE DOCTOR AND THE DOG

Supreme among the stories of dogs is "Rab and His Friends" written by a physician. Again and again physicians have demonstrated in their writings and in their work an essential kindliness toward the dumb, the weak and the needy. It is reasonable to believe that proportionately more physicians than laymen revel in the ownership of animal pets, particularly horses and dogs. In the day when almost every physician depended on the horse for transportation, practically every physician understood animals, owned them, cared for them and was kind to them, and the spirit has not changed. Recently the Chicago Literary Club in selecting one of its papers for publication selected "Duke" the story of a dog by Charles Bert Reed, a physician. In this story is revealed a humane understanding of animalkind. The devotion of the smiling Duke is a contrast to the cringing, snarling beast portrayed prostrate before the physician in antivivisection literature. The true physician, the real scientist, is never the bloodthirsty savage depicted in the sadistic imaginings of the antivivisectionist reformers. The same spirit which moves him to devote his life to the relief of mankind gives him a love for all that is living and draws to him the sympathy of animalkind. After all the matter is relative. The scientist sees life as a sacrifice of some for the benefit of the many. The antivivisectionist sees only her own exaltation in the eyes of an unthinking public. "The antivivisectionist," says George Jean Nathan, "strains at a guinea pig and swallows a baby."

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[3] Boas, E. P., and Frant, S.: The Capillary Blood Pressure in Arterial Hypertension, Arch. Int. Med. **30**: 40 (July) 1922.

[4] Danzer, C. S., and Hooker, D. R.: Determination of the Capillary Blood Pressure in Man with the Microcapillary Tonometer, Am. J. Physiol. **52**: 136 (May) 1920.

[5] Zinsser, Hans: Etiology and Epidemiology of Influenza, Medicine 1: 213-311, 1922.

PENNSYLVANIA'S WOMEN ON ANIMAL EXPERIMENTATION

The women of Pennsylvania refuse to be humbugged by the propaganda of the antivivisectionist. At the annual meeting of the State Federation of Pennsylvania Women, October 12, at which more than 600 women were present, this resolution was adopted:

> Whereas, It has been conclusively demonstrated that the health and happiness of hundreds of thousands of animals, and of many millions of human beings, have been promoted and their lives prolonged by the application of knowledge obtained through scientific experiments on animals; and
>
> Whereas, These researches are conferring a wonderful boon upon the starving nations by constantly adding greatly to the food supply of the world; therefore be it
>
> *Resolved*, that the State Federation of Pennsylvania Women, assembled in annual general convention in the city of Reading, Pennsylvania, on the twelfth day of October, 1922, hereby put on record their gratitude to medical science for past discoveries so profoundly beneficial to human beings and to animals, and we believe that such beneficent researches should be continued and encouraged.

The resolution was adopted with virtual unanimity. Only a few—possibly fifteen or twenty—voted in the negative, and these feebly, as if ashamed. As the women present represented a total of more than 60,000 women throughout the state, it is safe to say that the heart of Pennsylvania is right for health and for humanity.

VOLUNTARY ACCELERATION OF THE HEART

The rate of the heart beat is ordinarily influenced by a variety of factors; when, for example, the arterial tension falls, the pulse rate is accelerated; with rise of blood pressure, the pulse rate decreases. Through what mechanism this adjustment is brought about has not been conclusively determined. Most of the sudden changes in the heart rate are effected through the nervous control of the heart by the action of the accelerator or inhibitory nerves. An increase in rate may arise from either a reflex excitation of the accelerators or a reflex inhibition of the tonic activity of the inhibitors. Many of the influences playing on this mechanism go on without the conscious intermediation of the person concerned. In this manner the state of activity of the visceral organs affects the heart. Again, the emotions may be attended with sensations that change the heart rate in an indirect way. Cases have long been known, furthermore, in which a more direct voluntary control of the heart rate seems to be possible, a classic instance being Tuke's [1] subject, aged 72, who was able by an effort of the will to accelerate his heart from 63 to 82, an increase of nineteen beats a minute. The precise factors involved have not been made clear in most of the cases of voluntary heart control on record.[2] Taylor [3] has recently been able at the University of Toronto to investigate critically the unique capacity of a medical student there to produce cardiac acceleration by an effort of the will alone. In him dilatation of the pupils, vasoconstriction and elevation of the blood pressure are associated with the increased heart rate. Atropin administration depresses but does not abolish the power of voluntary acceleration. Decided glycosuria occurs as an after-effect of a series of acceleratory efforts. Taking into account the sympathetic phenomena noted along with the cardiac acceleration, it seems probable to Taylor that the latter is due in part to the withdrawal of vagal tone and in part to excitation of the accelerators, the two influences being called into reciprocal action by the voluntary effort.

THE RISE OF GROUP MEDICAL PRACTICE

It is no new thing to refer to the restlessness which today agitates the collective mind of the medical profession as well as that of every social class and body. Not only have those who have taken special interest in medical practice given thought to these questions, but everywhere the rank and file, the general practitioner as well as the specialist, are discussing the future of the practice of medicine. At the last annual session of the Ohio State Medical Association, Dr. Martin H. Fischer [4] of the University of Cincinnati presented some views on these problems; he called for a harking back to the past, and for a recognition of the dignified origins from which modern medicine sprang. To the development of the crowd mind, Professor Fischer ascribes most of our unfortunate tendencies; the many who would emulate the success of the few, witnessing the financial rewards of the large groups and specialists, form new groups and also become specialists, though not willing to secure the adequate training responsible for success. Both the medical profession and the public suffer through the subsequent failure of such institutions and men in the practice of medicine. The present doctor, Professor Fischer says, "has sacrificed his individuality—the thing through which alone he has gained his public standing historically or in the present. Never before has he affected a community through mass action, and it is safe to predict that through such action he never—lastingly—will." Furthermore, Dr. Fischer lays the blame for present conditions on the medical profession itself. "If the medical profession has problems, it is because it has either voluntarily relinquished what it should have held, or done badly what others have done better." The text that he preaches is the necessity for restoring public faith in the physician. The old personal relationship between physician and patient—an impossibility in the group—must be restored. Dr. Fischer likens the service of the group clinic to that of the cafeteria, in which one can serve oneself to a diagnosis as one serves oneself to a meal:

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[1] Tuke: Illustrations of the Influence of the Mind upon the Body in Health and Disease, etc., London, 1872.

[2] Tarchanoff: Arch. f. d. ges. Physiol. **35**: 109, 1885. Pease: Boston M. & S. J. **120**: 525, 1889. Favill and White: Heart **6**: 175, 1915-1917. Van der Velde: Arch. f. d. ges. Physiol. **66**: 232, 1897. Koehler: Ibid. **158**: 579, 1914. West, H. F., and Savage, W. E.: Voluntary Acceleration of the Heart Beat, Arch. Int. Med. **22**: 290 (Sept.) 1918.

[3] Taylor, N. B.: Voluntary Acceleration of the Heart, Am. J. Physiol. **61**: 385 (Aug.) 1922.

[4] Fischer, M. H.: Whither? Science **56**: 405 (Oct. 13) 1922.

> One starts with a numbered card and buys himself at different counters and from different men a general examination, an investigation of the throat, a roentgen-ray plate of the gallbladder, a dental overhauling, a surgical operation, and a plaster cast for the foot. Each item carries its price, which is punched on the ticket. What the scheme takes no account of is that the patient does not care whether he has Hirschsprung's disease, erythema nodosum or pseudohypertrophic muscular atrophy. What he is after is a plain statement of what is the matter with him, and whether he can be "cured" or not; also there is wanted a little appreciation of his state of mind and some understanding of the economic hardships of his family in the interim of being ill. The food counters do not carry these dishes.

"The medical profession," Professor Fischer says, "will increase or lose its public power only as the collective expression of the people's faith in the individual doctors who touch them." The greatest medical achievements were not those of men working in great organizations, but of individuals utilizing to the utmost each his own opportunities. Boerhaave changed all of European medicine with twelve beds. Corrigan rewrote the chapter on heart disease with only six, and Külz, whose work fills one third of all the volumes on diabetes, had only two patients. It is time for the medical profession to discard the commercialism and the selling methods of the store, and to return to the methods of the fathers in medicine. It is a time for physicians with kindliness, tolerance and large understanding, the skill of hand, the skill of mind and the resourcefulness of previous generations.

DEFENDERS AND OPPONENTS OF VIVISECTION—A CONTRAST

Elsewhere in this issue (page 1448) appears the statement of the regents of the University of California and of the trustees of Stanford University, opposing the initiative measure against vivisection to be voted on in California. The sanity, logic and clear presentation of this document is a notable contrast to the confused, ecstatic, emotional outbursts of the hysterical females and sinistral men who support the measure. It is the opposition of the rational against the irrational; of the scientific mind against the muddled brain; of the practical leader of men against the unpractical, uncaring "reformer." Our world is what it is today chiefly because of the advances made through scientific investigation. Unfortunately, the clean, healthful, protected life means little to the short-haired women and long-haired men who have nominated themselves to lead this agitation against progress. The document of the educational leaders of California is an appeal to those persons in the community who can see straight.

Association News

RESOLUTION ON SECTION DELEGATES

Colorado State Medical Society Acts on Section Delegates

At the annual session of the Colorado State Medical Society just concluded, the following resolution in regard to section delegates in the American Medical Association was adopted:

> Whereas, The scientific usefulness and leadership of the American Medical Association depend largely on the scientific work of the Sections at the annual meetings; and
>
> Whereas, The past development and future progress of the Association have been due and must be due largely to the interest in and activity of the Sections:
>
> *Resolved,* That the Colorado State Medical Society is opposed to depriving the Sections of the representation they now have in the House of Delegates of the American Medical Association, amounting as it does to only one-tenth of the members of the House; and that the delegates from Colorado are instructed to express and carry out the views of this society upon the matter.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Investigation into Food Poisoning Case.—As the result of nearly 700 children being poisoned by food eaten at Woodlawn School, Birmingham, Dr. J. C. Geiger of the U. S. Public Health Service has been sent to Birmingham to investigate the cause at the request of the public school and health officials. Laboratory examinations will be made of food served the children at lunch, September 27, after which more than 250 students became ill, the others being attacked later in the afternoon. Questionnaires have been sent to the 1,100 pupils; also to all heads of lunch rooms in the city asking that they state from which market they buy their meats and the price paid for it. Receipted bills for meat previously bought will be required of each school.

ARKANSAS

New Medical Society.—The physicians, surgeons and dentists of Conway County held a meeting at Morrilton, September 28, for the purpose of organizing the Conway County Medical Society. Twenty-five members were admitted. Dr. James M. Matthews was elected president; Dr. Walter H. Bruce, vice president, and Dr. Henry E. Mobley, secretary.

CALIFORNIA

Hospital News.—Construction work will be started this fall on a two-story and basement hospital building and twenty bungalows, to be erected by the Rose Hospital Association at Los Angeles, at an estimated cost of $350,000. The new hospital building will contain fifty rooms, three operating rooms and two wards. Dr. Carl T. Rose, formerly connected with the Mayo Clinic, is head of the organization. ——To relieve state hospitals in California from the care of insane ex-service men, the U. S. Veterans' Bureau will increase the capacity of the government hospital at Palo Alto by 500 beds. The present capacity is about 600 beds.

COLORADO

State Medical Meeting.—The annual meeting of the Colorado State Medical Society was held at Colorado Springs, October 9-10, under the presidency of Dr. Harry A. Smith, Delta. The following officers were elected for the ensuing year: president, Dr. Jacob Crum Epler, Pueblo; president-elect, Dr. Melville Black, Denver; vice presidents, Drs. Thomas A. Stoddard, Pueblo, George A. Boyd, Colorado Springs, Edward P. Hummel, Sterling, and William W. Williams, Denver, and secretary, Dr. Frank B. Stephenson, Denver. The next session will be held at Glenwood Springs in 1923. Dr. Benjamin H. Orndorff, Chicago, read a paper on "Use of Roentgen-Ray in the Treatment of Deep-Seated Lesions."

DISTRICT OF COLUMBIA

Amalgamation of Child Welfare Societies.—At the annual conference of the American Child Hygiene Association in Washington, October 12-14, Dr. L. Emmett Holt, New York, president of the Child Health Organization, announced that the organization would unite with the American Child Hygiene Association, combining the aims of both societies to promote child health. Secretary Hoover of the child hygiene association gave an address in which he expressed the hope "that ten policemen would eventually be replaced by one community nurse."

Association of Military Surgeons of the United States.—Major-Gen. Merritte E. Ireland, Surgeon-General of the Army, and Rear Admiral E. R. Stitt, Surgeon-General of the Navy, outlined the medical work of the Army and Navy of the United States at the sessions of the Association of Military Surgeons held in Washington last week. A distinguished assemblage of medical representatives of the military and naval forces of other countries were present. The foreign delegation included the following: Surg. Rear Admiral C. M. Beadnell of the British navy; Dr. Henri Rouvillois of the French army; Col. P. G. Goldsmith of the British army; Dr. Robert Picqué of the French army; Lieut.-Com. Joaquin Sanchez Gómez of the Spanish navy; Major B. Tanabe of the imperial Japanese army; Dr. Eudoro Aguilar of Peru, and Dr. Raguain of the Argentine Republic.

FLORIDA

Health Officer Has Dengue.—City Health Officer William W. MacDonell, Jacksonville, is suffering from dengue fever, it was announced, September 30.

ILLINOIS

County Health Center Established.—A county health center was formally opened in Walworth County, October 11. Dr. Mildred Van Cleve will give examinations once a month, and a county public health nurse will be in attendance.

Quarantine Letters Sent to Homes.—A system of letters and pamphlets, which state specifically the privileges of the house occupants, methods of disinfection, isolation of patients, and length of quarantine have been instituted by the quarantine officer in charge of contagious diseases at Rockford, and sent to homes where communicable diseases are located.

Public Nursing Service.—The Grundy County Tuberculosis Sanatorium board has employed a nurse to do general public health work throughout the county.——It is reported that, through efforts of the state department of public health, all public health nurses of the state have been organized into local units, each coextensive with a senatorial district, with the exception of three districts.

Township Physicians Appointed.—The board of supervisors has appointed the following physicians for La Salle County: Dr. D. S. Conley Bruce; Dr. R. Barrickman, Peru; Dr. A. C. Purcell, Eagle; Dr. E. T. Goble, Earl; Dr. Felix J. Maciejeyski, La Salle; Dr. John W. Landgraf, Seneca; Dr. William A. Pike, Ottawa; Dr. Oril C. Yoder, Peru; Dr. W. S. Sterrett, Rutland; Dr. William A. Pike, South Ottawa, and Dr. Edgar C. Cook, Mendota.

New Medical Board Begins Work.—Following the recent licensure scandal, several state medical licensing boards removed Illinois from their reciprocity agreement on all licenses granted under the Miller administration. It is stated that the only irregularities were in the examinations held in October, 1921, and January, 1922; that all licenses obtained during these examinations are to be subjected to review and that whenever irregularities are found the licenses will be revoked; all others are to be revalidated.

Chicago

Tag Day Benefits Charities.—More than $93,000 was collected, October 16, in Chicago, in the tag day held under the auspices of the Chicago Children's Benefit League, in which are represented fifty-one different charities.

Honor Woman Physician.—King Haakon of Norway has bestowed the Medal of Merit in gold on Dr. Ingeborg Rasmussen of Chicago, in recognition of her work among the Norwegians in this country. This is the first time the medal has ever been awarded to a woman outside of Norway, it is stated.

Chicago Medical Society.—The Chicago Medical Society gave a banquet at the Morrison Hotel, October 11, at which Dr. John S. Nagel, the retiring president, was the guest of honor. Dr. Charles E. Humiston, former president of the state society, was toastmaster, and Prof. Shailer Mathews of the University of Chicago, the principal speaker. Officers elected for the ensuing year were: president, Dr. Hugh N. MacKechnie; president-elect, Dr. Archibald Church, and secretary, Dr. Roy R. Ferguson.

Hospital News.—Plans are being considered for the erection of a $700,000 addition to the Englewood Hospital, Chicago, of which Dr. Egil T. Olsen is superintendent.——A large addition is now under construction at the Ravenswood Hospital, Chicago, the present capacity of the hospital being only forty-four beds.——A campaign is being conducted to raise $10,000 for construction of elevators and the equipment of rooms to complete the Columbus Extension Hospital, Chicago. This institution was begun in 1918 by the Order of the Sacred Heart Missionaries, and women drew the plans, superintended the construction work and did much of the manual labor.——The new Presbyterian Home was formally opened, October 10. The institution was constructed at a cost of $400,000 and when fully equipped will house 100 old and infirm persons, convalescents and orphans.

Personal.—Dr. George W. Hall was winner in the eighteenth annual golf Chiuncus of the University Club at Onwentsia Links, October 11.——Prof. Henry G. Gale, Ph.D., has been appointed dean of the Ogden Graduate School of Science at the University of Chicago to succeed the late Rollin A. Salisbury. Professor Gale was formerly dean of the science department and professor of physics. He is a chevalier of the French Legion of Honor and was cited for distinguished service when acting as lieutenant-colonel in the signal corps in France during the World War.——Dr. Joseph Beck sailed from Seattle, September 30, for the Orient. Dr. Beck is taking a six months' vacation and will visit hospitals and study throat, ear and eye diseases.——Dr. Jesse W. Taft, director of the department of child study, Seybert Institute, Philadelphia, gave a lecture at the Abraham Lincoln Center, October 20.——A. J. Carlson, Ph.D., head of the department of physiology of the University of Chicago, gave a Mayo Foundation lecture, October 12, at Rochester, Minn., on the "Visceral Sensory Nervous System and Recent Advances in the Physiology of the Alimentary Tract."——Dr. Gustavus M. Blech, Chicago, has been commissioned by President Harding as colonel in the M. O. R. C., U. S. Army.

INDIANA

Joint Medical Meeting.—At a meeting of the medical societies of Bartholomew, Jackson and Jennings counties, in Seymour, October 5, Dr. John P. Salb, Jasper, former president of the Indiana State Medical Society, and Dr. Charles K. Sowders, Indianapolis, were the guests of honor. The meeting was preceded by a banquet.

Psychopathic Lectures.—A series of lectures on the cause and cure of mental and nervous diseases will be given at the Central Indiana Hospital for the Insane through the fall and early winter, the last lecture being scheduled for Jan. 20, 1923. This course is a part of the special work of the study of psychopathology of the Indiana University School of Medicine. Illustrated lectures will be given on hallucinations, illusions and pseudohallucinations. Simon-Binet tests will also be made.

IOWA

Establishment of Big Health Program.—Dr. F. E. Sampson, Creston, has been appointed by the Iowa State Medical Society to direct a program for the establishment of a community hospital in every important city and town of Iowa. Dr. Sampson, who has been doing community hospitalization work for several years, moved to Des Moines recently, and will devote his entire time to the task of organizing community and rural health. Dr. Sampson states that in the greater community area of Iowa, with about 100,000 population, there are two churches for every hospital bed. He has outlined a plan for eventually building a community hospital in every county seat in the ninety-nine counties of the state, to be followed later by other community hospitals in the larger towns.

Tribute to Dr. Middleton.—At the seventieth anniversary of the Rock Island Railway System, a tree was planted at Iowa City in memory of the late Dr. William D. Middleton of Davenport, former dean of the medical faculty of the State University of Iowa and surgeon-in-chief to the Chicago, Rock Island and Pacific Railway, who died, in 1902, of septicemia, following a wound received while performing an operation. Dr. Thomas H. Macbride, president emeritus of the State University of Iowa, delivered an address, wherein he paid eulogy to Dr. Middleton. Following the planting of he tree, Dr. Middleton's daughter, wife of Dr. Samuel C. Plummer of Chicago, who fills the chief surgeonship that his ather-in-law occupied, unveiled a bronze tablet dedicated to he physician.

KANSAS

Physical Examinations for Beauty Doctors.—The barber board of Kansas has recently announced that all beauty shop girls must submit to a physical examination. The girls objected to a man holding the examination, and Mrs. William Keith, Wichita, has brought legal action to prevent the barber board interfering with the operations of beauty shops. The case is pending in the local district court.

KENTUCKY

Bureau of Trachoma.—An advisory committee, made up of physicians, oculists and optometrists, has been appointed for the bureau of trachoma and conservation of vision of the state board of health. Dr. Gaylord C. Hall, Louisville, is chairman of the committee.

MARYLAND

Personal.—Dr. John S. Fulton, state health officer, Dr. C. Hampson Jones, commissioner of health of Baltimore, and Dr. Robert H. Riley, chief of the bureau of communicable diseases of the state department of health, attended the annual convention of the American Public Health Association in Cleveland.——Dr. George E. Vincent, president of he Rockefeller Foundation, recently gave a talk on "Politics nd Public Health" at the school of hygiene and public ealth, Johns Hopkins University. Dr. Vincent inspected the chool, which is endowed by the Rockefeller Foundation.——Dr. George H. Hocking of Govans is spending two months broad, touring through Scotland and England.——Dr. Victor D. Miller, Hagerstown, was elected president of the Washington County Medical Society, recently.

Dohme Memorial Lectures.—The first course of lectures under the Charles E. Dohme Memorial lectureship was given n the medical amphitheater of the Johns Hopkins Hospital, October 10, 11 and 12, by Dr. H. J. Hamburger, professor of physiology at the University of Groningen (Holland).——In une, 1916, Mrs. Dohme offered to pay annually the sum of 1,000 to the trustees of the Johns Hopkins University to ound a lectureship in memory of her husband, Charles E. Dohme, the well known pharmaceutic chemist of Baltimore. The purpose of the lectureship is to promote the development of a more intimate relationship between chemistry, pharmacy nd medicine. The lectureship is open to scientists from any art of the world, and the selection of a lecturer is made y a committee representing the departments of pharmaology, chemistry and medicine, consisting of Professors Abel, Reid and Thayer.

MASSACHUSETTS

Additional Physicians Needed for Schick Test.—Owing to he increased activities regarding the administration of toxin-ntitoxin to prevent diphtheria, Mayor Curley has authorized he health commissioner to appoint two additional physicians nd three extra nurses to assist Dr. John A. Ceconi, who is n charge of the Schick tests being made.

Physicians' Institute.—The Institute of Physicians of he Boston Tuberculosis Association met, October 4-5, at the Massachusetts General Hospital, Boston. Dr. Allen K. Krause, Johns Hopkins Hospital, Baltimore; Dr. Cleaveland Lloyd, Boston; Dr. Francis X. Mahoney, Boston, health commissioner; Dr. John B. Hawes, president of the Boston Tuberculosis Association, and Dr. Sumner H. Remick of the ealth department gave addresses.

Personal.—Dr. Arthur E. Brides, Boston director of the U. S. Veterans' Bureau, will retain that position, it was nnounced, September 10.——Dr. Edward C. Conroy, Andover, has been appointed chairman of the joint committee formed to take action on the offer of W. M. Wood to donate o the town a site for a school in the Shawsheen district.——Dr. Ransom Greene, Boston, has been appointed superintendent of the Taunton State Hospital to succeed Dr. Arthur V. Goss, who retires after thirty years' service.——Dr. Marion Cowan Burrows, Lynn, has been nominated as one of the three Republican candidates for representative from the fourteenth Essex district.——Dr. DeWitt G. Wilcox, Boston, has been appointed college physician of the school of engineering, Northeastern University. Dr. Wilcox was formerly professor of gynecology at Boston University School of Medicine.——Dr. Frank E. Bateman has been appointed city physician of Somerville by Mayor Webster. He will fill the unexpired term of Dr. C. Clarke Towle, who resigned on account of ill health.——Dr. Ester M. E. Sundelof, radiologist to the New England Hospital for Women and Children and the Lynn Hospital, has resumed her work after an extended trip abroad.——Dr. Martin W. Peck, medical officer at the Boston Psychopathic Hospital, has been appointed chief of the outpatient department of that institution, to succeed Dr. Douglas A. Thom, who resigned to become director of the division of mental hygiene of the state department of mental disease.——Dr. Margaret E. Desmond has been temporarily appointed assistant to Dr. C. Edouard Sandoz, director of medical services of the Boston municipal court.

MICHIGAN

Dinner for Dr. Snow.—The Lapeer County Medical Society gave a dinner in honor of Dr. Sparrow A. Snow, September 12, on the completion of his forty-fifth year of practice at North Branch.

MINNESOTA

Health Agencies Open Joint Office.—Joint headquarters for four of the largest private health agencies in Minneapolis were opened, September 30, on Eighth Street, Minneapolis, following a decision of the Citizens' Aid Society to donate the use of the house to the Hennepin County Antituberculosis Society, the Hennepin County Public Health Association, the Minneapolis Visiting Nurse Association and the Infant Welfare Society. This building was formerly occupied by the Carry On Club, for disabled war veterans.

State Medical Meeting.—The fifty-fourth annual session of the Minnesota State Medical Association was held at Minneapolis, October 12-14, under the presidency of Dr. James Frank Corbett, Minneapolis. The following officers were elected for the ensuing year: president, Dr. Edward Starr Judd, Rochester; vice presidents, Drs. Theodore Bratrud, Warren, Harry D. Ritchie, St. Paul, and George H. Mesker, Olivia. Drs. Carl B. Drake, St. Paul, and Frederick L. Beckely, St. Paul, were reelected secretary and treasurer, respectively. The next annual meeting will be held at St. Paul in October, 1923. At a meeting of the wives of the members held at the state university, a woman's auxiliary of the state medical association was formed with Mrs. H. B. Sweetser, Minneapolis, as president.

MISSOURI

Tuberculosis Division of Health Board.—At the September meeting of the state board of health a division of tuberculosis was established. Dr. F. C. Smith of the U. S. Public Health Service was appointed to organize the work of this division.

Missouri Tuberculosis Sanatorium Extension Service.—A conference was held, September 26, between representatives of the state board of eleemosynary institutions and the Missouri Tuberculosis Association, for the organization of the Missouri Tuberculosis Sanatorium Extension Service. By this plan, the state board of managers of eleemosynary institutions and the Missouri Tuberculosis Association will extend the service of the sanatorium to the people of the state in a more general campaign against tuberculosis. Follow-up care will be given ex-patients of the sanatorium, and preventive educational work will be conducted in the families of patients. The aim of this service is also to secure cooperative efforts on the part of state institutions—eleemosynary, penal and educational—and to give cooperative service to city, county and private tuberculosis hospitals in the care and after-care of patients. The first undertaking will be to secure the cooperation of local organizations, such as public health nursing associations, tuberculosis societies, municipal health departments, and of county health officers, such local organizations and officers being asked to serve as local agents for the sanatorium in carrying out, in their respective territories and jurisdictions, appropriate lines of work. Through similar demonstration service, rendered by the tuberculosis association to the state teachers' college, the way was prepared for the passage of the Missouri Physical Education Act last year, in which provision was made for the physical education, periodic physical tests, playground activities, nurse service and health supervision of all children in the public schools of the state.

NEBRASKA

State Reciprocity for Chiropractors.—Sixty chiropractors have applied to take the special examination to be offered in Lincoln by the state department of public welfare, November 19, to entitle them to practice in other states by reciprocity. The candidates are those licensed by waiver, who were practicing in Nebraska in 1915, at the time the state chiropractic examining board was created.

State Ruling Regarding Indigents.—The pauper law as sustained by the state supreme court decisions is to the effect that counties are responsible and should pay for all medical care of indigents within their respective boundaries. There is no institution in Lincoln for caring for and treating indigent venereal disease cases, and provision for such has not been made by legislation. Consequently, when infected persons have been sent to that city for treatment, there has been no other course but to send them back and assist in their receiving treatment at home.

NEW YORK

New York Academy to Celebrate Pasteur Centennial.—The library committee of the New York Academy of Medicine urges its members to lend memorabilia, such as letters, manuscripts, photographs, engravings or pictures of any kind relating to the life or work of Louis Pasteur. These will be used for the academy Pasteur celebration, Dec. 27, 1922, to Jan. 10, 1923; all communications to be addressed to Mr. J. S. Brownne, librarian.

Trees for County Tuberculosis Sanatoriums. — The state conservation commission is prepared to furnish trees for reforesting lands belonging to county tuberculosis sanatoriums on receipt of a written request from the superintendents of these institutions. The state department of health points out the advantages to be derived from the acceptance of this offer. Not only will the attractiveness of the surroundings of the sanatoriums be greatly enhanced, and a recreative environment added, but interesting employment may also thus be given to a number of patients whose condition may warrant light outdoor exercise. No charge will be made for the trees, but the sanatoriums will have to bear the expense of transportation.

Graduate Medical Lectures at Brooklyn. — Owing to the success of the free medical lectures instituted last spring, Dr. Frank D. Jennings, president of the Kings County Medical Society, and Dr. Charles A. Gordon, chairman of the committee of clinical instruction, arranged for another series of twelve lectures, to be held this fall. The fall term opened, October 13, at the building of the Kings County Medical Society, Brooklyn, and Dr. James Ewing, professor of pathology of Cornell University Medical College, delivered the first lecture. Dr. John Osborn Polak, professor of obstetrics and gynecology at the Long Island College Hospital, will deliver lectures, October 20 and 27. Dr. Thomas McCrae, Toronto, Canada, coauthor with the late Sir William Osler in his textbooks on medicine, will hold a clinic, November 3.

Hospital News.—A $1,000,000 campaign is being conducted by the Methodist Episcopal Hospital of Brooklyn for funds for a new maternity pavilion and to increase its endowment. ——The Dewitt Sanatorium, recently organized, will remodel a residence in Hancock Street, Brooklyn, at a cost of $100,000. Dr. E. H. Bartley is president of the sanatorium.——Dr. J. Carter Fisk, New York, has purchased the estate of Mrs. Bloodgood, comprising 230 acres of land, a residence and numerous outbuildings, at Oscawanna on the Hudson River, and will turn the property into a hospital for the treatment of nervous diseases. The property was held at $100,000.—— It is announced that the Municipal Hospital, Buffalo, will be converted into a detention home.——Plans have been completed for a new building to be erected at St. John's Hospital, Brooklyn, at a cost of $220,000.——An addition will be erected at the New York Orthopedic Dispensary and Hospital at White Plains in the near future.

New York City

Negro Health Week.—The week of September 27-October 4 was Negro Health Week in Harlem, held under the auspices of the Harlem Health Information Bureau. Dr. James Alexander Miller, president of the New York Tuberculosis Association, gave an address at the first meeting in the public library, and stated that three times as many negroes as white persons died in New York City every year of tuberculosis. The death rate from tuberculosis in 1921, Dr. Miller announced, was 299 for each hundred thousand negroes, as against 97 for each hundred thousand white persons.

OHIO

Physician's License Revoked.—The license of Dr. William Agnew, Akron, has been revoked by the state medical board, it is announced. Dr. Agnew was charged with unethical practice.

Ohio State University.—Fifty-two additional members for the Ohio State University faculty have been announced for the coming year. Among these, the college of medicine will have Dr. Robert W. Nosker as assistant professor of ophthalmology; Dr. Link M. Murphy, assistant professor of medicine; Dr. Russell G. Means, assistant professor of otolaryngology; Dr. Harry W. Hughes, technical physician; Dr. Holway D. Farrar, instructor in surgery, and Harold E. Lowery, laboratory assistant in bacteriology.

Illegal Practitioners Fined.—It is reported that C. A. Young, charged with receiving $125 for treatment of a cancer, was fined $100 and costs in Youngstown, recently. P. B. Derr, alleged to have received $70 for treatment of nervous trouble, was fined $200 and costs, and George Fink, charged with bleeding the patient whom Derr had previously treated, was fined $100 and costs. Against the "Rev. Dr." G. Schuster, there were three specific charges, one of which was for treatment of Frank A. Dorsey, state medical board inspector, who went to Schuster for treatment to secure evidence. Schuster pleaded not guilty and gave bond. One of the men who pleaded not guilty is said to have practiced a combination of alleged divine healing, fortune-telling and medical cure. When a patient visited him, he would first read the Bible, then deal a pack of cards and from deductions made from these maneuvers, prescribe for the patient.

Personal.—Dr. Laurence A. Connell, Orwell, has been appointed county health commissioner of Trumbull County. He will reside at Warren.——L. A. Pechstein, Ph.D., director of the department of psychology and education of the University of Rochester, has been appointed dean of the College for Teachers of the University of Cincinnati.——Dr. Desider Foldes, Cleveland, sailed, October 3, for Hamburg, Germany. ——Dr. Martin H. Fischer, professor of physiology in the University of Cincinnati, has been elected a foreign member of the German Leopold-Carl Academy of Scientists, in the division of scientific medicine.——Dr. Charles P. Emerson, dean of the Indiana School of Medicine, Indianapolis, and Dr. Allen Graham, Cleveland, delivered addresses before the Academy of Medicine of Cleveland, October 20.——Dr. Stanislas W. Smolik, following a trip to Europe where he spent considerable time at the University of Prague, will return to Cleveland this month.——Dr. Robert H. Grube, health officer of Xenia and Greene County, has resigned from these positions.——Dr. Carl L. Mueller, Wapakoneta, has been appointed district health commissioner for Auglaize County to succeed Dr. George L. Lyne, effective, Jan. 1, 1923.

PENNSYLVANIA

Personal.—Dr. Alfred W. Brinham has been appointed to the Scalp Level Borough Board of Health.——Dr. Lincoln S. Brown has been appointed chairman of the board of health of Dormont. Dr. Thomas M. Stahlman, formerly chairman of the board, resigned recently.——Dr. Irvin D. Metzger, Pittsburgh, and Dr. Calvin L. Johnstonbaugh, Bethlehem, have been reappointed members of the Pennsylvania Bureau of Medical Education and Licensure for the next three years ——Dr. Harry E. Gettier has been appointed medical inspector of public schools of Littlestown, to fill the vacancy left by the death of Dr. R. H. Lindaman.

New State Clinic.—A new state and national free clinic, to be known as the Genito-Urinary Clinic, has been established in Oil City by the U. S. Public Health Service, in cooperation with the division of venereal disease of the state department of health. The establishment of this clinic has been made in conjunction with the Oil City Hospital, which was given authority to appoint a physician to take charge of this part of the work. Acting Asst. Surg. S. Leon Gans, director of the state division of venereal disease at Harrisburg, will be in direct control of the work, and Dr. W. Forrest Sharpnack, Oil City, will be in charge.

Hospital News.—The Bryn Mawr Hospital is erecting a maternity hospital, which, when completed, will increase the number of medical internships to four each year.——The new Waynesboro Hospital was formally opened to the public, October 2. More than 10,000 people attended the dedicatory ceremonies. Dr. Thomas S. Cullen, professor of gynecology, Johns Hopkins University, Baltimore, gave an address. Dr. Richard F. Kieffer, Baltimore, will be visiting surgeon to the institution.——A committee has been appointed to confer with the Cambria County commissioners in the drawing of plans and the building of a county hospital for the care of tuberculous patients. Dr. William G. Turnbull, Cresson, is chairman. A site for the hospital has been purchased, 2 miles west of Ebensburg on the William Penn Highway, at a cost of $23,000. The plans call for a 100-bed institution, which can be increased to 200 if necessary.

Resolutions Regarding Maternity Law.—Acting under instructions of the Lycoming County Medical Society, Dr. Charles J. Cummings presented the following resolution anent the Sheppard-Towner Maternity Law to the house of delegates of the Medical Society of the State of Pennsylvania, Scranton, October 3. The resolution was unanimously adopted:

> The Medical Society of the State of Pennsylvania met at Scranton, Pa., October 3-6, in regular session, hereby declares itself in full agreement with the St. Louis declaration of the American Medical Association, which vigorous denunciation was, in effect, partly as follows: "The Sheppard-Towner Maternity Law is but a measure of mere political expediency; an imported socialistic scheme, totally out of harmony with and entirely unsuited to our form of government, which would impose an unjust and inequitable tax burden, in that it compels the people of one state to share the obligations of others."
>
> The Medical Society of the State of Pennsylvania believes that the commonwealth is fully competent to regulate and properly adjust its own maternity problems. It is opposed to meddlesome federal interference in affairs of this nature, which it believes to be strictly the concern of the state and of which the state is the proper arbiter.
>
> We respectfully request the governor of Pennsylvania, and the next legislature, when in session met, to refuse to accept the Sheppard-Towner Maternity Law.

Philadelphia

Pediatric Society Meeting.—The twenty-fifth anniversary of the Philadelphia Pediatric Society was celebrated recently, with a dinner at the City Club. There were talks by former presidents of the society.

Charities to Fight Tax on Bequests.—An effort to obtain the repeal of the state collateral inheritance tax of 10 per cent. on all charitable bequests will be made by a special committee appointed, October 12, by the Philadelphia Hospital Association, which will confer with members of the legislature and the new governor.

SOUTH DAKOTA

Health Exhibition.—The state board of health held a health exhibition at Mitchell the week of September 30-October 7. Posters showing the work of the South Dakota Public Health Association were shown and pamphlets on venereal disease control, infant welfare, sanitation, drainage, home hygiene and general health were distributed. The posters made by the public school children in the contest last year were also displayed.

TENNESSEE

Hospital News.—The Belle Norris Hospital, Savannah, a municipal institution, was opened recently.——The Civitan Club of Lenoir City is laying plans for the erection by the city of a hospital in the near future.——Drs. E. D. and E. T. Newell, owners of the Newell Sanatorium, Chattanooga, have purchased the Keystone Lodge for $33,000.

UTAH

Personal.—Dr. Mark Brown, roentgenologist at the Dee Memorial Hospital, Ogden, has been appointed state examiner of Utah and the surrounding states by the American Roentgen-Ray Society. Physicians specalizing in roentgenology and desirous of becoming members of the national society will be required to pass an examination, conducted by Dr. Brown, before being admitted to the society.

Utah Public Health Association.—The fifth annual meeting of the association was held in Salt Lake City, October 5, under the presidency of E. O. Howard. Dr. Warren A. Colton, U. S. Public Health Service, and Dr. Harry A. Pattison, medical director of the National Tuberculosis Association, New York City, delivered addresses. On motion the same officers of the association who have served the last year were reelected.

Physician's License Returned.—In an opinion handed down by the state supreme court, October 4, in Salt Lake City, annulment of the license of Dr. Charles Y. Moorehouse, made by the state department of registration on the complaint of the state board of health, was set aside, it is reported. Dr. Moorehouse was charged with failing to report in writing to the health officer the existence of a case of infectious disease which he was treating at Junction in 1920. On complaint of the state health department, the department of registration revoked Dr. Moorehouse's license to practice medicine. The supreme court ordered the department to reinstate the license in full force and effect.

VERMONT

New England Surgical Society.—At the annual meeting of the society in Vermont, September 22-23, the following officers were elected: president, Dr. John F. Thompson, Portland, Me.; vice president, Dr. Lyman Allen, Burlington; secretary, Dr. Philemon E. Truesdale, Fall River, Mass., and treasurer, Dr. Peer P. Johnson, Beverly, Mass. Dr. Eugene H. Pool, New York, spoke on "Injuries to the Spleen."

VIRGINIA

Virginia Valley Medical Association.—At the annual convention of the association in Clifton Forge, Dr. Hunter H. McGuire, president of the Winchester Memorial Hospital, was elected president; Dr. John M. Emmett, Clifton Forge, vice president; Dr. A. F. Robertson, Staunton, secretary, and Dr. John M. Biedler, Harrisonburg, treasurer.

New University Medical Society.—A medical literary society will be organized in the University of Virginia, Charlottesville, modeled after the Osler Historical Society, at the Mayo Clinic. The purpose of the organization will be to promote the mutual understanding and more intimate contact among the medical students and to give them the opportunity to develop their ability in the lines of public speaking and extemporaneous discussion.

WASHINGTON

Hospital News.—Plans have been completed for a modern hospital of frame construction on English cottage lines to be erected at Newport this fall at a cost of approximately $20,000. The hospital will be a community enterprise, built under the name of the Newport Hospital Building Association, and will be erected on a site donated by the Panhandle Lumber Company.——A new hospital building will be erected at the Leavenworth Hospital, Leavenworth, of which Dr. Albert Lessing is superintendent, at a cost of about $25,000.

WEST VIRGINIA

Addition Under Construction for King's Daughters' Hospital.—An addition is being erected at the King's Daughters' Hospital, Martinsburg, at a cost of approximately $25,000. New quarters for the nurses and a banquet room are also under construction.

Illegal Practitioner Fined.—The *West Virginia Medical Journal* states that V. W. Varmadoo, African herb "doctor" of Roanoke, Va., was arraigned recently before Judge Meeks at Williamson on the charge of illegally practicing medicine. He had obtained a county license from the sheriff entitling him to sell his medicine, but yielded to the persuasion of one of his "patients" to make a professional call during which he signed himself as "Dr." Varmadoo on a sick benefit certificate. He was fined $50 and costs.

WISCONSIN

Joint Medical Meeting.—A joint meeting of the medical societies of Forest, Florence, Marinette and Menominee counties was held at the home of Dr. William H. Dohearty, Peshtigo, recently.

Hospital News.—The property erected during the war at Washburn for the Haskell Club is now being remodeled into a hospital, which will be opened in the near future by the Washburn Hospital Association.——Plans to make Trinity Hospital a charity institution and to erect an addition to it, were made at a meeting of thirty physicians, members of the staff, at Milwaukee. Public donations to obtain 200 free beds in the institution will be sought at once. All medical attention will be free of charge to patients unable to pay.——The Sisters of St. Catherine of Racine have purchased the Uehlein residence on Galena Street, Milwaukee. It will be converted into a hospital.

CANADA

Radium for Quebec.—The Province of Quebec, it is reported, has purchased 1 gram of radium, at a cost of $100,000, from the United States Radium Corporation, for the treatment of cancer.

Health News.—Owing to the number of deaths recently reported from tetanus poisoning, all the catgut in the Toronto city hospitals has been collected by an order from the chief coroner, and an investigation will be held, it is reported.

Institute for the Blind.—The Canadian Institute for the Blind recently opened a department for the administration of massage treatment and other forms of physical therapeutics, at Pearson Hall, Toronto, under the supervision of Dr. D. J. McDougall. Treatments will be given at these quarters, or masseurs will visit patients on prescription of a medical practitioner.

French Scholarships for Canada.—The French government has offered a number of valuable scholarships to Canadian universities, including the universities of Toronto, McGill, Laval and Ottawa. The winner of a scholarship will spend the next academic year in France. The scholarship has a value of 6,000 francs, with an additional 1,000 for traveling expenses.

Personal.—Dr. Robert D. Defries is acting professor of hygiene in the University of Toronto during the absence of Prof. John G. Fitzgerald, who will spend the winter in California, where he will lecture at the University of California.——Dr. Daniel C. Lochead, Gull Lake, Saskatchewan, has been appointed field secretary of the Minnesota Public Health Association.——Dr. C. W. Saleeby, F.R.S., London, chairman of the World League Against Alcoholism, who arrived in New York on the *Majestic* recently, addressed the Methodist General Conference at Toronto on the dangers of alcohol to public health.

Hadwen Heckled at Public Lecture.—On September 22, Walter R. Hadwen delivered, in Montreal, his lecture on "Vivisection." The meeting was attended by many surgeons and physicians who addressed the audience in connection with the lecture, refuting many of the statements which he had made. The Montreal *Gazette* reports that physicians present "contended that the statements made by the lecturer were such a travesty of the real facts that they insisted on telling the audience their side of the question." Following the usual lecture of Hadwen, physicians talked on experimental research and on the use of animals in the control of disease. They spoke of the gains brought about through experimental medicine, and "it was asserted that it (vivisection) had produced incalculable benefits to mankind, and that the lecturer was exploiting the emotions of people and was unreliable in his statements."

GENERAL

Brewers Attack Volstead Act.—Piel Brothers, former brewers, filed suit with the supreme court, Washington, D. C., October 16, attacking the validity of the Willis-Campbell amendment to the Volstead act, barring manufacture and sale of beer as medicine.

Railway Surgeons Annual Session.—The thirty-second annual meeting of the New York and New England Association of Railway Surgeons will be held at the Hotel McAlpin, New York, October 28, under the presidency of Dr. Donald Guthrie, Sayre, Pa.

American Association for the Advancement of Science.—The seventy-fourth annual meeting of the American Association for the Advancement of Science, together with associated societies, will be held in Toronto, Canada, December 27-31, under the presidency of Prof. Eliakim H. Moore, Ph.D., University of Chicago. Prof. L. O. Howard, of the United States Department of Agriculture, is the retiring president of the association.

Child Adoption League.—The State Charities Aid Association announces that the Child Adoption League has been formed in connection with its Child Placing Agency. This league will consist of both adults and children who are interested in helping to find homes for homeless, orphaned, neglected and abused children. The aim of the league is to stimulate the growing interest throughout the country in the welfare of homeless and dependent children.

Renewal of Permits (Form 1447) for Tax-Free Alcohol.—According to Prohibition Circular, No. 285, persons or corporations using tax-free alcohol must file applications for new permits before December 31. In order to facilitate the issuance of permits, the prohibition commissioner asks that applications be filed as far in advance of December 31 as possible. This applies particularly to laboratories in educational institutions and hospitals. Complete information may be obtained from the local prohibition directors.

Dengue Epidemic in Southern States.—Dengue fever has occurred in southern states to such an extent as to constitute an epidemic, it was stated at the headquarters of the U. S. Public Health Service, Washington, D. C., October 3, South Carolina, Georgia, Florida, Texas, Alabama and Louisiana reporting cases. Dr. Dowling reported 2,037 cases in Louisiana, and 1,800 cases are reported from Florida. No efforts are being made to quarantine the states affected. Dr. Charles E. Johnson of Sherman, Texas, recently died from the disease.

Military Surgeons Elect.—Col. Charles Lynch, M. C., U. S. Army, was elected president of the Association of Military Surgeons of the United States, at the close of its annual convention, held at the Walter Reed General Hospital in Washington, D. C. Other officers chosen were: first vice president, Col. Gilbert E. Seaman, Medical Corps, Wisconsin National Guard; second vice president, Senior Surg. J. C. Perry, U. S. Public Health Service; third vice president, Surg.-Gen. E. R. Stitt, U. S. Navy; secretary-treasurer, Col. James R. Church, U. S. Army, retired.

Massachusetts to Test Constitutionality of Sheppard-Towner Act.—The supreme court of the United States has granted the request of the state of Massachusetts for permission to test the constitutionality of the federal maternity law. The process has been ordered returned, Jan. 2, 1923. Massachusetts attacked the law on the ground that it "usurped" authority belonging to the states, and established a system of government "whereby certain governmental functions were performed by cooperation between the federal government and said states," from which Massachusetts is excluded by reason of its assertion of its sovereign rights. To accomplish the encroachment on state rights, the federal government, it is asserted by Massachusetts, offered to make available an appropriation conditioned on expenditures by the different states, and their cooperation in giving effect to the law.

Warren Triennial Prize.—At a meeting of the trustees of the Massachusetts General Hospital, October 13, it was voted that "two prizes instead of one be awarded this year, the first prize to be $500 and the second prize to be $250; the award of the second prize this year, however, shall not be taken as establishing a precedent." There were twenty-one essays submitted, the contestants being from Poland, Germany, Italy, Hungary, England and the United States. The first prize went to the essay, "The Circulation in the Mammalian Bone-Marrow," written by Cecil K. Drinker, M.D., Katherine M. Drinker, M.D., and Charles C. Lund, M.D., all of Boston. A second prize was awarded to the essay, "The Effect of Roentgen Rays on the Nuclear Division," written by James Mott Mavor, M.D., Union College, Schenectady, N. Y. A second prize was awarded this year because of the difficulty in determining the relative merits of the first two papers.

LATIN AMERICA

The Forero Prize.—The *Repertorio* of Bogotá relates that at the celebration of the semicentennial of the National Academy of Medicine of Colombia, the Manuel Forero prize was founded. It is to be awarded for the best scientific work offered in competition, and our exchange is urging the physicians of the country to compete.

French-Latin American Society.—Under the name of Umfia (Unión Médica Franco-Ibero-Americana), there has been organized in France, a society of French physicians knowing Spanish or related to Spanish-speaking physicians in Spain or Latin America. Dartigues, the vice president of the Paris medical society, is the president, and Dr. Mathé, rue Demours, 29 bis, Paris, is secretary.

South Americans Aid Cancer Drive.—Representatives of the Argentine republic have announced their intention to inform their governments of the manner in which the cancer campaign is carried on in the United States. Minister Dominici of Venezuela is having the literature of the campaign of education regarding cancer translated into Spanish, to be sent to that country for educational purposes.

Memorial Tribute to Laveran.—The *Revista de Ciencias Médicas* reports that the faculty of medicine of the city of

Mexico recently organized a ceremony in honor of the memory of Laveran, the French army surgeon who discovered the malaria parasite. Representatives of various scientific societies, the directors of the faculties and the dean of the university took part in the tribute. Laveran died in May.

Personal.—Dr. A. Quiñónez Molina of San Salvador has presented a collection of medical textbooks to the library of the Salvador Medical School.——Dr. R. Núñez Isaya of Venezuela has been made a member of the French Society of Ophthalmology. Dr. Núñez recently reported to the society the first case of ocular myiasis in France.——Dr. Giménez Cruz of Bogotá is at present at the head of the Colombian cabinet.——Dr. F. del Valle Atiles, editor of the *Bulletin of the Porto Rico Medical Association,* has returned to San Juan, after spending several years in New York City.——Dr. Carlos E. Roe, a gynecologist and surgeon at Madrid, is secretario de redaccion of the *Medicina Ibera*, which was founded six years ago. He is now visiting his old home, Lima, Peru.——Dr. V. Delfino of Buenos Aires, editor in chief of the *Semana Médica,* has been elected corresponding member of the National Academy of Medicine of Colombia.

FOREIGN

Golden Wedding of the Subscribers to the "Siglo Médico."—The *Siglo Médico* of Madrid has elected to honorary subscribership those subscribers who have been taking it regularly for fifty years.

Congress of Moral Ideas.—Three physicians are among the organizers of the Congrès belge des idées morales, which is to convene the last of this month at Brussels. The *Scalpel* states that it will bring together an élite of intellectuals and thinkers interested in ideas of moral progress.

The Endowment for the Lister Prize.—The fund collected by international subscriptions in honor of Lister is to be used to provide a prize of 2,500 pounds and a bronze medal, to be awarded triennially on his birthday for the most important progress in surgery, regardless of nationality.

Cajal in Automobile Accident.—Our Spanish exchanges relate that Prof. Ramón y Cajal received two superficial cuts on the head in an automobile accident in September, but they were not serious. He was returning from a sitting with the sculptor who is making a statue of him for the University of Zaragoza.

Society of Massage and Medical Gymnastics.—The annual meeting of the society was held in London, October 5-7. Lectures were given by Sir W. Arbuthnot Lane, Sir. Maurice Craig, Prof. Winifred Cullis, Dr. Walter J. Turrell and Mr. R. C. Elmslie, F.R.C.S., at Steinway Hall, and lecture demonstrations were given at St. Thomas' Hospital.

Dr. Grenfell's Mission Ship Sinks.—The *Strathcona*, Dr. Wilfred Grenfell's mission ship, after twenty years of service, sank off the coast of Cabot Island, October 2. Dr. Grenfell founded the Labrador Medical Mission in 1892; and this disaster calls for substantial interest in the work of the mission. Dr. Grenfell is in Europe at the present time.

National Historical Congress. — The Netherlands has a society for study of the history of the sciences, and it holds an annual meeting and exhibition. Prof. M. Neuburger of Vienna is to address the medical section at the meeting which is to be held this year at Gorinchem, October 22. He is professor of the history of medicine at the University of Vienna.

New Japanese Journal of Biochemistry.—The first number, January, 1922, has just appeared of the *Journal of Biochemistry*, published at Tokyo. It contains contributions from Japanese lecturers, written in English, French and German. It is published quarterly, 500 pages constituting a volume. The publication is edited by Samuro Kakiuchi, professor in the Tokyo Imperial University.

Psychanalytic Congress.—At the Psychanalytic Congress recently held in Berlin more than 250 persons attended from all parts of the world. Thirty papers were presented in German, English and French. A large contingent attended from England led by Ernest Jones. Among those from America were: Drs. Fred J. Farnell, Providence, R. I.; Horace W. Frink, New York; Mrs. Blumgart, New York, and George Morgenthau, Chicago. An International Psychanalytic Congress is scheduled for Baden-Baden in April, 1924.

Hongkong University College of Medicine. — Owing to a gift of approximately £60,000 ($300,000) to Hongkong University, last spring, for the creation of a modern school of medicine, with chairs of medicine and surgery, the curriculums of anatomy and surgery have been separated. Professor Digby will continue to hold the latter chair, while Dr. J. L. Shellshear, Sydney, Australia, has been appointed to the chair of anatomy. The chair of medicine, which calls for a candidate not exceeding 35 years of age, has not yet been filled.

Manson Memorial Medal.—Lady Manson was the recipient, September 26, of the first presentation of the medal struck in memory of Sir Patrick Manson, from funds collected by the Manson Memorial Fund, of which Sir William Leishman is chairman. This medal, which is in bronze, bears on the obverse a profile of Sir Patrick, and the device "Tropical Medicine and Hygiene." It will be presented triennially to any specially distinguished worker in tropical medicine, the recipient to be selected by the Council of the Royal Society of Tropical Medicine and Hygiene.

Foreign Books and Journals in Germany.—The university authorities in Germany have issued an appeal to all persons who have been recently given books or journals from other countries, to allow other persons to have access to them. They ask to have the data sent by postcard to the information bureau of the Union of German Libraries (Unter den Linden 38, Berlin). The data will then be card catalogued and will be ready on demand. The necessity for allowing others to use the donated books was emphasized by Dr. Simon Flexner of the National Education Board, on his recent visit to Berlin.

International Odontology Congress.—The Eleventh International Congress of Odontology convened at Madrid, Sept. 4, 1922. There were more than 400 delegates present, including Drs. Brophy and Kirk from the United States, one from Japan, Sweden, Austria and Argentina, Dr. Rojo from Mexico, and two each from Germany, France, England, Belgium, Italy and the Netherlands. The *Medicina Ibera* mentions that, at the operative session of the congress, Dr. Brophy performed a brilliant staphylorrhaphy operation. The congress lasted the entire week, and various excursions followed. The next gathering of the kind was appointed for Zaragoza in 1925.

Epidemic Conditions in Europe.—The U. S. Public Health Service has received from the Health Committee of the League of Nations at Geneva, Switzerland, a report calling attention in a forceful manner to the chaotic conditions that exist in certain parts of Europe. The report deals with the widespread prevalence of disease and the necessity of guarding the people of west Europe from these dangers. In the "epidemiologic intelligence" for September, 1922, two official reports of the Russian government are given as authority for the statement that the percentage in the fall of population varies from 3 in Siberia to as high as 14 for European Russia. An interesting statement was made to the effect that 3,500,000 of the deaths that have occurred in recent years were due largely to the great epidemics. In the districts comprising European Russia, modern Caucausus, Siberia, up to the Bikal, Kirghuz, and the two governments of Ukraine, it is estimated that the population has been reduced from 102,793,000 in 1914 to 93,790,000 in 1920. Normally there should have been an increase of about 12,000,000.

Deaths in Other Countries

Dr. **T. M. Frood,** for many years railroad surgeon of the South African Railways, veteran of the Boer and World wars, was found dead in bed, August 13, at his home in Johannesburg, South Africa, from heart disease.——Dr. **Tadeusz Godlewski,** professor of physics at the School of Technology at Lwów, aged 44.—Sir **James O. Affleck,** examiner in medicine and clinical medicine at the University of Edinburgh and of the Royal College of Physicians; ex-president of the Medico-Chirurgical Society of Edinburgh; specialist in exanthems; died, September 24.——Dr. **Christopher W. Narbeth,** at the Clinique des Alpes, following an appendectomy, September 17.——Major **W. J. Tobin,** R. A. M. C., as the result of an accident while riding, at Enniskillen, Ireland.——Dr. **John Hill** of Milan, Italy, in England, September 8, aged 66.——Dr. **Daniel Birtwell** of Natal, South Africa.——Dr. **Carl Hart,** prosector at the hospital at Schöneberg and noted for his research in pathologic anatomy, aged 45.——Dr. **P. Jacob,** director of a sanatorium near Munich and one of the editors of the *Zeitschrift für physikalische Therapie,* aged 52.——Dr. **Tourneux,** professor of histology at the University of Toulouse.——Dr. **Jourdanet,** radiologist at Grenoble.

Government Services

Vacancies in Medical Corps, U. S. Navy

Extraordinary efforts are being made to secure suitable candidates to fill vacancies in the Naval Medical Corps, according to Surgeon-General Stitt. The constantly increasing shortage of medical officers is becoming a serious problem in the efficiency of the medical department activities. In order to overcome the present shortage of naval medical officers, Surgeon-General Stitt has instructed commanding officers of naval hospitals, medical officers on recruiting duty and others to make special effort to get in touch with recent graduates of Class "A" medical schools, and those about to vacate internships in civil hospitals, with a view of presenting to those of suitable type the advantages offered by a commission in the Navy Medical Corps.

Recommendations on Discharge of Army Officers

Recommendations have been made by Surgeon-General Ireland of the Army that the War Department consider seriously, in connection with the legislative program, an amendment to the Elimination Law, to save certain classes of officers of the Medical Corps from being discharged from the service. Unless the law is amended, many officers of the dental, veterinary and medical administrative corps will have to separate entirely from the Army instead of being transferred to the retired list. It is proposed to relieve this situation by amendment to bills already pending in Congress.

New Program of Veterans' Bureau

Director Charles R. Forbes has announced that a material improvement in the medical service and treatment of disabled ex-service men will occur as a result of the new program undertaken by the U. S. Veterans' Bureau. Construction of new hospitals under the second Langley bill, he reports, will give the bureau a sufficient number of beds, under direct government management and supervised by government medical officers, to assure proper care of all soldier-patients. The list of hospitals projected by the bureau include:

A neuropsychiatric hospital at Northampton, Mass., the groundwork and foundation of which are now being constructed.

A 500-bed neuropsychiatric hospital at Chillicothe, Ohio, the bids for which have recently been received.

A 500-bed tuberculosis hospital at Chelsea, N. Y., to be constructed jointly by the Treasury Department and the U. S. Veterans' Bureau.

The Methodist Hospital at Memphis, Tenn., recently purchased to be used for general medical and surgical cases.

A neuropsychiatric hospital at Camp Lewis, Wash., plans and specifications to be ready before October 15.

A hospital for mental cases at Knoxville, Iowa, now being designed and planned.

A project at Livermore, Calif., for which bids will be ready within the near future.

A tuberculosis hospital at Tupper Lake, N. Y., for which ground excavations have been started.

A hospital at Gulfport, Miss.

A neuropsychiatric hospital, to be erected at Camp Custer, Mich.

A hospital to be constructed at St. Cloud, Minn.

Director Forbes declared that, with these hospitals completed, disabled war veterans will be promptly transferred from all contract hospitals in the country.

Report on Kings Bridge Veterans' Hospital

Administration of the Veterans' Bureau hospital in New York City, known as the Kings Bridge Hospital, was declared to be "clean, intelligent and wholesome" in a report submitted to Director Charles R. Forbes by a special committee appointed to investigate charges of bad conditions existing there, by Representative Rosedale of New York and Major John F. Deegan, commander of the New York department of the American Legion. The committee found that although force had been used in handling three former service men, these cases grew out of the lack of authority on the part of the head of the hospital, a condition which has been remedied. Since the installation of Dr. A. T. Chronquest as medical officer in charge, the committee declared, the institution has been managed in a "clean, intelligent and wholesome manner." The committee making the report was composed of Dr. Guy O. Ireland, chairman, representing the Washington office of the Veterans' Bureau; E. H. Jewett, representing the New York office, and Martin Littleton, New York attorney, representing the public.

Foreign Letters

PARIS

(From Our Regular Correspondent)

Oct. 2, 1922.

The International Council of Scientific Research

Monsieur Emile Picard, perpetual secretary of the Academy of Sciences and president of the International Council of Scientific Research, has just published an interesting article on the work of the council, the creation of which is due to the initiative taken by the Royal Society of London, the Academy of Science of Washington, and the Academy of Sciences of Paris. Toward the end of 1918, representatives of the allied and associated countries proposed the establishment of a central organization about which could be grouped international unions or societies corresponding to the various branches of science. These plans and projects took definite shape at Brussels in 1919, and the foundation of an International Council of Scientific Research, with headquarters in Belgium, was decided upon. Grouped about this central organization, various international scientific societies have been founded, with reference to which the international council may be called on to play the part of scientific adviser, more particularly for the organization of researches requiring the collaboration of several different societies. Since the general assembly held in 1919, invitations were sent out to the neutral nations to take part in the work of the new societies, and a large number of new members have been admitted.

Last July, the second general congress of the international council was held in Brussels (The Journal, Sept. 16, 1922, p. 977). New societies were organized, and some points in the constitution and by-laws were revised. The international societies, numbering nine, founded thus far are concerned with the following subjects: mathematics, astronomy, geodesy and geophysics, pure and applied chemistry, pure and applied physics, scientific radiotelegraphy, biologic sciences, medical sciences, and geography. It will be seen that the principal branches of science are thus grouped about the International Council of Research, the executive committee of which consists, to a great extent, of delegates from the various unions or affiliated societies. At present there are twenty-three countries represented, and for the time being it has not been thought advisable to increase the number.

Licensure in Medicine in France

There are at present two doctorates of medicine in France: a state doctorate and a university doctorate. Only the state diploma gives the right to practice medicine in France. The state diploma is not granted to foreign students. On completion of their studies, they receive only the university diploma. For some time, there has been much excited talk and agitation in opposition to the transformation of university diplomas into state diplomas. It was asserted that the minister of public instruction very readily granted this privilege, and it was rumored that a considerable number of diplomas had already been thus transformed. In reality, as has been shown by an inquiry conducted by the Syndicat médical de Paris, the total number of university diplomas bestowed since the creation of this type of degree is but 1,094, and only forty-four holders of university diplomas have succeeded in securing ultimately the state diploma. Furthermore, it is not accurate to state that a university diploma is transformed into a state diploma. In order to obtain a state diploma, the holder of a university diploma must comply with these three requirements: (1) He must have passed his baccalaureate; (2) he must have become a naturalized citizen of France, and (3) he must take over again and pass successfully the last three examinations

The Participation of Women in Sport Activities

The medical congress on physical education recently held at Vichy adopted the following resolution with respect to the participation of women in sport activities:

> Young women should not take up any form of sport activity without first being prepared for it by systematic, rational physical training. To allow women to take part in sport activities with the intensity and uncontrolled frenzy so often seen at the present day is to court grave physiologic consequences which will jeopardize in a most regrettable way the results sought, not only from the standpoint of the physical and moral development of women and of their general health, but also from the point of view of the amelioration of the race. The participation of women in sports, if it is to have happy results, must be under adequate control and under definitely fixed conditions. Written permission to engage in a given sport should be secured from a competent physician. Young men and women under 20 years of age, who are members of sporting clubs, should be compelled to refrain from taking part in any form of sport, and should confine their activities to general physical education destined to develop the body in an all around manner.

The Relation of Physicians of the Navy Medical Corps to the Strike of the Merchant Marine

On the occasion of the strike of the personnel of the merchant marine, which has extended to all our ports, the members of the "syndicate" of the navy medical corps of Havre and Saint-Nazaire adopted unanimously, at their last meeting, a resolution according to the terms of which the syndicate plans to limit its activity to the study of questions of a professional medical character and to hold itself aloof from the present discussions pertaining to the application of the eight-hour law.

Death of Dr. Léon Faisans

Dr. Léon Faisans, an honorary member of the staff of the Hôpitaux de Paris, died recently at the age of 71. Faisans was a collaborator of Professor Grancher, and had gained a reputation by his works on tuberculosis (more particularly tachycardia of the tuberculous), serofibrinous pleurisy, etc. He also made researches on chronic appendicitis and supported the theory of the epidemicity of appendicitis, claiming to have proved that a close relationship exists between influenza and appendicitis.

Another Victim of Roentgen Rays

Dr. Reiss, roentgenologist of the Hôpital Sainte-Blandine of Metz, has become a victim of roentgen rays. Several years ago, he had to have a finger amputated and later the whole right hand. He succumbed to the effects of the latter operation.

Reorganization of Hospital Laboratories

The municipal council of Paris has issued an announcement that the central laboratories of the Beaujon, Claude Bernard, Hérold, Trousseau and Boucicaut hospitals (likewise the laboratory of Dr. Louis Fournier in the Cochin Hospital) are to be reorganized as *laboratoires de secteur*, which will be called on to make bacteriologic examinations for the various neighboring institutions.

On the other hand, the central laboratories that are now located in the Hôpital des Enfants-Malades and the Hôpital Saint-Louis are to be transformed into general laboratories of the Hôpitaux de Paris, the former to serve institutions on the left bank of the Seine and the latter, institutions on the right bank. These two general laboratories will have a high-class equipment and will assume the responsibility of all the bacteriologic, serologic and anatomicropathologic work that the private laboratories and the *laboratoires de secteur* cannot attend to. The heads of the *laboratoires de secteur* must be candidates for the degree of doctor of medicine, former hospital interns of four or more years' experience, or they must hold the degree of doctor of science. They will receive an annual salary of 6,000 francs, while the heads of the general laboratories will be given an annual compensation of 10,000 francs.

BUDAPEST

(From Our Regular Correspondent)

Sept. 30, 1922.

Acute Articular Rheumatism in Children

At the recent meeting of the Interhospital Medical Federation, a paper was presented on acute articular rheumatism in children. Many authors have reported cases of rheumatism in the very young, although this disease is comparatively rare in children. It is possible that the disease is transmitted with the milk of the wetnurse. The incubation period in such cases is at least four days, the duration of the disease between two and four weeks. Both the duration and the severity of the disease are less in infants than in adults. In the former, it may run its course without any complications; while, in older children, endocardial and pericardial complications, as well as implication of the pleura and nervous system (chorea), are of frequent occurrence. This has been reported by Baudelocque, Rilles, Barber and others. Picot found 50 per cent. of his cases complicated with pericarditis; while Roger asserts positively that every rheumatic child's heart is bound to be attacked sooner or later. The author observed in his case a rather rare complication in the form of an effusion into the maxillary joint.

Local Anesthesia with Epinephrin-Cocain

According to Dr. Konrad, it has long been known that a part rendered bloodless is much easier narcotized; thus, the application of an Esmarch bandage tends to increase the anesthetic property of cocain or procain injected into the bandaged part. Epinephrin is used by Dr. Konrad in the following mixture: To a 5 per cent. solution of cocain hydrochlorate, there was added a 1:1,000 solution of epinephrin in the proportion of 2 drops to each cubic centimeter of the cocain solution. He employed this mixture for local anesthesia in forty-two cases, including lipoma of the external genital organs, phlegmon, epithelioma of the right cheek, cancer of the lower lip, chronic ascites of the ovary, atheromatous tumors of the forehead, fistula of the lower jaw and cancer of the breast. In all of the cases, complete anesthesia was induced. There was an entire absence of any parenchymatous hemorrhage, the anesthetic effect being observed also on the diseased tissues.

Dr. Konrad failed to observe any harmful effects of the mixture on the course of healing; nor were there any immediate toxic symptoms, with one exception. Anesthesia began ten minutes after injection, and lasted for almost two hours, thus enabling the operator to stitch up the wound painlessly. In operating in deep tissues, it is preferable to use weaker solutions of cocain, but in greater quantity. Some authors advise caution in old people and in children. It is a mistake to assume that local anesthesia may be employed only in so-called minor surgery; for, at a recent meeting of Budapest surgeons, reports were made of the successful use of local narcosis in such capital operations as appendicitis, laryngeal tumors and amputation.

The Artificial Interruption of Gestation by Bougies

In a recent meeting of the medical club of a provincial town, Dr. Jakoby read a paper on "The Artificial Interruption of Gestation by Bougies." The paper is based on a series of 228 hospital cases, and the procedure employed is as follows: The patient is given a cleansing bath, and the external genitals are washed with soap and water, but the vagina is not disinfected. The cervix is then seized with one or two bullet forceps and a bougie (diameter 8 to 10 mm.) provided with a stylet is gradually introduced, being guided by the finger, and the stylet is slowly withdrawn. The bougie may be carried up between the bag of membranes and the uterine wall without any trouble. In 191 cases, one bougie was sufficient; in twenty-one, two were necessary; in two, three; and in one, four. The average time before rupture of the membranes took place was twenty-four hours; to the completion of labor, from thirty-one to forty-five hours. The nearer the end of pregnancy the procedure was instituted, the more readily were labor pains elicited.

The morbidity is stated by Jakoby to have been 6.8 per cent. in the 228 cases. Three cases of fatal issue may be ascribed to the method employed, two of these being through sepsis and one through peritonitis. In the latter case, the bougie failed, and cesarean section was resorted to. In 114 cases, pregnancy was interrupted because of a narrow pelvis; in sixty-five of these, labor came on spontaneously; in forty-nine, artificial delivery was found necessary; 65 per cent. of these children lived. As the morbidity rate is not higher than that of institutions in general, the method may be looked on as quite free from danger and affording a favorable outcome for the child. The simplicity of the method and the frequency with which the labor terminates naturally make it superior to the dilating bags, which practically means the introduction of an accouchement forcé or vaginal section.

PRAGUE

(From Our Regular Correspondent)

Oct. 1, 1922.

Venereal Disease Survey

Dr. Hynek J. Pelc presented to the Board for Study and Reform of Health Activities in the Czechoslovak Republic, September 30, a preliminary statement as to the results of a venereal disease survey which he has conducted under the auspices of the ministry of health. The first part of the survey deals with governmental functions pertaining to the campaign. Five ministries now deal with the problem. The survey suggests that an interministerial commission for the campaign against venereal diseases be appointed along the lines of the American Interdepartmental Social Hygiene Board, which would insure the unity of the work. The second part of the survey deals with private organizations which are active directly or indirectly in the fight against venereal diseases. There are two associations for combating venereal diseases in the Czechoslovak republic, one being Czech and one German. While the Czech association deserves credit for the introduction of abolition into the republic, the German association has undoubtedly surpassed it in organization. The survey suggests that the Y. M. C. A. committees which have been organized following the war by Dr. Stastna of New York be reorganized into local branches of the Czech association. The third part of the survey is devoted to educational activities.

A special part is devoted to the question of personal prophylaxis, which is a topic very much neglected in the Czechoslovak republic.

The fifth part of the survey deals with the treatment of venereal diseases. There are chapters on the quackery problem and on the improper advertising of the specific treatment. There are 110 approved specialists for venereal diseases in the republic. There is one specialist for each 16,000 people. There are twenty-six free dispensaries for the treatment of venereal diseases. Most of them are connected with a medical school. Thirty-eight Wassermann dispensaries are available for the laboratory service, thirty-six of which are public and two private. The detailed description of the laboratories, with an analysis of their activities, is followed by the recommendation for the erection of five more Wassermann laboratories, which should serve the districts where the laboratories do not suffice. A standardization of the technic for the Wassermann test is suggested which would make it possible to compare the results coming from different laboratories.

A special chapter is devoted to the treatment in sickness insurance associations, which represent the most important factor for the treatment of these diseases in the republic. Fifty-five per cent. of the people come under the insurance act, the largest proportion of whom live in cities. Therefore, the proportion of the population under the insurance system in cities where venereal diseases are most spread is much larger.

The measures for checking the spread of venereal diseases in maternity hospitals and in institutions for children are described in a special chapter. A very unsatisfactory situation has been found in prisons, where very little attention is being paid to this problem. It is estimated on the basis of the available figures that approximately one tenth of all syphilitics in the prisons are being treated effectively at the present time.

The sixth part of the survey is devoted to prostitution. It is estimated that there are 10,000 prostitutes in the republic, 1,748 of whom were under the system of reglementation, which has been abolished by the recent law. A rate per hundred thousand of population was figured out and presented on a map of the republic, from which it clearly appears that prostitution spreads with the growing density of the population and the development of industry. The seventh part of the survey is devoted to statistics.

The survey, which is accompanied by diagrams and maps, will be printed with English summaries at the end of each chapter. It has been undertaken in the ministry of health, in order to create a solid basis for the execution of the new law regarding venereal diseases, which was accepted by the parliament, July 11, and promulgated, Aug. 22, 1922.

BERLIN

(From Our Regular Correspondent)

Sept. 16, 1922.

The Catalytic Effect of Roentgen Rays

The similarity between numerous biochemical processes and certain catalytic reactions, together with the well-known fact that roentgen rays produce deep-seated biologic changes in the living organism which are accompanied by colloidochemical processes, caused Prof. Robert Schwarz and Prof. W. Friedrich of the Chemical and Radiologic Institute of the University of Freiburg to perform a series of experiments to determine what effect roentgen rays have on the course of catalytic reactions. As stated by the investigators in the Reports of the German Chemical Society, they chose as the simplest catalytic process the decomposition of hydrogen peroxid in water and oxygen by using metallic platinum in colloidal solution as a catalyzer. The numerous experiments showed that roentgen rays act as a "catalyzer poison," in that they effect a change in the character of the surface of the platinum. According to Schwarz and Friedrich, this change is produced by the fact that the roentgen rays, when they strike the various particles of platinum, bring about an emission of electrons which, in turn, decompose part of the water molecules. The investigators believe that the oxygen thus liberated is absorbed by the platinum, a capacity which this metal, as is well known, possesses in a high degree. According to a theory advanced by Professor Haber, with reference to the catalysis of hydrogen peroxid by platinum, the presence of dissolved or chemically combined oxygen in platinum is a prerequisite for decomposition. The platinum is, therefore, actually "poisoned" by the absorption of oxygen brought about by the roentgen irradiation. The workers observed the same toxic action in connection with the roentgen irradiation of an actively catalytic ferment—catalase. Here, as well, the decomposition of hydrogen peroxid, as brought about by catalase, is much reduced; however, no definite and reliable statements concerning the mechanism of this toxic effect can be given, as yet. What importance these observations have for the further development of the chemistry of catalytic processes, especially in their technical application, cannot be exactly foreseen at this time; however, it is possible that roentgen irradiation could be used to retard or completely to check catalytic reactions already under way, whereby intermediary products that are no longer present when the reaction takes its full course could be detected. The "poisoning" of the catalyzers by roentgen irradiation would have the great advantage that the catalyzers so poisoned, as the writers state, attain their former action again in a relatively short time. A further advantage would lie in the fact that the influence can be applied from without, and the addition of foreign substances to the mixture in which the reaction is to occur is avoided. A renewed stimulus to biochemical research and therapeutic treatment by roentgen irradiation can be expected as the result of these investigations. The investigators expect to perform more detailed experiments to determine in how far the effect is dependent on the absorbed ray energy and to what extent on the wave length of the rays employed.

Bad Effect of Economic Distress on the Health of the People

At the meeting in Hamburg of the Verein deutscher Krankenhausärzte, Professor Loening of Halle delivered an address, following which this resolution was adopted:

> German hospital physicians have observed that, in conjunction with the downward trend of the economic life, a serious falling off in the health of the people has set in, so that conditions resemble those that prevailed during the last years of the war. Such a downward movement leads to a shriveling of the psychic forces, and can end only in a new disaster. These adverse conditions threaten also the patients and the hospitals—the larger as well as the smaller—in which there is a scarcity of food, medicine and fuel. Only a quick and satisfactory solution of the economic distress can help out the situation. We call upon the physicians of all lands, mindful of their high calling, to contribute their share toward the restoration of the world's industries, the reconciliation of the nations as regards their mutual relations, and thus to the reestablishment of healthy conditions among all peoples.

Righthandedness and Lefthandedness Among Prehistoric Men

The scientist Sarafin examined, some time ago, a number of implements from the oldest and the most recent periods of the stone age; among others, more particularly the so-called Moustierian scrapers, sharp-edged flint instruments, which were used by the prehistoric inhabitants of the region of Moustier, France. These scrapers still show plainly the marks of usage. As it can be clearly distinguished which portions of the edges of the irregularly shaped implements are most worn, it may be ascertained with which hand prehistoric man was in the habit of working mainly. The investigations, which took various prehistoric implements into account, revealed the fact that men of the older and also of the more recent stone age worked with both hands almost indiscriminately. At the beginning of the age of bronze, however, a very sudden departure from the ancient habit is noticeable, for now almost all work is done with the right hand, as is shown by the fact that the implements show, from now on, the effects of wear in such places as indicate usage with the right hand. It is hard to say what may have been the cause for this sudden change from the uniform use of the two hands. Sarafin assumes that religious motives which possibly ascribed a baser significance to the left hand restricted its use, just as today popular superstition regards the left hand as emblematic of evil, while the right hand is spoken of as indicative of all that is good.

Marriages

Malcolm D. Winter, Miles City, Mont., to Miss Martha Jongewaard of Orange City, Iowa, September 20.

Thomas Hinckley Lanman, Cambridge, Mass., to Miss Gertrude Bradlee of Chester Hill, in September.

William H. Rumpf, Jr., Ann Arbor, Mich., to Miss Dorothy Rosholt of Minneapolis, September 6.

Robert W. Faulk to Mrs. Louise Hansen, both of Monroe, La., September 7, at Bay St. Louis, Miss.

John C. Wilson, Dallas, Texas, to Miss Emily Harrison of Birmingham, Ala., September 20.

Richard H. Miller, Boston, to Miss Georgina Mary Jardine of Moncton, N. B., recently.

Harry Philip Cahill, Boston, to Miss Anne T. Ryan of Bradford, Mass., September 30.

Stephen W. Gryckza to Miss Betty Helen Bellas, both of Hazelton, Pa., September 25.

Stephen C. Redd, Riverside, Ga., to Miss Louise Starr of Atlanta, Ga., September 14.

Charles Merrill Rose to Miss Ferol Irene Mosley, both of Chicago, October 9.

Frank Hill Campbell, Powers, Ore., to Miss Helen Reed of Eugene, August 19.

Wilson James Perry to Miss Ida Primrose, both of Billings, Mont., recently.

John Gabriel O'Malley to Miss Esther Schaaf, both of Chicago, October 10.

Floyd M. Day to Mrs. Lulu M. Phinney, both of Eugene, Ore., in August.

Deaths

Joseph Edcil Winters, New York; Medical Department of the University of the City of New York, 1872; emeritus professor of clinical medicine and pediatrics at Cornell University Medical College; formerly demonstrator and instructor of anatomy at the New York University; member of the American Pediatric Society; at one time connected with the Demilt Dispensary, Bellevue, Willard Parker, Riverside, and Columbus hospitals, New York; died in Boston, October 5, aged 74, following a long illness.

Herbert Threlkeld-Edwards ⊛ Bethlehem, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1892; member of the American Roentgen-Ray Society and the Philadelphia Roentgen-Ray Society; formerly director in the roentgen-ray laboratory, St. Luke's Hospital; said to be the developer of the first roentgen-ray intensifying screen in the United States; died, September 30, aged 52, following a long illness.

Henry Edmund Greene, Crawfordsville, Ind.; University of Michigan Medical School, Ann Arbor, 1891; member of the Indiana State Medical Society; specialized in ophthalmology, otology, laryngology and rhinology; member of the school board; formerly surgeon to the Culver Union Hospital; died, October 2, aged 55, from chronic nephritis.

John D. Anderson ⊛ Minneapolis; University of Toronto Faculty of Medicine, Toronto, Ont., Canada, 1879; L.R.C.P., Edinburgh, 1879; at one time medical director of the Royal Infirmary for Women and Children, Edinburgh; member of the British Medical Association; died, September 30, aged 67, at the Eitel Hospital, from cerebral hemorrhage.

Robert F. Palmer, Frankfort, Ind.; Hospital College of Medicine, Medical Department, Central University of Kentucky, Louisville, 1877; chief surgeon for the Toledo, St. Louis and Western Railroad; founder of the Palmer Hospital, where he died, October 2, aged 67, following a long illness.

Orin Steadman Pine, St. Paul; Bellevue Hospital Medical College, New York, 1870; Civil War veteran; formerly surgeon to the Minnesota Soldiers' Home, Minneapolis; at one time assistant city physician of St. Paul; died, October 2, aged 76, at the City and County Hospital, from heart disease.

George Grover Hatzel, New York; Long Island College Hospital, Brooklyn, 1907; member of the Medical Society of the State of New York; formerly consulting physician to Fordham and Seton hospitals; director of the board of health; died, October 3, aged 38, from cerebral hemorrhage.

John A. Haas, Opelousas, La.; Jefferson Medical College, Philadelphia, 1882; bank president; aged 62; suffered the amputation of his foot, when both legs were broken, following the snapping of a dredge boat cable which struck him, September 27; died, September 30, in a local sanitarium.

Michael Hugh Gleason, Butte, Mont.; Chicago College of Medicine and Surgery, 1917; served in the M. C., U. S. Army, during the World War; aged 32; was drowned when the car in which he was driving plunged into the Willamette River, near Eugene, Ore., September 25.

Henry R. Hickman, St. Louis; Washington University Medical School, St. Louis, 1869; member of the Missouri Medical Association; Civil War veteran; member, and at one time president, of the school board; died, September 28, aged 83, from cerebral hemorrhage.

Hersey Goodwin Locke ⊕ Syracuse, N. Y.; Medical College of Columbia College, New York, 1887; member of the American Medico-Psychological Association; professor of neuropsychiatry at Syracuse University College of Medicine; died, October 6, aged 69.

Frank Lewis Smith, Stafford Springs, Conn.; Medical Department of the University of the City of New York, 1875; member of the Connecticut State Medical Society; formerly city health officer; died, September 26, aged 73, from cerebral hemorrhage.

Robert D. Jones, Summerville, Ga.; University of Georgia Medical Department, Augusta, Ga., 1884; for ten years health officer of Chattooga County, and for eight years chairman of the board of commissioners; died, September 6, aged 68, from tuberculosis.

G. Erwin Brinckerhoff ⊕ Oakland, Calif.; College of Physicians and Surgeons, Chicago, 1885; specialized in ophthalmology, otology, laryngology and rhinology; died, October 3, aged 60, at the Merritt Hospital, from angina pectoris and myocarditis.

John S. Enloe, Bay, Mo.; Hospital College of Medicine, Medical Department, Central University of Kentucky, Louisville, 1888; member of the Missouri State Medical Association; died, September 29, at St. Louis, aged 64, following a long illness.

Mitchell Fernberg, Cincinnati; Miami Medical College, Cincinnati, 1887; member of the Ohio State Medical Association; for many years district physician for the city board of health; died, September 2, at the Jewish Hospital, aged 71.

Charles H. Ansley, New Orleans; Chicago Homeopathic Medical College, 1897; specialized in ophthalmology, otology, laryngology and rhinology; died, October 3, at the Augustana Hospital, Chicago, aged 49, from pernicious anemia.

George Lee Bowne Jarvis, Coopertown, N. Y.; College of Physicians and Surgeons, Baltimore, 1892; died at the home of his sister in Riderwood, Md., September 23, aged 53, from an accidental gunshot wound of the abdomen.

I. C. Talley, Red Oak, Okla. (licensed, Oklahoma, 1908); member of the Oklahoma State Medical Association; died suddenly, September 27, at the bedside of a patient, from heart disease, aged 60.

Russell B. Marr, Filley, Mo.; Washington University Medical School, St. Louis, 1875; member of the Missouri State Medical Association; died, September 3, aged 74, from strangulated hernia, at Vernon Hospital, Nevada, Mo.

John Franklin Edgar, El Paso, Texas; Pulte Medical College, Cincinnati, 1877; formerly president of the Texas Homeopathic Medical Association; died, September 22, aged 72, from paralysis.

Wilbur Riley Thompson, Troy, Ohio; University of Michigan Medical School, Ann Arbor, 1869; member of the Ohio State Medical Association; died, October 2, aged 77, following a long illness.

Joseph Warren Letherman, Hillsboro, Ohio; Western Reserve University School of Medicine, Cleveland, 1876; formerly coroner of Highland Park; died, July 27, aged 73, from paralysis.

William R. Kennedy, Shelby, Miss.; Vanderbilt University Medical Department, Nashville, Tenn., 1900; died, September 22, aged 49, at the Baptist Hospital, Memphis, following an operation.

William Andrew Dolan ⊕ Fall River, Mass.; University of Pennsylvania School of Medicine, Philadelphia, 1882; was found dead in his chair, October 1, aged 64, from heart disease.

Frank Broughton, Toledo, Ohio; Rush Medical College, Chicago, 1884; member of the Ohio State Medical Association; died suddenly, September 17, aged 62, from heart disease.

Louise C. Drouillard, Memphis, Tenn.; Northwestern University, Women's Medical School, Chicago, 1890; died, September 24, at the Baptist Memorial Hospital, Memphis, aged 62.

David William de Muralt ⊕ Portland, Ore.; University of Zurich, Switzerland, 1917; formerly known as William Brunschweiler; died, September 18, aged 34, from pneumonia.

Joseph B. Laughlin, Alliance, Ohio; Starling Medical College, Columbus, Ohio, 1897; died, September 23, aged 49, at the Alliance City Hospital, from carcinoma of the liver.

Matthew Beattie, New York; Medical Department of Columbia College, New York, 1884; aged 62; died, September 19, at his home in Cornwall, from cerebral hemorrhage.

Arthur Clyde Asquith, Denver; Rush Medical College, Chicago, 1894; member of the Colorado State Medical Society; died, September 20, aged 52, from carcinoma.

Rodnia S. Plummer ⊕ Topeka, Kan.; Louisville Medical College, Louisville, Ky., 1883; died, September 26, aged 72, in a local hospital, from chronic interstitial nephritis.

Edmund T. Bainbridge, Nashville, Tenn.; University of Tennessee, College of Medicine, Memphis, 1891; died, September 27, aged 75, from cerebral hemorrhage.

Robert Leroy Douglass, Rodman, S. C.; Medical College of the State of South Carolina, Charleston, 1890; died, September 13, aged 56, from cerebral hemorrhage.

John Douglas Johnson, New York; Medical Department of the University of the City of New York, 1890; died, October 6, aged 62, from heart disease.

John B. Singleton, Cincinnati; Medical College of Ohio, Cincinnati, 1891; aged 60; was found dead in his office, September 22, from heart disease.

Thomas C. Walsh, Syracuse, N. Y.; Albany (N. Y.) Medical College, 1882; died suddenly at his office, September 25, from heart disease, aged 67.

Clarence M. Brownell, Stroudsburg, Pa.; Hahnemann Medical College of Philadelphia, 1883; died, September 20, aged 63, following a long illness.

Samuel L. Van Buskirk, Philadelphia; Jefferson Medical College, Philadelphia, 1887; died, September 27, aged 58, following a long illness.

Cyrus Oscar Callison, Holly, Colo.; University of Colorado School of Medicine, Denver, 1911; died, September 24, aged 41, from heart disease.

Samuel E. Wertman ⊕ Mahanoy City, Pa.; Jefferson Medical College, Philadelphia, 1889; died, September 29, aged 55, from chronic nephritis.

James Florus Huntley ⊕ Oneida, N. Y.; Medical Department of the University of the City of New York, 1877; died, September 19, aged 67.

Le Verne A. Badger, Toledo, Ohio; University of Buffalo, Department of Medicine, 1875; died, September 25, aged 76, from heart disease.

William Everett Davis, Springfield, Mass.; International Electropathic Institution, Mentor, Ohio, 1887; died, September 29, aged 57.

Ira N. Bishop, Brunswick, Ga.; Miami Medical College, Cincinnati, 1874; died, September 22, aged 70, at the Brunswick Hospital.

Charles E. Johnson, Sherman, Texas; Pulte Medical College, Cincinnati, 1881; died, September 23, aged 71, from dengue fever.

Flavius J. Greer, Wolbach, Neb. (licensed, Nebraska, 1891); formerly a druggist; died, September 26, aged 82, from senility.

Guy Henry Horwell, Cleveland; Homeopathic Hospital College, Cleveland, 1890; died suddenly, September 23, aged 58.

Clara M. Moore, Denver; University of Colorado School of Medicine, Denver, 1897; died, September 26, aged 51.

John W. Bright, Philadelphia; Jefferson Medical College, Philadelphia, 1880; died, September 22, aged 68.

Walla M. Kirk, Boon, Miss. (licensed, Mississippi, 1908); died recently, aged 76, at Clayton, from ascites.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

CLEARO

A Fraudulent Consumption Cure Is Debarred from the Mails

"Clearo" was a "patent medicine" sold on the mail-order plan by one C. E. McCuistion, 612 Woodin Boulevard, Dallas, Texas, who did business under the trade name "The Clearo Company." McCuistion claimed that, when a young man, he was afflicted with tuberculosis and was cured by a simple herb medicine prepared by the Choctaw Indians. He claimed to have discovered what this herb was and how it was prepared and to have greatly improved the preparation. In the advertising matter, consisting of booklets, pamphlets and circulars, Clearo was held out as a cure for tuberculosis, asthma, bronchitis, hay fever and serious throat and lung troubles. Of course, the composition of Clearo was kept secret and the whole tenor of the representations made with respect to it was calculated to deceive persons into believing that Clearo had some mysterious virtues not possessed by other known drugs. These facts and the information that follows are contained in the memorandum of Judge John H. Edwards, Solicitor to the Post Office Department, in his memorandum to the Postmaster-General under date of June 23, 1922.

On April 21, 1922, the Clearo Company was ordered by the Post Office Department to show cause on or before May 16, why a fraud order should not be issued against it. No one connected with the concern appeared on the date named, nor was it represented by an attorney, but a written answer was filed by W. H. Hall of Dallas on behalf of the Clearo Company.

The postal authorities submitted specimens of Clearo to the Bureau of Chemistry for analysis and Dr. L. F. Kebler, Chief of the Drug Division of that Bureau, filed a report of the results of the examination of the preparation. According to Dr. Kebler, Clearo was an amber-colored, bitter liquid, containing over 98 per cent. water and alcohol with a trace of other volatile matter. The nonvolatile matter comprised only 1.92 per cent. of the total. The preparation contained traces of tannin and bitter plant principles, but no potent alkaloids. McCuistion claimed that part of the virtues of his nostrum resided in the volatile matter, but, as Dr. Kebler pointed out, the amount of volatile oil was a negligible quantity and could not possibly have any effect on the diseases set forth in the printed matter describing Clearo. The report showed that Clearo was of no value whatever in the treatment of tuberculosis.

In the written answer filed on behalf of the Clearo Company by W. H. Hall there was a copy of what purported to be a report and chemical analysis made of the alleged "Indian herb" said to be used in Clearo by one A. C. Herting of Camden, N. J., who styled himself "General Industrial, Experimental, Pharmaceutical, Bacteriological, Physiological, Analytical and Research Chemist." This "report" showed that the preparation contained tannin but admitted that it "contained no other medicinal constituents."

Judge Edwards' memorandum further states that the evidence showed that McCuistion personally compounded Clearo, although it failed to show that this man had ever had any training along medical lines such as to qualify him to engage in such work. The memorandum reproduces, as written, a letter from McCuistion from which it is obvious that the man "has very little education." In summing up the case against McCuistion, Judge Edwards says:

> "The evidence shows that McCuistion is not in any way qualified to undertake the treatment of diseases that baffle the skill of the most expert medical scientists; that he has not discovered anything new or useful in the way of medicine, but that this is just another of the many schemes that have been devised by unscrupulous mail-order promoters whereby persons suffering from dangerous diseases have been induced, by means of cleverly worded representations, to rely on such mail-order treatment, and thus lose precious time in obtaining proper treatment."

As a result of this investigation the Solicitor recommended that the Postmaster-General issue a fraud order against the Clearo Company because the concern was engaged in a "scheme for obtaining money through the mails by means of false and fraudulent pretenses, representations and promises." The fraud order was issued July 18, 1922.

Correspondence

CAPPER'S WEEKLY AND THE GREAT AMERICAN FRAUD

To the Editor:—An editorial appeared in the Fairmont (Minn.) *Daily Sentinel* for October 6 criticizing *Capper's Weekly*, the personal organ of Senator Arthur Capper from Kansas. On reading the senator's publication, one is shocked at the class of the medical advertising contained therein. Here is part of the *Sentinel's* editorial:

> But our chief grievance against Senator Capper is not as a statesman and a legislator, but as a newspaper publisher and proprietor.
>
> *Capper's Weekly*, Senator Capper's own personal organ, claims a circulation of 700,000. Senator Capper writes extensively for every issue, and it is touted as "a Champion of Human Welfare and the Square Deal." A recent issue before us contains a lengthy article, over a facsimile of the senator's signature, in which he expresses deep concern for boys and girls, and in chaste and beautiful English, gives advice which he hopes will save them from the allurements of a giddy life and impress them with the importance of studious self-denial and rectitude of conduct.
>
> But in the same paper containing saintly precepts and homilies on right living, what de wo find?
>
> Column after column of the vilest, lowest, beastliest, most misleading, deceptive, dishonest and debauching advertisements of nostrums and alleged cures of diseases that are contained in any paper in the United States that is permitted to circulate through the mails.
>
> There isn't a publisher in Minnesota so unscrupulous and grasping as to consider for a second any one of more than fifty advertisements that disgrace Senator Capper's paper and that have defiled its columns for more than a year.
>
> The medicines and cure-alls that are advertised are grossly and cruelly false and delusive and have been black-listed and discredited by every reputable physician in the country.
>
> They appeal only to the poor and ignorant, suffering from maladies which skill and science and accredited diagnosticians are competent to deal with.
>
> Senator Capper is selling his name and fame to the dirty scoundrels who advertise these discredited concoctions which not only do no one a particle of good, but inflict upon the victims habits and appetites that inevitably lead to ruin and disgrace.
>
> We declare in all earnestness that the class of advertising which the Capper paper contains should not only exclude it from the United States mails, but should ostracize it and its publisher from every respectable household. Any one who questions this statement is requested to procure a copy of the Capper paper and submit the advertisements it contains to a reputable physician.
>
> According to the published rates of *Capper's Weekly* these advertisements bring Senator Capper a handsome fortune every month. What it brings the deluded victims would hardly dovetail with the paper's motto: "A Champion of Human Welfare."
>
> This paper has no objection to Senator Capper's coming to our state to preach pure politics, but a man who is most shamefully and brazenly humbugging his innocent and confiding patrons is not entitled to the respect and consideration of honest voters.

The *Daily Sentinel* has for years refused such advertising as is referred to above and, to my knowledge, has turned down contracts that have amounted to thousands of dollars.

R. C. HUNT, M.D., Fairmont, Minn.
Secretary, Blue Earth Valley Medical Society.

[COMMENT.—The caustic comments of the Fairmont *Daily Sentinel* caused us to purchase some recent issues of *Capper's Weekly*. Cures for cancer, epilepsy, goiter, piles, asthma, the whisky habit, "rheumatism," baldness and rupture; "weak men" cures, a "Vacuo-Invigorator" ("instrument sent in plain wrapper") the "Bee Cell" uterine "supporter"—these are but a few of the fakes featured in this self-styled "National

Weekly of a Great Nation." According to the editorial page, "*Capper's Weekly* stands for a square deal for all"—and then advertises that if diabetics take "Eksip" they do not need to diet! "*Capper's Weekly* stands for making prohibition world-wide"—and advertises nostrums whose most potent ingredient is alcohol and containing from 15 to 18 per cent. of this ingredient! "*Capper's Weekly* stands for laws to prevent price gouging"—and advertises a nostrum, for making childbirth easier, containing a few cents' worth of oil and selling for a dollar and a quarter! "*Capper's Weekly* stands for the stripping of waste" from the public service—and perpetuates the most monstrous form of waste known to modern civilization, that of the iniquitous "patent medicine," and obtains no small proportion of its advertising receipts from such perpetuation.—Ed.]

DIAGNOSIS OF SYPHILIS FROM PRIMARY LESION

To the Editor:—There is a simpler and, I believe, no less efficient method of securing material from a syphilitic lesion for microscopic examination than that described by Dr. William D. Gill in The Journal, September 16, and that of Dr. J. B. H. Waring, described September 30. This method, which I have used and found satisfactory, is merely to use a test tube of appropriate size as a dry cup. The lesion is washed with water, and the surrounding skin left moist to secure adhesion. The dry tube, firmly held at its open end, is thoroughly heated and so applied immediately that its rim is in contact with the skin around the edges of the lesion. When the lesion is on the penis, the patient assists by drawing the skin taut with his thumbs, while his index fingers make counterpressure on the under surface of the organ. One may watch the result through the glass, and terminate it when a sufficient amount of serum has gathered or blood exudes. To obtain the secretion, a capillary tube is helpful. It is so drawn that one end is slightly expanded. The material is taken up into the narrow end; and while this is held over a slide, the expanded end is held in the flame until it fuses. The heated air within will then force the serum upon the slide. The tube should be about 4 inches (10 cm.) long.

Melville Silverberg, M.D., San Francisco.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

TYPHOID VACCINATION BY MOUTH

To the Editor:—I am enclosing a clipping for comment. Typhoid and paratyphoid are quite common here, and it would be interesting to know whether there is any virtue in this article.

C. E. Jumper, M.D., Torreón, Coahuila, Mexico.

Answer.—The clipping purports to describe the extensive trials of Besredka's method of vaccination by mouth recently made in the region of Neuvireuil and Frémicourt in northern France, where typhoid was epidemic. This work was described in detail by Vaillant in the *Annales de l'Institut Pasteur* (February, 1922, p. 249), and reviewed by Besredka in the *Paris médical* (June 3, 1922, p. 463; abstr. The Journal, July 8, 1922, p. 165). Out of a total population of 2,000, 1,236 were inoculated against typhoid by the mouth with Besredka's *vaccin bilié;* 173 were vaccinated subcutaneously, and between 600 and 650 remained unvaccinated. Among the unvaccinated, 7.7 per cent. contracted typhoid fever, and 2.3 per cent. among those inoculated subcutaneously. Among the vaccinated by mouth, three developed the disease while vaccination was still in progress or immediately afterward, and two, or 0.17 per cent., ten days after completing the vaccination. Besredka's bile vaccine consists of a pill of bile and a tablet containing a mixture of heat-killed typhoid and paratyphoid bacilli. These are taken three mornings in succession. Besredka states that this first trial of antityphoid vaccination by mouth was very encouraging. Dopter (*Paris médical,* June 3, 1922, p. 454), while granting that much, adds that it is for the future to determine whether the method has value.

HEMORRHAGIC MALARIA

To the Editor:—Will you be kind enough to explain: 1. What is the place assigned to the term "hemorrhagic malaria" in nosology? 2. In case there is such a disease, may it be mistaken for yellow fever?

X Y Z., Mexico.

Answer.—1. In the "Manual of the International List of Causes of Death" (Washington, 1922), "Hemorrhagic Malaria" is listed as one of the subheadings of the general title "Malaria." It is generally discussed in textbooks in the chapter on malaria, and is classified as blackwater fever, hemoglobinuric fever and malarial hemoglobinuria under the general heading of "Hemorrhagic Forms."

2. In the early stages of an epidemic of yellow fever, cases may be mistaken for malarial fever. The absence of early jaundice should be noted, as the color of the skin is rarely changed within four or five days, even in the most intense types of malarial infection. In hemorrhagic malaria the patient has usually had previous attacks of malaria. Hematuria is a prominent feature, while in yellow fever it is not frequent. Of course, examination of the blood for malarial parasites provides conclusive evidence.

Carter (Supplement 19 to *Public Health Reports,* Sept. 11, 1914) adds:

> The differential diagnosis for malaria is, as a rule, fairly easy. Only do not lay too much stress on the plasmodia. If you do not find any plasmodia and the patient has not taken quinin, negatively the sign is of great value. Finding the plasmodium does not exclude yellow fever. . . . The time of onset is of some value. If the chill comes on in the night it is pretty certain not to be malaria, but if it comes in the daytime it does not exclude yellow fever. The facies is distinct from malaria. A man would be unwise to make a diagnosis on the facies in the first stage, although he ought to be able to say that it was not malarial fever, and if malarial fever were the only alternative he would certainly be suspicious of yellow fever and count it yellow fever from a sanitary aspect. The first year I was in Habana, Major Gorgas and I used to go over to Cabañas early every morning to look over the sick people in the barracks there, and we used to write out the diagnoses of the men as we saw them. We saw, then, in the morning those who sickened in the night, within the first twelve hours of illness, so practically our guide was the facies. We were mistaken quite often, but rarely between yellow fever and malarial fever. Malarial fever plus alcoholism was less easy to differentiate from yellow fever.

ARSENAURO

To the Editor:—Can you give me any information on a proprietary preparation called Arsenauro, manufactured by Parmele Pharmical Company of New York? In handling a good many diabetics, I occasionally find one who has been taking this drug from recommendations of questionable source, in some instances to what I have thought was their detriment decidedly. The label on the bottle gives no information as to its formula, and directions are very indefinite, namely: "Take to the point of saturation."

Any information you can give me will be appreciated.

L. H. Fuson, M.D., St. Joseph, Mo.

Answer.—Arsenauro was widely advertised and had considerable vogue at one time. The preparation is similar in composition to "solution of gold and arsenic bromid," of the National Formulary. This contains bromid of gold (hydrogen bromaurate, $HAuBr_4$ and arsenic acid H_3AsO_4). Gold preparations were at one time believed to have therapeutic value, particularly as "alteratives." They have, however, proved inefficient and have been generally discarded. No preparation of gold has been admitted to "Useful Drugs" by the Council on Pharmacy and Chemistry, and we know of no good evidence that gold compounds are of value in the treatment of diabetes.

All Together.—Work falls flat, play and art become sterile, love and worship become conventional, unless there is originality, personal creation in each. I must do my job in my own way, find an individual outlet in the symbols of art or game, and an individual answer in love and prayer if I am to feel at home in the world. Yet this individual note is no cry in the void, because it claims brotherhood with all future and distant notes.—(Cabot, R. C.: What Men Live By, Boston, Houghton, Mifflin Company, 1914.)

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Arkansas: Little Rock, Nov. 14-15. Sec., Reg. Bd., Dr. G. W. Walker, Fayetteville; Sec., Eclec Bd., Dr. C. E. Laws, 803½ Garrison Ave., Fort Smith; Sec., Homeo. Bd., Dr. George M. Love, Rogers.

Connecticut: Hartford, Nov. 14-15. Sec., Reg. Bd., Dr. Robert L. Rowley, 79 Elm St., Hartford.

Connecticut: New Haven, Nov. 14-15. Sec., Eclec. Bd., Dr. James E. Hair, 730 State St., Bridgeport; Sec., Homeo. Bd., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

Iowa: Des Moines, Nov. 1-3. Sec., Dr. Rodney P. Fagen, State House, Des Moines.

Maine: Portland, Nov. 14-15. Act. Sec'y., Dr. Adam P. Leighton, Jr., 192 State St., Portland.

Massachusetts: Boston, Nov. 14-16. Sec., Dr. Samuel H. Calderwood, 144 State House, Boston.

Missouri: Kansas City, Nov. 20-23. Sec., Dr. Cortez F. Enloe, State House, Jefferson City.

Nebraska: Lincoln, Nov. 6-8. Sec., Mr. H. H. Antles, Capitol Bldg., Lincoln.

Nevada: Carson City, Nov. 6. Sec., Dr. Simeon L. Lee, Carson City.

Ohio: Columbus, Dec. 6-8. Sec., Dr. H. M. Platter, Hartman Hotel Bldg., Columbus.

Texas: Waco, Nov. 28-30. Sec., Dr. T. J. Crowe, Dallas County Bank Bldg., Dallas.

Virginia: Richmond, Dec. 5-8. Sec., Dr. J. W. Preston, McBain Bldg., Roanoke.

TUBERCULOSIS DISPENSARIES AND CLINICS IN THE UNITED STATES

Second Instalment of Dispensary Data Presented by the Council on Medical Education and Hospitals of the American Medical Association

The survey of dispensaries and clinics recently conducted by the Council on Medical Education and Hospitals has made possible the collection not only of the mass of data regarding general dispensaries which appeared in The Journal, Aug. 5, 1922, on Dispensary Service in the United States, but also much information in regard to special dispensaries and clinics, including a complete list[1] of tuberculosis clinics. This list includes not only the dispensaries operated solely for tuberculous patients, but also the departments of general dispensaries, whether connected with a hospital or not, in which special staffs and separate hours are set apart for the care of such patients. Where a hospital or general dispensary is named in the list, therefore, it is to be understood that the institution has been reported as maintaining an organized service for ambulant tuberculous patients.

TABLE 1.—WORK DONE BY TUBERCULOSIS CLINICS

	Number Clinics Reporting	Total Patients	Total Visits	Patients per Clinic	Visits per Clinic	Average Number Visits per Patient
Clinics for tuberculosis only....	392	230,779	915,299	589	2,335	4
Tuberculosis clinics in general dispensaries ...	137	48,697	167,395	355	1,222	3.4
Total	529	279,476	1,082,694	528	2,047	3.9

The list published contains the names of the 888 tuberculosis dispensaries and clinics which were known to exist at the time we went to press—twenty-five more than were recorded, Aug. 5, 1922. Reports of others are continuing to come in, but these, as a rule, are newly organized institutions. We believe, therefore, that the list is complete.

As shown in Table 1, of the 888 tuberculosis dispensaries recorded, definite reports have been received from 529, giving the total number of patients cared for during the last calendar year and the total number of visits made by those patients in that year. Altogether, the 529 dispensaries which sent in reports were visited by a total of 279,476 different persons last year, who in that time made 1,082,694 visits to the dispensaries, or an average of approximately 4 visits by each person. On the average there were 528 patients to each dispensary, who made during the year 2,047 visits. Applying this average to the 329 dispensaries from which definite reports were not received, there is an estimated total of 468,864 persons cared for by the 888 dispensaries who, during the year, made a total of 1,817,625 visits.

These figures represent persons rather than patients. They include a large majority who on examination were found to be nontuberculous. In fact, the proportion who were tuberculous represents only 20 or 25 per cent. of all persons examined.

TABLE 2.—TUBERCULOSIS CLINICS IN THE UNITED STATES

State	Population 1920	No. of Tbc. Clinics	State	Population 1920	No. of Tbc. Clinics
Alabama	2,348,174	5	Nebraska	1,296,372	3
Arizona	334,162	5	Nevada	77,407	..
Arkansas	1,752,204	5	New Hampshire.	443,083	31
California	3,426,861	31	New Jersey.....	3,155,900	52
Colorado	939,629	8	New Mexico.....	360,350	1
Connecticut	1,380,631	30	New York......	10,385,227	118
Delaware	223,003	5	North Carolina..	2,559,123	7
Dist. of Colum..	437,571	4	North Dakota...	646,872	..
Florida	968,470	4	Ohio	5,759,394	28
Georgia	2,895,832	4	Oklahoma	2,028,283	4
Idaho	431,866	.	Oregon	783,389	1
Illinois	6,485,280	76	Pennsylvania ...	8,720,017	123
Indiana	2,930,390	42	Rhode Island....	604,397	12
Iowa	2,404,021	15	South Carolina..	1,683,724	1
Kansas	1,769,257	7	South Dakota....	636,547	..
Kentucky	2,416,630	13	Tennessee	2,337,885	7
Louisiana	1,798,509	4	Texas	4,663,228	9
Maine	768,014	5	Utah	449,396	..
Maryland	1,449,661	19	Vermont	352,428	1
Massachusetts ..	3,852,356	86	Virginia	2,309,187	16
Michigan	3,668,412	31	Washington	1,356,621	10
Minnesota	2,387,125	8	West Virginia...	1,463,701	3
Mississippi	1,790,618	2	Wisconsin	2,632,067	21
Missouri	3,404,055	27	Wyoming	194,402	..
Montana	548,889	4			
			Totals	105,710,620	888

The comparatively low number of visits to tuberculosis clinics, as compared with the visits made by patients to general dispensaries, is accounted for as follows: (*a*) The majority of those examined are found to be nontuberculous and, therefore, do not return to the clinics; (*b*) many of those who are found to be tuberculous are referred back to their private physicians for treatment, and (*c*) in cases of tuberculosis, as a rule, fewer visits are necessary, as compared with general diseases.

It is interesting to note in Table 1 that the 329 dispensaries for tuberculosis cared for an average of only 589 patients each during the year, whereas each of the 137 tuberculosis clinics which were connected with general dispensaries cared for only 355 patients on the average. There are some general dispensaries which do not treat tuberculous patients, but refer them to the special clinics.

The distribution of clinics by states is shown in Table 2. The population of each state is also given. It might be expected that the state having the largest population would have also the largest number of clinics, but this is not essentially true. Although New York has the largest population, it has the second largest number of clinics, having 118 as compared with 123 in Pennsylvania, which is the second state from the standpoint of population. Massachusetts occupies the third place, with 86 clinics, followed by Illinois with 76, Indiana with 42, California, Michigan and New Jersey each with 31, and Connecticut with 30. The interest of the people of the respective states in regard to the care of tuberculous patients would be better shown if the total number of patients cared for in each state could be given. With the further improvement and stabilization of record systems, it is certain that more accurate statistics regarding the service rendered by tuberculosis dispensaries and clinics can be obtained.

The distribution of tuberculosis dispensaries in the fifty largest cities is shown in Table 3. New York, the largest city, leads with forty-eight clinics. St. Louis has the second largest number of clinics, twenty-two, although it is the sixth city from the standpoint of population. It is interesting to note that of the 888 dispensaries and clinics, only 242, or 27 per cent., are found in these largest cities. Here again, however, it is not so much the number of clinics as it is the number of patients cared for that should be considered—information not now available. Undoubtedly the 242 clinics in the largest cities care for larger numbers of patients on the average than do the 646 clinics located in smaller centers of population.

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[1] The list of tuberculosis dispensaries in the United States, which is omitted here for lack of space, may be obtained from the Council on Medical Education and Hospitals on receipt of 6 cents for postage.

The distribution of dispensaries by districts or groups of states is shown in Table 4. It will be noted that the North Atlantic states have the largest number, 458, followed by the North Central group, with 258. The South Central group has the smallest number, forty-nine, while the Western group of states, although having a smaller population, has sixty clinics.

TABLE 3.—TUBERCULOSIS CLINICS IN THE FIFTY LARGEST CITIES

Cities	Population 1920	Tuberculosis Clinics	Cities	Population 1920	Tuberculosis Clinics
New York........	5,621,151	48	Providence, R. I..	237,595	6
Chicago	2,701,705	16	Columbus, Ohio...	237,031	1
Philadelphia	1,823,779	19	Louisville, Ky....	234,891	1
Detroit	993,739	9	St. Paul..........	234,080	1
Cleveland	796,836	9	Oakland, Calif....	216,361	1
St. Louis........	773,000	22	Akron, Ohio......	208,435	3
Boston	747,923	7	Atlanta, Ga.......	200,616	1
Baltimore	733,826	9	Omaha	191,601	1
Pittsburgh	588,193	4	Worcester, Mass..	179,741	2
Los Angeles......	575,480	5	Birmingham, Ala.	178,270	1
San Francisco....	506,676	10	Richmond, Va....	171,667	2
Buffalo	505,875	8	Syracuse, N. Y...	171,647	1
Milwaukee	457,147	4	New Haven, Conn.	162,390	3
Washington, D. C.	437,414	4	Memphis, Tenn...	162,351	1
Newark, N. J.....	414,216	1	San Antonio, Tex.	161,379	1
Cincinnati	401,158	2	Dallas, Tex.......	158,976	2
New Orleans.....	387,408	3	Dayton, Ohio.....	152,559	1
Minneapolis	380,582	3	Bridgeport, Conn.	149,152	3
Kansas City, Mo.	324,410	3	Houston, Tex....	138,276	1
Seattle	315,652	3	Hartford, Conn...	138,036	1
Indianapolis	314,194	6	Scranton, Pa.....	137,700	1
Jersey City, N. J.	297,864	2	Gr'd Rap's, Mich.	137,634	1
Rochester, N. Y..	295,750	1	Paterson, N. J....	135,866	1
Portland, Ore.....	258,288	1	Youngstown, Ohio	132,358	1
Denver	256,369	3			
Toledo, Ohio.....	243,164	1	Totals	25,381,011	242

Tuberculosis dispensaries and clinics are rapidly increasing in number, which indicates that they are an important factor in the increasingly vigorous efforts being made to stop the ravages of this disease. Besides their service in connection with the diagnosis and treatment of tuberculosis, they are proving to be an excellent factor in the education of the public in the ways of prevention and cure. This work is aided largely by traveling clinics and by visiting nurses and social workers through whom there is a contact with tuberculous persons who remain at home. Practically all clinics have been fostered by or are affiliated with some active antituberculosis organization.

TABLE 4.—TUBERCULOSIS CLINICS BY DISTRICTS

	Population, 1920	No. of Tbc. Dispensaries
North Atlantic States......................	29,662,053	458
South Atlantic States......................	13,990,272	63
North Central States......................	34,019,792	258
South Central States......................	19,135,531	49
Western States	8,902,972	60
Totals	105,710,620	888

In addition to the dispensaries or clinics regularly conducted at permanent locations, there are in most states varying types of traveling or itinerant clinics conducted by one or more experts in tuberculosis sent out by the state board of health or some other central organization. Such clinics are usually held at regular intervals in different counties or districts of the state, but not always in the same towns in these districts.

Reports from state medical societies, state boards of health and antituberculosis organizations indicate that there is an increasingly effective cooperation between local antituberculosis activities and other local civic and state organizations interested in other lines for improving public health. The expense of maintaining clinics is being increasingly shared by the general public of each community through the sale of Christmas seals and other methods of raising funds.

Among the agencies that have cooperated heartily with us in the survey of tuberculosis dispensaries and in furnishing data are the individual clinics themselves, the hospitals and general dispensaries which conduct special clinics for tuberculous patients, the federal, state and city departments of health, and the National Tuberculosis Association, including its branch state and county organizations. To all these organizations, acknowledgments are due for the excellent assistance rendered, and in the furnishing of information without which the publication of these data would have been impossible.

Social Medicine

THE CALIFORNIA ANTIVIVISECTION INITIATION MEASURE

Statement Issued by the Regents and President of the University of California, and the Board of Trustees and President of Stanford University, Opposing the Measure

The advance of sanitation, modern medicine and physiology, nutrition, the teaching of biology and the protection of our industries and agriculture all rest on animal experimentation. The control of the epidemic diseases of man and of animals, the management of surgical operations and of childbirth and the certification of milk, food and water supplies would be impossible without the knowledge gained by such studies. In fact, the present day protection of the public from diseases, which is vital to our community life, rests on animal experimentation. The University of California and Stanford University are vitally interested in the defeat of this initiative measure, since its passage would be a statewide calamity.

Not only would it stop the research work now going on in the medical schools, hospitals and laboratories and in the Bureau of Animal Industry, but it would damage the market for most of California's food products, and markedly reduce the confidence of visitors coming into the state. If California could not certify to its food and water supplies, could not guarantee protection against contagious diseases, could not provide certified milk, the effect on agriculture and industry in the state would be disastrous. The near collapse of the olive industry, due to the poisoning of a few people in eastern states, and the way in which the industry was saved by the researches carried on in the laboratories of the two universities, indicate the imperative necessity of freedom for the universities in animal experimentation. California food, instead of being looked to as an example of purity, would be shunned.

The initiative measure would make it impossible to test with birds for deadly gases in the mines of the state. It would stop the manufacture of serum for the prevention of hog cholera, the preparation of vaccine for anthrax, and the various other products that are required for the protection of our industries in agriculture and that annually save millions of dollars and prevent great mortality among domestic animals. Under the act, operations on various farm animals could be carried on without anesthetics to increase the palatability of foods, but no animals could be used in experimental work if the information obtained is for the benefit of a person or of the human race.

We feel that no worse attack on the welfare of the state and on the right of the universities to seek and teach the truth could be made. Every man, woman and child, every unborn babe, every domestic animal in the state would be affected if this measure becomes a law. It strikes at all.

It is unnecessary special legislation, due to prejudice and misinformation. No one will tolerate cruelty to animals. The present laws of the state are drastic and sufficient to control any abuse. We know that there is no cruelty to animals in the laboratories of the universities. They are in charge of men and women of the highest character who are unselfishly working to better the lot of their fellow men and to advance the interests of their community and of the state. Anesthetics are always used for animals in the laboratory in exactly the same way that they are used by surgeons in the operating rooms.

We urge upon the citizens of the state the imperative necessity of defeating this initiative measure.

The Regents of the University of California,
by David P. Barrows, President of the University.

The Board of Trustees of Stanford University,
by Ray Lyman Wilbur, President of the University.

Book Notices

Les Maladies Parasitaires des Plantes. (Infestation-Infection). Par M. Nicolle et J. Magrou (de L'Institut Pasteur). Paper. Price, 8 francs net. Pp. 199. Paris: Masson et Cie, 1922.

This small volume scans the phenomena of phytopathology from a rather unusual point of view, that of general pathology, and seeks to throw light on the actual cause of disease as occurring in both plants and the higher and lower animals. So concise is the writing that a much greater mass of detailed information is recorded than might be expected in so few pages. Forty-three pages are given to the consideration of plant diseases caused by insects and nematodes; twelve pages to those caused by phanerogams; fifty-five pages to those due to fungi, and thirty-one to those caused by bacteria; while twenty-four pages are devoted to the general consideration of parasitic diseases of plants. The general plan is to present for each group, first, a brief enumeration of the principal diseases; the symptoms and mechanism of infection, and the causal organisms. Generalizations are made at the end of each group, and broader generalizations in the concluding chapter. Several conceptions not frequently encountered in books on plant disease are represented by the terms "predateurs," "spoliateurs," "phytophages," "distructeurs" and "cocidiogenes" as applied to the insects. Concise discussion, or rather enumeration, is also made of the "sensibité," means of resistance, means of attack, prophylaxis, virulence, irritation resulting in hypertrophy and hyperplasia. The material on which the discussions are based is, in general, well selected, though the enumerations are far from exhaustive. A few inconsistencies of nomenclature are to be noted. French literature is drawn upon much more freely than is American literature, and certain recent advances in knowledge are unmentioned. As a whole, the book presents the material in systematic, concise form, and with discussion from a new and welcome point of view.

Influenza: Essays by Several Authors. Edited by F. G. Crookshank, M.A., F.R.C.P., Physician, The Prince of Wales' General Hospital. Cloth. Price, 30 shillings net. Pp. 528. London: William Heinemann, 1922.

It is difficult to characterize this book in a few words. A large amount of industry has gone into the compilation, the bibliography alone of the chapter on bacteriology occupying more than sixteen pages. But the discussion of the data is so warped and twisted by a preconceived notion that the addition made by the book to current medical thought cannot be said to be very valuable. The central thesis, as would be expected by those who know the writings of Crookshank, Hamer and some other English authors, is so colored by belief in an identical "epidemiological constitution" for influenza, epidemic meningitis, epidemic encephalitis and botulism that it is hard to be altogether patient. The character of much of the theoretical speculation may be illustrated by a single sentence: "The epidemiological liaison between the 'grip,' the pneumonia and the 'poliomyelitis' was completely missed; and many cases of the nature that now provokes the name 'encephalitis lethargica' were on the Pacific coast diagnosed as 'botulism' and ascribed, in the most light-hearted fashion, to the consumption of canned tomatoes and beans, as is set forth in Dickson's monograph." This is the sort of book whose authors complain about neglect and indifference on the part of the mass of their scientific contemporaries.

A Practical Medical Dictionary of Words Used in Medicine with Their Derivation and Pronunciation, Including Dental, Veterinary, Chemical, Botanical, Electrical, Life Insurance and Other Special Terms; Anatomical Tables of the Titles in General Use, and Those Sanctioned by the Basle Anatomical Convention; Pharmaceutical Preparations, Official in the U. S. and British Pharmacopeias and Contained in the National Formulary; Chemical and Therapeutic Information as to Mineral Springs of America and Europe, and Comprehensive Lists of Synonyms. By Thomas Lathrop Stedman, A.M., M.D. Seventh edition. Leather. Price, $7 net. Pp. 1144, with illustrations. New York: William Wood & Co., 1922.

In this edition, the compiler states, between four and five hundred new words have been added, but an increase in size has been avoided by expunging obsolete terms and shortening definitions. Several new plates have been added, and all of the plates have been grouped at the end of the volume.

Forty Notifiable Diseases. A Simple Discussion of the More Important Communicable Diseases. By Hiram Byrd, B.S., M.D., Director, Department of Hygiene, University of Alabama. Paper. Price, 60 cents. Pp. 74. Yonkers-on-Hudson: World Book Company, 1922.

This booklet for the public is written in clearly understandable language—actually American language. The information given in general is accurate. The author accepts the discoveries of the organisms of poliomyelitis and of yellow fever made in the Rockefeller Institute as established, although there is still some doubt on this point. Its quality makes the pamphlet well worth the very reasonable price at which it is sold.

Medicolegal

Liability of Physician Negligently Cutting Tongue

(Hague v. Threadgill (Mo.), 236 S. W. R. 895)

The St. Louis (Mo.) Court of Appeals, in affirming a judgment for $2,000 damages in favor of the plaintiff, an infant, says that, because of defective hearing, he was taken to the defendant, a practicing physician, and the latter was employed to perform an operation for the removal of the tonsils and adenoid tissue. During the operation, the defendant was assisted by his son, a medical student, who administered the anesthetic. There was considerable difficulty experienced in keeping the boy under the influence of ether, and there was evidence that the supply of it gave out, after which chloroform was used. The plaintiff's mother testified that after the defendant began operating the boy was bleeding profusely and the defendant called her and said that he had made an awful mistake, and had cut the boy's tongue; that he could not work very much because the boy was bleeding too much; that the clamp slipped and cut the boy's tongue. The boy's father testified that later on in the day the defendant stated to him: "Well, that was an awful mistake; that was the mistake of my life; I would not have it happen again for anything on earth." A specialist in diseases of the ear, nose, and throat, who had performed like operations several thousand times, testified that he had never found it necessary to cut the tongue, and had never done so. The defendant admitted that the tongue was cut during the operation, but contended that it was a pure accident, which occurred when it became necessary to remove the tongue quickly from the boy's throat after the boy had swallowed it while under the anesthetic, and such action was necessary in order to save the boy's life. The defendant denied that he made the admissions testified to by the boy's parents, and said that what he had showed to the mother was adenoid tissue, while in the evening, when he recognized that the tongue was injured, he told her that he was always sorry that such things occurred; that he was sorry the condition was there, but they had to do it to save the boy's life.

The plaintiff's evidence, the court thinks, was sufficient to make the question of the defendant's negligence one for the jury. The admission testified to by the plaintiff's witness to the effect that the defendant had made an awful mistake in cutting the boy's tongue, was something more than a conclusion, as argued by the defendant's counsel. It was an admission of a fact, namely, that the defendant had cut the plaintiff's tongue, and that in doing so he had made a mistake. This testimony, and the fact that the evidence further showed that thousands of operations of like character were performed without injury to the patient's tongue, was sufficient to authorize the jury to infer that the defendant was guilty of negligence. While it was true, as contended by the defendant's counsel, that the defendant should not be held liable for a mere error of judgment, the evidence was sufficient to support a finding by the jury to the effect that the defendant had blundered and was negligent in the performance of the operation.

An instruction, after telling the jury that the terms "carelessly" and "negligently" did not imply lack of skill or capacity, told the jury that, even though they believed the defendant possessed all of the qualifications to be a competent and skilled physician and surgeon, yet if it was proved that he was careless and negligent in performing the operation described, as carelessness and negligence were defined in the instructions, and through such carelessness and negligence the plaintiff's tongue had been permanently injured and disfigured, then the mere fact that the defendant may have been competent and skilful constituted no defense to this action. As there was no evidence of any other act of negligence than the one charged, the court does not think that the jury could have been led astray or afield by the form of the instruction, which it was argued was broader than the charge in the petition. Nor does the court think that there was any merit in the contention that another instruction was erroneus in permitting the plaintiff to recover for an injury to his body, when the charge in the petition was an injury to his tongue; for a person's tongue is necessarily a part of his body, and here it was the only part of the body alleged to be or shown to have been injured.

Refusal of Plaintiff to Take Laughing Gas

(Mackay Telegraph-Cable Co. v. Armstrong (Tex.) 241 S. W. R. 795)

The Court of Civil Appeals of Texas, in affirming a judgment for $2,500 damages in favor of plaintiff Armstrong for a permanent injury to his knee sustained in the employ of the defendant company, says that the defendant sought to compel the plaintiff to take "laughing gas" in order that in the presence of the jury he might, while unconscious, be examined. The plaintiff refused to be put under the influence of an anesthetic to be examined as to his injuries by a physician testifying for the defendant, and his refusal was properly sustained. No such assault as that contended for by the defendant will be permitted in any Texas court on the personal liberty of a citizen of this commonwealth. It would have been an outrage on the plaintiff to compel him to be anesthetized in order to give a physician an opportunity to prove his theories in regard to the injuries inflicted on the person of the plaintiff. The authorities cited by the defendant do not sustain the action sought by it as shown by its bill of exception, but which was sought to be changed by its assignment of error wherein it was attempted to convey the impression that the court refused to allow an examination of the injured limb, after the plaintiff had made profert of it by exhibiting it to a jury. The question of an anesthetic, which shaped the action of the court, was studiously avoided by the defendant in assignment and proposition. None of the authorities cited sustain the demand of the defendant as to the anesthetic's being administered to a party to a suit during the progress of a trial. An examination was not refused, but the stupefaction and destruction of the mental faculties of the plaintiff, even for a limited time, was correctly denied to the defendant.

Society Proceedings

COMING MEETINGS

Hawaii, Medical Society of, Honolulu, Nov. 19-21. Dr. F. J. Pinkerton, 45-46 Young Building, Honolulu, Secretary.
Isthmian Canal Zone, Medical Association of, Ancon, Dec. 15. Dr. L. S. Chapman, Ancon, Secretary.
Porto Rico, Medical Association of, Ponce, Dec. 15-17. Dr. Augustin R. Laugier, San Juan, Secretary.
Radiological Society of North America, Detroit, Mich., Dec. 4 8. Dr. M. J. Sandborn, Appleton, Wis., Secretary.
Southern Medical Association, Chattanooga, Tennessee, Nov. 13-16. Mr. C. P. Loranz, Empire Building, Birmingham, Alabama, Secretary.
Southern Surgical Association, Memphis, Tenn., Dec. 12-14. Dr. H. A. Royster, Raleigh, N. C., Secretary.
Tri-State District Medical Society, Peoria, Ill., Oct. 30-Nov. 2. Dr. William B. Peck, Freeport, Ill., Managing Director.
Virginia, Medical Society of, Norfolk, Oct. 31-Nov. 3. Mr. G. H. Winfrey, 104½ W. Grace Street, Richmond, Secretary.
Western Surgical Association, Minneapolis, Minn., Dec. 8-9. Dr. Warren A. Dennis, Hamm Building, St. Paul, Secretary.

AMERICAN ASSOCIATION OF OBSTETRICIANS, GYNECOLOGISTS AND ABDOMINAL SURGEONS

Thirty-Fifth Annual Meeting, held at Albany, N. Y., Sept. 19-21, 1922

The President, Dr. Roland E. Skeel, Los Angeles, in the Chair

Tumors of the Breast

Dr. John F. Erdmann, New York: In the single growth, the blue dome cyst of Bloodgood, the discrete fibroma and the canalicular growth, the operation of removal resolves itself into a resection of the area well outside of the tumor, with proper suture repair. A growth in the remaining breast is as likely to be of primary origin as that in the breast first removed. Further, at the present day we are unable to state what the influence of roentgen-ray and radium treatment is either as a preoperative or postoperative aid. But in view of many apparent reductions in size, etc., previous to operation in cases considered nonoperable, the use of the roentgen ray and radium should be encouraged. Even in view of some of the glowing reports at present regarding the nonrecurrence, postoperative treatment should be substituted for preoperative treatment, until some definite proof of its help or inefficiency has been established. In the presence of late metastases the powerful currents of the present day should be given a thorough test to prove or disprove the efficiency of this method of treatment. The most thorough and painstaking wide removal, with remote glandular and fascial dissections, will tend more and more to increase the percentage of cures and extension of life. The radical operation is attended with so low a mortality as to promote a greater desire on the part of the consulting physician to demand operation.

Double Uterus and Vaginal Septum

Dr. H. Wellington Yates, Detroit: I have observed one case of abortion at about the sixth week in a patient who had a complete vaginal septum and a double uterus, the latter also having a septum between two otherwise normal uterine cavities.

Craniotomy

Dr. A. M. Mendenhall, Indianapolis: We should have no hesitancy in deciding on craniotomy when the child is dead and there are no insuperable obstacles to pelvic delivery of the mutilated child. Craniotomy on a living child may be indicated if there exists little or no hope of its ultimate survival, and if the mother would be seriously jeopardized by any other method of delivery. The operation per se should carry with it no maternal mortality. With the safety of cesarean section in its various forms developed as it is today, a craniotomy performed on a living child always represents improper care either by the operator or by his predecessors on the case.

Radium in the Treatment of Uterine Hemorrhage of Nonmalignant Type

Dr. Edward A. Weiss, Pittsburgh: In the treatment of benign hemorrhage from the uterus, radium should be used only in selected cases, such as (*a*) myopathic bleeding of adolescence that do not respond to usual medical and hygienic measures; (*b*) myomas of small or moderate size, uncomplicated by adnexal disease, with bleeding as a symptom; (*c*) menorrhagia of menopause. The dosage depends on (*a*) the age of the patient and (*b*) whether the function of childbearing is to be preserved or sacrificed. Myomectomy in young women and hysterectomy when the tumor is large or complicated should be done rather than to treat with radium. Complications and unfavorable results are to be avoided only by a careful discriminating differential diagnosis. All cases treated by radium should be followed up for several years.

The Cervix as a Focal Point of Infection

Dr. Gordon K. Dickinson, Jersey City, N. J.: The cervix is a definite organ with a distinctive function. As a portal to the endometrium, it allows passage of nature's fluids. It also picks up and carries bacteria into the recesses of the mucosa, where they are either destroyed or become saprophytes. Harbored microbes may inflame the cervix, and through the lymph stream cause more or less regional reaction, or, by the blood stream, a varied expression.

Uterine Displacements and Sterility

Dr. Benjamin Rush McClellan, Xenia, Ohio: Uterine malpositions are the cause of sterility in a limited number of cases, probably not more than 10 per cent. Long continued sterility or repeated abortions should make the gynecologist suspect a displacement of the uterus. Malpositions act as a cause of sterility by (*a*) mechanically interfering with the progress of the spermatozoa into the uterine cavity, and (*b*) by contributing to the functional disability of the tubes and ovaries, which, when long continued, results in organic degeneration, especially in the ovaries. In a very few well selected cases a well placed pessary, plus wisely directed hygienic and therapeutic remedies, should be given a fair trial. Operative intervention is indicated when this treatment has failed, and when there is no legitimate contraindication.

The Present Status of Surgery in the Treatment of Fibromyomata Uteri

Dr. Stephen E. Tracy, Philadelphia: Of all of the patients who consult a surgeon for symptom-producing fibroids, 30 per cent. have either degeneration of the tumor or malignancy of the pelvic organs. Abdominopelvic disease is found in 40 per cent. of the cases. Seventy per cent. of these patients have complicated tumors. In women past the age of 40, only from 16 to 18 per cent. have simple, uncomplicated tumors. It is impossible to determine which are the simple, uncomplicated tumors. The treatment of choice in the vast majority of cases is myomectomy for women under 40, and hysterectomy in women past this age. The form of treatment removes all disease and relieves the patient of all symptoms in from 96 to 98 per cent. of cases. The use of radium should be restricted to small or medium sized uncomplicated tumors at the menopausal period in cases of menorrhagia or metrorrhagia following myomectomy, and in certain constitutional diseases in which surgery would be attended with unusual risk.

Clinical Aspects of Blood Loss in Labor

Dr. Paul T. Harper, Albany, N. Y.: When efforts at stimulation have failed to excite the uterus to activity, further administration of drugs or application of measures that depend on latent muscular efficiency to accomplish results may not be practiced. The means to be employed then is firm intra-uterine tamponade. Intra-uterine tamponade will check any postpartum hemorrhage; and such preparations should be made that it can be carried out without delay as soon as the more conventional methods demonstrate their inadequacy. While the management of lost blood mass and shock is important, it is with prevention of these states that the obstetrician is primarily concerned. The time to infuse or to transfuse is before shock is fully developed, and shock may be expected when a difficult operative delivery, particularly one in which extensive trauma to the maternal soft parts has been done, is followed by hemorrhage even of moderate degree. Nothing may avail when shock is preliminary to collapse, while satisfactory results are not impossible in ordinarily grave cases when vigorous general treatment is instituted early enough.

Pituitary Extract in the Second Stage of Labor

Dr. Magnus A. Tate, Cincinnati: I have used pituitary extract in the second stage of labor for a number of years, and I have come to the conclusion that if used judiciously, from an obstetric standpoint, it is a boon to motherhood.

Transplantation of the Cervix

Dr. W. Wayne Babcock, Philadelphia: This operation consists of a submucous transplantation of the cervix to a more posterior position in the vaginal culdesac. About 2 cm. distant from the os uteri a circular incision is made through the mucous membrane. Through this incision the cervix is mobilized, and the submucous tissues are bluntly tunneled to the desired point in the culdesac, where a transverse incision from 2 to 4 cm. in length is made. Guide sutures are fixed to the mucous edges of the cervix, carried through the tunnel, and by traction on the sutures the cervix is pulled in place, when the cut mucous edges of the cervix are accurately approximated to the edges of the vaginal incision. The object of the operation is to increase the length of the anterior wall of the vagina; to displace the lower part of the uterus upward and backward; to change the direction of the cervix so that it will point in a more posterior direction, and to place the cervix more directly in the seminal lake. The operation is used in certain cases of sterility, anteflexion of the cervix, anteposition of the lower uterus segment, and for undue shortness of the anterior vaginal wall. In some cases the sutures are made to embrace the uterosacral ligaments so as better to hold the cervix up and back.

A Routine Treatment for Hyperemesis Gravidarum

Dr. Edward Speidel, Louisville, Ky.: The routine treatment consists of the daily administration by rectum of a solution containing glucose, a predigested medicinal food, sodium bicarbonate and water. Sodium bromid and chloral are added according to indications. Every third day, 500 c.c. of 10 per cent. sterile glucose solution is given intravenously. Gastric lavage is practiced on the eighth day, and then oral administration of food is begun on the ninth day. If the patient vomits in spite of this rigid regimen, then interruption of pregnancy will be necessary.

Renal Tuberculosis: Diagnosis and Treatment

Dr. Henry Dawson Furniss, New York: Renal tuberculosis is a chronic disease and slow in development. In my cases, symptoms referable to the condition existed before diagnosis three months in one case and thirteen years in another, with an average of approximately four years. In 20 per cent. there was a history of other previous tuberculous lesions that often antedated by a number of years the symptoms of the renal trouble. Three of these patients had bone tuberculosis that had healed five years before the onset of urinary symptoms. It is possible that the kidney lesions occurred during the acute stage of the bone trouble, and remained quiescent all this time. In 15 per cent. there were healed or active pulmonary lesions, and in two cases the pulmonary condition overshadowed the renal disease. In three cases there had been an old cervical adenitis. In none was genital or peritoneal tuberculosis discovered prior to operation, but one patient succumbed two years later to pulmonary and peritoneal tuberculous disease. Vesical symptoms usually give rise to the first complaint, and in young virgins frequency of urination should excite a suspicion of tuberculosis. Except in cases of miliary tuberculosis, renal tuberculosis is usually unilateral, at least at first. A small percentage of the patients develop perinephritic abscesses The accepted treatment for unilateral renal tuberculosis is nephrectomy, provided there is no contraindication in other concurrent disease or renal insufficiency. The earlier the disease is eradicated, the better the chances of preventing further spread and of relieving the bladder condition. I have made it a practice not to remove kidneys discharging only tubercle bacilli. With bilateral involvement, some authorities have advocated removal of the kidney with the more advanced lesion. This does not seem warranted unless the better kidney has only slight lesions with good function, and its ureter, with the part of the bladder surrounding it, are uninvolved. Even then, unless the patient was suffering acute renal pain, or there was vesical intolerance, I should withhold operation. When there is perinephritic abscess, the kidney should be removed, if removal is not unduly risky.

The Pernicious Effects of the Use of Stems in the Uterus

Dr. James N. West, New York: In performing dilation and curettage, one should always wipe out the cervix with tincture of iodin so as not to carry the organisms which are found in the cervical canal into the body of the uterus, and inoculate the patient with them by means of the curet. This applies to any other intra-uterine instrumentation, except the use of forceps in delivery. I would advise against leaving uterine packing in place more than thirty-six hours, and then using iodoform gauze from which the iodoform has been washed by wringing out in water three or four times.

Transplantation of Human Ovaries: Present Status and Future Possibilities

Dr. William Seaman Bainbridge, New York: The transplantation of ovarian tissue, either autogenous or homogenous, has proved successful for both therapeutic and fertilization purposes in human beings. For purely therapeutic uses an implantation may be effective at any one of several sites, but behind the rectus muscle where the graft will be removed from points likely to suffer traumatism, but in close proximity to the vascular and lymphatic systems, seems the most satisfactory site. For the purposes of fertilization, when the ovaries have been removed and the uterus is intact, in a woman of child-bearing age, a normal piece of ovarian tissue grafted in continuity with the fallopian tubes or at the stump of a tube, if the tubes have been excised, may live and form follicles and ova, and a pregnancy may be produced from the transplanted ovary. In the transplantation of ovarian tissue, the closer the relationship of the donor and recipient, the better, though such relationship is not necessary for purely therapeutic purposes.

An Operation for Retrodisplacements of the Uterus

Dr. John W. Keefe, Providence, R. I.: A transverse incision is made through the peritoneum, one-half inch above the upper attachment of the bladder to the anterior wall of the uterus. The peritoneum and bladder are separated from the uterus as far as the junction of the cervix with the vagina, in a manner similar to that employed in separating the bladder from the uterus during operations for hysterectomy. The bladder is then pulled upward and attached by four interrupted chromic gut sutures passed through the bladder musculature and the anterior wall of the uterus at points just below a line drawn between the uterine attachments of the round ligaments. The flap of peritoneum which was reflected just before separating the bladder from the uterus is fixed by four interrupted catgut sutures to the fundus of the uterus, or to the posterior part of the fundus. The abdominal wound is closed with a continuous suture of catgut in the peritoneum, a double chromic catgut suture in the fascia, plain catgut in the fat, and interrupted dermol sutures in the skin. The operation of freeing the bladder from the uterus and raising it, so that it pulls upward the anterior wall of the vagina, aids in the cure of retroflexion, vesicoceles and slight prolapse of the uterus. Attaching the bladder to a higher position on the uterus has the effect of holding the uterus in a normal anteverted position, and of raising the anterior vaginal wall. Shortening the round ligaments by the method here advocated has the advantage of retaining the original attachments of the round ligament, so that traction on the fundus of the uterus is normally applied.

The Importance of Ureteral Palpation in the Diagnosis of Abdominal Disease

Dr. David W. Tovey, New York: Normal ureters are easily palpated, and it is more easy to palpate diseased ureters. Palpation of the pelvic ureters will often clear up a difficult case, the diagnosis of which seemed impossible before palpation. The nerve plexuses of the ureter anastomose with all the other nerve plexuses of the abdominal sympathetic, so that pain from ureteral disturbance is diffuse, and may be mistaken for every abdominal and pelvic disease, even ectopic pregnancy.

Abdominal Adhesions

Dr. Miles F. Porter, Fort Wayne, Ind.: Adhesions which are not obstructive either to the circulation or to the lumen of hollow viscera and are not accompanied by infection are harmless. Such adhesions encountered in the course of abdominal operations would better not be disturbed. Interposition of foreign substances between the viscera, either solid, liquid, semisolid or gaseous, will not prevent adhesions. The maximum conservation of tissues and general resisting powers are the best means known today of avoiding harmful adhesions.

Primary Sterility

Dr. A. J. Rongy, New York: Transuterine insufflation of the peritoneal cavity with oxygen or carbon dioxid gas, as developed by Rubin, is a very valuable aid in the diagnosis of sterility. No other method of examination so clearly demonstrates the patency of the fallopian tubes. This method of examination should be utilized in every case in which the cause of sterility is of doubtful origin. It is especially useful in patients who have had one fallopian tube removed because of infection or extra-uterine pregnancy. The passage of gas under pressure through the tubes may prevent the formation of adhesions around the distal openings, and therefore closure of the tubes is less likely to occur.

The Defenseless Areas of the Abdomen

Dr. George W. Crile, Cleveland: In a general way it may be said that the defense of the tissues of the abdomen varies from almost 100 per cent. in the mucosa of the intestine—where the defense is so perfect that although it is constantly contaminated, the contamination rarely progresses to infection—to almost 0 per cent. in the retroperitoneal area, where contamination slowly, but insidiously and progressively, goes on to infection. In between the two lies the peritoneum, contamination of which rapidly progresses to infection, but as rapidly calls into action the mechanism of defense. The adequate defense of any tissue against infection demands an adequate nerve supply and an abundant supply of blood. The observance of certain fundamental principles diminishes the hazard not only of surgical procedures actually within the comparatively defenseless areas, but also of the extension of contamination or infection from adjacent areas. These fundamental principles are: avoidance of contamination, avoidance of anemia and promotion of blood supply and the two-stage operation.

Surgical Strategy as an Adjunct to Local Anesthesia in Abdominal Surgery

Dr. Robert Emmet Farr, Minneapolis: Exposure and the absence of expulsive effort are the prime essentials in meeting the surgical demands in this class of cases. The abolition of the abdominal reflexes, vertical retraction and tilting of the table, combined with a negative intra-abdominal pressure, and the cooperation of the patient, which is best obtained by solicitous care of this individual from the time he presents himself for treatment, combined with the utilization of the skill and tact of a well trained psycho-anesthetist, will make it possible to perform with satisfaction a large percentage of abdominal surgery under local anesthesia.

The Surgical Treatments of Certain Puerperal Infections

Dr. J. F. Baldwin, Columbus, Ohio: In those rather rare cases in which the disease is virtually limited to the ovarian veins, ligation of the veins above the thrombus is feasible, but the death rate is not less than 60 per cent. Radical operation with free drainage of all the infected veins, and usually with hysterectomy, according to the results obtained in sixty-three consecutive cases, gives a death rate of a little less than 32 per cent., or about one half that of ligation, and that, too, in a more serious class of cases. Puerperal infection, in brief, is simply wound infection, and should be treated on general surgical principles.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Ophthalmology, Chicago

September, 1922, **5**, No. 9

Delimiting Keratotomy. S. R. Gifford, Omaha.—p. 697.
Hypersensitiveness to Lens Protein. Patient Desensitized and Successfully Operated on for Immature Cataract. F. H. Verhoeff and A. N. Lemoine, Boston.—p. 700.
Neuropathic Keratitis; Result of Focal Infection. J. W. Charles, St. Louis.—p. 703.
Persistence of Embryonic Fibrovascular Sheath of Crystalline Lens. E. J. Lent and M. B. Lyon, South Bend, Ind.—p. 706.
Refraction. P. Sumner, San Francisco.—p. 712.
Refraction. S. A. Agatston, New York.—p. 716.
Trial Frames for Base Line Refraction. S. L. Olsho, Philadelphia.—p. 718.
Hysteric Homonymous Hemianopsia. J. L. Garvey, Ann Arbor, Mich.—p. 721.
Divergence Paralysis. L. W. Deichler, Philadelphia.—p. 723.
Fibrous Thickening of Upper Lid Following Diphtheritic Conjunctivitis. F. A. Morrison, Indianapolis.—p. 724.
Combined Perimeter and Scotometer, Simple and Efficient. E. J. Brown, Minneapolis.—p. 724.

American Journal of Physiology, Baltimore

September, 1922, **62**, No. 1

*Circulation in Mammalian Bone Marrow: Factors Concerned in Movement of Red Blood Cells from Bone Marrow into Circulating Blood as Disclosed by Perfusion of Tibia of Dog and by Injection of Bone Marrow in Rabbit and Cat. C. K. Drinker, K. R. Drinker and C. C. Lund, Boston.—p. 1.
*Morphin Hyperglycemia and Suprarenals. G. N. Stewart and J. M. Rogoff, Cleveland.—p. 93.
Effect of Ether Anesthesia on Afferent Paths in Decerebrate Animal. A. Forbes and R. H. Miller, Boston.—p. 113.
Comparison of Pentabromacetone Method, and Salant and Wise's Method for Citric Acid Determination in Urine. W. B. McClure and L. W. Sauer, Chicago.—p. 140.
Distribution of Vitamin B in Wheat Kernel. M. Bell and L. B. Mendel, New Haven, Conn.—p. 145.
*Effect of Pancreatic Extract (Insulin) on Normal Rabbits. F. G. Banting, C. H. Best, J. B. Collip, J. J. R. Macleod and E. C. Noble, Toronto.—p. 162.
Effect of Insulin (Pancreatic Extract) on Sugar Consumption of Isolated Surviving Rabbit Heart. J. Hepburn and J. K. Latchford, Toronto.—p. 177.

Circulation in Bone Marrow.—By the use of methods of perfusion and of injection, so organized as to approach the physiologic limits set by the animal under experiment, it has been shown by the Drinkers and Lund that the capillaries conducting blood in the bone marrow of the mammal in a condition of normal blood formation are closed structures, lined throughout with endothelium, and not in communication with the marrow parenchyma. Under conditions of active red blood cell formation, the extremely delicate walls of these capillaries are grown through by irregularly placed red cells in varying stages of maturity. The capillaries are thus, for a period of varying length, open structures, but the opening presented does not result in flooding the marrow parenchyma with blood because of the packing of the immature blood cells, which is an essential phase in the process of encroachment on the capillary wall. The normal mature erythrocytes are delivered to the blood stream through the extraordinarily thin endothelial membrane lining the capillaries. This process must occur constantly and under the influence of such slight difference in pressure between the outside and inside of the blood vessels as to cause no actual vascular rupture. The stimulus causing growth of red blood forming tissue is responsible also for delivery of these cells to the circulation.

Morphin Hyperglycemia and Suprarenals.—Stewart and Rogoff noted that hyperglycemia is much less commonly induced by morphin in cats which have recovered after removal of one suprarenal and denervation of the other, or after removal of one suprarenal and a large portion of the other, with or without denervation of the remnant or destruction of the medulla of the remnant, than in normal cats or in cats which have recovered from such operations as splenectomy. Some writers are inclined to attribute to the suprarenals, sometimes in conjunction with the thyroid, an important rôle in the regulation of body temperature, but no influence of the suprarenal operations on the rectal temperature of the animals was detected by Stewart and Rogoff.

Effect of Pancreatic Extract on Normal Rabbits.—Purified alcoholic extracts of pancreas, for which Banting et al. suggest the name insulin, when injected subcutaneously into normal rabbits cause the percentage of sugar in the blood to fall within a few hours. As a tentative basis for the physiologic assay of pancreatic extract, the authors consider as one unit the number of cubic centimeters which causes the blood sugar of normal rabbits to fall to 0.045 per cent. within four hours. This dose is decidedly active in lowering the blood sugar in diabetic patients. As the blood sugar falls, as a result of pancreatic extract injections, the rabbit exhibits highly characteristic symptoms, the earliest of which are signs of hunger and thirst, hyperexcitability and apparent fear. The animal may recover from these earlier symptoms but frequently, with active preparations, the hyperexcitability becomes extreme and clonic convulsive seizures involving the entire body and lasting for several minutes supervene. Between the convulsive seizures the animal is lying on its side in a more or less comatose condition with shallow rapid and frequently periodic breathing. In the great majority of cases exhibiting convulsion the blood sugar has been found to be about 0.045 per cent.

Annals of Medical History, New York

1922, **4**, No. 2

De Staticis Experimentis of Nicolaus Cusanus. H. Viets, Boston.—p. 115.
Guy Patin and the Medical Profession in Paris in the Seventeenth Century. F. R. Packard Philadelphia.—p. 136.
Louis Daniel Beauperthuy. C. A. Wood, Chicago.—p. 166.
William and John Hunter. T. McCrae, Philadelphia.—p. 175.
Sir Richard Blackmore, M.D. T. N. Toomey, St. Louis.—p. 180.
Treatment of Convulsions (Tetany) with Calcium in the Seventeenth Century. P. G. Shipley.—p. 189.
What Was Kappa Lambda? C. D. Leake, Madison, Wis.

Annals of Surgery, Philadelphia

September, 1922, **76**, 3

Opportunities and Responsibilities of Surgeon. J. M. T. Finney, Baltimore.—p. 293.
End Results in Cancer as Influenced by Type, Reaction, Location and Age. C. H. Mayo, Rochester, Minn.—p. 308.
*Secondary Manifestations of Malignant Disease. A. Primrose, Toronto.—p. 312.
*Recurrence Versus Metastasis in Carcinoma. E. Eliot, Jr., New York.—p. 324.
Treatment of Cancer of Jaws. A. J. Ochsner, Chicago.—p. 328.
Carcinoma of Thoracic Esophagus. H. Lilienthal, New York.—p. 333.
End Results of Treatment in Certain Forms of Malignancy of Neck. M. B. Tinker, Ithaca, N. Y.—p. 335.
*End Results of Operations for Cancer of Breast. F. E. Bunts, Cleveland.—p. 341.
*Id. H. Gage and D. S. Adams, Worcester, Mass.—p. 346.
*End Results of Operations for Cancer of Bladder. W. E. Lower, Cleveland.—p. 352.
*Results of Treatment by Radiation of Primary Inoperable Carcinoma of Breast. B. J. Lee, New York.—p. 359.
End Results of Operations for Carcinoma of Rectum. D. F. Jones and L. S. McKittrick, Boston.—p. 386.
End Results of Surgical Treatment of Carcinoma of Cervix Uteri. L. Davis, Boston.—p. 395.
*Factors Influencing Life Expectancy of Patients Operated on for Gastric Ulcer. D. C. Balfour, Rochester, Minn.—p. 405.
*Resection of Body of Stomach for Ulcer. E. S. Judd and J. H. Lyons, Rochester, Minn.—p. 409.

Secondary Manifestations of Malignant Disease.—Primrose discusses metastasis through lymph channels; abscess formation and gland metastasis; implantation carcinoma; dissemination through the blood stream and bone metastasis citing cases of each. One of the vagaries of secondary tumors, he says, is found in patients in whom a single lymph gland becomes the seat of a metastatic growth without any tendency for the involvement of other nodes in the neighborhood. The absence of secondary metastases in so-called primary carcinoma of the appendix he regards as significant. One case cited suggests the implantation of cancer by the auto-inoculation of ascitic fluid in a woman who suffered from general abdominal carcinomatosis. He warns against implantation and dissemination of cancer during operative procedure.

Recurrence Versus Metastasis in Carcinoma.—Clinical evidence pointing to the possibility of the independent development of multiple carcinomatous foci is presented by Eliot as against metastasis. In one case there was development of two carcinomatous foci of about the same size in a breast and presenting identical physical signs, yet separated by a considerable interval of normal glandular tissue. Other cases illustrating the development at or about the same time of carcinoma in widely separated parts of the body are also cited.

End-Results of Operation for Breast Cancer.—From Bunts' survey it is evident that the early removal of any growth in the breast remains the one and only sure method of treatment.

Id.—Gage and Adams assert that any lump in the breast is to be regarded with suspicion and carefully watched. Its persistence, and especially its activity, as indicated by increase in size, is ground for its removal, though not necessarily involving removal of the entire breast. A continued discharge from the nipple means a pathologic condition in the breast which must be kept under close observation.

End-Results of Operations for Bladder Cancer.—The percentage of recurrence in cancer of the bladder, Lower states, is great whatever the method of operation, whether excision or cauterization. Recurrence is no contraindication for treatment, as some of the best results have resulted from operation on cases with recurrences. Repeated observation after operation is absolutely essential if the mortality of carcinoma of the bladder is to be reduced. The good results of the treatment of recurrences are due to the fact that recurrences are nearly always local and very seldom metastasize.

Results of Radiotherapy in Primary Inoperable Breast Cancer.—Eighty-one cases are analyzed by Lee. It seems that primary inoperable carcinoma of the breast has shown good results by radiation. The patient must be kept under constant clinical observation. The type of radiation must be properly selected for each individual case. No routine prescription will suffice. Overtreatment by radiation must be avoided. Very advanced cases are unsuitable for any form of treatment. The palliative operation following properly planned radiation is of service in well selected cases. A cooperating social service department makes a follow-up system effective. Lee's results to date are very gratifying and encouraging to him.

Factors Influencing Life Expectancy After Gastric Ulcer Operations.—Among 1,280 patients with gastric ulcer operated on in the Mayo Clinic during a period of fifteen years, 195 deaths occurred following satisfactory recovery from the operation. There were seventy-five deaths from gastric cancer, comprising about 40 per cent. of the total number of deaths, and the remainder in which the cause is known are said, with few exceptions, to be due to causes independent of the stomach.

Resection of Body of Stomach for Ulcer.—Judd and Lyons state that sleeve resection is well suited for some ulcers high on the body of the stomach, for large perforated ulcers, and for multiple ulcers. It is the ideal procedure in hour-glass stomachs. The authors assert that the danger of hour-glass constriction following sleeve resection has been exaggerated. The functional results of this operation are very satisfactory.

Archives of Dermatology and Syphilology, Chicago

October, 1922, **6**, No. 4

*Tissue Reaction in Malignant Epitheliomas of Skin: Its Value in Diagnosis and in Prognosis. H. J. Parkhurst, Toledo, Ohio.—p. 401.
Expectancy in Roentgen-Ray Treatment of Skin Lesions from Pathologic Standpoint. W. J. Highman and R. H. Rulison, New York.—p. 413.
*Carcinoma of Tongue and Treatment with Radium. L. Taussig, San Francisco.—p. 424.
*Cancer of Lip Treated by Electrocoagulation and Radiation. G. E. Pfahler, Philadelphia.—p. 428.
*Treatment of Cancer of Lip by Radiation. E. S. Lain, Oklahoma City.—p. 434.
Cutis Verticis Gyrata: Report of Case. H. E. Alderson, San Francisco.—p. 448.
Physical Principles Underlying Development of High Voltage Roentgen-Ray Apparatus. C. N. Moore, Schenectady, N. Y.—p. 455.
Lupus Erythematosus Acutus Disseminatus Hemorrhagicus: Report of Case. M. Scholtz, Los Angeles.—p. 466.
New Findings in Pemphigus Vulgaris. K. Gawalowski, Prague, Czechoslovakia.—p. 476.

Tissue Reaction in Skin Epithelioma.—The slides from 100 epitheliomas were examined by Parkhurst. The number of plasma cells and, to a somewhat less extent, the number of lymphocytes, varied directly with the amount of hyaline degeneration of the connective tissue. The apparent strength of the cancer cells and the number of mitoses seems to bear no constant relationship to any other feature, nor to each other. Mitotic figures may be entirely lacking, and they are usually not so numerous as might be expected. Plasma cells are never found in the absence of hyaline degeneration. As the number of plasma cells is an indication of the degree of resistance (immunity) of the tissue (derma), the malignancy of the neoplasm varies inversely in proportion to the number of plasma cells. The more malignant the process, the less the number of plasma cells, showing that the neoplasm is developing so rapidly that the tissue has not the time to develop any resistance. This is considered to be a note of prognostic value.

Radium Therapy of Tongue Carcinoma.—Fourteen patients with carcinoma of the tongue were treated with radium by Taussig. Four had syphilis in addition to carcinoma. Four are clinically free of the disease, two at two years after treatment, one at one and a half years and one at six months. Five showed cervical metastases at the time treatment was instituted and five of the others developed an involvement of the glands during treatment. None of these patients survived. Ten are dead, or when last seen were in such condition that the end was only a matter of time. Several other patients received their first treatment but did not again report for observation or further treatment, and were not traced. Taussig believes that it is reasonable to expect that with improved technic it will be possible to cure 25 per cent. of unselected cases of carcinoma of the tongue by irradiation.

Electrocoagulation and Radiation of Lip Carcinoma.—Local destruction of the lesion by electrocoagulation, followed by thorough radiation, Pfahler asserts, should effect a cure in practically all cancer of the lip cases if patients are treated early. Thorough radiation by radium or the roentgen rays should be given over the lymphatics draining the diseased area. Recurrent carcinoma gives much less satisfactory results. Metastatic lymph nodes should be treated by surface radiation and then by radium implantation or by excision.

Radiotherapy of Lip Carcinoma.—The cellular morphology of a cancer of the lip, Lain says, has less importance in the prognosis than the location or degree of development, or the age of the patient. On account of a beginning atrophy of the lymph system, after a certain age the prognosis is better. Especially is this true in cancer of the lower lip. A prickle or a squamous cell cancer, in the early stage of its growth, will undergo degenerative changes under radiations from either radium or roentgen ray just as the basal cell variety does. They differ only in the amount of radiation necessary and the technic of its application. Statistics verified both by clinical and by laboratory findings justify the conclusion that cancer of the lip is equally and, perhaps, more amenable to treatment by roentgen ray or radium than by surgery, and in most cases radiotherapy is to be preferred.

Canadian Medical Association Journal, Montreal

September, 1922, **12**, No. 9

Relations of Heredity and Environment of "Constitution" and "Condition" to Predisposition to Disease. L. F. Barker, Baltimore.—p. 601.
Some Phases of Dysthyroidism. C. P. Howard, Iowa City.—p. 606.
Study of Symptoms. T. McCrae, Philadelphia.—p. 610.
*Regulatory Function of Kidney in Nephritis. E. M. Watson.—p. 616.
Two Cases of Polyneuritic Affection Resembling Acrodynia Met with in Young Children. L. M. Lindsay.—p. 618.
Renal Tuberculosis. D. W. MacKenzie.—p. 620.
*Reaction of Blood in Reference to Regulation of Respiration and Influence of Anesthesia Thereon. A. W. Downs.—p. 625.
End Results of Surgical Treatment of Diseases of Stomach and Duodenum. A. J. A. Hamilton, Boston.—p. 629.
*Chronic Arthritis: Etiology and Treatment. A. A. Fletcher.—p. 633.
*Bone Suppuration Basic Cause of Renal Calculus in Twenty Cases Following War Wounds. H. E. Paul.—p. 638.
Studies in Radium. H. Mackay.—p. 643.
*Embolism of Abdominal Aorta. C. F. Wylde.—p. 647.
Should Sanatorium Laboratory Do Complement Fixation and Other Serum Tests as Routine Measures. A. H. W. Caulfeild.—p. 650.
Mesenteric Thrombosis; Report of Two Cases. C. B. Parker.—p. 655.
Bilateral Carcinoma of Breast. Webster and Hooper.—p. 659.

Regulatory Function of Kidney in Nephritis.—Watson points out by means of curves that the regulatory function of the kidney is interfered with in nephritis as shown by the limited power of water excretion and the absence of the normal morning alkaline tide. The nephritic kidney is apparently not unable to excrete an acid urine. The deficiency rests in the fact that it produces a urine with a high acidity factor at a time when a normal kidney produces a urine with a low acidity factor. The water test of Leathes, may be used as a means for detecting impairment of renal function.

Reaction of Blood; Regulation of Respiration.—The point is brought out by Downs that the use of carbon dioxid by inhalation during anesthesia is illogical. Carbon dioxid is probably the most effective stimulus to the respiratory center and during anesthesia, as a result of the action of the anesthetic, the sensitivity of the center is decreased so that it will tolerate a higher tension of carbon dioxid, and thus it might appear sound to administer carbon dioxid for the purpose of stimulating the center, but experiments show that the response of the regulating mechanism is sufficient to maintain the reaction of the blood within physiologic limits. Therefore, the administration of carbon dioxid does not appear necessary and it would seem unwise to run the risk of overbalancing this mechanism with the possibility of causing a fatal acidosis. On the other hand the administration of sodium bicarbonate to maintain the power of the organism to combine with acids produced during anesthesia appears a rational procedure. Its use, however, is to be restricted to those cases in which there is positive indication for its employment, when the carbon dioxid capacity of the plasma is less than 58 c.c. per hundred c.c. In the normal subject under ordinary conditions the organism is capable of caring for the excess of acid bodies produced during anesthesia and intervention is not called for.

Diet in Chronic Arthritis.—Fletcher has made a systematic survey of about 150 unselected cases of arthritis deformans, in which, under careful control, the effect of dietetic treatment has been observed and in which the sugar tolerance has been estimated. A more or less general routine was carried out for all these patients. After rest in bed for at least two weeks, and after the disease had reached a stationary stage, the patient was given daily six glasses of milk and three of buttermilk, one or two oranges, half a grape fruit for one week. This amount was then gradually increased by the addition of vegetables and fruits containing less than 15 per cent. carbohydrates, egg, fish, fowl, meat, soups, junkets and jellies, and finally brown bread in small amounts, giving a daily intake of from 1,500 to 2,000 calories in four weeks' time. Those under weight were allowed in addition cod liver oil and cream. During this period of four weeks, no other form of treatment was given except that bowel movements were secured by enemas when necessary on alternate days, and in a few cases liquid paraffin was given by mouth. The results leave no doubt that careful dietetic regulation must be given an important place in the therapy of this disease. Women, as a group, are much more favorably influenced by dietetic treatment than are men.

Bone Suppuration Causes Renal Calculus.—Observation has convinced Paul that there is undoubtedly a very definite etiologic relationship between the bone suppuration and the formation of renal calculi in the twenty cases analyzed. Approximately 90 per cent. of these cases show definite signs of infection in the urine from the affected kidney, which fact is fairly good presumptive evidence that infection is a definite contributing cause, if not the most important cause, of renal calculi. Lack of drainage in the upper urinary tract is seemingly not an important primary cause of the formation of renal calculi following such a systemic infection as osteomyelitis. Sedentary habits of life likewise have no direct relationship to calculus formation, where such formation follows a systemic infection as osteomyelitis. Paul is convinced that if every case of nephrolithiasis could be investigated with sufficient thoroughness, a history of a preceding systemic infection could be elicited. The removal of calculus from the upper urinary tract should be considered only an important preliminary step in the cure, and treatment of the concurrent infection must be carried out thoroughly if recurrence is to be avoided.

Embolism of Abdominal Aorta.—Wylde reports two cases. In one case a portion of a mural thrombus in the left auricle had evidently become detached and passing through the mitral and aortic orifices into the aorta had been arrested at its bifurcation. A part of the embolus extended into each common iliac and caused complete obstruction in the right leg and partial obstruction in the left. A portion of the embolus in the right common iliac had broken off, passed down into the right femoral, obstructing it, and leading to gangrene of the leg which necessitated amputation. The second case was practically identical with the first. The source of the embolism was a large globular ball thrombus which lay in the left auricle occluding a stenosed valve. This ball thrombus had evidently broken free sometime previously from a thrombus mass in the left auricular appendix, fragments of which still remained attached in situ.

Boston Medical and Surgical Journal

Sept. 14, 1922, **187**, No. 11

*Malignancy in War Veterans. W. F. Cotting, Boston.—p. 381.
*Tuberculosis of Breast; Report of Two Cases. P. H. Leavitt, Brockton.—p. 392.
Etiology of Sterility in Female, From Analysis of 500 Case Records. D. Macomber, Boston.—p. 397.
Fracture of Lower End of Radius Associated with Fracture or Dislocation of Lower End of Ulna. J. Homans and J. A. Smith, Boston.—p. 401.
Heritage and Reckoning of Surgeon. M. F. Fallon, Worcester.—p. 407.
Treatment of Tonsils by Radiations from Radium Salts Instead of Operation. F. H. Williams, Boston.—p. 412.

Malignancy in War Veterans.—The cases by Cotting are noteworthy chiefly because of the youth of the subjects, most of them at an age when one hardly expects carcinomatous disease. Seven were between 20 and 30, four between 30 and 40, and three between 40 and 50. The types of tumor were as follows: Carcinoma of rectum, metastatic carcinoma of liver, cholelithiasis; carcinoma in nostrils; cancer of head of pancreas; cancer of gallbladder; carcinoma of the pancreas, with metastases in the liver, spleen, retrosternal lymph glands, and probably in the lung; carcinoma of stomach; cancer of lung with extension into the spinal cord; malignant lymphoma and glioma of the optic thalamus.

Tuberculosis of Breast.—Leavitt's patients were women, aged 39 and 24, respectively. In both cases the affected breast was removed.

Johns Hopkins Hospital Bulletin, Baltimore

September, 1922, **33**, No. 379

*Factors Which Determine Concentration of Calcium and Inorganic Phosphorus in Blood Serum of Rats. B. Kramer and J. Howland, Baltimore.—p. 313.
*Study of Results Obtained in Sixty-Four Cesarean Sections Terminated by Supravaginal Hysterectomy. J. W. Harris, Baltimore.—p. 318.
*Air Embolism Following Various Diagnostic or Therapeutic Procedures in Diseases of Pleura and Lung. K. Schlaepfer, Baltimore.—p. 321.
*Effect of Saline Purgatives on Absorption of Other Drugs. D. I. Macht and E. M. Finesilver, Baltimore.—p. 330.
Localization of Cutaneous Nerves by Electrical Stimulation, Applied to Nerve-Block Anesthesia. W. Hughson, Baltimore.—p. 339.
Effect of Sodium Germanate on Total Hemoglobin of Albino Rat. J. E. Nowrey, Jr., Baltimore.—p. 340.
*Giant Centrospheres in Xanthomatous Tumors. D. T. Smith, Baltimore.—p. 342.
Normal Pregnancy Following Insertion of Outer Half of Fallopian Tube Into Uterine Cornu. T. S. Cullen.—p. 344.
Operation for Total Extirpation of Tumors in Cerebellopontine Angle. W. E. Dandy.—p. 344.

Factors Determining Concentration of Calcium and Inorganic Phosphorus in Serum. — A study has been made by Kramer and Howland of the influence of various factors on the concentration of calcium and inorganic phosphorus in the serum of rats. The concentration of neither element has been distinctly increased beyond normal limits, either as the result of various additions to the diet or the use of physical agents. It is possible to reduce the concentration of these elements in the serum by feeding diets containing an insufficient quantity of the respective elements. In order to bring this about there must be only enough of the organic factor represented by cod-liver oil or butter fat to prevent xerophthalmia and allow moderate growth. Even with a very small amount of calcium or phosphorus in the diet, compensation occurs and the concentration of these elements in the serum approaches the normal level if sufficient of the organic factor is included in the diet. A defect in the diet is accentuated in succeeding generations, so that a diet which gives a normal value for the serum calcium in the second generation may give a distinctly low figure in the third generation. Of the fats that have been employed in these experiments the fat from the livers of fish has been much more effective than butter fat. The vegetable oils (olive and maize) have been without influence. When the concentration of either element in the serum is low as a result of a deficiency in the diet, it may be increased by increasing the amount of the respective element in the food. When the diet is defective in phosphorus and the phosphorus of the serum is therefore low, a marked increase of the serum phosphorus may be produced by starvation, by the addition of phosphorus to the diet in organic or inorganic form, by various fats, and by exposure to radiations from various sources which yield, among others, rays whose wave lengths are less than 3,000 Aengstrom units.

Results of Supravaginal Hysterectomy Done at Time of Cesarean Section.—In 223 cesarean sections done in the obstetric service of the Johns Hopkins Hospital up to May 15, 1922, the uterus was removed by supravaginal hysterectomy in sixty-four instances. There were three deaths, a gross mortality of 4.68 per cent. None of the deaths were due to infection and only one of them was associated directly with the operation. In forty-one of these sixty-four cases the uterus was removed at the first cesarean section. In twenty-three cases of the sixty-four the prime or secondary object of the hysterectomy was sterilization. The late cesarean operation is regarded as an extraordinarily dangerous operation and, in such cases, Harris says if one is not prepared to sacrifice the uterus, pubiotomy must be done or the child destroyed if the patient is to be safeguarded, whereas by resorting to radical measures results may be obtained which are comparable to those following conservative cesarean section done at an elective time either before or just after the onset of labor.

Air Embolism Following Procedures on Chest.—Following various diagnostic and therapeutic procedures on the chest (puncture, irrigation of a cavity, changing tubes, introducing a probe or a rubber catheter, bismuth paste filling, decortication, thoracoscopy, fat or paraffin plombage, pneumotomy, pneumectomy), Schlaepfer says complications may ensue which have been proved experimentally and clinically to be caused by air emboli. The clinical pictures of these air emboli show a wide variety. They should be made more exact by further thorough study of these complications by means of ophthalmoscopic, stool and urine examinations. The best therapy, in Schlaepfer's opinion is the preventive one. When an air embolus occurs, the operation should be stopped immediately; the head of the patient put low; the heart action reinforced with stimulants. Epinephrin injections, administered intravenously, will increase the amount of blood passing through the brain by diminishing the blood supply in the splanchnic areas (intestines, skin).

Effect of Saline Purgatives on Drug Absorption.—The experiments described by Macht and Finesilver it is asserted establish beyond doubt that saline purgatives can and do affect markedly the absorption and consequent excretion of other drugs. It was found that all the drugs examined were markedly delayed in their absorption from the stomach and intestines when they were administered subsequently to or even simultaneously with saline laxatives. The absorption and subsequent secretion of phenolsulphonephthalein and sodium salicylate were markedly affected by saline purgatives, even when the former drugs were administered by intramuscular or intraperitoneal injection. Laxatives other than those of the "saline" type exerted no important effect on the absorption of the drugs from the stomach and intestines. These findings have an important practical bearing on the therapeutic administration of medicaments. The experiments, especially those with phenol and mercuric chlorid, furthermore, speak in favor of a more extensive employment of saline laxatives in the treatment of toxicologic cases.

Giant Centrospheres in Xanthomas.—Giant centrospheres were present in the pigment containing cells of nine out of seventeen xanthomatous tumors examined by Smith. They are probably to be regarded as evidence of degeneration.

Operation for Extirpation of Tumors in Cerebellopontile Angle.—Dandy makes a bilateral suboccipital exposure of the cerebellum with as much exposure of the affected angle as possible. The interior of the growth is removed with a curet. Following this, the capsule is picked up with forceps and beginning at the upper and lower poles, carefully drawn away from the medulla, pons and midbrain. The traction brings into view the several small veins and arteries crossing from the brainstem to the tumor. These vessels are ligated individually with silver clips or fine silk ligatures and divided. Gradually, in this painstaking way, the whole tumor is delivered from its bed without bleeding, and without trauma to the brainstem. The cranial nerves stretched by the tumor are automatically liberated as the capsule falls away from them.

Kentucky Medical Journal, Bowling Green

September, 1922, **20**, No. 9

Focal Infection, "Epilepsy," "Insanity," Asylum Reform. C. A. L. Reed, Cincinnati.—p. 585.
Salivary Fistula: Case Report. S. G. Dabney Louisville.—p. 589.
Immediate Repair of Lacerations Versus Delay. A. N. Pickett, Louisville.—p. 590.
Uterine Prolapse with Associated Pelvic Relaxation. C. G. Arnold, Louisville.—p. 593.
Pruritus Ani: Case Report. B. Asman, Louisville.—p. 599.
*Paralysis Agitans as Sequel of Encephalitis; Case Report. J. J. Moren, Louisville.—p. 600.
Deep Abscess and Cellulitis of Abdominal Wall Following Pneumonia: Inoperable Mammary Cancer: Case Reports. J. W. Price, Louisville.—p. 602.
Cancer of Prostate Gland, Treated by Radium; Case Report. W. Frank, Louisville.—p. 603.
*Abscess of Liver. J. P. Boulware, Louisville.—p. 605.
Interesting Case of Acute Mania. H. E. Tuley, Louisville.—p. 606.
Polycystic Kidney: Hypernephroma—Case Reports. I. Abell, Louisville.—p. 607.
*Tumor of Pituitary; Report of Case. L. K. Baldauf, Louisville.—p. 610.
Relation of Water to Production of Goiter. V. D. Guittard, Maysville.—p. 612.
Memorial on Life of Dr. St. Joseph Buford Graham. J. G. C. Stanford.—p. 615.
Classification, Terminology and Etiology of Tumors. S. Graves, Louisville.—p. 617.
Value of Periodical Physical Examination. W. N. Lipscomb, Lexington.—p. 626.
Case of Suppurative Ethmoiditis Complicated by Orbital Cellulitis and Acute Suppurative Dacryocystitis. W. Dean, Louisville.—p. 630.
Mortality and End Results in Surgery from Personal Experience. J. H. Caldwell, Newport.—p. 631.
Fracture of Skull Base with Superficial Hemorrhage on Opposite Side: Report of Interesting Autopsy. S. Graves, Louisville.—p. 634.
Bilateral Renal Calculi—Case Report. O. Grant, Louisville.—p. 636.
Removal of Morbid Fears and Similar Besetments—Principles in Some Illustrative Cases. T. A. Williams, Washington, D. C.—p. 638.
Mutual Interest of Profession and Public. W. S. Rankin, Raleigh, N. C.—p. 640.
Directions for Cleaning up Town. M. M. Carrick, Dallas.—p. 641.
Syphilis. S. J. Rose, Winchester, Ky.—p. 643.
Death from Cardiac Embolus—Case Report. L. K. Baldauf, Louisville.—p. 645.

Paralysis Agitans Sequel of Encephalitis.—In March, 1919, Moren's patient, aged 26, had influenza and married a short time afterward. She then had no illness of any consequence until November, 1920, when she suffered severe radiating pains about the head and neck and had some delirium. This persisted for nearly six weeks. During December she gave birth to a child apparently without complications. A short time after delivery the family noticed she did everything very slowly. There was some improvement in her condition, and she then became pregnant the second time. After this she appeared more like herself and seemed normal. In September, 1921, she gave birth to her second child without any complications. Following this delivery her slowness of movement and slowness of speech became markedly increased. She seemed to be in worse condition than following the previous delivery. The interesting feature of this case in Moren's opinion is the fact that while cases of this kind have been reported as having occurred during pregnancy, the manifestations in this case followed pregnancy. During the time the woman was pregnant she seemed entirely normal.

Abscess of Liver.—Boulware reports a case which he believes was one of an old tuberculosis of the lungs, a secondary tuberculosis of the oviducts and ovaries, a secondary pyemic infection of a tuberculous tubo-ovarian abscess and a secondary metastatic infection of the liver resulting in a pyemic abscess. Death resulted from peritonitis induced by a rupture of the infected gallbladder.

Tumor of Pituitary Causes Impaired Vision.—Impaired vision in the right eye and a gradually increasing drowsiness marked the onset of the illness of Baldauf's patient. These symptoms were followed by a peculiar discomfort in the bitemporal to occipital region, a sort of a dull headache. Gross eye tests showed a right temporal hemianopsia. Roentgen-ray examination of the skull laterally showed a sella turcica much enlarged, deepened with probably some erosion. A diagnosis of pituitary tumor was made and operation advised.

Maine Medical Association Journal, Portland

August, 1922, **13**, No. 1

Transcript of Proceedings at Seventieth Annual Meeting of Maine Medical Association.—p. 1.

Minnesota Medicine, St. Paul

September, 1922, **5**, No. 9

Mobilization of Joints with Bony Ankylosis. W. C. Campbell, Memphis, Tenn.—p. 503.
Reconstruction of Tibia by Utilization of Fibula. A. A. Law, Minneapolis.—p. 507.
*Primary Carcinoma of Appendix. M. Warwick, St. Paul.—p. 512.
*Progress in Cancer Research. G. Luden, Rochester, Minn.—p. 519.
Nonsurgical Drainage of Biliary Tract: Few Clinical Experiences. H. J. Lloyd, Mankato, Minn.—p. 523.
Otolaryngology and General Practitioner. G. E. Shambaugh, Chicago.—p. 526.
Blood Pressure Technic Clarified. C. H. Clark, Gallup, N. M.—p. 529.
Essential Findings in 280 Cases of Pulmonary Tuberculosis in Children. J. M. Conroy and A. T. Laird, Nopeming, Minn.—p. 534.
Study of Severe Secondary Anemias. A. E. Mark, St. Paul.—p. 536.
Diagnostic and Therapeutic Aspects of Biliary Drainage. H. R. Hartman, Rochester, Minn.—p. 545.

Primary Carcinoma of Appendix.—Warwick reviews the literature on this subject which shows that in the routine sectioning of all appendixes removed at operation, carcinomas are found in from 0.2 to 0.8 per cent. Two definite types occur: the spheroidal or benign, and the adenocarcinoma or malignant type. While these two types present a different histologic picture, there are gradations from one to the other, making the differentiation between the two types often impossible. Chronic inflammation, while usually coexistent with the tumor, plays an unimportant rôle as an etiologic factor. It is evident that every appendix should be sectioned and when a carcinoma is present the patient's later health should be carefully watched from the viewpoint of the possible appearance of metastases.

Progress in Cancer Research.—Luden asserts that the history of cancer research shows that the formerly much derided biochemical conception of malignant growth has not only survived through twenty-four centuries, but that it is gaining ground today because instruments and methods for chemical investigations are available. The practical value of researches along chemical lines in malignancy has been demonstrated by recent investigations. The complexity of metabolic functions and the number of organs concerned in their regulation make it seem improbable that any single cause of or cure for malignancy is likely to be discovered. The very multiplicity of the factors underlying malignant growth warrants, however, that the consideration of all factors which tend to disturb metabolic processes in the body, that is, chemical processes, will prove of benefit to the victim of malignant disease. The complete and spontaneous regression of inoperable, malignant tumors in 100 well authenticated cases is conclusive evidence that the human body can wage a winning fight against malignancy. The knowledge that other patients have became clinically well, although the odds seemed entirely against them, can do no harm to any patient suffering from a malignant condition and may prove beneficial to him. Early diagnosis and early treatment of malignancy are of primary importance, but the regulation of the diet is of value, also, because it facilitates the chemical tasks of the body.

Nebraska State Medical Journal, Norfolk

August, 1922, **7**, No 8

Consultants I Have Known. M. Nielsen, Blair.—p. 257.
Lateral Sinus Complications of Purulent Otitis Media. A. H. Andrews, Chicago.—p. 263.
Diagnosis of Duodenal Ulcer. H. J. Lehnhoff, Lincoln.—p. 268.
Management of Acute Retention of Urine with Special Reference to Enlarged Prostate. J. E. Summers, Omaha.—p. 271.
Overmedication in Infancy and Childhood. W. O. Colburn, Lincoln.—p. 273.
Relation of Medicine to Law. C. C. Flansburg, Lincoln.—p. 276.
Local Anesthesia in General Surgery. A. I. McKinnon, Lincoln.—p. 280.
Report of Five Cases of Sporotrichosis. E. A. Watson, Grand Island.—p. 282.
Purpura Fulminans Complicating Scarlet Fever. N. T. Johnston, Upland.—p. 284.
Value of Saligenin, New Nontoxic Local Anesthetic, in Cystoscopic Examinations. A. L. Smith, Lincoln.—p. 286.

New Jersey Medical Society Journal, Orange

August, 1922, **19**, No. 8

Diagnostic Surveys by Diagnostic Commissions for Asylum Populations. C. A. L. Reed, Cincinnati.—p. 207.
Community Health Service. J. Nevin, Jersey City.—p. 210.
Why Not Encourage Maternal Feeding? E. W. Murray, Newark.—p. 213.
Case of Mongolian Idiocy. F. H. von Hofe, South Orange.—p. 215.
Laryngeal Stenosis. Case Report. F. M. Hoffman and J F. McGovern, New Brunswick.—p. 216.
Case of Uterine Bleeding Treated with Radium. J. J. Mundell, Washington, D. C.—p. 218.

Northwest Medicine, Seattle

August, 1922, **21**, No. 8

Myomectomy for Myomas of Uterus. W. J. Mayo, Rochester, Minn.—p. 235.
Myxomatous Degeneration of Myofibroma of Uterus. P. Rockey, Portland, Ore.—p. 239.
Roentgen Ray Versus Surgery in Treatment of Fibroid Tumors of Uterus. J. L. Lane, Seattle.—p. 241.
Intrameningeal Hemorrhage of New-Born. E. J. Barnett, Spokane, Wash.—p. 243.
Infectious Diarrhea in Children. E. D. Carder, Vancouver, B. C.—p. 247.
Diseases of Hip Joint of Children. J. E. Tyree, Salt Lake City.—p. 250.
Primary Carcinoma of Liver. T. Torland, Seattle.—p. 253.
Heterogeneous Testicular Grafting in Man with Histologic Proof of Taking of Graft. M. Thorek, Chicago.—p. 256.
Neuropathic Dilatation of Colon with Hypertrophy. K. Winslow, Seattle.—p. 258.
Multiple Areas of Penetrating Colitis. J. F. Scott, Yakima, Wash.—p. 259.
American Red Cross Child Welfare Program in Poland. J. B. Manning, Seattle.—p. 260.

Ohio State Medical Journal, Columbus

September, 1922, **18**, No. 9

Premature Separation of Normally Implanted Placenta. W. D. Fullerton, Cleveland.—p. 596.
Case of Double Kidney and Double Ureter: Review of Literature. C. M. Harpster, T. H. Brown and H. A. Delcher, Toledo.—p. 602.
Significance of Meningeal Reactions. O Berghausen, Cincinnati.—p. 606.
Diagnosis and Interpretation of Symptoms in Cerebral Injuries. J. E. Pirrung, Cincinnati.—p. 611.
*Operability and Technic of Operation of Cerebral Traumatism. T. S. Jackson, Cleveland.—p. 614.
Occupation Dermatoses. R. Ruedemann, Jr., Cincinnati.—p. 618.
Practical Points in Treatment of Drug Habits. E. E. Gaver, Columbus.—p. 620.
Methods of Determining Astigmatism of Crystalline Lens. R. C. Heflebower, Cincinnati.—p. 623.

Operability of Cerebral Traumatism.—Jackson emphasizes the fact that no rule or blood pressure pulse rate chart which has ever been invented, can tell what to do with skull fracture case. Attempts are frequently made to formulate a syndrome which definitely indicates or contradicts operation. Some syndrome might work out correctly if constant factors were being dealt with, but variables is the rule. No two human beings are alike; no two injuries are alike and certainly similar injuries do not provoke similar reactions. Therefore, each must be treated as an entity and judgment based solely upon the individual case.

Rhode Island Medical Journal, Providence

September, 1922, **5**, No. 9

Glaucoma; Etiology and Treatment. F. J. McCabe, Providence.—p. 303.
Treatment of Chronic Rheumatism with Especial Reference to Radium. L. L. Albert, Central Falls, R. I.—p. 307.

West Virginia Medical Journal, Huntington

September, 1922, **17**, No. 3

Digitalis Therapy. G. H. Barksdale, Charleston.—p. 81.
Fluoroscopic Examination of Urinary Tract. A. L. Gray, Richmond.—p. 86.
"Lest We Forget." J. L. Miller, Thomas, W. Va.—p. 91.
Cancer Problem. F. L. Hupp, Wheeling.—p. 93.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

August, 1922, **27**, No. 3

Deep Therapy. Problems in Radiotherapy. R. Knox.—p. 69.
Id. S. G. Scott.—p. 87.
Id. R. Proust, L. Mallet et R. Coliez.—p. 89.

British Journal of Children's Diseases, London

July-Sept., 1922, **19**, Nos. 223-225

Effect of Special High Protein Diets in Treatment of Chronic Intestinal Indigestion in Children. A. Brown, A. M. Courtney and I. F. MacLachlan.—p. 113.
*Severe Blood Diseases of Childhood. F. J. Poynton, H. Thursfield and D. Paterson.—p. 128.

Severe Blood Diseases of Childhood.—Any sharp clinical distinction between myeloid and lymphocytic leukemia in childhood is held by Poynton, Thursfield and Paterson to be impossible, and, further, there are unusual examples in which the resemblance to cases in the group of anemia gravis (aplastic anemia) and purpura hemorrhagica is clinically very close. One point on which particular emphasis is laid by the authors is the dissimilarity of the picture of their cases of lymphocytic leukemia to that which may be gathered from descriptions in textbooks. The most severe of them have shown little or no lymphatic enlargement, and the spleen may not be felt, or at the most be detected just below the costal arch. The pathologic examinations of their cases inclines them, on the whole, to the view that the changes in the lymphoid tissues are the result of the primary damage to the bone marrow but the decision on this point is a very difficult one. Another difficult point arises in the differential leukocyte count. What percentage of lymphocytes is a test of lymphatic leukemia? The authors' experience on this point was that the relative proportion of lymphocytes tended to fall in anemia gravis as the illness progressed, but in lymphatic leukemia it tended to rise, reaching 90 per cent. or over, but this was not invariable. A great increase in the total number of leukocytes in lymphatic leukemia in this series of cases was the exception. One case showed 123,000 per c.mm., but the majority of cases gave a low count. In other words, lymphatic leukemia of the most severe kind may be associated with a leukopenia. Of eighteen cases of leukemia, fourteen were diagnosed as acute lymphatic leukemia, two as myeloid leukemia, and two were apparently of a mixed type.. Two cases of myeloid leukemia, both in male infants, showed some remarkable points of differences from the lymphatic group. The spleen reached an enormous size, and the total count of white blood cells, 400,000 per c.mm., exceeded any met with in the lymphatic cases. Then, again, there were numerous myelocytes and a considerable number of nucleated red blood cells.

British Medical Journal, London

Sept. 16, 1922, **2**, No. 3220

*Significance of Retinal Hemorrhages. C. O. Hawthorne.—p. 495.
*Method of Reducing Congenital Dislocation of Hip. F. W. Goyder.—p. 497.
*Fragilitas Ossium Associated with Blue Sclerotics. Three Cases. H. Stewart.—p. 498.
Occupational Dermatitis. W. J. O'Donovan.—p. 499.
Dermatitis Artefacta. G. H. Lancashire.—p. 504.
Familial Alopecia Areata and Strabismus: Family Group of Cases. J. G. Tomkinson.—p. 505.
Roentgen-Ray Treatment of Deep-Seated Cancers. J. R. Riddell.—p. 506; J. H. D. Webster.—p. 507, and F. Hernaman-Johnson.—p. 510.
Value of Gas Inflation in Roentgen-Ray Diagnosis. F. Hernaman-Johnson.—p. 511.
Dimple on Condyle of Femur. W. K. Connell.—p. 515.
Unsuspected Pregnancy. J. Fletcher.—p. 516.
Diphtheria Carrier. C. L. Spackman.—p. 516.

Significance of Retinal Hemorrhages.—Hawthorne states that retinal hemorrhages may exist without recognized prejudice to vision, and ophthalmoscopic examination is therefore a necessary part of every clinical examination. Such hemorrhages may be the first objective signs of serious disease, and a discovery of them, therefore, demands a complete examination of the patient. The recognition of retinal hemorrhage is often of high value in directing the observer to a correct interpretation of the clinical facts, while the prognostic significance of the observation per se is indeterminate Retinal hemorrhages do occasionally exist as isolated clinical facts, and when so existing are comparable to hemorrhages in other parts of the body (hematemesis, hematuria, hemoptysis, etc.), for which no ready explanation is at hand.

Reduction of Congenital Hip Dislocation.—Goyder effects reduction by making downward pressure on the fully flexed knee. The method adopted for the left hip is as follows: The patient's sacrum may be placed on a sandbag; the pelvis is steadied by an assistant. The knee and hip are flexed, the latter as fully as possible till the knee lies as nearly as can be managed beside the trunk. The right hand of the operator is put on the patient's knee and has two functions—first, by downward pressure to push the head toward the acetabulum, and, secondly, by rotation at the knee to direct the movements of the femoral head. The palm of the operator's left hand is placed against the great trochanter with the thumb in front and the fingers on the neck of the femur behind. While downward pressure is maintained with the right hand to keep the head of the femur as low as possible an attempt is made, by lifting with the fingers of the left hand, and depressing the right hand with or without rotation, to put the head below the acetabulum. A little time and some preliminary stretching of the tissues below the acetabulum may be needed, but no great force. The next maneuver consists in maintaining the forward position of the head while gradually relaxing the pressure on the knee when the head sinks noiselessly into the acetabulum, often at the first attempt. This done, external rotation at the hip joint brings the limb into the usual Lorenz position. The thigh should finally be approximately at right angles to the body, and the knee more dorsally placed than the pubic symphysis, so that the head of the femur is fairly prominent in the groin.

Fragilitas Ossium with Blue Sclerotics.—The points of interest in Stewart's series of cases are: (1) that the four eldest members of the family have blue sclerotics; the children of the two eldest suffer from fragilitas ossium and blue sclerotics, while the children of the third are apparently normal. The fourth sister, who died some years ago, was unmarried. (2) The great preponderance of right side fractures. (3) The leg bones are chiefly affected. (4) The first fracture in each case occurred at 2 years of age. (5) There was only one case of deficient hearing. (6) All patients with brittle bones have blue sclerotics, but several with blue sclerotics have apparently normal bones.

Edinburgh Medical Journal

September, 1922, **29**, No. 3

Treatment of Disabilities of Hand and Wrist: Anatomic Review in Relation to Function. W. A. Cochrane, Boston.—p. 97.
*Aortitis, with Special Reference to Syphilitic Aortitis. S. B. B. Campbell.—p. 109.
Variations in Respiratory Exchange with Masks of Different Types. L. Dautrebande and H. W. Davies.—p. 127.
Urethroscope as an Aid in Diagnosis and Treatment of Gonorrhea. C. C. Brown.—p. 136.
Case of Congenital Narrowing of Esophagus. K. P. Brown.—p. 145.
Case of Myositis Ossificans Progressiva in Child. J. A. Henderson.—p. 148.

Syphilitic Aortitis.—In Campbell's series of thirty-seven cases of aortitis syphilis was found to be the causal factor in thirty-one. Of these, twenty-eight gave a positive Wassermann reaction, and in the remaining three a definite history of syphilis was elicited, in one twenty years previously, and in the others twenty-six and twenty-seven years, respectively. Of the remaining six cases, one was found in a case of subacute endocarditis, while two other patients gave a definite history of rheumatic fever. Another had lived in the tropics for a long time and had a high blood pressure—220 systolic. The remaining two patients gave no definite history of any previous disease.

Journal of State Medicine, London

September, 1922, **30**, No. 9

Some of Social and Medical Gains of Industrial Legislation. T. Oliver.—p. 369.
Immediate Selfdisinfection: Its Efficacy and Advisability. H. W. Bayly.—p. 381.
Comparison of Colloid Flocculation Test (Dreyer-Ward Technic) with Wassermann Reaction for Diagnosis of Syphilitic Infection. H. J. B. Fry.—p. 396.

Journal of Tropical Medicine and Hygiene, London

Sept. 15, 1922, **25**, No. 18

*Geographical Distribution of Human Schistosomiasis. F. Milton.—p. 289.

Geographical Distribution of Human Schistosomiasis.—Human schistosomiasis, Milton says, is distributed around the world between 38 degrees N. and 36 degrees S. in a broad belt, which shows patches of peculiar intensity of infestation and other patches of still more curious freedom from all infection. In Europe the only two known endemic centers are one in Cyprus and the other in southern Portugal, and in both these centers *Schistosomum hematobium* is the only species found. The continent of Africa is preeminently the home of the schistosomes, and there is hardly a part of it in which medical work is carried on with efficiency from which cases have not been reported. However, Milton has been unable to find record of any cases originating in Algeria, Tripoli and Red Sea Coast. Both *S. hematobium* and *S. mansoni* are found in Africa, as are also cases of *S. bovis.*

Medical Journal of Australia, Sydney

Aug. 19, 1922, **2**, No. 8

Convulsions in Childhood. A. J. Turner.—p. 203.
Hay-Fever. W. N. Robertson.—p. 207.
*Peritoneal Echinococcosis; Analysis of Twenty-Five Cases. K. D. Fairley.—p. 209.
Case of Ring Sarcoma of Ciliary Body. J. L. Gibson.—p. 215.

Peritoneal Echinococcosis.—Multiple infestation was present in seventeen out of the twenty-five cases presenting multiple cysts analyzed by Fairley. Retrogressive change, often going on to calcification, was present in 20 per cent. of the cases. The clinical data in this paper entirely support the view that local implantation of hydatid elements derived from a leaking or ruptured intra-abdominal cyst, or from the dissemination of cyst contents during operative interference is the general mode of origin of multiple peritoneal echinococcosis. It was actually possible in 88.2 per cent. of the cases to prove the existence of a primary operation for intra-abdominal (usually hepatic) hydatid or to elicit the history of an acute abdominal crisis frequently following trauma which may or may not have necessitated operative intervention. Single cysts, on the other hand, probably originate by the active migration of a single embryo from the alimentary tract direct to the peritoneum or perhaps as a metastasis via the blood stream. The clinical picture of uncomplicated peritoneal hydatid is due to pressure exerted on adjacent structures and is generally characterized by the appearance of palpable cystic tumors. Single cysts are usually located in the pelvis, and early in their evolution produce pressure symptoms. Systemic manifestations occur only when some complication supervenes. Rupture or leakage of a cyst may lead to the anaphylactic syndrome, while secondary bacterial infection usually produces the clinical picture of localized intraperitoneal sepsis. Retrogressive changes are, as a rule, unassociated with features of clinical import. The preoperative diagnosis of multiple peritoneal echinococcosis has been satisfactory in this series, 88.2 per cent. of cases being correctly diagnosed. The more universal application of the Casoni intradermal test and the complement fixation reaction in abdominal tumors is urged. In peritoneal hydatid, complete removal of the cyst (including the adventitia) is the surgical ideal; where this is not possible, the adherent adventitia may have to be left in situ. Closure of the adventitia after removal of the cyst and its contents and the injection of 10 per cent. liquor formaldehyd in glycerin into the cavity yields satisfactory results. Drainage should be employed only where it is definitely indicated.

South Africa Medical Record, Cape Town

Aug. 26, 1922, **20**, No. 16

Asthma. J. Drummond.—p. 302.
Interpretation of Wassermann Reaction. W. A. Murray.—p. 306.
Tubular Skin-Grafting. M. G. Pearson.—p. 309.
*Unusual Cause of Danger in Puerperium. C. Lundie.—p. 311.
Two Cases of Polycystic Kidney. H. A. Moffat.—p. 312.
Undulant (Malta) Fever in South Africa. Appeal for Study and for Recognition of Its Chronic Forms. D. P. Marais.—p. 313.

Extreme Nervousness Causes Syncope in Puerperium.—Lundie cites the case of a woman pregnant with her seventh child who was, from the third month, unusually nervous about her coming confinement, which she would not survive. The result was that she suffered from severe syncopal attacks during the pregnancy and even for several days after confinement which was accomplished in ten minutes under general anesthesia. The author is convinced that the origin of the syncope was an undue nervous stimulation of the heart.

Tubercle, London

September, 1922, **3**, No. 12

*What Are Dangers of Infection for Children Under Eight in Tuberculous Homes. T. Schram, Christiania.—p. 529.
Heliotherapy. C. H. Brown.—p. 537.
Presence and Quantity of Ethereal Sulphates in Urine of Tuberculous Patients and Relation Which They Bear to Degree of Pyrexia. N. D. Ball.—p. 540.
Sun Treatment as Aid to Open-Air Treatment of Surgical or Nonpulmonary Tuberculosis. T. H. Martin.—p. 544.

Dangers of Infection for Children in Tuberculous Homes.—Five hundred children between the ages 0 and 8, and recruited from 310 tuberculous homes were examined by Schram by means of Pirquet's cutaneous tuberculin test to show what risks of infection are run by children in such homes. It was found that children in tuberculous families, living under bad housing conditions, run a very great risk of infection which is greatest when the disease of the source of infection is most advanced. In such homes infection occurs early, more than half the children being infected before they are a year old. Effective isolation of the tuberculous in homes containing young children is not feasible even when the patient is given a bedroom to himself. The child should be protected from massive infections, either by removing the source of infection from the child's neighborhood, or by isolating the child.

Archives des Maladies de l'App. Digestif, Paris

March, 1922, **12**, No. 2

*Linear Gastric Ulcer. G. Lion.—p. 73.
*Acute Dilatation of Stomach. Arnozan and R. Damade.—p. 99.
Diverticulum in Lower Duodenum. M. Robineau and Gally.—p. 103.
*Syphilitic Gastric Ulcer. A. Cade and Morenas.—p. 109.
Multiple Tumors in Esophagus. L. Timbal.—p. 126.

Linear Gastric Ulcer.—Lion's illustrations show the long fissure in the stomach caused by the linear ulceration in three cases. It was like a long slit in the stomach wall, and its extent compelled gastrectomy. In one case perforation was impending and in another case there was malignant degeneration of the tissues in the depths of the fissure. The resection of the stomach was difficult on account of the length of the linear ulceration but in one case in which merely gastroenterostomy had been done, gastrectomy became necessary later.

Complications of Acute Dilatation of the Stomach.—The elderly woman was healthy except for occasional indigestion from dietary indiscretions and the swallowing of air. One day the aerophagia became extreme and acute dilatation of the stomach followed, with hypersecretion. Spasm of the pylorus complicated the clinical picture, and there was blood in vomit and stools. Conditions gradually righted themselves and there has been no further disturbance since. The retrospective diagnosis explains the bleeding as due to some laceration of the gastric mucosa from the extreme dilatation. The recovery excludes ulceration.

Syphilitic Gastric Ulcer.—Cade and Morenas state that the character of the vascular lesions underlying these ulcers explains the scant benefit from specific treatment. It should be given a trial, but if it fails, surgical measures should be considered. The syphilitic basis should be suspected when the pains in the stomach do not correspond to the usual periods with gastric ulcer, and there is no hyperchlorhydria. Bleeding from the ulcer is common and may be profuse, possibly fatal.

Gynécologie et Obstétrique, Paris

July, 1922, **6**, No. 1

*Nomenclature for Dystocia. E. Zarate.—p. 1.
*Dystocia from Pelvic Anomalies. J. Rhenter.—p. 10.
Successful Vaccine Therapy in Case of Puerperal Pyemia. Dantin.—p. 37.
*Phrenic Reaction in Genital Infection. C. Stajano.—p. 44.

Necessity for Uniform Nomenclature for Dystocia.—Zarate queries whether there is any definite type of dystocia for which the contraction or retraction of the uterine muscle fibers are directly responsible. "Dystocia from contracture of Bandl's ring"; "acute antepartum hour-glass uterus" and two dozen or more other terms have been applied to this form of dystocia, but the clinical picture is the same in all: There is a stricture of the uterus, and the dystocia is annular. This is the only muscular form of dystocia that can be accepted as a pathologic entity.

Experiences with Contracted Pelvis.—Rhenter relates that some pelvic lesion compelled special measures in 387 of the 19,588 maternity cases at the Lyons clinic. The total mortality was 0.41 per cent., and 1.5 per cent. in this abnormal pelvis group. The fetal mortality in the institutional births was 11.6 per cent. Premature delivery was induced in 169 cases and it proceeded spontaneously in 75 per cent. No woman has died from this intervention during the last fourteen years in this group of spontaneous deliveries, and the morbidity was only 3.5 per cent.; the fetal mortality was 10.9 per cent. Cesarean section is given the preference when the pelvis is so contracted that the probabilities are against the spontaneous delivery of a child weighing at least 2,300 gm. By bringing the head in contact with the superior inlet, the proportion between the diameters can be estimated. By repeating this maneuver from time to time it is possible to judge when the limit of free passage is about to be surpassed. If the conjugate diameter is at least 8 or 8.5 cm., according to the shape of the pelvis, and if the fetus is at least 8 months old, then delivery may be rationally induced immediately.

Phrenic Reaction to Genital Infection.—Stajano calls attention to symptoms in the upper abdomen which may at first simulate gallbladder disease, liver colic, or perforation of an ulcer, but which is merely the reaction of the diaphragm to a gonococcus or streptococcus process in the female genital organs. It subsides harmlessly as the genital lesion continues its course. This phrenic reaction, as he calls it, may be observed also after an operation on some active process at which numerous adhesions were broken up. This reaction is rare with tuberculous lesions. Intraperitoneal hemorrhage is also liable to induce this reaction, but it is not observed with old encysted salpingitis with only slight involvement of the peritoneum. The reaction is the result of congestion in the peritoneum or of subperitoneal lymphangitis. The region responds with pain and tender points along the costal arch and phrenic nerve, and a sharp pain in the diaphragm, increased by deep breathing. There may be vomiting, singultus and a dry spasmodic cough from spasm of the irritated diaphragm. But all is transient and yields promptly to wet cupping at the costal arch. In the region between the genital organs and the phrenic nerve domain the nerves lie deeper, and are better protected, so that they escape the irritation; it passes harmlessly over them to the region above where it elicits the pains and tenderness, possibly even before the primary pelvis lesions have attracted attention.

Lyon Chirurgical

July-August, 1922, **19**, No. 4

- *Mechanism of Surgical Elephantiasis. W. S. Halsted, Reichert and Mont-Reid.—p. 369.
- *Retro-Omental Pseudocyst. G. Bolognesi.—p. 377.
- Rupture from Contusion of Loop in Hernia. G. Bolognesi.—p. 380.
- Cyst in Frontal Sinus. F. J. Collet.—p. 384.
- *Meningitis After Intraspinal Anesthesia. P. Wertheimer.—p. 387.

Infection as Responsible for Surgical Elephantiasis.—The research described here has been repeatedly mentioned in The Journal, as on page 1446, Oct. 29, 1921. In the latest experimental work to determine the mechanism of surgical elephantiasis, entire limbs were transplanted.

Retro-Omental Pseudocyst.—The epigastric tumor in the epileptic young man had developed rapidly. The supposed cyst was opened and sutured to the abdominal wall after evacuating 6 liters of the effusion. Intercurrent pneumonia proved fatal, and necropsy showed that an effusion had collected back of the omentum to form a false cyst as the hiatus of Winslow became closed.

Aseptic Meningitis After Intraspinal Anesthesia.—The patient was a man of 27, and the acute aseptic puriform meningitis developed twenty-four hours after the intraspinal injection done by the routine technic and with the solution used safely in other cases. The symptoms and continuous fever persisted for thirteen days. The intense headache was not relieved even by repeated lumbar puncture, but prompt improvement followed an intravenous injection of a 30 per cent. solution of glucose. The toxic congestive leptomeningitis in this case was particularly severe, the symptoms from intracranial hypertension being scarcely modified by lumbar puncture. A second injection of the strong glucose solution banished the last signs of irritation of the meninges.

Progrès Médical, Paris

Aug. 5, 1922, **37**, No. 31

- *Intra-Uterine Tamponing with Placenta Praevia. G. Ribas.—p. 361.
- *Benign Monoplegic Tetanus and Tetanoid Spasms. E. Chauvin and P. Vigne.—p. 362.
- Acute Appendicitis with Slow and Irregular Pulse. A. Broca.—p. 363.
- Syphilis and Metrorrhagia. Dalché.—p. 364.
- Insufficient Development of Abdominal Viscera in Insane Person. H. Damaye.—p. 367.

Intra-Uterine Tamponing in Treatment of Hemorrhage Due to Abnormal Insertion of Placenta.—Ribas says that this method of tamponing is not mentioned in any obstetrical textbooks although it is of great value in stopping hemorrhage occurring in the last months of pregnancy and also in provoking delivery. It is better than the inflatable bag because it does not require the rupture of the membranes. The gauze is between the internal wall of the uterus and the external part of the placenta and membranes. In cases where the life of the mother was at stake, the hemorrhage stopped in a few hours and spontaneous delivery occurred. He describes with an illustration the use of the tampon, and states that if expulsion does not occur in ten or twelve hours, a second tamponing should be done; as a rule, expulsion soon follows. He adds that if the tampon is applied slowly and cautiously, no complications need be feared.

Benign Monoplegic Tetanus and Tetanoid Spasms.—Chauvin and Vigne report that a laboratory worker cut her forefinger on a broken, clean test tube, and after the cut had healed in a week, developed painful spasms in the hand and forearm. At any touch of the hand the contractions returned. They grew more frequent and severe, with slight but distinct trismus. They injected two mild doses of antitetanus serum, 10 c.c. each, and the spasms decreased, and finally disappeared completely. They are convinced that it was a case of tetanus, but in the absence of trismus, they would have hesitated to diagnose tetanus. They query whether certain posttraumatic tetanoid spasms should not be considered as atypical forms of tetanus bacillus infection.

Schweizerische medizinische Wochenschrift, Basel

Aug. 31, 1922, **52**, No. 35

- *Prophylaxis of Goiter. F. de Quervain.—p. 857.
- *Iodin Prophylaxis of Goiter. M. E. Bircher.—p. 862.
- *Bacteriology of Epidemic Encephalitis. R. Doerr and W. Berger.—p. 862.
- Brine Baths in Gynecology. H. Keller.—p. 866.
- Vaccine Therapy in Osteomyelitis. A. v. Beust.—p. 869.

The Thyroid and Iodin in Relation to Prophylaxis of Goiter.—De Quervain's article was read at the meeting of the Swiss goiter commission. (The resolutions adopted were reported in The Journal, September 2, p. 834.) He agrees with Hunziker that goiter represents the way in which the thyroid adapts itself to an inadequate supply of iodin in the food. But he urges that as the thyroid is found abnormally large in all the infant cadavers in the Swiss goiter centers, and as he found, himself, that fully 75 per cent. of all the children entering school for the first time at Berne have appreciably enlarged thyroids, prophylaxis must begin before the school age. To be effectual, it must be begun with the mother, and this is practicable only with iodized salt. The aim must be to prevent goiter in the rising generation. He warns that the dose of iodin in the salt must be below the dose that is active in adults, also that the school prophylaxis must be kept at the lower limit of effectual action, and that children approaching puberty must be excluded from these prophylactic measures at any signs of even slight overfunctioning of the thyroid.

Scientific Control of Iodin Treatment.—Bircher insists that the behavior of the thyroid can be gaged with comparative precision by the basal metabolism. This should be the guide for treatment with iodin. Any exaggeration of the basal metabolism forbids iodin. He has encountered a number of cases of grave injury from iodin treatment without this scientific control. He adds that next spring there is to be a conference on goiter at Basel at which American physicians will take a prominent part. "They are coming to Switzerland," he says, "to study goiter. They have nothing to learn from Swiss physicians in regard to goiter."

Epidemic Encephalitis and Herpes.—Doerr and Berger report that they have succeeded in isolating two new strains of epidemic encephalitis virus from the brains of two persons who had died from the disease, one a physician. One of the strains could be used for cross-immunization with herpes virus, confirming Doerr's previous experiences in this line.

Annali d'Igiene, Rome

February, 1922, **32**, No. 2

The Intestinal Cholera of Young Animals. G. Sanarelli.—p. 117.

March, 1922, **32**, No. 3

Experimental Poisoning with Maize. P. Ramoino.—p. 201.
Behavior of True and False Diphtheria Bacilli in Bile Mediums. G. Rigobello.—p. 208.
Diphtheria Bacilli in Urine in Diphtheria. E. Petriccioni.—p. 212.
*Hygienic Drinking Fountain from Pail. A. del Bue.—p. 218.

Bubble Drinking Fountain from Pail.—Del Bue gives illustrations of a simple siphon device which can be attached to any tank or pail. Pressing the faucet turns on a little fountain in the basin below.

May, 1922, **32**, No. 5

Intestinal Cholera in Puppies. G. Sanarelli.—p. 349.
Staining of Spores. A. Alessandrini.—p. 362.
*Improved Stain for Tubercle Bacilli. A. Luisi.—p. 367.
Starvation Edema. G. Fracassi.—p. 371.

Stain for Tubercle Bacilli.—Luisi declares that the method he describes gives better preparations and shows up larger numbers of the bacilli than with any other technic. The specimen is treated for fifteen seconds with a hot saturated aqueous solution of crystal violet, to which is added at the moment of using 3 or 4 drops of a 5 per cent. solution of phenol. The decoloration is with 40 per cent. nitric acid for one instant only. The contrast stain is a saturated aqueous solution of Orange G. The specimen is left in this for half a minute.

June, 1922, **32**, No. 6

*Aid from Cattle in the Fight Against Malaria. B. Grassi.—p. 421.
Experimental Spirochetal Jaundice in Goats. G. Ghetti.—p. 513.

New Horizons in Prophylaxis of Malaria.—Grassi discusses in particular the part played by domestic animals in attracting the mosquitoes away from man. He queries whether certain anopheles bite man in preference to animals or the reverse, and whether certain animals attract them most. After biting one species, do they pass to another or not? In any event, he regards it as established that intensive stock raising is bound to aid materially in diverting the mosquitoes away from man to the animals. Draining and screening must be supplemented by large stocks of cattle or other animals. Patton's endorsement of the advantages of a tame white cow to attract mosquitoes and gnats and serve for their collection was mentioned editorially, Sept. 30, 1922, p. 1150.

Policlinico, Rome

Aug. 7, 1922, **29**, No. 32

*Recent Tendencies in Roentgenology. G. Nicolich.—p. 1033.
Fatal Case of Spirochetal Jaundice. V. Vanni.—p. 1038.
Syphilitic Disease of Liver. F. Viola.—p. 1040.
*Permanent Stains for Bacteria. G. Reina.—p. 1043.

Recent Tendencies in Roentgen Treatment.—Nicolich reviews the later publications on roentgen treatment of the urinary apparatus, and states that in reviewing records of 686 operative cases of tumor of the bladder, mostly cancer, he found only one instance of perforation into the rectum, and this was dubious. He compares this with the two cases of perforation into the rectum in a recent series of twelve bladder tumors given roentgen-ray treatment, and deduces that the irradiation must have been responsible for the perforation.

Durable Stain for Bacteria.—Reina reports that photographic developing methods applied to bacteria seem to produce slides that do not fade.

Aug. 14, 1922, **29**, No. 33

Serodiagnosis of Syphilis. E. Trenti.—p. 1065.
*Blister Autoserotherapy in Tuberculosis. G. Ronco.—p. 1073.
*Treatment of Pyelitis. A. Cassuto.—p. 1075.
Maggots in Vulvar Abscess. G. Jacobucci.—p. 1077.

Blister Autoserotherapy.—In the tuberculous, very little and only transient benefit followed a course of injections of fluid from a blister on the patient's back, and this only in the early stages. In some acute nontuberculous affections, considerable improvement followed. This was striking in one case of grave rebellious trigeminal neuralgia.

Pyelitis.—Cassuto has been gratified with the benefit that followed intravenous treatment of pyelitis with hexamethylenamin plus neo-arsphenamin.

Brazil-Medico, Rio de Janeiro

July 8, 1922, **2**, No. 27

*The Resistance of the Blood Capillaries. Silva Mello.—p. 17.
Plague in Northeastern Brazil. A. Gavião Gonzaga.—p. 19.
Teaching of Hygiene in the Primary Schools. Carlos Sá.—p. 21.

Capillary Resistance in Diagnosis.—Silva Mello gives an illustrated description of his little suction apparatus applied to the forearm. Minute intradermic hemorrhages form in the skin under the vacuum cup when the reaction is positive, showing abnormal permeability of the capillary walls.

July 15, 1922, **2**, No. 28

Radiologic Diagnosis of Tuberculosis. F. Munk.—p. 33.
Paul's Rabbit Eye Test for Smallpox. J. M. Gomes.—p. 35.
Technic for Direct Esophagoscopy. S. Cezar da Silva.—p. 36.

July 29, 1922, **2**, No. 30

*Treatment of Staphylococcus Infections. J. Monjardino.—p. 57.
Prophylaxis of Leprosy. I. Vernet.—p. 61.

Aug. 5, 1922, **2**, No. 31

Structure and Evolution of Tubercle Bacillus. A. Fontes.—p. 71.
Bacteriophagia and Bacteriolysis in Snake Poisons. J. Lemos Monteiro.—p. 72.
Vegetables in Infant Feeding. J. P. Fontenelle.—p. 75.
New Bismuth and Arsenical Preparations for Treating Syphilis. Pomaret.—p. 76.

Treatment of Staphylococcus Infections.—Monjardino reports some typical cases which confirm anew the benefit from total excision of the infectious focus. They demonstrate likewise the tendency to prompt and almost complete repair after a staphylococcus lesion. In one case excision of a carbuncle left a huge breach which promptly healed and filled up. In another case the entire shaft of the tibia was necrotic in the child of 3. The bone regenerated perfectly, without any shortening of the limb, after excision of 15 cm. of the shaft. The periosteum tube bridged the gap.

Siglo Médico, Madrid

July 8, 1922, **70**, No. 3578

Ramón y Cajal. C. M. Cortezo.—p. 49. Cont'n.
*Fatal Ileus Ascribed to Trendelenburg Position. Carrasco.—p. 33.
The Leukocyte Reactions in Typhus. B. Fuejo.—p. 35. Conc'n No. 3580, p. 86.

Torsion of Intestine After Trendelenburg Position.—Carrasco does not hesitate to ascribe the fatal ileus in the woman of 43 to the consequences of the Trendelenburg position. It had been applied during abdominal hysterectomy for a bleeding fibromyoma in the uterus. The fourth day afterward the symptoms of ileus developed suddenly and proved fatal. Necropsy revealed that the colon had looped on itself, at the left angle, closing the lumen. He declares that Trendelenburg himself has warned against raising the pelvis in operating on the obese. This woman had borne ten children in twenty years.

Archiv für Verdauungs-Krankheiten, etc., Berlin

July, 1922, **30**, No. 2

*Gallstones and Migraine. G. Kelling.—p. 59.
*Chronic Ulcerative Gastritis; Two Cases. A. Borgbjärg.—p. 73.

*Influence on Abdominal Walls of Breathing. Hausmann.—p. 85.
Operative Treatment in Case of Dilatation of Cecum and Colon with Ptosis, Dyspepsia and Gastralgia. H. Illoway (New York).—p. 105.

Relations Between Cholelithiasis and Migraine.—Kelling warns that when colic pains return after an operation for gallstones, before a new operation is contemplated the possibility of the disturbances being an abdominal form of migraine must be weighed well. Migraine is frequently found accompanying cholelithiasis. They both develop on the same soil, and obesity is also common in these subjects. Sluggish metabolism of fat seems to be a factor in all; and fat foods and those rich in cholesterin should be avoided in all, especially eggs, butter and cream. If oil is used in treatment of gallstones it should be oil with the lowest melting point, and it is better to refrain from it altogether unless the patient is thin. He orders lean meat for obese gallstone patients, to promote the flow of bile, and he has noticed that in many patients a tendency to migraine was improved thereby. He recalls that animals which are carnivorous have to display more ingenuity and patience in obtaining their food than the animals that feed on plants. This and other data cited seem to suggest some connection between the carnivorous mode of life and the development of the brain. Lean meat in the diet seemed to have a favorable influence in many cases of migraine and stomach disturbances of the migraine type, and in cases of brain fag. He noted this particularly in working girls who spend their wages on clothes instead of nourishing food.

Ulcerative Gastritis.—Borgbjärg describes two cases of what he calls gastritis chronica gravis in men of 36 and 58. Symptoms had been observed for about a year, with continuous twelve hour retention and hypersecretion in one, and achylia in the other case. On suspicion of cancer the stomach was resected, but nothing was found except the gastritis and numerous microscopic superficial ulcers in the mucosa. Both men seemed to be cured completely by the resection.

Breathing in Relation to Palpation.—Hausmann describes how to utilize to the utmost the mechanical effect of different modes of breathing as an aid in "scientific palpatology."

Deutsches Archiv für klinische Medizin, Leipzig

July 25, 1922, **140**, No. 1-2

*German Medicine in the Nineteenth Century and Since. B. Naunyn.—p. 1.
*Cholesterin Protects Against Infections. E. Leupold and L. Bogendörfer.—p. 28.
*Velocity of Blood Stream. E. Koch.—p. 39.
Case of Intermittent Auricular Tachysystolia K. Kure and S. Sakai.—p. 67.
Extrasystoles with Ventricle Automatism. E. Weiser.—p. 73.
*Record of Movements of Eyes. E. Schott.—p. 79.
*Volume Bolometry. H. Sahli.—p. 91.
To Hasten Coagulation of Blood. K. Addicks.—p. 117.

A Century of Medicine in Germany.—Naunyn's historical review is of the type of "All of which I saw, and part of which I was." He emphasizes Virchow's influence on the development of the hospital system in Germany and thus around the world. When Virchow at 23 was prosector at the Berlin Charité, the provisions for his work were meager indeed, but by the time he died, the leading hospital, at least, in every large city had a well equipped institute for pathologic anatomy. Naunyn ascribes the birth of *specialistenthum* to the year 1840. Neurology and pediatrics were the first specialties taught. Ophthalmology sprang to birth like Minerva, fully grown, thanks to the ophthalmoscope.

Significance of Cholesterin in Infections.—The details are tabulated from twenty cases of infectious diseases repeatedly tested for the cholesterin content of the blood. It showed a pronounced decline during the infection but it rose during convalescence, sometimes to a figure above normal. This and other facts noted suggest that cholesterin has a protecting action against bacteria. Mice, guinea-pigs, rats and rabbits were given cholesterin in their food for three or four weeks. Then various groups were inoculated with different bacteria. All the cholesterin-treated animals either failed to develop infection or the animals survived much longer than the controls. The cholesterin content of the blood rose to much above normal in the cholesterin-treated animals. It does not seem to promote phagocytosis; its protecting action lies in its faculty of binding bacterial toxins. As it binds and renders the toxin harmless, it is lost to the blood. The outcome of the disease seems to depend on the amount of cholesterin available.

Velocity of the Blood Stream.—Koch estimates this by injecting a stain into one arm while the blood is dripping from the corresponding vein in the other arm. Every five seconds the escaping blood is examined for the first appearance of the stain. In 68 healthy women and 51 healthy men the interval was 20.8 seconds in the former and 20.7 in the latter. In 19 patients with circulatory disturbances, the interval was nearly three times as long, the range being from 30 to 63 seconds. Of the 7 patients with an interval over 50, 6 died within a few weeks. The stain he uses is a mixture of 2 parts of fluorescein and 4 parts of sodium bicarbonate, with distilled water to 120 parts. About 1 c.c. is injected into a vein at the bend of the elbow. A delay in the appearance of the stain in the other arm is an early sign of incipient insufficiency of the circulation. This stain test is simple and harmless, he says, and can be repeated at will. His tables show the findings in 5 diabetics, 5 pneumonia patients, 13 convalescents, 6 with polycythemia, leukemia or pernicious anemia, 9 with the high blood pressure of kidney disease, and other groups, to a total of 400 applications of the test.

Registration of Nystagmus.—Schott applies the filament galvanometer to record the movements of the eyes.

Volume Bolometry.—Sahli epitomizes his research in estimation of the energy of the pulse wave, and presents experimental testimony to sustain his law of the ratio between the pulse and the caliber of the artery.

Deutsche medizinische Wochenschrift, Berlin

July 28, 1922, **48**, No. 30

Differential Diagnosis of Affections of the Gallbladder and the Digestive Tract. M. Einhorn (New York).—p. 997.
*Virulence of Saprophytes. Heymann and Strauss.—p. 999. Idem. Lange.—p. 1000.
Studies on Tuberculosis. Igersheimer and Schlossberger.—p. 1001.
*The Prognosis in Leukemia. F. Klewitz and E. Schuster.—p. 1003.
Treatment of Ordinary Fracture of Radius. Sonntag.—p. 1003.
Sigmoid Flexure Incarcerated in Slit in Mesentery. Schäfer.—p. 1006.
Theory of the So-Called Endothelium Symptom. E. Vogt.—p. 1007.
Relation of the Chemism of the Organism to Tetany. Orgler.—p. 1008.
Inhibition of the Gruber-Widal Reaction by Measles. W. Forche.—p. 1010.
Injuries of the Spinal Cord. G. Ledderhose.—p. 1013.
Treatment of Phimosis and Paraphimosis. L. Casper.—p. 1016.

Increasing the Virulence of Acid-Fast Saprophytes by Repeated Passage Through Animals.—Heymann and Strauss, and also Lange, reach the conclusion that an increase in the virulence of acid-fast saprophytes is not brought about by repeated passages through animals.

The Prognosis in Leukemia.—Klewitz and Schuster found that roentgen irradiation does not prolong the life of leukemic patients to any considerable extent, but they emphasize most emphatically that roentgen irradiation if begun early will do much toward keeping the patient in a condition in which he can work and remain self-supporting. The therapeutic results are purely symptomatic and not permanent.

Deutsche Zeitschrift für Chirurgie, Leipzig

July, 1922, **172**, No. 5-6

*Transactions of the Bavarian Surgical Society.—pp. 285 to 437.

Transactions of Surgical Meeting.—The twenty-seven communications presented at the recent annual meeting of the surgeons of Bavaria are published in full, accompanied by the discussions. Ten of the papers are summarized herewith.

By-Effects of Nerve Blocking.—König has applied injection anesthesia in 37 per cent. of the total anesthesia cases in his service. There were no fatalities for which the local or regional anesthesia could be held responsible, but the frequent cardiovascular disturbances and other by-effects confirm that it does not do away with the dangers inherent in general anesthesia. In short, he adds, injection anesthesia as a whole "is still in the leading-strings stage"—*noch in den Kinderschuhen steckt*.

Mishaps with Intraspinal Anesthesia.—In 1907 Strauss had compiled 22,717 cases in which intraspinal (lumbar) anesthesia had been applied, with a mortality of 1 : 2534. Since then he has compiled records of 83,698 cases, with mortality of 1 : 5978. He regards it as the only method for certain operations in diabetes, severe arteriosclerosis, cachexia, ileus, strangulated hernia, and for hard drinkers. One great advantage is that it dispenses with the necessity for a reliable assistant at the operation.

Goiter.—Von Eiselsberg remarks that there are few experiences which the surgeon can regard with so much satisfaction as his successful operations for exophthalmic goiter. In his 215 operative cases of exophthalmic goiter, the mortality was 3.7 per cent., but at first he operated only in the severest cases; 3 of the 8 fatalities were in the first 4 he operated on. He insists on several days of repose and calcium lactate to prepare for the operation to resect the thyroid. If tetany develops and proves refractory to calcium salts and chloral, parathyroid grafts from children dying during delivery or from fatal accident cases may tide the patient along until his own accessory parathyroids can assume the functional task. The grafts are always absorbed in time. Sauerbruch reported excellent results from parathyroid grafts in the rectus muscle in 3 cases of postoperative tetany. Capelle reported 32 cases of postoperative tetany. It developed in 1.3 per cent. after ligation of two arteries; in 1.9 after three arteries had been ligated, and in 4.4 per cent. after ligation of four arteries, and the severer forms were all in this latter group. He thinks that this demonstrates that the tetany resulted from some interference with the nourishment of the parathyroids. As this corrected itself in time, the tetany subsided; it had disappeared partially or entirely in all his cases when the patients were dismissed. Before operating in exophthalmic goiter, Krecke insists on bed rest for several weeks and roentgen exposures of the thymus. He has never had tetany develop after an operation for recurring goiter although in one case five operations had been required. In Madlener's 93 cases in which he ligated four arteries, there was partial necrosis in one case of what had been left of the thyroid, and in another case fatal tetany. His experience has convinced him that, in districts far from the ocean, minute doses of iodin are necessary for the young, to a total of 0.1 gm. of potassium iodid during the year.

Pyocyaneus Cultures in Treatment of Erysipelas.—Ledderhose noticed that when green pus developed in an infectious process, the process began to heal at once. This was repeatedly observed with erysipelas, and he began to treat the latter systematically with cultures of the micro-organism inducing the blue-green pus, namely, the pyocyaneus. The success was complete, he says, in the eight cases treated, but he warns not to attempt this treatment for young children or the much debilitated, or when the erysipelas is the manifestation of general sepsis. He has never seen any harm result.

Nodular Rheumatism.—Port refers to that form of rheumatism in which small and tender lumps can be palpated in certain muscles and at certain accessible points in joints. When a joint is affected, movements are painful and the pain is local, but when a muscle is involved, the pain spreads to a distance. There may be headache when the muscles of the back of the neck are affected; pains in the arm and weakness of the hand with the shoulder muscles, or in the leg with the hip muscles involved. Direct pressure on one of the nodules elicits sharp pain. The disturbances appear like ordinary rheumatism after getting chilled or in bleak weather. The symptoms can be promptly cured by massage, seeking out the lumps and kneading them between the fingers. He adds that the knowledge of these lumps and their special treatment is the secret of Swedish massage. This nodular rheumatism has been taught in Sweden for decades. Arvedson in Stockholm gives special postgraduate courses in it. Port has found these nodules in children between 8 and 12, often associated with headache from the extension of the process to the muscles of the back of the neck, especially with scoliosis at any age, and invariably when trauma or overexertion is assumed as the cause of the scoliosis. The sudden onset of pains first attracts attention to the anomaly of the spine, but both the rheumatism and the curvature had long existed. He adds that scoliosis is often aggravated and the curvature fastened by a muscular contraction, like that with flatfoot. Bed rest in one case loosened up the spine to such a degree that the child became 10 cm. taller. The muscles will usually be found tender in such cases.

Gastric Hemorrhage After Gastro-Enterostomy.—Krecke remarks that besides the danger of cancer later, of peptic ulcer and of perforation when intervention is restricted to a gastro-enterostomy, we must consider the danger of hemorrhage. He has had hemorrhage occur in almost 8 per cent. of his 152 cases of gastro-enterostomy in the last twenty years, and 5 died from the hemorrhage of the 11 in this group. In 2 of the other cases the ulcer was resected before the hemorrhage returned. The hemorrhage occurred the day of the operation or the following in all but 2 cases; in these there was an interval of ten days, and the patients succumbed the next day.

Total Gastrectomy for Cancer.—Kreuter reports a case which brings to forty-four the number of cases on record in which the excised organ showed esophagus tissue at one end and duodenal tissue at the other, testifying that the entire stomach had been removed. His patient died the third day, and necropsy revealed that the upper loop of the jejunum had become kinked and incarcerated back of the esophagojejunostomy. Possibly this mishap might have been avoided by joining the esophagus and jejunum together back of the colon. The case is instructive on account of the severe shock that followed immediately after the ninety-five minute operation. He ascribes it to the temporary ligation of the esophagus and its accompanying vagi. In such cases the vagi should be supervised with special care.

Total Resection of Large Intestine.—The woman of 27, a nurse in an asylum for idiots and epileptics, was tormented for years by pains and blood in the stools after a contusion of the left abdomen. The large intestine was finally resected from the ascending colon to the sigmoid flexure. Disturbances returned in a few years, and the ascending colon was resected. This answered the purpose for several years, but return of symptoms compelled resection of the cecum also. The lowest loop of the small intestine was joined to the upper end of the rectum. The health has been perfect during the nearly two years since, with full earning capacity and no tendency to diarrhea. The entire large intestine can thus be dispensed with, without impairing the general health.

Ligation of Splenic Artery.—Stubenrauch states that ligation of the splenic artery seems to answer all the purposes of splenectomy in treatment of blood disease. At least this is his impression from a case described in which a man of 66, previously healthy, developed a hemorrhagic tendency along with symptoms of gout. The bleeding was from the kidneys, bowel and skin, and the anemia was extreme. The vascular system and internal organs seemed normal, but the blood showed scarcely any platelets. The day after ligation of the splenic artery through a median incision, leaving the vein unmolested, the platelets were found in normal numbers, and a month later they were exceptionally abundant. There have been no hemorrhages during the seven months since the operation but the platelets are now scanty once more. This same experience has followed splenectomy, so that a durable result can never be counted on. Haberer mentioned that he had ligated the splenic artery in three cases in the course of gastrectomy and no untoward by-effects had been observed. The ligation must be central from the vasa brevia to insure collateral circulation. His three patients are living. Necrosis of the spleen develops when the artery is ligated close to the hilus, below the openings in the vasa brevia.

Testicle Implants. — Kreuter remarks that microscopic examination later of a transplanted testicle is the only way to determine the actual facts in regard to gonad grafts, instead of merely subjective impressions. He knows of only one report of this kind (Rössle), but has had an opportunity himself in two cases to remove an implanted testicle three weeks and two years after the grafting operation. Complete necrosis of the reproductive elements and extreme reduction of the interstitial cells was found in the testicle removed in three weeks. In the other case, the ingrafted testicle had been totally absorbed in the course of the two years. His experience teaches that grafting an undescended testicle from a heterosexual subject in a homosexual subject who has had one testicle removed, has no effect on the homosexual impulses. In another experience, a homosexual testicle implanted after total castration in a sexually normal individual did not display any influence on the sexual impulses.

Medizinische Klinik, Berlin

July 2, 1922, **18**, No. 27

*Scurvy in Berlin Adults. Umber.—p. 851.
*Vaginal Cesarean Section. A. Dührssen.—p. 852.
The Constitution From the Clinical Standpoint. L. Borchardt.—p. 856.
*Peptic Ulcer. K. Brandenburg et al.—p. 859.
Case of Premature Puberty with Epidemic Encephalitis. F. Stern.—p. 864.
Calcium Treatment in Rhinology. G. Wotzilka.—p. 867.
Turbidity Seroreaction in Syphilis. H. Sachs and F. Georgi.—p. 868.
Treatment of Rickets. K. Blühdorn.—p. 871.
*The Puberty Gland. C. Hart.—p. 873.

Scurvy in Adults.—Umber remarks that during the fifty-eight years of the existence of the Berlin Medical Society, no report on scurvy in adults has ever been presented except one describing scurvy in an exploring expedition at the antipodes. These remarks were preliminary to his report of nine cases of scurvy observed recently at Berlin. The correct diagnosis had not been made in any instance before they reached the hospital. The severe manifestations, persisting for weeks disappeared like dew before the sun when the lacking accessory food factors were supplied in the form of fresh vegetables or fruits or pine needles. A cup of pine needle tea, three times a day, answered the purpose perfectly, and was taken with relish. The jumping-jack sign was found in all the cases, that is, the jerking upward of the shoulder and arm on sudden pressure of the calf. The hemorrhages in the muscles, especially those of the calf, induce painful infiltration which is often mistaken for a phlegmon. He adds that in two of the cases the scurvy developed in the hospital, the long cooking of the foods in porridge form for the regular hospital diet being the last straw that brought on the scurvy in persons long living without vitamins.

Vaginal Cesarean Section.—Dührssen recalls that obstetrics is now in its fourth great period. The first epoch was that of podalic version; it extended from Celsus to the end of the sixteenth century; then the forceps epoch; then the classic cesarean section period, and finally, the period since 1895 in which extraperitoneal cesarean section has dominated. In 1889 Dührssen published articles on the importance of incising the cervix or the vagina and perineum, or severing the levator ani on one side. The deep incision in the cervix requires the supravaginal portion of the cervix to be completely dilated. When this is the case, there is no danger of the incision tearing farther and bleeding. Four incisions are usually necessary. If each incision is made between two clamps, there is no hemorrhage. It is not necessary to suture the incisions. He introduced vaginal cesarean section in 1896, and declares that this solved a problem which had been debated for 2,000 years. It allows the child to be extracted at any moment during the pregnancy or labor, regardless of whether or not the cervix is dilated. This median incision is carried through the rectovaginal septum up close to the rectum, and in the vagina far enough up for the fist to be introduced to the fornix. As all the muscles and fascia of the floor of the pelvis join here in the septum, and thus hold the floor of the pelvis taut, dividing the septum in the middle separates the floor of the pelvis into two halves. These retract, and there is no further obstacle to delivery. There is less bleeding than from severing the levator ani, and the triangular raw surface can be easily sutured with a continuous catgut suture.

Peptic Ulcer.—This is a collective inquiry in regard to pathogenesis, differential diagnosis, treatment, and prognosis. Kuttner, Finsterer and Peiper give their views in detail. Kuttner mentions that any statistics on the healing and duration of healing of peptic ulcers are unreliable, as there may be recurrence after years of latency. Even resection does not guarantee a complete cure, as the predisposition to ulcer persists. The more frequently peptic ulcers are given operative treatment, the larger the number returning with pains, vomiting, hemorrhage and other disturbances. Operations are done on nervous girls and women or those with chlorosis, which should contraindicate such operations. Another cause of failure is the wrong choice of the operative measure, or lack of care in the diet afterward, especially overloading the stomach. Thorough internal treatment before and after the operation is indispensable. Finsterer operates at once with acute hemorrhage from an ulcer, and states that all were cured of the fifteen treated by resection within twenty-four or forty-eight hours, while one died of the three treated by gastro-enterostomy alone, a mortality of 5.5 per cent. of the total eighteen. In thirty-one with an interval longer than this, nine died, that is, 29 per cent. The mortality with internal treatment of acute hemorrhage from an ulcer is from 26 to 47 per cent. In deciding on operative treatment, if the patient lives near a large hospital, temporizing is less dangerous than when long transportation would be necessary in case of acute hemorrhage. He says that in his latest series of sixty-five resections for gastric ulcer, the mortality was 3 per cent., and only 1.5 per cent. in 129 resections for duodenal ulcer. In twenty-five peptic ulcer resections, the mortality was 4 per cent. In his total 320 resections for ulcer there was no death from postoperative pneumonia. He reports an instance of pains and hemorrhage from duodenal ulcer, with peptic ulcer later, in two brothers; both were treated by resection on three occasions, removing more and more of the stomach each time. When only a small stump was left, all disturbances were permanently cured for the first time in the men of 44 and 42. This experience teaches that the cure depends on extensive removal of the stomach. His mortality after resection is no higher than others report after gastro-enterostomy while the ultimate outcome is incomparably better. No instance of cancer later is known in his cases. He resects as much of the lesser curvature as possible, preferably by the "steps" method and the Billroth II, leaving a little depression just below the point of the anastomosis to prevent overprecipitate evacuation.

The Puberty Gland.—Hart's long review of the literature on this subject seems to establish the untenability of Steinach's conception of the puberty gland and the interstitial cells. The latter seem to be concerned only in storing up nourishment for the reproductive cells proper.

Münchener medizinische Wochenschrift, Munich

July 21, 1922, **69**, No. 29

Kidneys Have No Internal Secretion? W. von Möllendorff.—p. 1069.
Chronic Joint Affections and Their Treatment. E. Plate.—p. 1072 .
*Irradiation of Spleen for Genital Hemorrhage. O. Wolmershäuser and H. Eufinger.—p. 1077.
The Action of Carbonated Baths. W. Arnoldi.—p. 1078.
A New Type of Orthopercussion. O. Geiger.—p. 1080.
*High Blood Pressure During the Climacteric. F. Kisch.—p. 1082.
*Own Urine Vaccine in Pyelocystitis. A. Adam.—p. 1084.
Chronic Dysenteric Cholecystitis. Tscherning.—p. 1085.
A Cardiac Diverticulum in a Congenital Abdominal Hernia. W. Weber.—p. 1085.
Regulations Governing Handling of Disease-Producing Agents. W. Rimpau.—p. 1087.
The New Roentgen Equipment of the Würzburg University Surgical Clinic. E. Schrader.—p. 1089.
*The Early Diagnosis of Pararenal Abscess. A. Krecke.—p. 1090.

Irradiation of the Spleen in Hemorrhage of the Reproductive Organs.—Wolmershäuser and Eufinger think that irradiation of the spleen, if the indications are carefully considered, gives excellent results in a large number of hemorrhages of the genital organs—cases in which old forms of treatment met with little success.

High Blood Pressure in Relation to the Menopause.—Kisch found in 39 cases of premature menopause only one case with constantly high blood pressure for which some outside special cause could not be established clinically. In 3 cases, chronic nephritis, albuminuria or aortal insufficiency was responsible. In 16 cases, the systolic blood pressure and also the pulse pressure showed extreme fluctuations, high blood pressure sometimes alternating with normal values; nor were these fluctuations dependent on exercise, diet or ingestion of liquids. In 19 cases, the blood pressure was normal. Of 253 women, ranging in age from 42 to 52, who were passing through the climacteric, 138 were found to have a normal blood pressure; that is, at most a systolic pressure of 140 mm. of mercury. Although 61 of these 253 women presented a constant elevated blood pressure (above 140 mm.), definite outside causes were discovered in all but 3 cases. Kisch therefore concludes that if high blood pressure exists during the climacteric other outside causes should be suspected, as he does not find that the assumption of hypertonia as being due to a reduction of ovarian functioning is justified.

Own Urine Vaccines in Pyelocystitis.—Adam prepares an autogenous vaccine from the urine by the following simple technic: He takes a thick-walled test tube with a tight-fitting rubber stopper. These are sterilized by boiling. With a catheter he draws 10 c.c. of urine and transfers it to the test tube. The uper edge of the tube is sterilized over a flame. When the tube has cooled the stopper is inserted. After twenty-four hours usually, although sometimes forty-eight hours are required, the tube being kept at a temperature of from 20 to 37 C., bacterial growth will be noted. Five drops of chloroform and 0.5 c.c. of a 5 per cent. phenol solution are now added, the tube is shaken vigorously and then, after the lapse of twenty-four hours, the vaccine is ready for use. Before the contents of the tube are removed, it should be again shaken and a few minutes allowed, to precipitate the undissolved chloroform. He began with an injection of 0.1 c.c. and increased the amount from day to day by 0.1 c.c., until a marked local reaction in the form of a welt 2 c.c. in diameter appeared. The next injection was not given until all signs of the first had disappeared, which usually took three or four days. He never injected more than from 0.5 to 1.0 c.c. of vaccine. In the eight cases (all children) in which he has tried the method the results were excellent. He uses the method at present only in refractory cases in which salol and hexamethylenamin have proved of no avail. As it is a question of active immunization, it seemed best to exclude cachectic children and those suffering from severe disturbances of nutrition.

The Early Diagnosis of Pararenal Abscess.—Krecke emphasizes: (1) the sudden beginning of the affection with febrile symptoms and pains in the loin region; (2) circumscribed muscle tension, swelling and sensitiveness in either the left or right loin region, associated with severe general symptoms, with absence of any changes in the urine, and (3) history of a suppurative focus in some other part of the body (furuncle). If these signs and symptoms are present, a correct diagnosis may be reached during the first few days, and a timely incision will often save the patient a long sickness and protect him against the dangers associated with a deep-seated suppuration.

Zeitschrift für Kinderheilkunde, Berlin

July 20, 1922, **33.** No. 1-2

*Concentrated Milk for Infants. T. Ide and E. Nobel.—p. 1.
*Albumin Milk. H. Hochschild.—p. 24.
*Epinephrin Hyperglycemia in Infants. H. Beumer and F. Schäfer.—p. 34.
Length of Sojourn in Infant Intestine. W. Kahn.—p. 48.
Hypoplasia of Skeleton as Sequel of Juvenile Arthritis Deformans. S. Eliakim.—p. 55.
Standards for Normal Development of Hand. St. Engel and E. Runge.—p. 61.
*Water Content of Blood. E. Grunewald and E. Rominger.—p. 65.
*Ferment Content of Infant Stomach. E. Mengert.—p. 85.
*Injury of Infants from Heat. E. Nobel.—p. 96.
*Enuresis and Tuberculosis. H. Langer.—p. 108.
Mongoloid Idiocy in Mongol Infant. F. Demuth.—p. 110.

Concentrated Milk in Infant Feeding.—The water in the milk is evaporated by boiling or in a vacuum, and the milk is thus reduced to 50 or 33 per cent. of its volume. This concentrated milk was given to 202 new-born infants and thirty older ones, to a total of 302 periods of from three to twelve days. The findings on this food are tabulated although the method has scarcely more than scientific interest except for the prematurely born. For them, concentrated breast milk might offer advantages.

Albumin Milk in Infant Feeding.—Hochschild has been studying the behavior of the capillaries and intestinal putrefaction in infants on albumin milk. This gives a new standpoint for estimating its action, and means to render it more effectual.

Epinephrin Hyperglycemia in Infants.—The research reported shows that the sugar content of an infant's blood rises with any intake of sugar of any kind. The findings after injection of epinephrin may thus be obscured by sugar in the food. Calcium chlorid seems to sensitize the sympathetic to epinephrin, so the response to epinephrin is intensified. With spasmophilia and tetany, a subnormal glycemic reaction to epinephrin indicates hypotonia of the sympathetic system from calcium deficit.

Water Content of Blood.—A daily variation was evident, the blood being more concentrated at evening in all the children and adults tested. Muscular exertion may be responsible for this. In infants, the water content varies irregularly.

Ferment Content in Infant Stomach.—Mengert found invariably that the digestive ferments were in the same relative proportions in the infant stomach as in adults.

Injury of Infants from Heat.—Nobel tabulates the clinical findings and course in fifteen infants under treatment for disturbances from excessively warm weather. Two thirds of them died, and a catarrhal affection of the intestines was found at each necropsy. In the large intestine it had progressed to actual ulceration. Two of the children had keratomalacia. Reduction of intake of food below the minimum had a favorable influence, even in the severe cases. He reiterates that it must never be forgotten that extreme heat, even in children who are thriving, reduces the tolerance for food.

Enuresis.—Langer refers to Pototzky's camphor treatment of enuresis as great progress, but adds that it does not apply to all cases. He has been impressed with the frequent coincidence of tuberculosis, and reports that a course of tuberculin treatment has rendered good service in such cases.

Zentralblatt für Chirurgie, Leipzig

May 27, 1922, **49.** No. 21

*Active Epithelization of Wound Surfaces. K. Reschke.—p. 730.
*Diagnosis of Ileus. R. Höfer.—p. 733.
Irradiation of Spleen in Relation to Coagulation of the Blood. O. Wassertrüdinger.—p. 734.
Correction of an Artificial Anus. W. von Reyher.—p. 737.
Inguinal Hernia in Relation to the Bladder. H. Flörcken.—p. 738.
The Bellocq Catheter. A. Neudörfer.—p. 740.
Loose Bodies of Traumatic Origin in Knee Joint Causing Trigger Joint. F. Linde.—p. 741.
Incision for Ligation of Anterior Tibial Artery. R. Spanner.—p. 745.

Active Epithelization of Wound Surfaces by the Pels-Leusden Method.—Reschke states that after the manner of the Mangoldt procedure, epithelium is reduced to a pulpous condition and is injected into the granulations. A special type of metal syringe is used for the purpose. The epithelium is usually taken from the skin of the thigh but often from the vicinity of the wound. The horny layer of the skin is scraped off with an ordinary surgical knife. As the process of abrading is continued, blood and serum appear and, mixing with the epithelium of the deeper layers, a soft, pulpous mass is formed. This pulp is transferred to the syringe as fast as it is scraped up with the knife. One should not allow too much air to be mixed with the pulp. When as much epithelial pulp has been secured as is needed to cover the wound surface in question, the needle is screwed in firmly and the pulp is injected into the granulations either in many islands or in narrow parallel channels. The pulp may be injected into smeary wound surfaces, and it is astonishing to see how quickly these are changed into ideal granulating surfaces. The rapid spontaneous cleansing of the wound surface is doubtless due to the blood serum contained in the pulp. The time that elapses before the islands of epithelium appear on the wound surface will depend on how deeply the pulp was injected. The epithelial islands seem to be attracted to the edge of the wound and also to each other. Reschke regards it as a great advantage of the method that smeary surfaces may receive the injections without any previous preparation. The certainty of healing and the good quality of the new skin are two main features of the method. As compared with the Thiersch flap method, it has the advantage of leaving no scar where the new tissue is secured. The method is applicable to all granulating wound surfaces and to line a cavity in a bone. Whether the method is adaptable to the covering of amputation stumps or to restore skin defects over joint surfaces, must be learned by further trials, but, in view of the thickness and pliability of the newly formed skin, it looks very promising.

The Diagnosis of Ileus.—Höfer recounts a method that he uses to discover the cause and seat of intestinal obstruction—the auscultatory phenomenon of the aortic pulse audible over the abdomen. Since first establishing the finding, he has examined all his ileus cases with this object in view and was able in every case to evoke the same results. He noted further that, after elimination of the ileus through operative or internal measures, the symptom could no longer be elicited. Three recent cases were especially significant. In one case there was acute intestinal occlusion associated with tuberculosis of the peritoneum. The aortic pulse was audible over the whole abdomen. After an enema had opened up the intestinal passage, the symptom could no longer be demonstrated. In a second case of acute ileus, the history awakened the suspicion of a tumor of the upper large intestine as the cause. The aortic pulse could be heard only over the right lower abdominal region. Operation revealed an isolated accumulation of flatus in the cecum and an occluding carcinoma of the transverse colon. Höfer thinks that the intestinal loops filled with gas and fluid constitute especially good sound conductors which transmit to the ear the pulsation of the abdominal aorta.

June 3, 1922, **49**, No. 22

Treatment of Varicose Veins. G. Lotheissen.—p. 778.
Closure of Duodenal Fistula After Stomach Resection. Kelling.—p. 779.
Extra-Articular Arthrodesis, Including the Henle-Albee Operation in Tuberculosis of Joints. A. Nussbaum.—p. 780.
*Regenerative Capacity of Ascending Colon. F. de Gironcoli.—p. 782.
Albee Operation in Tuberculous Spondylitis. Görres.—p. 784.
Singultus in Prostatic Retention of Urine. Schoen.—p. 785.

Regenerative Capacity of Ascending Colon. — Gironcoli emphasizes, from his observations, the tendency of the colon not only to fill out defects but also to replace functionally lost portions by others; it being clearly evident that the cecum is one of the most important portions of the digestive tract as regards the normal functioning of the digestive process. He describes an instructive case of this functional adaptation after resection of ileum and cecum.

Zentralblatt für Gynäkologie, Leipzig

May 20, 1922, **46**, No. 20

*The Kielland Forceps and the Practitioner. Hoffmann.—p. 786.
*Birth Control in Families with Amaurotic Idiocy. E. Sachs.—p. 789.
Ovarian Varicocele. R. Jahreiss.—p. 795.
The New-Born of the War Period. M. Dávid.—p. 795.
The Therapeutic and Prophylactic Local Injection of Quinin in Inflammation of Nipple. Kritzler.—p. 802.

The Kielland Forceps.—Hoffmann reports that since he has been using the Kielland forceps he has not found it necessary in any case to use any other. Not only that; in certain cases he has been able to accomplish results which, to judge from previous experiences, would have been impossible with other forceps.

A Case of Idiopathic Amaurotic Idiocy.—Sachs discusses the question whether a physician should advise the parents of a first child suffering from amaurotic idiocy to prevent further conception for fear children born later would develop the same disease. He reaches the conclusion that such advice, if children were desired, would be unjustifiable. He thinks, however, that it is the duty of the physician to warn the parents of the possibility of other children presenting the same disease, assuring them also that it is quite possible that healthy children may be born. His compilation of published cases shows in less than twenty families forty-four healthy brothers and sisters of the thirty-three children with the Tay-Sachs amaurotic family idiocy. Only one instance is known in which the child lived to be 10 years old, and this was not a typical case.

May 27, 1922, **46**, No. 21

Hypnosis in Obstetrics and Gynecology. E. Siemerling.—p. 834.
Childbirth under Hypnosis and Hypnonarcosis. Kirstein.—p. 843.
*Phlorizin Glycosuria in Diagnosis of Pregnancy. B. Zondek.—p. 851.
Is "Hypomochlion" (Fulcrum) as a Term in the Mechanism of Childbirth Justified? H. Meyer-Rüegg.—p. 853.
*Significance of Physiologic Ascites in Women. J. Novak.—p. 854.
Two Sets of Triplets. A. Uthmöller.—p. 859.

Phlorizin Glycosuria in Early Diagnosis of Pregnancy.—Zondek states that in the first weeks of pregnancy a change in carbohydrate metabolism appears which finds its expression in an increased tendency to alimentary and phlorizin glycosuria. Induced glycosuria can, therefore, be utilized as an early indication of pregnancy. If, after injection of 2 mg. of phlorizin, no glycosuria appears, pregnancy can be excluded with a high degree of probability. One cannot expect too much from the method. It has all the sources of error that characterize any biologic method.

Cause and Significance of Physiologic Ascites in Women.—Novak has been investigating the cause of the collection of free fluid that he so commonly found in the peritoneum of women but does not recall ever observing in men. He endeavored to ascertain whether it had any bearing on the sexual physiology of women. He selected 33 cases in which there was no apparent reason for peritoneal exudation—no signs of an inflammatory condition; only old adhesions as evidence of former inflammatory processes, but which could not be the cause of a collection of fluid. Of these 33 cases 21 showed a free fluid in the abdominal cavity. Further investigation revealed the fact that in the cases with ascites a corpus luteum in an early stage of development was found, whereas, in the 12 cases without the collection of fluid, a corpus luteum was either absent or in an advanced stage of development. In the former, either a recently ruptured follicle with blood-filled cavity or a prominent, dark-red or orange colored corpus luteum, bleeding slightly, was noted. The assumption seems therefore justified that the freshly ruptured follicle and the recent corpus luteum exert a stimulating or irritating effect on the peritoneum and bring about the effusion. Various considerations lead Novak to believe that this effusion of fluid plays an important rôle in the transmission of the ovum to the tube and in its migration along the tube.

Hospitalstidende, Copenhagen

July 26, 1922, **65**, No. 30

*Cancer in Relation to Trauma and Tuberculosis. K. Isager.—p. 481. Conc'n No. 31, p. 497.

Trauma and Tuberculosis in Relation to Cancer.—Isager reviews the antecedents in 116 cases of cancer. He calls attention in particular to the surprisingly large number in which a cancer developed a few months to a year after a shock or contusion although the trauma had not directly affected the organ in which the malignant disease developed. In 2 of the 11 cases in this group the interval had been nine and eleven years, but in the 9 others less than a year had elapsed, and this proportion is too large to be ascribed to mere coincidence. In six families, both parents had cancer and some of the 20 children were tuberculous. In only 7 of his total cancer cases had pulmonary tuberculosis preceded the cancer, and there has been no recurrence during the five to seven years since the operation in 3 out of 5 in which operative measures were feasible. None of his gouty patients have ever developed cancer. A favorable influence on cancers, especially sarcomas, from an intercurrent acute febrile infection has often been recorded. The assumption that a chronic infection like tuberculosis might have a certain inhibiting or arresting influence on malignant disease is plausible. It might prove instructive to apply the tuberculin test to cancer patients and compare the response with the course of the cancer.

Aug. 9, 1922, **65**, No. 32

*Functional Psychoses in the Elderly. J. C. Smith.—p. 513.

Psychoses in the Elderly.—In the three cases described by Smith the functional psychoses presented certain features apparently stamping them as of organic origin. This was disproved by the recovery, the retrospective diagnosis being a senile psychosis plus hysteria.

Aug. 16, 1922, **65**, No. 33

*Capacity of the Lungs. IV. C. Lundsgaard and K. Schierbeck.—p. 529.
Acoustic Phenomenon That May Aid the Blind. E. Sylvest.—p. 540.

The Capacity of the Lungs.—This is the fourth communication on this subject by Lundsgaard and Schierbeck. They discuss here the conditions in this respect with pulmonary emphysema.

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NEUROPATHIC ARTHROPATHIES—CHARCOT'S SPINE

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Funsten,[1] in reporting a single case of tabetic Charcot's spine, called attention to the rarity of this condition, stating that as late as the twentieth century it was possible to compile only fifteen cases from the literature, and that only one of these occurred in America. Shortly after the appearance of Funsten's article, we were rather surprised to have two patients with Charcot spines come into the office on the same day. This occasion brought to our attention several other cases, and it was decided that if they are such a rare condition, the following cases and the orthopedic treatment, as observed by one of us (J. R.) during almost half a century of orthopedic work, should be reported.

REPORT OF CASES

Case 1.—C. W., a man, aged 71, admitted to the Presbyterian Hospital under the care of Dr. Phemister, Sept. 5, 1916, had been in the hospital seven years before with a compound fracture of the right humerus at the junction of the lower and middle thirds, and with paralysis of the musculospiral nerve. The patient had had locomotor ataxia for twenty-nine years. He died, Nov. 25, 1916. Postmortem examination revealed the typical pathologic findings of tabes dorsalis. The exceptional things are that he had a typical Charcot right shoulder, and ununited fractures of the right humerus with an excessive callous formation enveloping the musculospiral nerve. From the lower end of the humerus there were long bony processes as a result of some myositis ossificans. Grossly, the entire vertebral section was one solid mass, owing to the bone and joint sclerosis. He had had no treatment for the back, and the deformity would have been expected to be worse, especially with posterior angulation, had he not been recumbent for a number of years because of his extreme locomotor ataxia.

Case 2.—Mrs. M. N., aged 33, admitted to Presbyterian Hospital in the service of Dr. Benjamin Davis, June 20, 1917, and discharged, August 6, complained, on admission, of pain in the sacral portion of the back, numbness of the limb, and slight lagging of the left leg. She had frequently "stubbed" her left foot during the past year. She had given birth to one healthy child which was 12 years old, and had had one miscarriage. There had been syphilitic infection eight years before.

Examination revealed a sharp bend in the spine between the lower lumbar and sacral regions. The sacrum was apparently displaced 1 inch to the right of the lumbar vertebrae. Examination by Dr. Bassoe revealed a bilateral Babinski reflex and slight left ankle clonus. The knee jerks were exaggerated. In his opinion, there was probably a lesion of the upper lumbar or the thoracic cord, which must be as high as the second lumbar. Laboratory examination revealed the spinal fluid Wassermann reaction + + + +; cell count, 6; Nonne reaction +.

The patient had had three injections of neo-arsphenamin three years previously. July 28, 1917, a cast was applied from the axilla to the knees. No reply has been received to a letter of inquiry; hence her present condition cannot be given.

Case 3.—J. V., a man, aged 35, examined, Oct. 1, 1921, whose condition was diagnosed as tabetic spine, about a year before began to pull the left shoulder over to the left side. Later it began to hurt in the lumbar portion of the spine. Pain began soon to go down the left leg. He had a sore on the right finger about fifteen years before, following a scratch on baling wire, and his physician told him that it had the appearance of a chancre. He had had no antisyphilitic treatment. His brother, a graduate in medicine at a later date, suspected syphilis about five years before. During the last two years or more he had had some spinal deformity and pain on use of his back, and occasionally pain down his left leg after taking long walks.

The lumbar spine was short. At about the middle it buckled backward and to the left.

Intensive antisyphilitic treatment and the wearing of a leather jacket were advised. The patient was suspended, and a plaster jacket was applied. From this a plaster torso was cast and corrected, over which a leather corset was molded. The patient's brother now reports that "he has not worn the jacket which was recently made because it was uncomfortable." It was uncomfortable probably because he applied it either in the sitting or the standing position, whereas it should have been applied in a recumbent stretched out position or while suspended, as that was the position in which the jacket was made and should be worn, so as to hold the vertebral column in as straight a line as possible.

Case 4.—R. M., a man,[2] aged 49, a truck driver, had been married twenty years. His wife died at 45 years of age of heart disease. She had never been pregnant. His mother was living and well at 63 years of age. His father died of heart disease at 58. At 8 or 9 years of age, the patient bruised his left leg just above the knee in a street car accident, a scar of which remained. He was not unconscious. His right leg was broken at the middle third of the tibia when he was 23. He was confined to bed for two months with typhoid fever when 17, but made a complete recovery. He had gonorrhea twice at 25 years. Chancre was denied.

About nine years before he was seen he developed pain off and on in his right shoulder blade and had the gradual loss of weight during five years from 269 pounds (122 kg.) to 134 pounds (61 kg.), which has been maintained since. The pain in the shoulder ceased after two or three years. About seven years before he was seen he developed a lumbar backache of varying degree off and on, although severe enough occasionally to cause him to lie in bed one or two days. He had intervals of freedom from discomfort varying from three to six months. Two years before we saw him he became worse, since which time the pain had been chiefly in the coccyx and had been more or less constant. About four or five years before we saw him the pain in different portions of the right leg became worse. It was aching and sometimes shooting down the back of the thighs. It continued until Aug. 21, 1921, when it changed to a stinging sensation, and sometimes he complained of a numbness or stinging in both lower extremities to the groins. Since August he also noted numbness along the inner edge of the palms. The right palm was worse. About a year before we saw him he began to have difficulty in walking, owing to a stumbling of the right leg (foot drop) with wasting of the muscles of the right lower leg. He went to bed in August, 1921, because of pain in the coccyx, and remained there until Jan. 28, 1922, since which time he had had much relief from the pain, though the difficulty in walking remained. Three blood Wassermann tests, in April, 1919, and in May and June, 1921, were negative. The Wassermann reaction of the spinal fluid was negative in August, 1921. The blood pressure was 154; the urine, negative. All the foregoing details were in the laboratory report produced by the patient. There was no tremor.

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[1] Funsten, R. V.: A Case of Tabetic Charcot's Spine, J. A. M. A. **78**: 333 (Feb. 4) 1922.

[2] This patient was seen by courtesy of Dr. Frederick Bowe and Dr. Hugh T. Patrick, the latter of whom has reported the neurologic findings in the Archives of Neurology and Psychiatry **8**: 102 (July) 1922.

The patient had a nervous feeling in his stomach with an occasional urge to stool, though there would be no stool. He was relieved by passing flatus. He had had crying spells, and been a prey to restless roaming about the room during the last two years, which conditions had been much worse the last three weeks. His appetite was fair. He did not have headache, nausea or vomiting. Examination of the cardiorespiratory system was negative. He had to be catheterized once, about four weeks before. Sometimes he lost a few drops during urgency, and he had wet the bed several times during the last six months. The eyes, ears and olfactory nerves and the memory were normal. The hemoglobin was 90. There was right foot drop. The right anterior tibial muscle was extremely wasted. The right calf was distinctly atrophic. The right thigh was less than the left in circumference. The plantar reflexes were positive. The left ankle jerk was positive; the right, ±. The knee jerks were equally minus. The right cremasteric reflex was very lively. The arm jerks were equally brisk. There was no Bevor. There was tactile anesthesia from the right second interspace to about 4 inches below the nipple, and tactile anesthesia just above the left nipple to 2 inches below. There was no anesthesia of the arms, and practically no anesthesia of the legs, though there was some analgesia of the legs, more in the right leg. Analgesia of the trunk was much less marked than anesthesia. There was wasting of the small muscles of the right hand. The frenulum was gone, being replaced by a parchment-like cicatrix and a suspicious place immediately back of the glans on the dorsum. There was no ataxia in the lower extremities. The pupils were large and irregular, the left greater than the right. Both were of Argyll Robertson type. There was analgesia of both ulnars. The testes were somewhat analgesic. The first lumbar was decidely prominent, the last dorsal somewhat prominent. Heavy percussion over the prominence caused pain to shoot into the left thigh. This part of the spine was rigid. There was no anesthesia of the penis. A very slight Romberg sign was present.

April 2, after we saw him, he had two intravenous injections of neo-arsphenamin. There was no reaction after the first. After the second, there was no vomiting, but he felt bad and rapidly became paraplegic. There was no marked sphincter trouble. The condition remained the same for a time and then gradually improved. The patient can now walk. The right leg is about the same, but he flexes his left thigh very feebly. Sensation is not much involved except for anesthesia to the fork from the waist down. Sensation of the right leg is the same as that of the left. Kyphosis is about as before: painless and not painful when pushed on from the back or the side.

He has been supplied with a removable jacket made over a corrected plaster torso, which was applied and has given some relief to the pains in the legs.

Case 5.—W., a man, aged 52, a patient of Dr. William H. Holmes, complained of constant pain, which corresponded to the dermatonic distribution of the fourth lumbar nerve. This area was hyperesthetic to touch and was also hyperalgesic. The surrounding skin and the skin of the opposite extremity were hypalgesic. Muscle and joint sense, bone vibration sense and deep sensibility were impaired in both lower extremities. These findings, together with absent tendon reflexes in the lower extremities, absent cremasterics, Argyll Robertson pupils and positive Wassermann tests, were sufficient to justify the diagnosis of tabes. Tabes, however, did not seem to be sufficient to explain the constancy of the pain in a single posterior root area. It seemed, therefore, that he had two distinct types of pain, the typical lighting pains of tabes and a pain due to a posterior radiculitis, which was more or less constant and which could be relieved by changes of position more quickly than by any other method. The most probable explanation for such a pain in an otherwise normal person would be disease of the spinal column. In this case, examination of the spine revealed that the normal lumbar curve was absent. There was an abnormal prominence of the third lumbar spinous process. There was no muscle rigidity. Deep percussion caused no pain. Flexion movements of the spine were well performed. Rotation and lateral bending to the left were limited, and extension movements were impossible.

The opinion of Dr. Holmes was as follows: "The changes are too extensive to be the result of spondylitis on the basis of chronic pyogenic infection. The changes may have had their origin in an injury of twenty years ago, which seems improbable in view of the fact that there had been little disability because of backache in the meantime. I am of the opinion, therefore, that the new bone growth is a true Charcot spine.

"In regard to the relationship between the spinal column disease and the distribution of pain, it seems probable that the posterior root of the fourth lumbar nerve was involved or rather was subjected to direct pressure by the bone growth. I imagine that ultimately other lumbar roots, both anterior and posterior, may be similarly affected.

"The treatment must be either orthopedic or surgical. I would advise that extension of the spine be produced by suspension of the body from the shoulders, and that a plaster cast be applied, extending from the scapulae and axillae down to and including the sacrum and pelvis. In applying the cast, it should be remembered that the patient has impaired sensation, and that the padding should be even heavier than in an ordinary case to avoid friction of which he may be totally unaware.

"The pain may probably be increased for a time after the application of the cast, but if, after a few weeks, there is no improvement, surgical interference will have to be considered."

It is interesting to find that the immediate complaint in this case was apparently temporarily relieved by a severe shaking up of the patient's body. This gives added evidence to the fact that the posterior roots were injured or irritated by mechanical interference due to proliferated bony masses. No orthopedic treatment has been given.

Case 6.—C. N., a man aged 68, an upholsterer, seen by Dr. Peter Bassoe, Oct. 3, 1912, gave a history of chancre twenty-four years previously and of having had incoordination and numbness of the feet for eight or ten years. For two years he had been troubled with severe shooting pains in the legs, and occasional incontinence of urine. Examination revealed absence of tendon reflexes, positive Romberg sign, and sluggish light reaction on the part of the left pupil. There was a scoliosis of the lumbar spine, suggestive of a tabetic arthropathy, the presence of which was confirmed by roentgenograms taken by Dr. Emil Beck. The patient died of pneumonia within a few months. He had had no orthopedic treatment for the back.

Case 7.—F. J. S., a man, aged 52, first seen in June, 1915, complained that he had had trouble with his spine for three or four years. He had never had to go to bed on account of his complaint. Three years before he was told that he had some sort of fatty growth on his back, and a brace was ordered for him which he had been wearing only during the day. He located most of his trouble in the lower portion of the lumbar vertebrae.

He was a very large man. The back showed no gross deformity. When he lay prone the erector spinae mass on the right side was somewhat harder and more prominent than that on the left. There was slight limitation of movement of the lumbar spine, and some tenderness over the prominent muscles at the iliac attachment. The legs were equal in length. The waist line on the left side was deeper. The back movements were otherwise normal. He had not lost any weight; in fact, he had had to reduce his weight. He denied venereal infection. Roentgen-ray examination revealed the right transverse process of the fifth lumbar vertebra apparently crowded upward by proximity to the underlying portion of the sacrum, as though the body of the vertebra had been compressed. The spine approached the ilium on this side.

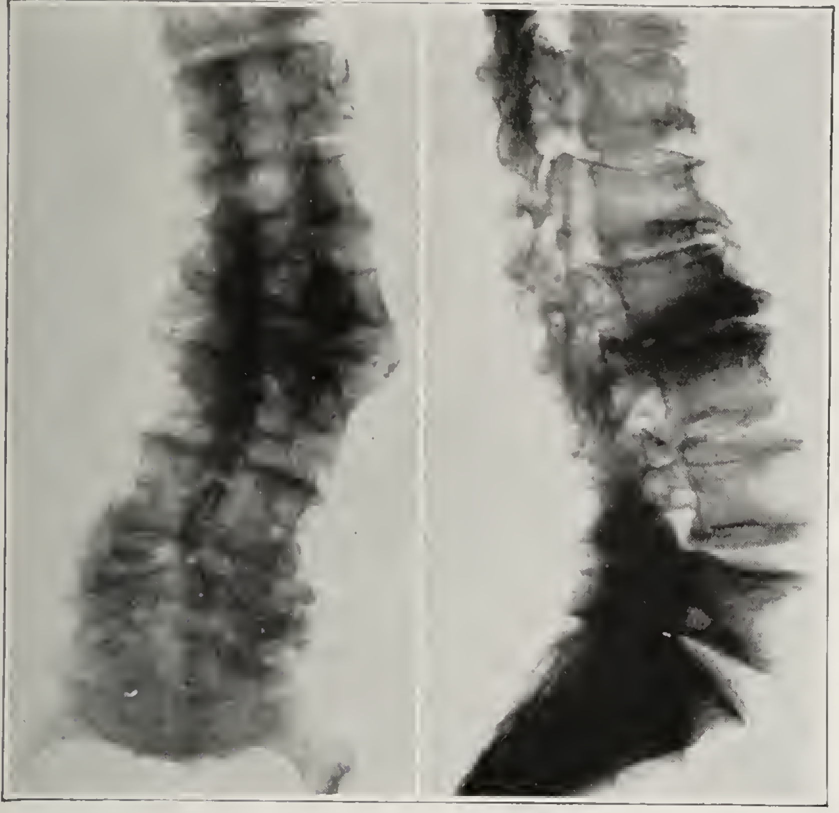

Fig. 1 (Case 1).—Appearance of specimen of Charcot's spine: a lesion at the fourth and fifth lumbar and another at the first and second lumbar vertebrae. Other interspaces show a chronic arthritis.

Later the condition progressed and developed into a typical Charcot spine. The patient was equipped with a leather jacket, which was made over a corrected plaster torso. This immediately gave him relief. However, he was a hard working farmer, and after much perspiration the leather would soften and under strain would stretch; then, on drying, it would wrinkle, and as a result it would not be comfortable and would not fit, and hence it would not be a satisfactory support. However, as soon as a new jacket was made he would again find relief. He later died of unknown cause.

Case 8.—C. L. R., a man, aged 39, who entered the Presbyterian Hospital in the service of Dr. Frank Billings, Nov. 7, 1912, and was discharged, Dec. 5, 1913, complained of shooting pains in the legs since 1909, and nocturnal incontinence of urine. There was no uncertainty of gait. There was no girdle sensation. The patient had been infected with syphilis when 22 years of age. He had gonorrhea many times. He had not had typhoid. His wife had never been pregnant.

The patient was thin and poorly nourished. The pupils reacted to accommodation, but not to light. The patellar reflex on the right was markedly increased, while the left was slightly diminished. There was no patellar or ankle clonus. The abdominal reflex was present. There was marked diminution in pain sensation. There was no diminution in touch sensation in the nipple area. Romberg's sign was suggestive. There was no marked ataxia on walking. A Wassermann test in July, 1909, was said to have been negative. Nov. 8, 1911, the patient developed loss of knee jerks. Jan. 28, 1914, the Wassermann reaction was + +. April 25, 1915, he reported that he went motoring, March 15, and soon after returning took a massage. One hour later he found that he could not raise his right foot (he had foot drop). May 18, he was seen, and at Dr. Billings' request a spine brace was applied to support a lumbar spine, which was giving way from tabetic disorganization. July 14, 1915, a lumbar gibbus had developed, over which a bony click was felt on hyperextending both legs. No lateral curvature was present at this time.

Treatment consisted of intensive treatment with arsphenamin, potassium iodid, intramuscular injections, and many Swift-Ellis intraspinal injections. A short time after one of the latter treatments the hospital record states that he developed a cerebral thrombosis and died, Aug. 18, 1915. He refused to wear the spinal brace as directed, and would repeatedly get up from bed and go to the bathroom without the spinal support. Recently Dr. Billings has stated that he distinctly remembers that the roentgenograms of the May 18 examination, which could not be found, revealed typical neuropathic destruction at the junction of the fourth and fifth lumbar vertebrae.

Case 9.—A man, aged 43, was referred by Dr. Frank Billings, June 12, 1915, with the diagnosis of Charcot spine, for a spinal support in the hope of relieving the painful and other nerve symptoms in the feet and legs. The early history of this man has disappeared from the records of the Presbyterian Hospital. At this time our records show that about nine years before he had a syphilitic infection, but that his spinal fluid was now sterile. Nine weeks before, after a dancing lesson, there was some numbness on top of the right foot; he was unable to flex the toes, and there was a stiffness all over. He had had some numbness over the distribution of the left external popliteal nerve. The dorsal flexor group of the right leg felt "flabbier" than that of the left.

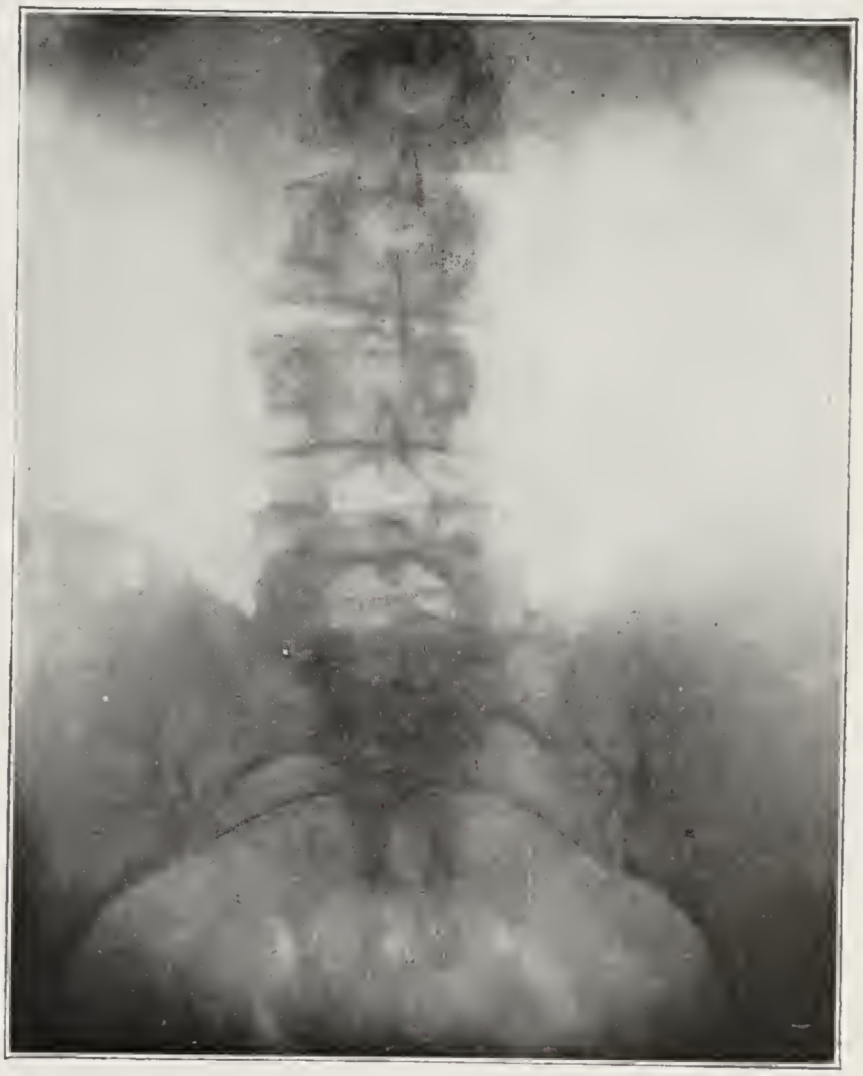

Fig. 2 (Case 2).—The initial change in Charcot's spine is a simple breakdown usually at one of the lateral articular margins of a vertebral body. This is associated with a decrease in cartilaginous space. In a little later stage, loose irregular fragments of bone are seen at the site of destruction. The early stages are difficult to differentiate from early tuberculosis or osteomyelitis.

He had had a sore throat about a week previous to the beginning of his trouble. He could not actively flex the right foot dorsally near to a right angle, and passively not beyond a right angle. Resisted dorsal flexion was very weak as compared with the other foot. Resisted plantar flexion was somewhat less than on the other side.

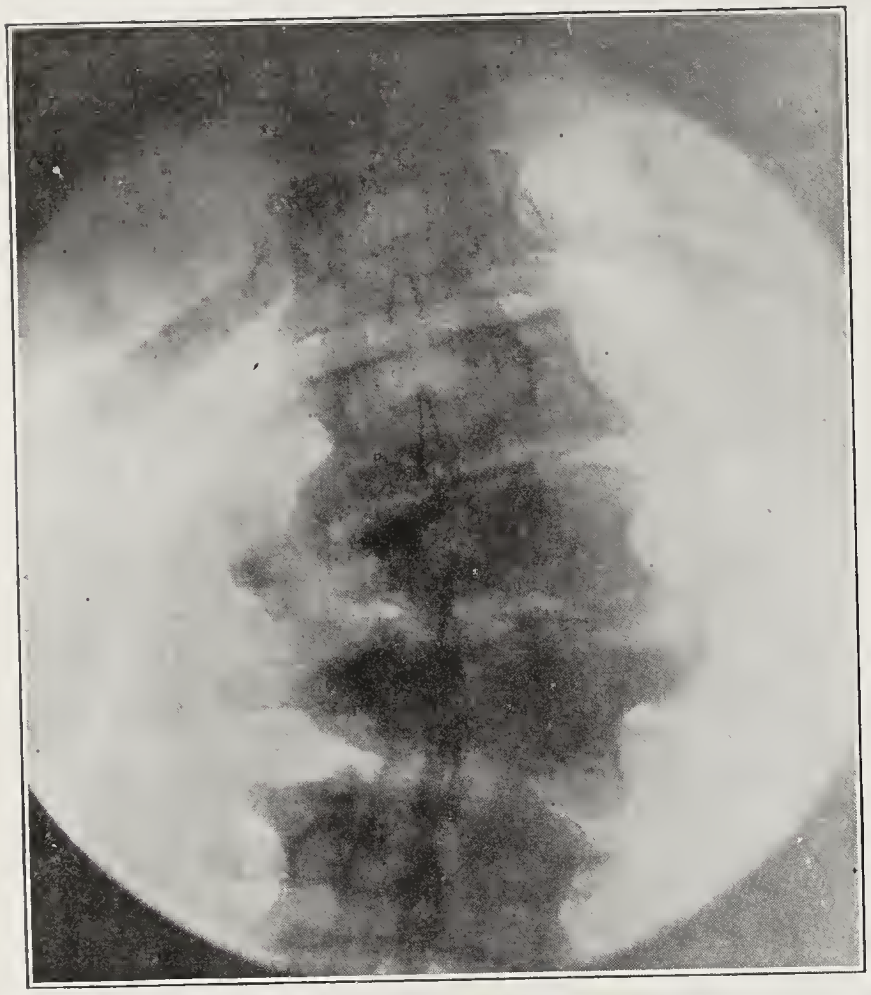

Fig. 3 (Case 3).—When well established, the lesions are quite typical. Two types of osteophytes are usually seen. The first type consists of loose detached bone fragments, of which some seem to be the result of tiny fractures from the main bone. Some also are attached and grow in an amorphous, purposeless fashion. The second type is purposeful in that they tend to bridge the interspace and lend support to the deformed spine. Starting at the articular margins, they resemble greatly the hypertrophic formations of an arthritis, but are usually larger. Within the affected vertebral body and near the breakdown, the bone is usually denser as from calcareous infiltration.

The right hip was prominent, and had long been so. The right waist line was deeper. There was a low right curvature, and left dorsolumbar curve with rotation. These appeared to be of old deformities, but he thought they had recently increased. The right leg was from one-half to three-quarters inch short; the right calf was 13¼ inches; the left, 13½ inches. The right thigh 10 inches down was 20 inches; the left, 19¼ inches. The right thigh, 1½ inches above the knee, measured 15⅛ inches; the left, 14⅖ inches. Roentgenograms, June 14, 1915, revealed the left side of the fourth lumbar vertebra tilted down on the fifth, with little cartilage remaining on that side. The fourth as a whole was displaced to the right about ¼ inch. New bone covered the left articular surface between the fourth and fifth vertebrae, extending upward and downward and covering at least one half of each vertebra. The second was displaced to the left on the third three-eighths to one-half inch. The cartilage between the two was nearly all destroyed, the space on the right being less than on the left. A crescentic bone spur extended upward from the left side of the upper border of the third from five-eighths to three-quarters inch. It was about one-eighth inch thick from side to side, with some points of lessened density within its curve. On the right side of the articular surface appeared an irregular bone mass resting at the upper corner of the third. Another large mass was to the right of the body of the second, where the picture terminates.

The patient was stretched, a plaster jacket was applied, a corrected torso was made, and a leather jacket was molded over it. From that time to the present he has had from one to three new jackets each year made either of leather or of celluloid.

After application of the jacket the patient was relieved of all foot and leg symptoms within a few weeks. The calf and thigh measurements became the same. In June, 1916, he asked for a brace, hoping it would be cooler than the leather corset. This was made but was unsatisfactory. The patient wore it only a few days because of the return of symptoms in his limbs. The leather corset was reapplied, with relief from symptoms. The following summer, in the absence of Dr. Ridlon, he directed the modification of a plaster torso and the making of a new leather corset. Again the leg symptoms returned, but they were relieved when once again a properly fitted corset was applied.

The patient has continued to wear leather or celluloid corsets, and has continued in active business without leg symptoms.

April 15, 1920, he stated that the Wassermann reaction on the spinal fluid had been negative for one year.

We have no record showing the extent of the antisyphilitic treatment except for the fact that he had several intravenous injections of neo-arsphenamin.

Case 10.—A business man, aged 57, married, who had a chancre when 20 years of age, suffered from migraine from childhood, and since about 1892 had been subject to attacks of pain, called "sciatica," in both legs. Vision began to fail at the age of 37, and at 42 he was told that he had optic atrophy. Slowness of micturition was first noticed in 1910, and difficulty in walking and deformity of the back in 1912.

Neurologic examination by Dr. Peter Bassoe in October, 1912, revealed the signs of well advanced tabes: Argyll Robertson pupils, optic atrophy with loss of vision in the left eye, loss of tendon reflexes, ataxia of the legs, and areas of anesthesia around the chest and of analgesia of the trunk and legs. The legs were very hypotonic. There was also complete foot drop on the right side. There was a marked lumbar kyphosis, and a grating sound was produced

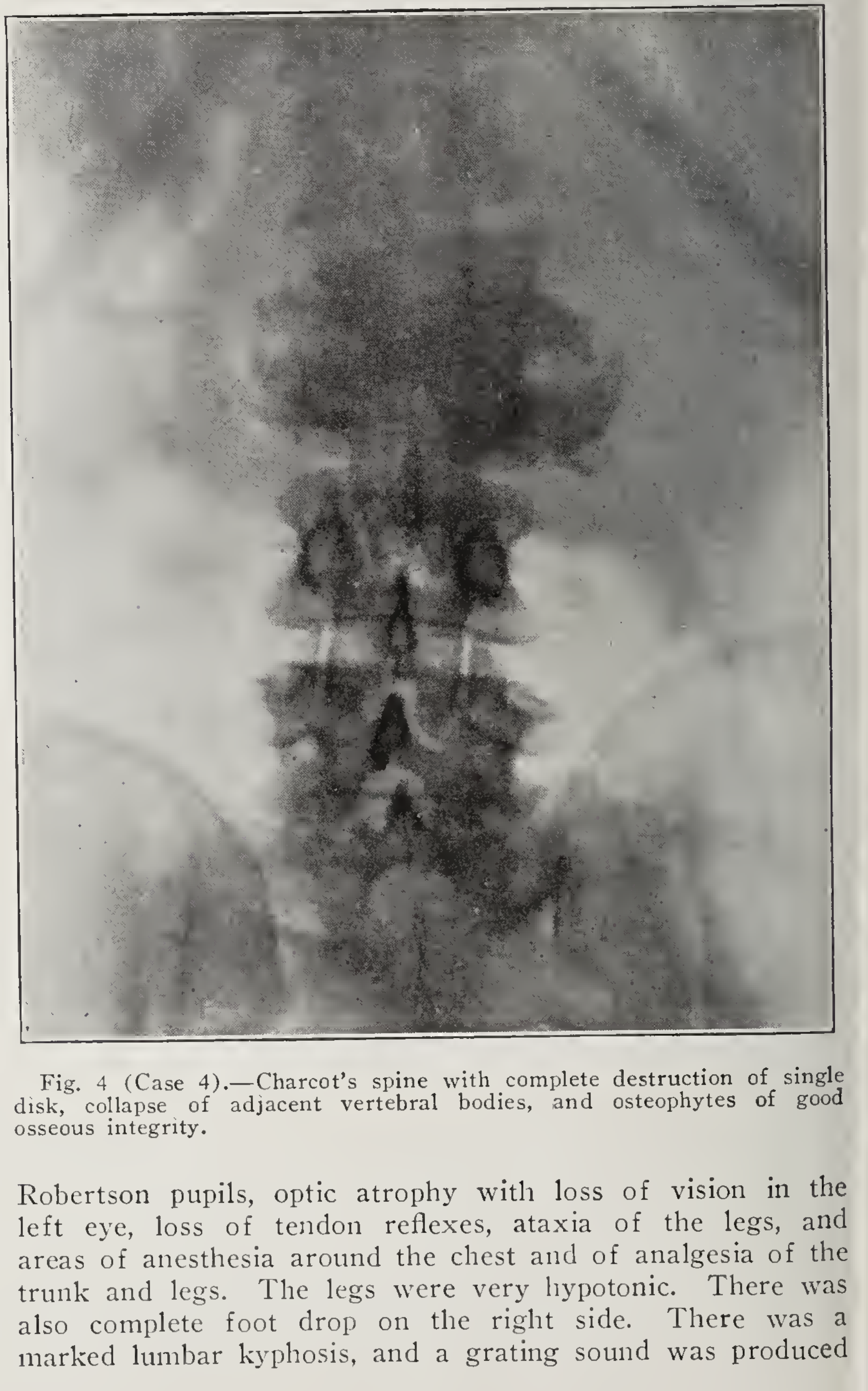

Fig. 4 (Case 4).—Charcot's spine with complete destruction of single disk, collapse of adjacent vertebral bodies, and osteophytes of good osseous integrity.

on bending the back. Roentgenologic examination by Dr. Emil Beck revealed extensive destruction, flattening and jamming together of the fourth and fifth lumbar vertebrae. A diagnosis of tabetic arthropathy of the spine was made.

For several months the patient suffered much from pain, and the attacks were nearly always attended with rise of temperature up to 102 F., and perspiration. Repeated examination of the chest and the sputum failed to reveal any cause for the fever, so it was suspected that the process in the vertebrae might possibly be responsible for it. After several months of inunctions, arsphenamin treatment was begun in August, 1913. The improvement was steady, especially in regard to pain and fever. A Swift-Ellis treatment was given in March, 1914. The Wassermann reaction with the spinal fluid was positive; Ross Jones globulin test, positive; cell count, 6; Lange test, 1113210000. Within two days the patient complained of numbness in the left leg, and examination disclosed almost complete paralysis of the extensors of the left foot. A subsequent Swift-Ellis treatment in June, 1914, was not followed by any untoward reaction, and the spinal fluid this time gave a negative Wassermann reaction. Since that time he has, on the whole, made considerable improvement. There has been no progression of any of the tabetic symptoms, and he is able to go to his business in an automboile every day. The last spinal fluid examination, in June, 1919, also gave a negative Wassermann reaction.

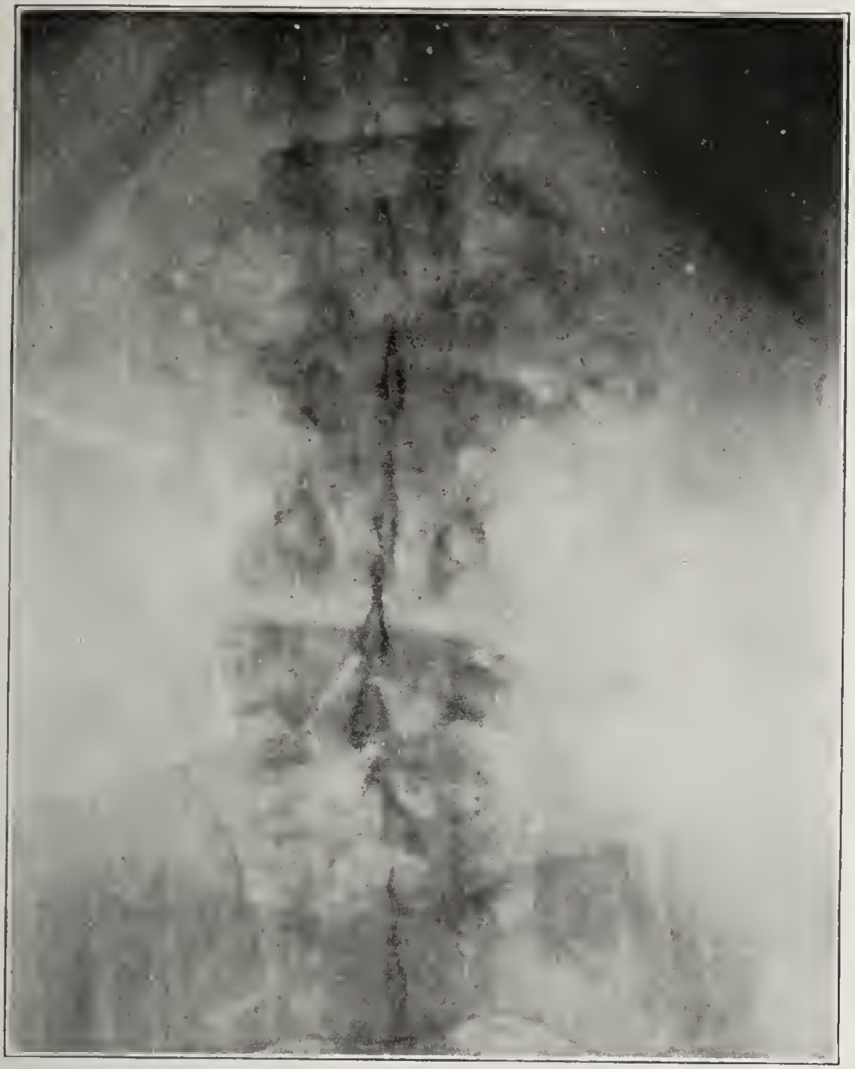

Fig. 5 (Case 4).—Spine six months later, showing a pronounced extension of the diseased area and marked decalcification of the osteophytes present. This decalcification is usually seen only in the atrophic form of Charcot's disease, which is rare.

About ten years ago he was measured for a spine brace. At that time he was unable to walk. Two weeks later the brace was applied, which gave him so much discomfort that he removed it after a day or two, and since that time has been without any orthopedic treatment. He was again seen, April 9, 1922, at which time he reported that he had been accustomed to practice certain exercises of his legs while lying down and by grasping a horizontal bar placed in the doorway about 4 feet above the floor, and while hanging from hand rings. He is now able to walk with crutches and when he can hold to a hand rail or the wall. The foot drop on the right side is still quite complete, but he has gained in ability to raise the left foot, exhibiting about one-half the normal strength. The posterior spinal curvature in the lower lumbar region does not appear to have increased during the last ten years. The lower ribs rest on the iliac crest. The curvatures may be thus described: There is a sharp backward curve of the lower lumbar vertebrae, an anterior curve in the dorsolumbar region, and a lumbar curve to the left with an upper dorsal curvature to the right. All curves except the posterior one in the lower lumbar region nearly straighten out when lying prone. There is no psoas contraction on either side.

COMMENT

Syphilitic manifestations frequently occur in certain portions of the skeleton, especially in the tibia, clavicle and skull; but involvement of the spinal column is rare, and J. Ramsay Hunt doubted whether it ever occurred in the dorsal or lumbar vertebrae.

Neuropathic arthropathies, such as manifested in the Charcot joint, are frequently seen, but the localization of the lesion within the lumbar portion of the vertebral column is apparently rare, judging from the literature on the subject. The previous writers on the subject would have us believe that the majority of cases were localized in the cervical region. However, in our experience all cases have been in the lumbar region, and none have been in the dorsal or cervical vertebrae.

PATHOLOGY

Infection with *Spirochaeta pallida* is the essential cause of the pathologic changes.

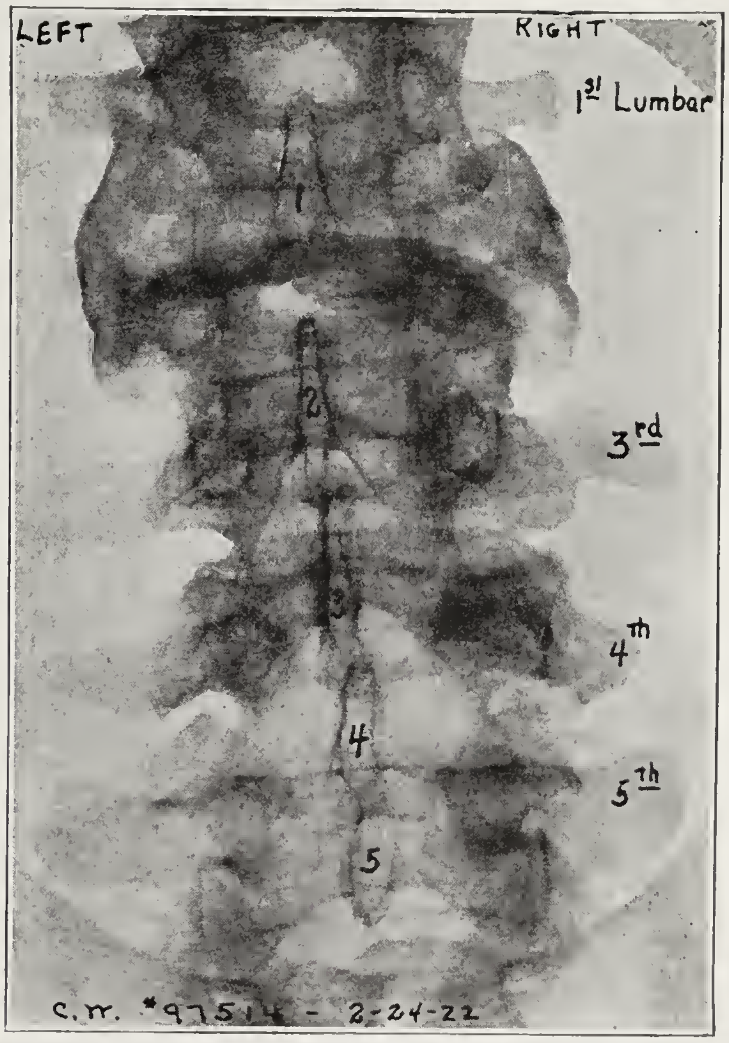

Fig. 6 (Case 5).—A more chronic case of Charcot's spine in which projecting osteophytes are becoming smoothed off and show mature osseous content.

Neuropathic joints are found chiefly in tabes dorsales, syringomyelia, compression and destruction of the spinal cord, and after severance of the nerves.

It is rare for the spine to be involved in the secondary stage, the greater number of bone changes originating in the tertiary stage. In tabes, the lesion is usually found in the lower extremities. As a rule, the condition comes on quickly without pain, and leads to great enlargement of the joints on account of the accumulation of fluid in the synovial sac and bursa, which relaxes the ligaments and joint capsule. The synovial membrane is thickened.

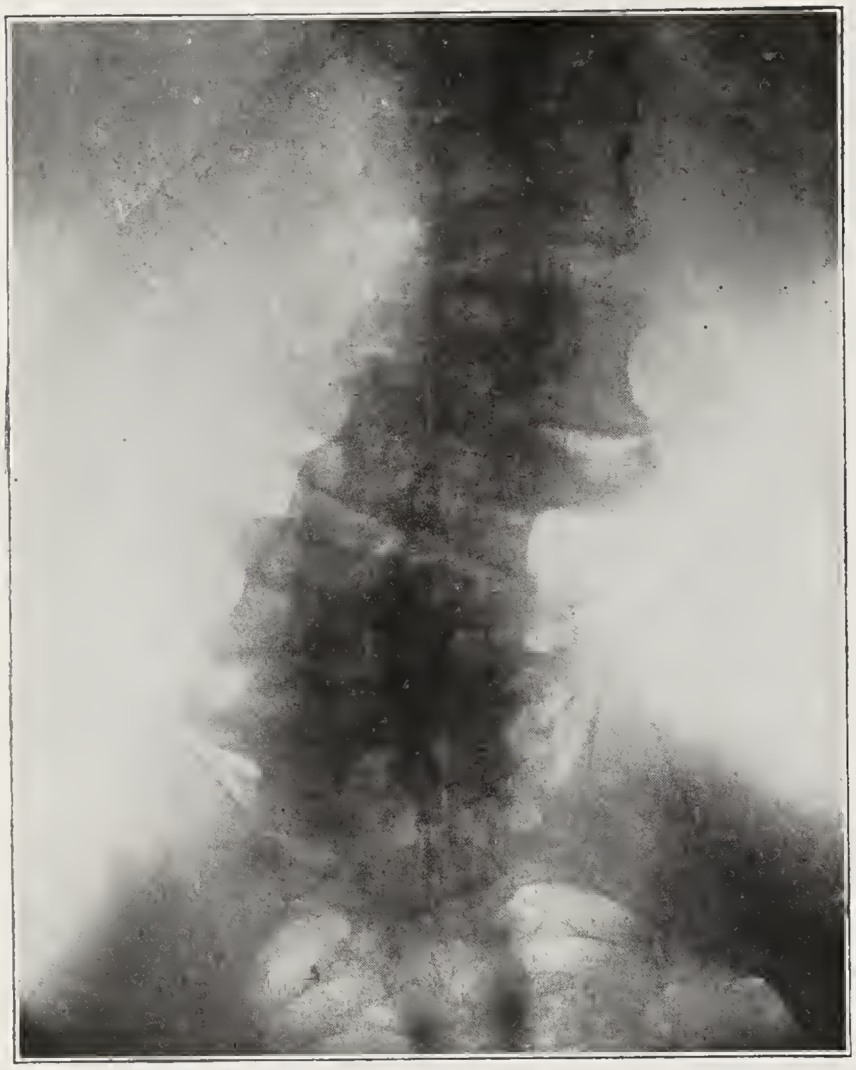

Fig. 7 (Case 9).—A slowly progressive case in which the purposeful type of osteophytes have grown to large size, giving support to the scoliotic spine at a much needed point.

Bone changes occur as an osteitis, periostitis, or as osteitis and periostitis manifesting itself as a circumscribed area of disease, or as diffuse gummas, depending on their formation in the bone, where the blood supply is best. Degenerative changes predominate, and quickly bring about disintegration of the joint. Atrophy of the ends of bones, osteoporosis with erosion, thickening of the membranes, osteosclerosis and proliferation of bone in plaques or irregularly shaped masses quickly occur.

Osteophytes are frequently found about the joints, and sometimes bony growths from the margins of the articular surfaces are present. This pathologic manifestation is especially marked in the arthropathies of the spine. The tendency to pus formation and cold abscesses, as found in tuberculous caries, apparently does not occur.

Commonly there is more or less spontaneous displacement of one vertebral body on the next. The condition is single or multiple. The portion involved may have been predisposed by exposure to trauma.

Charcot believed that the trophic changes were due to disease of the large cells of gray matter of the anterior horns. However, he found some cases with no changes of the anterior horns but with swelling of the ganglions of the posterior roots.

Shaw has shown that disease of the peripheral nerves may cause atrophic disturbances of the bones and joints. Others have asserted that the joint may have been the primary location of the disease, and that the nerves were secondarily involved.

J. K. Mitchell, at the close of the Civil War, called attention to the influence of the nervous system on joint lesions, and reported several cases in which neuropathic arthropathies developed after spinal cord injuries as a result of gunshot wounds of the spine.

SYMPTOMS

Pain, if present, is nocturnal, persistent and distressing, although most of the discomfort is referred along the spinal nerves, owing to the mechanical impingement of the nerves from the proliferated plaques and the real vertebral displacements. The painlessness of the joint lesions and fractures often enables patients to get about with the fracture dislocations.

In Charcot joints other than those of the spine, we have seen no one complaining of joint pain.

There is local swelling of variable amounts.

Rigidity of the immediate section may be present, but usually there is an excessive mobility; i. e., these patients flop about on account of local disorganization of the vertebral column. The rigidity is not due to involuntary muscle spasm, but rather to the proliferated bone, which may fuse so as to ankylose adjacent vertebrae.

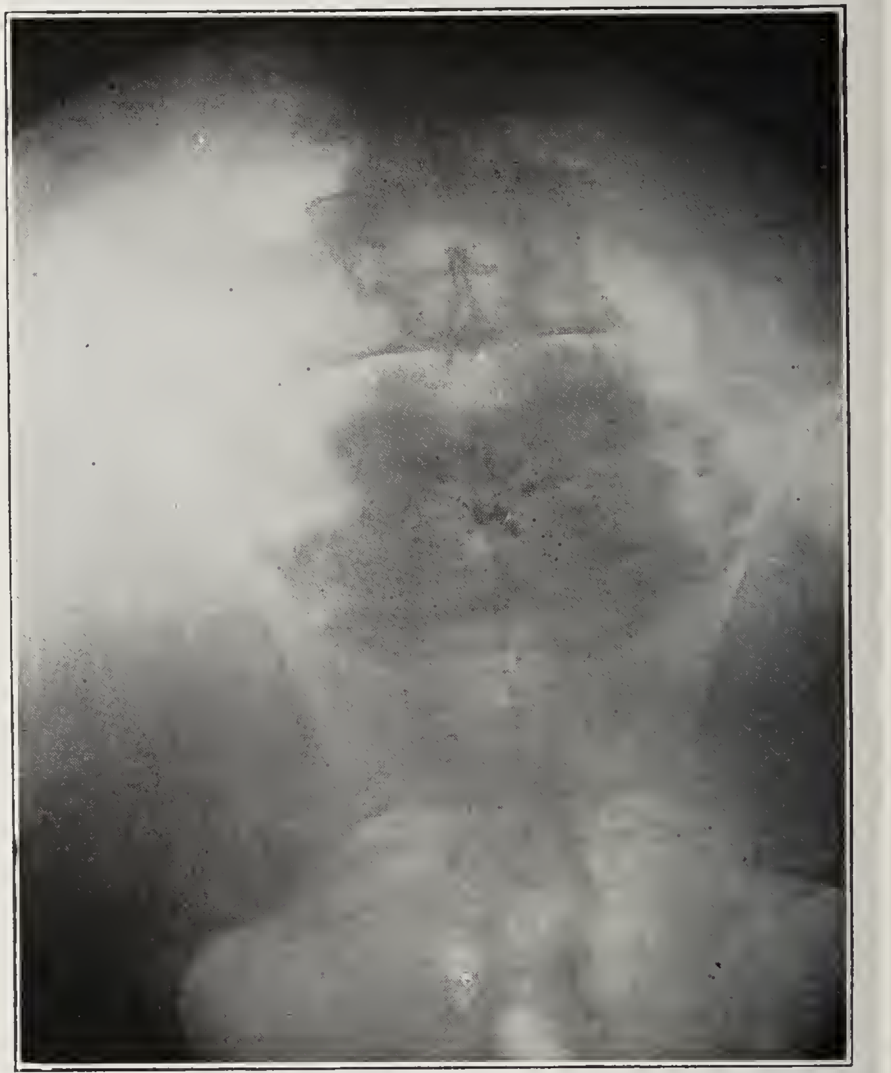

Fig. 8 (Case 10).—Typical neuropathic arthropathy at fourth and fifth lumbar vertebrae, with complete destruction of interspace and formation of osteophytes.

Deformity later is present. The back is short, owing to the flattening of the vertebrae caused by compression from the superimposed weight. There may be a sharp posterior kyphos simulating the deformity of Pott's disease, but usually there is more or less lateral curvature, with some rotation deformity of the vertebral bodies.

COMPLICATIONS

Complications result from invasion and compression of the spinal cord and nerves. The deep reflexes are proportionately involved, corresponding to the amount of encroachment of the disease on either the nerve roots or the spinal cord tracts.

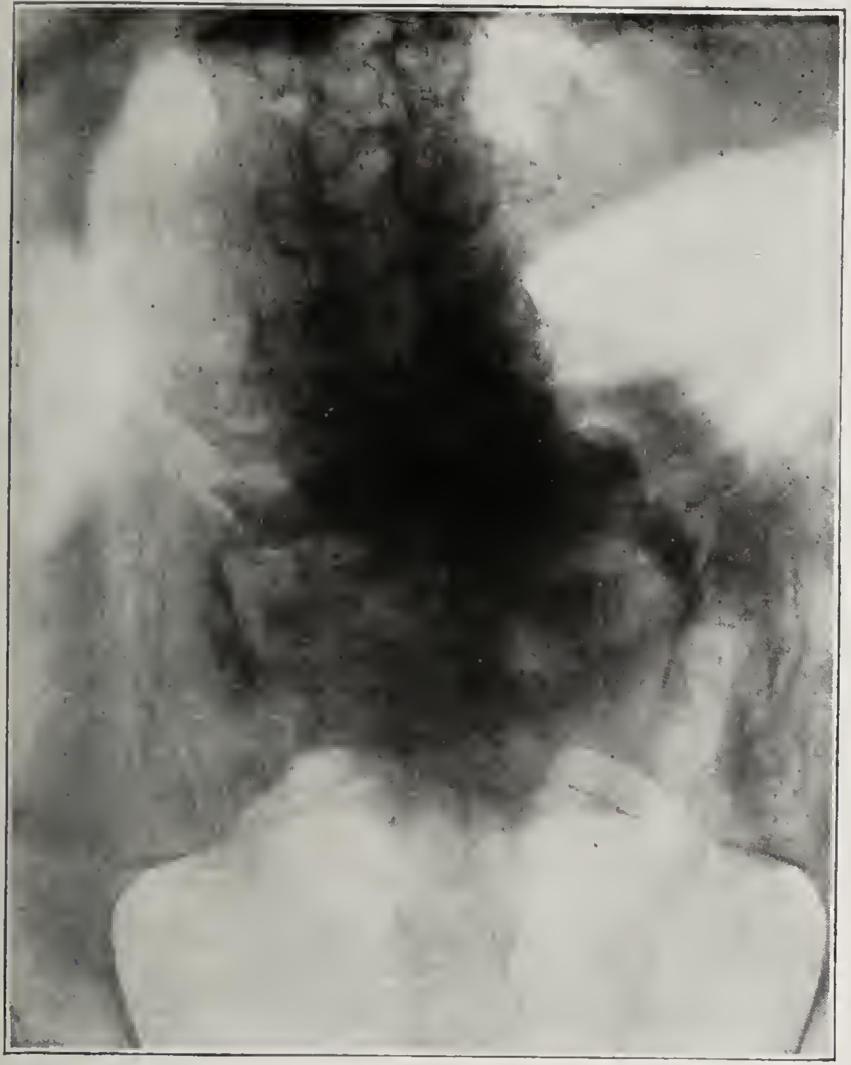

Fig. 9 (Case 10).—Ten years later.

The pupils generally present the findings present in tabes. Neurologic symptoms are increasingly more frequent in the recent reports, owing probably to the more careful and technical methods of examination of the present time.

Symptoms of involvement of the cauda equina are frequent and are to be expected in the lower lesions because of the higher termination of the spinal cord.

PROGNOSIS AND TREATMENT

The prognosis depends more on involvement of the nervous system than on pathologic changes in the bones. There is an apparent disproportion in the severity of the process in the bone, as disclosed by the roentgen ray and the slight amount of pain that the patient complains of.

The treatment of neuropathic arthropathies of the vertebral column should be directed at the specific infection and by orthopedic appliances which will prevent an increase in the deformity or which will diminish the original deformity. When the spinal deformity is reduced, there is less tendency for the occurrence of injury by mechanical pressure to the spinal nerves, and hence there is less chance for interference with the lower motor neuron arc, with its associated flaccid paralysis, especially of foot drop or paralytic talipes equinus.

As is shown in Cases 8, 9 and 10, when a spinal brace was tried there was little accomplished.

On account of the lateral deformity with the associated rotation deformity, it has been found to be advisable to have the patient wear a removable plaster or leather jacket, which is made over a corrected torso. The patient should be suspended with a Sayre's halter, which will correct the deformity to some extent. Then a plaster form is made of the patient's body, extending from the sternoclavicular articulations to the groins. This is removed, sealed and later filled with plaster of Paris. The plaster jacket is then removed. Further correction is accomplished by filling the abnormal concavities with plaster, and shaving off the abnormal convexities. Then over this corrected torso, the removable jacket is made.

DIFFERENTIAL DIAGNOSIS

The interesting portion of this article is the differential diagnosis.

1. Tuberculous spondylitis gives rigidity from the involuntary muscular spasm, from bone destruction and from fibrous infiltration, while spinal arthropathy shows no rigidity except from bone destruction and bone proliferation. Tuberculosis gives distinct referred pain, as a rule. A Charcot spine gives no distant pain except when associated with other more profound nervous symptoms. The deformity in tuberculosis is almost always posterior, while in the arthropathies there is more lateral and rotation deformity than posterior. Tuberculosis is usually relieved by recumbency, while the other is often not relieved. The roentgen ray in tuberculosis shows bone and joint destruction with no bone proliferation except in the advanced stage of healing, and rarely then. Arthropathies show marked rapidly formed new bone.

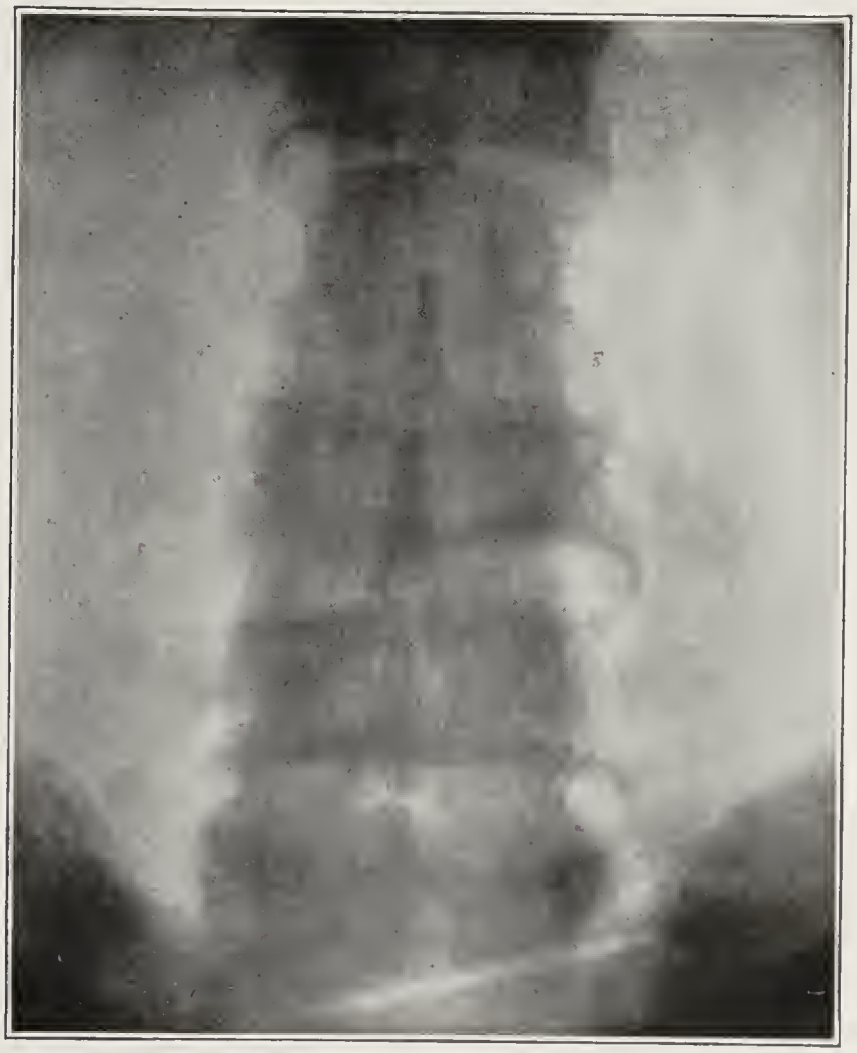

Fig. 10.—Paget's disease of spine. Case in which there is almost generalized osteoporosis and formation of osteophytes as in hypertrophic arthritis. The second lumbar vertebra is most nearly normal. These cases are often classified as parasyphilitic.

2. Hypertrophic ostearthritis presents pain early and rigidity and sensitiveness to attempted movement. There is no spinal deformity until the condition is far advanced, and then the deformity is that of a generally rounded posterior curve. Roentgenograms in transverse view disclose some thinning of the cartilage and some lessening of the thickness of the vertebral bodies at front, with lipping of bone at the articular surface with possibly bridges of bone. Anteroposterior views reveal more marked lipping, with occasional bridges across the cartilages; but the new osseous deposits are infinitely less than those formed in the arthropathies. Some referred pain may be present, as a result of irritation of the spinal nerves by bone spur formation.

3. Malignant disease is characterized by persistent pain arising at the seat of the disease, and it is not relieved by recumbency. Rigidity from involuntary muscle spasm is present. Deformity does not occur until late in the disease, after there has been much destruction of bone. It may then appear as a general local swelling. Usually there is a history of primary malignant tumor in the thyroid, breast, suprarenal or prostate. The roentgen ray may reveal the explosive appearance in the bone as is seen in malignant tumors in other bones, or only the crushing together of a vertebral body very much resembling a compression fracture.

4. Compression fracture always gives the history of injury. It usually gives a small posterior kyphosis, and the region is rigid. The roentgenogram reveals the crushed vertebral body not only in the anteroposterior view but also, and usually more clearly, in the lateral view.

5. Typhoid spine, following typhoid fever after more or less of an interval, and the spine presenting a similar roentgenographic picture found among veterans who have had more than three antityphoid inoculations, present a more or less extended period of pain, rigidity from involuntary muscular spasm, and sensitiveness to attempted movements, with or without a small rounded posterior curvature. In roentgenograms there is to be seen quite complete destruction of the intervertebral cartilage, more or less erosion of bone at the articular surface, more marked new bone deposits than are seen in the tuberculous spines, and less than are seen in the arthropathies.

6. In the review of material for Charcot spines, the spine illustrated in Figure 10 was discovered. It gives the present condition in a case diagnosed as syphilitic spondylitis by a Chicago orthopedic surgeon in 1912.

Paget's disease in involving the bones of the spine has a very insidious onset, and may be present for a year without being recognized. After a very considerable time, there is found a rounded posterior spinal curvature. There is often local aching, in contrast to the distant pain of tuberculosis. The rigidity present appears to be mechanical. A certain diagnosis can hardly be made except by roentgenograms which disclose the typical bone changes seen elsewhere in this disease, i. e., irregular hypertrophy and rarefaction, with linear striations.

Various cases of Paget's disease have developed while the patients were being treated for syphilis.

Chauffard[3] cites an instance in which mother and daughter had Paget's diseae. We have had a similar instance in which the father had Paget's disease of the spine and his daughter developed typical Paget's disease of the femur. Milan states that six patients with Paget's osteitis were benefited by antisyphilitic treatment. Hence we suggest treatment of these cases by active antisyphilitic measures, since no other rational therapy has been suggested.

DEDUCTIONS

From these cases it appears justifiable to deduce the following conclusions:

1. Spinal arthropathies may occur in any portion of the spine, but from our experience they are confined to the lumbar spine.
2. They occur primarily in the males, as is shown in our series of ten cases, in which only one was in a female.
3. The ages of patients at which the spinal arthropathies were detected were 32, 35, 49, 52, 52, 39, 43, 57, 64 and 68; excluding the last two cases, the average age of occurrence is 44 years.
4. The average number of years between initial infection and occurrence of the arthropathy was 18 years.
5. The onset is insidious, but may be accentuated by traumatism.
6. The bony changes show bone destruction, bone proliferation and displacement, usually laterally. New bone deposits are abundant, and in our cases have all been attached to the spine. We have seen none with bone plaques separated from the spine, such as are frequently seen at the knee, ankle and possibly at other joints.
7. We have seen no cases with local pain or tenderness or presenting stiffness except mechanical, resulting from bone destruction and bone deposits.
8. Bone changes in the spine frequently appear before any ataxic symptoms develop, but they may appear coincident or subsequent to the recognition of the ataxia.
9. Arthropathic changes in other joints may be present, but among our ten cases only one case presented such a condition.
10. The pain, paresthesias and paralysis which appear in the lower extremities in some of these cases seem to be mechanical, from bone pressure on the nerves at their exits from the spinal canal. These, in some instances, may be relieved by stretching the spine, correcting the deformity as far as possible, and retaining it in a well fitting corset. Temporary stretching or other movements at the region of bone changes may give some temporary relief to the less important nerve symptoms or mechanical impingements of the spinal nerves to the legs; but the more serious complications, such as foot drop, find no permanent relief on account of the permanent injury to the nerves.
11. Tabes with bone changes, although rare, is frequent enough to be given careful consideration in every case of vertebral symptoms.
12. From the examination of the roentgenograms it would appear that there are two types of pathologic changes in these joints: the osteosclerotic or the consolidation type, and the osteoporotic or the rarefaction type.
13. Our experience leads us to believe that spinal braces of the Taylor type give unsatisfactory support and that the only spinal support which can be relied on is a plaster, leather or celluloid jacket made over a corrected plaster torso. It is assumed that all cases

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[3] Chauffard, cited by Claude, H., and Oury, P.: Relationship of Paget's Disease and Tabes, Bull. Soc. méd. d. hôp. de Paris **46**: 283 (Feb. 10) 1922; abstr. J. A. M. A. **78**: 1168 (April 15) 1922.

should be given sufficient antisyphilitic treatment to maintain a negative spinal fluid Wassermann reaction.

QUERIES

1. Does the predominance of the male occur because the lumbar spine is more liable to injury and because men are more liable to trauma, or because the large percentage of cases of tabes are in the male?

2. Is the lumbar puncture or the intraspinal method of therapy accountable for some of these cases?

3. The fact that the temporary paralysis has been markedly increased immediately after intravenous injections of arsenical preparations leads to the further query as to the pathologic condition accountable for the spinal arthropathies. Dr. Billings is of the opinion that intravenous injections of arsenical preparations are a cause of endarteritis.

4. Surgical intervention in a case of spinal arthropathy appears to us to be a debatable question. Might not the traumatism inflicted by the operative procedure act unfavorably on these already disorganized vertebrae?

ADVANTAGES OF THE USE OF MINUS CYLINDERS IN ROUTINE REFRACTIONS *

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> Though I may not be able to inform men more than they know, yet I may be able to give them occasion to consider.—*Sir W. Temple.*

In the last decade, from conversations with various persons at our special meetings, I have been impressed by the general diversity of opinion regarding the use of minus cylinders in routine refractions. From what I have been able to deduce, this difference of view is largely due to a failure to employ the principles of physiologic optics involved in the geometrical figure of the conoid of Sturm, coupled with the faulty use of astigmatic charts or the use of charts which were at fault in proper construction or, when astigmatic charts were not used, failure to grasp one of the first fundamental rules of refraction: "As much plus or as little minus spherical power as the patient will accept, combined with the weakest minus cylinder, simplifies the work of refraction and insures accurary without waste of time."

From this chaotic state of affairs there has been a tendency, in the words of Pope, "to damn with faint praise, assent with civil leer, and without sneering teach the rest to sneer."

So much has been assumed in most that has been written in the past that being led astray has been a natural consequence. Details on which accuracy depends have been conspicuous by their absence. As a flagrant example of such I would call attention to a short paper by Dr. Ernest Maddox[1] of England, entitled, "Some New Tests for Astigmatism." In the description of the charts for the "V" and arrow tests, no idea of the method of obtaining the best contrast between black and white is given; the length and width of the stripes are not mentioned, and in addition an interpretation of one phenomenon is entirely at fault, if our principles of physiologic optics are to be credited.

In the consideration of any subject it is always illuminating to hark back to original sources, and I would invite attention to the writings of Young, Airy, Whewell, Helmholtz, Fick, Sturm, Knapp, Donders, Landolt, Green, Sr., Gullstrand, Duane, Hardy, Sheard, Lancaster, Jackson, Potter and John Green, Jr. I acknowledge my indebtedness to these sources for the fundamental principles contained in this paper, realizing that the harvest in these old storehouses of ophthalmologic knowledge is too vast to do any more than touch the high points in my efforts to bring up the subject for discussion.

Donders was perhaps the originator of the employment of cylindric lenses in the treatment of astigmatism. His methods of examination were mostly subjective, and included the point of light test, the stenopeic slit, visual acuity test with Snellen letters, and astigmatic charts as developed and perfected by Dr. John Green, Sr., who was carrying on his investigations with Donders and Snellen in the early sixties. It is particularly appropriate and fitting that this subject, which interested him so greatly, should again be brought forward at a meeting in this city, which was his home for many years.

The point of light test with a spherocylindric lens combination and a movable screen will develop the well-known conoid of Sturm. If one takes a convex spherocylindric lens combination, such, for example, as a plus three diopter sphere with a plus three cylinder axis 90, a beam of light from a distant source, say 20 feet, will be thrown on a small screen held behind the lens as a luminous patch of light, changing shape with the shifting of the screen. If the screen, such as a piece of cardboard, is placed 16.66 cm. back of the lenses, a vertical band of light will be formed which is known as the anterior focal line. As the screen is moved farther back, this vertical line gradually changes into a prolate oval, then into a circle, called the focal circle, then into an oblate oval, and finally into a horizontal band of light. This horizontal band of light will appear most distinct when the screen is 33.3 cm. the focal distance of the sphere only behind the lenses. It will be noticed that the anterior focal line is shorter and more distinct than the posterior focal line; hence an image formed at the anterior focal line is less blurred and smaller than one formed at the posterior focal line. The distance between the anterior and posterior focal lines is called the interval of Sturm.

In the light of Gullstrand's researches, the conoid and interval of Sturm with the diffusion images formed by a spherocylindric combination as described give us only a rough idea of astigmatic refraction, yet a thorough knowledge of this rough idea is essential to a full understanding of the finer details of astigmatism. What is true for ordinary lenses is still more true of the astigmatic refraction of the eye, which is a complicated affair. Gullstrand has shown that the diffusion images formed by a spherocylindric combination are not the regular lines and ovals as I have pictured, but more like stellate figures. The clearness of vision is determined not so much by the shape and size of the diffusion image as by the way in which the light is concentrated in the diffusion image. If the major portion of the light is massed in the center of the latter, the less distinct hazy area about this will be little in evidence, and a distinct image will result. No eye is so constructed that it will refract a pencil of rays in accordance with the classical conoid of Sturm, yet roughly we must realize that only so far as the refraction of the eye approximates this geometric figure can we correct its astigmatism with ordinary cylindric or spherocylindric lenses.

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* Read before the Section on Ophthalmology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] Maddox, E. E.: A. J. Ophth. 4:571 (Aug.) 1921.

As Lancaster has well stated, the astigmatism of the eye may be analyzed into two portions: one which is so geometrically regular that it can be corrected by our geometrically regular lenses, and a remainder which cannot be corrected by any lenses at our disposal. For this reason more than any other, the examiner must possess a practical working knowledge of the conoid of Sturm. The importance of this will be brought out again later under the discussion of the use of astigmatic charts. A thorough knowledge of the relations between visual perceptions of test objects, power meridians and directions of axes of correcting cylinders is essential for accurate and rapid work, and these are best acquired by a study of the conoid of Sturm.

In such a study, the pupillary diameter assumes considerable practical importance, as the focal lines vary decidedly with pupillary diameter; i. e., the larger the pupillary aperture, the greater will be the lengths of the focal lines and the size of the circle of least confusion. It has been calculated that with a degree of astigmatism so small as 0.1 diopter, the anterior focal line will vary from 0.001361 mm., with a 1 mm. pupil, to 0.010888 mm., with an 8 mm. pupil. With a pupillary diameter of 4 mm. and an astigmatism of 0.1 diopter, the length of the anterior focal line is 0.0054 mm.

This length is very nearly double the diameter of a macular cone.

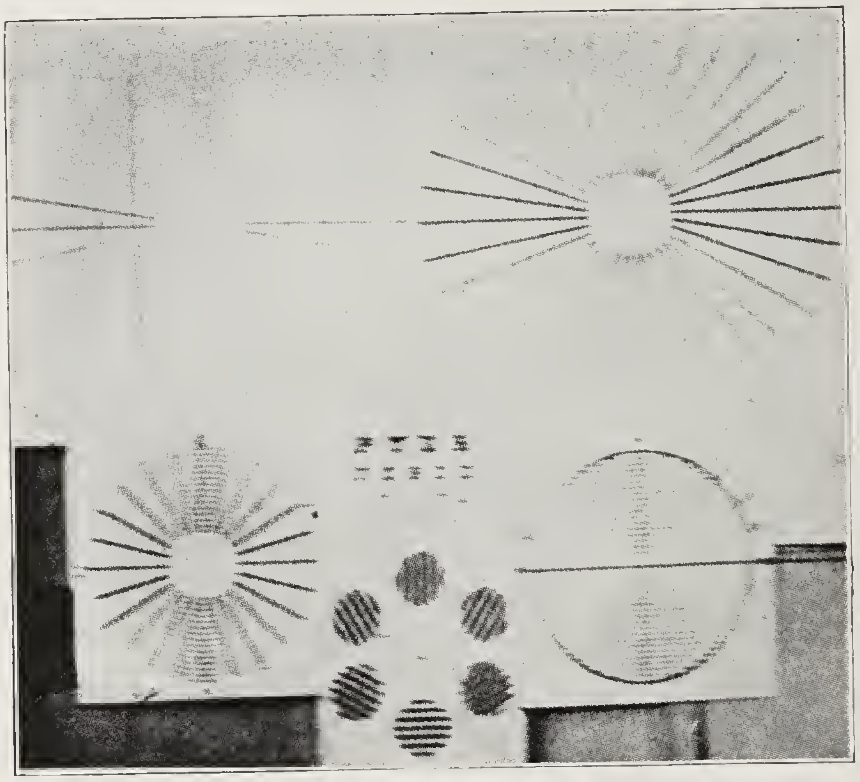

Fig. 1.—Appearance of Lancaster and Verhoeff charts when a 0.75 cylinder is placed before the lens of the focused camera.

It is thus evident that even from a tenth to an eighth of a diopter of astigmatism should diminish the visual acuity when the size of the pupil is about the average, or 4 mm. When the error rises to 1 diopter with an average pupil, the lengths of the two focal lines are 0.023 and 0.025 mm., and each of these covers approximately ten distinct retinal elements. A diopter of astigmatism will therefore have a very distinct influence on the visual acuity. When the size of the pupil is reduced from 6 to 2 mm., the lengths of the focal lines are reduced in the ratio of 3 to 1 for the two conditions. This explains why an astigmatic eye sees better under strong illumination. A pupillary contraction which accompanies accommodation will considerably reduce the errors due to astigmatic images by diminishing the lengths of the focal lines. This influence of illumination and accommodation on pupillary diameter and lengths of focal lines should be constantly in mind when investigating astigmatism.

The farthest point at which fine horizontal and fine vertical lines are seen distinctly varies in astigmatic eyes. The far point for horizontal lines is, in the majority of such eyes, less than for vertical lines. A similar difference is encountered in determining the near point of distinct vision. The difference here becomes more marked because the two determinations are not made under similar conditions of convergence. The greater the convergence, the greater the accommodation associated with it.

Two lines crossing at right angles in the same plane, one horizontal and one vertical, are not seen with equal sharpness. If the horizontal one is more distinct, the vertical, to be equally distinct, must be set at a greater distance from the eye; for, as we accommodate for the vertical line, the horizontal in order to obtain equal sharpness must be brought nearer to the eye. A similar difference is constantly maintained with each degree of tension of accommodation.

This asymmetrical arrangement of the points of the refracting meridians around one axis is of such a nature that the focal distance is shorter in the vertical meridian than in the horizontal. In order to see a vertical line acutely, the rays which in a horizontal plane diverge from each point of the line must be brought to a focus on the retina; it is not necessary that those diverging in a vertical plane should also previously converge into one point, as the diffusion images still existing in a vertical direction cover one another on the vertical line. On the other hand, to see a horizontal line distinctly, it is necessary only that the rays of light diverging in a vertical line should unite in one point on the retina. Now, horizontal lines are sharply seen at a shorter distance than the vertical ones; therefore rays situated in a vertical plane which are refracted in the vertical meridian of the eye are more speedily brought to a focus than those of equal divergence situated in a horizontal plane, and the vertical meridian therefore has a shorter focal distance than the horizontal. When one examines the diffusion images of a point of light, provided the eye under examination is not accommodated for the source of light, the correctness of this view becomes apparent.

Vertical focal lines make a clearer image of many letters than horizontal or oblique ones; hence, if the anterior focal line were horizontal it would not favor so clear vision as the posterior focal line, which in such an instance would be vertical. This has been well brought out by Dr. John Green, Jr.[2] Letters with vertical components distinct are more easily recognized than those with horizontal components distinct. One has only to render oneself artificially astigmatic with the rule and then against the rule, using the same cylinder, to appreciate the difference in distinctness of the same line of letters. With the latter condition, artificial astigmatism against the rule, there is a much greater interference with the legibility of ordinary printed type.

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[2] Green, John, Jr.: Tr. Am. Acad. Ophth. & Oto-Laryng., 1918.

One should remember that in an astigmatic eye the perception of a line, accommodation being eliminated, is good if the direction of that line corresponds to the direction of the focal line which is at the retina or nearest to it. This explains why it is possible to determine subjectively the axis of astigmatism by means of radiating lines of a properly constructed clock dial astigmatic chart, and measure its amount by use of cross lines at right angles with minus cylinders.

It is important to remember under such conditions as outlined that the clearest and most indistinct lines of the chart correspond to the focal lines of the eye; that the focal lines of the eye are at right angles to the meridians of which they are the respective foci, i. e., the first focal line is at the focus of the meridian of greatest refraction and greatest curvature and parallel to the meridian of least refraction and least curvature; the second focal line at the focus of the meridian of least refraction and least curvature and parallel to the meridian of greatest refraction and greatest curvature; the clearest chart lines correspond in direction to the most ametropic power meridian of the eye; hence the power of the cylinders is needed in that direction; the most indistinct lines of the chart correspond to the emmetropic or nearest emmetropic meridian of the eye; hence the rule that the axis of the correcting minus cylinder should be placed in a direction corresponding to the least distinct or blurred lines or at right angles to the most distinct or clearest lines.

The principles of physiologic optics so far mentioned are not only of scientific value but of the greatest practical imporance in the investigation of astigmatism, and also afford us a common ground for discussion. We are fortunate in possessing several tests for astigmatism, both objective and subjecive, so we are not compelled to rely on any one test.

The objective tests I shall dismiss for the moment with the statement that they are not only of great value but indispensable, and confine myself to the subjective ests, laying special emphasis on the astigmatic chart. Like all other things, the astigmatic chart has gone hrough various stages of evolution. The classic form of Javal's clock dial was adopted by Green and modiied. Later came Noyes' selection of Green charts, the most satisfactory of which were the wedge-shaped radii narrowing to the center, with the companion double wedge crossing at right angles. Various other ypes of clock dials were developed featuring single, double and triple radii.

These were followed by Verhoeff's charts, one havng concentric circles of fine lines with wider radii at 5 degree intervals, the other of wide lines at right ngles crossed by finer lines. The latter chart is ivoted so that the cross lines can be set at any angle.

Next in this evolutionary development comes the Lancaster chart. It is to the latter that I desire especially to invite attention. Chart 1 consists of a square piece of heavy so-called wedding stock cardboard, 65 by 65 cm., on which a circle with a radius of 30 cm. is drawn. At intervals of 10 degrees, strips of black velvet baby ribbon No. 1 or No. 1½ and 20 cm. long are glued to the cardboard, extending from the periphery to within 10 cm. of the center. The finished chart appears as a rimless wheel of thirty-six spokes with a clear white center or hub 20 cm. in diameter.

Chart 2 is made of the same wedding stock measuring 45 by 45 cm. A circle 36 cm. in diameter is drawn on this square of cardboard, and the periphery marked at 10 degree intervals. A disk 36 cm. in diameter is cut from another piece of cardboard, and two diameters of No. 1 or No. 1½ black velvet baby ribbon are glued to this disk at right angles. The disk is pivoted to the marked circle so that it may be rotated to any desired position.

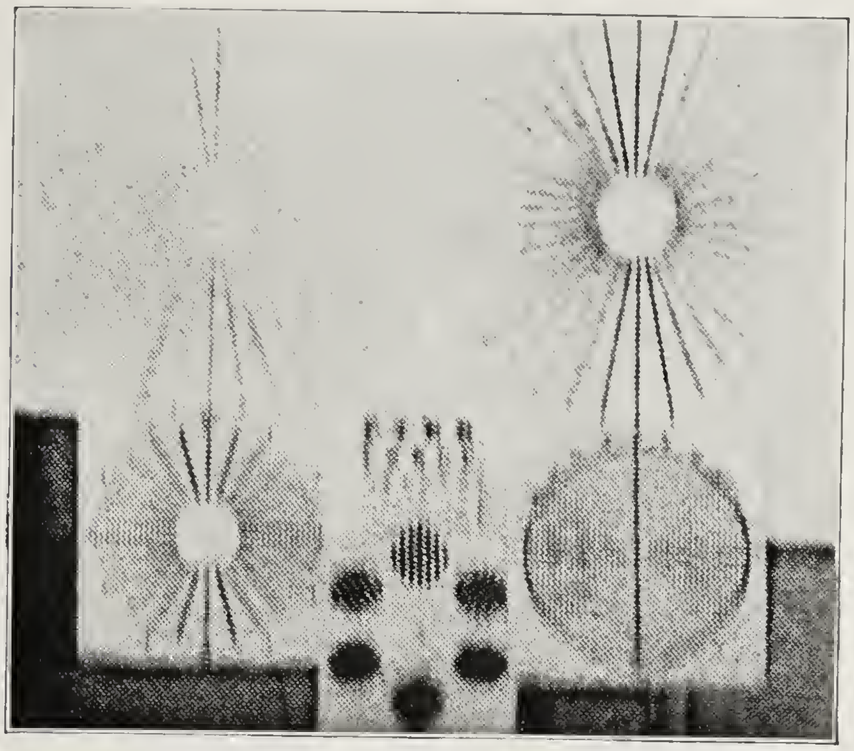

Fig. 2.—Appearance of Lancaster and Verhoeff charts when a 0.75 cylinder is placed before the lens of the focused camera. Note that the 0.75 cylinder in this figure has been placed at a right angle to its position in Figure 1.

These charts have several advantages. They are larger than those generally used, permitting the patient to select the radii which are larger with greater ease. The sharp contrast between black and white is superior to any other form of chart, only a glance, in comparison with other charts, being necessary to establish this superiority. The charts are not easily soiled, and may be easily cleaned with art gum. The charts constructed as outlined are thus standardized. The large chart (No. 1) is employed in determining the axis of astigmatism, and the cross line chart (No. 2) with the use of minus cylinders in measuring its amount. These charts may be used with or without cycloplegia. Further to facilitate our work, the instrument makers are now equipping their latest models of phoroptometers with batteries of minus cylinders. It is a sad commentary that the manufacturers, aware of the advantages of minus cylinders, have seen fit literally to force their use upon us. Accommodation is probably the greatest stumbling block in refraction, because astigmatism can be and is neutralized or hidden by accommodation.

Before explaining the use of the Lancaster charts, I would recall some simple but convincing experiments made by Lancaster bearing on one phase of the manner in which the eye may neutralize or mask its astigmatism. He made photographs of astigmatic charts with a focused camera made astigmatic with a 0.75 cylinder. The images of the astigmatic charts as depicted in Figures 1 and 2 showed a marked difference in the lines. In Figures 1 and 2 the axis of the 0.75 cylinder was placed, respectively, in the vertical and horizontal positions. The focusing screw of the camera was turned to a position where the lines looked all alike, as in Figures 3 and 4. The camera thus neutralized the astigmatism by its focusing, which of course could not be unequal or partial, but was uniform in all meridians. The focusing, while making all the lines look alike, does not make them sharp and clear. His explanation of this is as follows: The part of the focal interval after focusing which falls on the retina or photographic plate is the interfocal circle, which does not blur one line any more than another, does not produce any astigmatic effect, and so the lines look all alike. The reason they look blurred is that the focus is a circle and not a point; the greater the astigmatism, the larger the diameter of the focal circle; when the astigmatism is very small, say 0.25 or 0.37, the diameter of the focal circle is so small that one hardly notices any blur. When one grasps the significance of this simple experiment, a large part of the problem of how the eye behaves toward its astigmatism has been mastered. The eye shifts the focal interval forward or backward by accommodating or relaxing so as, if possible, to get that part of the retina which will give the best image. In Figures 3 and 4 the blurring is equal to what would be produced by a sphere of about one half of the strength of the cylinder used. Whether the eye prefers a focal line or the focal circle remains a matter of dispute; but, in high astigmatism, a focal line is probably preferred, whereas, in low astigmatism, the preference is for the focal circle.

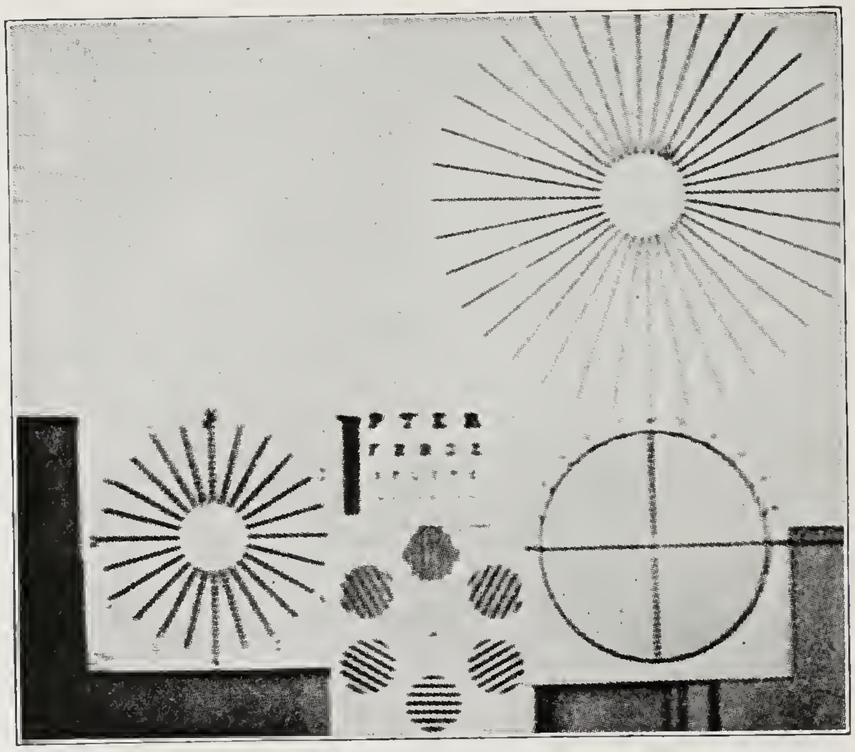

Fig. 3.—Appearance of Figure 1 when the focus is shifted to bring the focal circle on the plate, thus neutralizing the effect of the cylinder by "accommodation." Note the slight fogging, which is about equal to what would be produced by a sphere of half the strength of the cylinder, i. e., 0.37 diopter.

In refraction, we avoid the disturbing effect of accommodation by the use of cycloplegics and fogging. Fogging may be used with or without a cycloplegic in subjective testing with astigmatic charts. A stronger convex or weaker concave sphere than that selected for best vision is placed before the patient's eye, and the sphere employed is just strong enough to keep the whole of the focal interval in front of the retina, with the posterior focal line near to the retina but always in front of it.

Any accommodation on the part of the eye increases the blur and only makes matters worse.

How are we to determine that the fogging is such that the focal interval is in front of the retina? With proper fogging, a minus cylinder will make the lines parallel to its axis clearer, while a plus cylinder will make the lines parallel to its axis more blurred. If the posterior focal line slips back of the retina, a minus cylinder will make the lines at right angles to its axis clearer, and a plus cylinder will make lines parallel to its axis clearer.

These points are of great practical importance when we are nearing the completion of our tests and the fogging is reduced to a minimum to obtain the greatest visual acuity, if we are properly to interpret the answers of the patient and avoid confusion.

If the posterior focal line is permitted to slip back of the retina, conditions are prepared for the eye to begin to accommodate, and the focal circle may eliminate the astigmatic effect with an associated blurring. As the focal circle is closer to the anterior focal line than the posterior, the blurring is equal to a little less than half of the accommodation employed.

Failure to detect astigmatism with astigmatic charts is often due to insufficient fogging, which permits the focal circle, which does not blur the one line more than another, to fall upon the retina. By keeping in mind the principles just outlined, this pitfall may be easily avoided.

METHOD OF USING THE LANCASTER CHARTS

My refractions are done in a corridor, the illumination of which can be varied. I use a phoroptometer with batteries of minus cylinders and spheres, as such an instrument saves time in changing lenses. The astigmatic charts and test types are placed at one end of the corridor illuminated by "Daylite" lamps, which give a clear, white, shadow-free light. Spheres which give a fogging of 20/50 are rotated into position before one eye; the same is done for the other eye. The lights are turned off and the patient instructed to stare into space for a few minutes. The lights are then turned on. It will be found sometimes that vision has improved to 20/40. The blind is turned into position before the left eye, and with fogging at 20/40 the patient is directed to look at Chart 1 with the radiating lines and is asked whether the lines are all alike or some darker than others. They may appear all alike either because they are al alike in the image on his retina or because he fails to notice any difference. A — 0.50 or — 1.00 cylinder is quickly rotated into position at vertical, horizonta and oblique axes, and the patient is asked whether he now sees any difference. This will assist in training him as to what he is expected to see. If he notices any difference, the cylinder is reduced. If with a 0.25 cylinder he promptly and accurately detects the differ ence whichever way the axis is held, and he notices no difference when the cylinder is removed, one may know that less than 0.25 astigmatism exists. When using such a weak cylinder, the fogging should be very slight—from 20/30 to 6/8. If no difference is detected with a 1.00 or 1.50 cylinder, the case is unsuited to this or other subjective tests, and is one for objectiv tests only.

When the amount of astigmatism is small, say diopter or less, a number of lines, from four to six o more, is selected as darker and clearer. When th amount is higher, say, above 2 diopters, two or thre lines are selected. Let us, for example, suppose tha the patient selects the lines from 70 to 110 as darke and clearer. The approximate axis would be at 90. As I have already stated, Chart 1 is employed to determine the axis of astigmatism, while Chart 2 is used in determining its amount.

Chart 2 is now set with the lines at 90 and 180. The axis indicator is next set at 180, and minus cylinders are rotated into position until both the vertical and horizontal lines are alike. A — 0.25 cylinder from the trial case is held axis vertical, and the patient is asked whether the lines are still alike. If the astigmatism is corrected, he will answer that the vertical line is now blacker. The — 0.25 cylinder is now held axis horizontal, which makes the horizontal line blacker. In many cases a — 0.12 cylinder will give the same result; held vertically, the vertical line becomes blacker; held horizontally, the horizontal line becomes blacker. In the last instance this means that the astigmatism uncorrected is less than one-eighth diopter. I know of no other method, objective or subjective, which will stand such a delicate test. The patient's gaze is directed to the test letters, and the spheres are reduced until the best visual acuity is obtained. The same procedure is adopted for the other eye.

From the questions put to patients during the examination, we may at times receive surprising, confusing and anomalous answers. Many of these nay be due to failure on he part of the patient to rasp what he is supposed to do or see. A ittle training, explanation nd assurance will clear natters. In his writings n the subject, Lancaster as described and explained a number of these nomalous and confusing nswers.

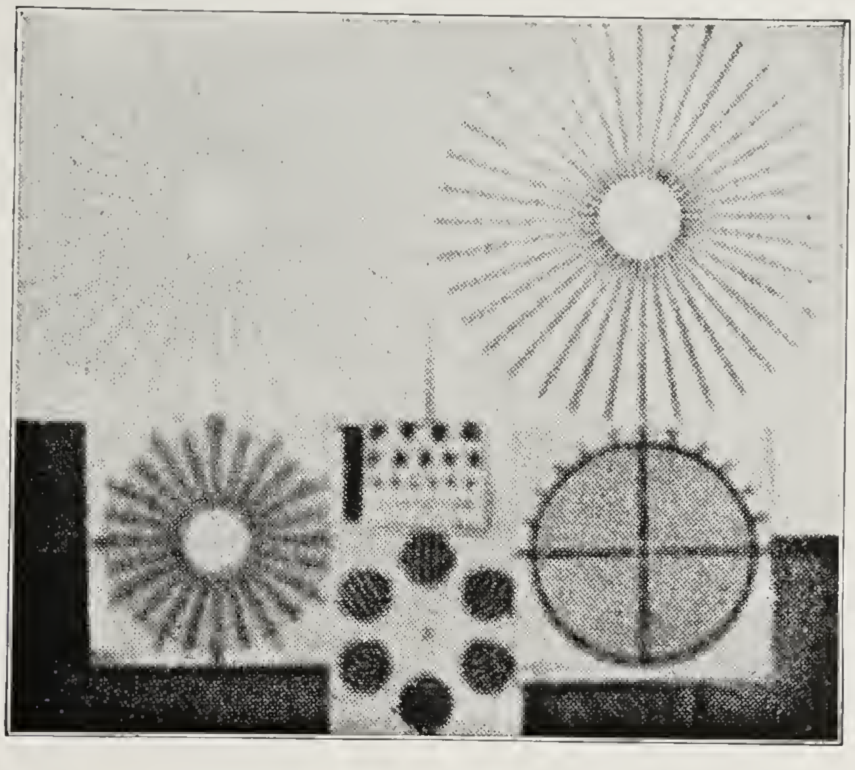

Fig. 4.—Appearance of Figure 2 when the focus is shifted to bring the focal circle on the plate, thus neutralizing the effect of the cylinder by "accommodation." The same slight fogging is noted here as in Figure 3, and is about equal to what would be produced by a sphere of about half the strength of the 0.75 cylinder used.

The same procedure as utlined with the Lancaster charts may be used with the Verhoeff charts. In rder to obtain greater contrast with the Verhoeff harts I have found it of advantage to trace the lines n the charts with India ink.

The principles of the subjective method with astigmatic charts and minus cylinders hold true both with nd without cycloplegia, thus making it the most flexible of our subjective tests.

For those who do not care to use the astigmatic harts but who prefer the objective method of cycloplegia and retinoscopy alone or combined with the subjective method of test types, the use of minus cylinders ffers advantages. If after the vision is fully corrected nder cyclopegia the accommodation is tested by the ethod advised by Duane, one is often surprised to find at complete cycloplegia does not exist.

DUANE TEST

Briefly, the test is carried out as follows: To the full stance correction a + 3.00 sphere is added and the ear and far points are obtained for close range, measurements being made from the anterior focus of the eye and a Duane disk, with a short black line or diamond print used as a test object. The near and far points under theoretical conditions of complete cycloplegia should be at 33.3 cm. from the anterior focus of the eye. It will be found that the near and far points are usually separated by a distance of 10 cm., which means about 1 diopter of accommodation in action. I have yet to find these two points closer than 5 cm., even after long continued use of atropin. The strongest convex or weakest concave sphere, combined with the weakest minus cylinder, will reduce the action of this small remaining amount of accommodation to its minimum.

In retinoscopy, if a plus sphere is required the strongest meridian is first neutralized and minus cylinders in this meridian added until full neutralization occurs; if a minus sphere is required, the weakest meridian is first neutralized and minus cylinders in this meridian added until full neutralization occurs. When plus cylinders are used, more changes are necessary to accomplish the same results obtained by using minus cylinders.

In brief, when minus cylinders are used exclusively in refraction, changes of the cylinders are necessary only after the strongest plus or weakest minus sphere is obtained. When minus cylinders are used exclusively, changes in the cylinders only are required. On the other hand, when plus cylinders are employed, it becomes necessary to change spheres and cylinders in routine. It therefore becomes merely a matter of mathematical optics and transposition, and the use of minus cylinders is urged either with trial case lenses or with batteries of lenses, as supplied on the latest models of the phoroptometers.

The problem for each of us is to select the methods which give us the most reliable results, and at the same time give our patients the greatest comfort and improvement in vision.

CONCLUSION

I would emphasize that the advantages accruing from the use of minus cylinders will aid materially in solving this problem, in that their use reduces the action of accommodation to its minimum, simplifies the work of refraction, and insures accuracy with a diminished expenditure of time and energy.

808 Francis Building.

ABSTRACT OF DISCUSSION

Dr. John Green, Jr., St. Louis: It is by no means an easy task to measure exactly the refractive state of the eye. An atropinized eye free from regular astigmatism should yield identical results to successive examiners. As a matter of fact, the estimates will vary from 0.12 to 0.25 diopter. Several reasons may be offered in explanation of these discordant results: 1. No cycloplegic will completely paralyze the ciliary muscle; hence, that part of the accommodation which is still active may prevent an exact measurement. 2. Examiners vary greatly in their ability to put themselves en rapport with patients; and, hence, their interpretations of patients' answers vary accordingly. 3. The retina quickly fatigues under repeated testing, and the patient may, on this account, unwittingly mislead. When axial ametropia is modified by corneal and lenticular astigmatism, the determination of the exact error becomes even more difficult. Dr. Heitger has wisely ignored all mechanical and meritricious aids to refraction and has brought to our attention a method based on sound principles of physiologic optics. We must agree with him that, despite modifications in the form of the geometric figures of an astigmatic pencil (as shown by Gullstrand), only so far as these figures approximate the well known lines, ovals and circles of the conoid of Sturm can we correct ocular astigmatism by means of a spherocylindric combination. Dr. Heitger has reminded us that we have ignored an elementary rule in the use of astigmatic charts; namely, that the entire focal interval must be anterior to the plane of the retina and must remain so throughout the test. The influence of the width of the pupil on the lengths of the focal lines should direct attention to the advisability of using a disk having a circular aperture equal to the average width of the pupil under ordinary interior illumination when the eye is tested under cycloplegia. During the postcycloplegic test, the patient should be seated in daylight, which should have approximately the same intensity as the illumination of the room in which he habitually works. Those of us who are constantly working with astigmatic charts place our main reliance on them in the determination of the axis and the strength of the cylinder. Invaluable aid may come from a careful skiascopic measurement. It is absolutely indispensable in young children, in dull witted adults, and in certain others, who, with peculiar perversity, fail utterly to grasp the meaning of the test. Astigmatic charts of any sort are of little avail in cases of cerebral astigmatism. I heartily endorse all Dr. Heitger said in praise of Lancaster's charts. It is my belief that the method introduced by Ferree and Rand of reducing the intensity of illumination to test the resolving power of the eye, will prove a useful refinement in the test with astigmatic charts. Let us assume that the test has resulted in the patient's selecting the 90 and 100 degree line as the best and he is undecided as to whether the 110 degree line should be included with the first two. If now the illumination is reduced to the point where no line is visible and then gradually increased until one line becomes faintly visible, that line which first emerges from the darkness will be the axis of the astigmatism. The assumption that no astigmatism exists because 6/6 or 6/5 vision may be obtained with spheres alone is untenable. In my opinion, more than 50 per cent. of such patients possess an astigmatism of from 0.12 to 0.5 D., which can almost invariably be demonstrated by means of Lancaster's charts. A low astigmatism with the rule can often be ignored without detriment to the patient's working ability and comfort; this is not true if the astigmatism be oblique or inverse. When the test is made without cycloplegia (as in presbyopic persons), failure to use astigmatic charts is especially reprehensible, as it is in these patients that low inverse astigmatism productive of great ocular discomfort so frequently occurs.

Dr. Joseph D. Heitger, Louisville, Ky.: Dr. Green's suggestions regarding the use of the variation of the degree of illumination to determine low errors of refraction recall the work done by Ferree and Rand. These investigators were stimulated in this work owing to the fact that when the war broke out certain types of eyes were necessary, particularly in the navy, as "lookouts." It was found that, while a great many persons had 20/20, 20/15, or even 20/10 vision, only about 20 per cent. of these could be trusted with the work of lookouts in the navy. The work of Ferre and Rand has shown the importance of illumination as a refinement in the test of visual acuity. It is all based, of course, on the resolving power of the retina rather than on the resolving power of the refractive media.

CANCER OF THE TONGUE

SOME PITFALLS IN DIAGNOSIS AND TREATMENT *

WILLIAM SEAMAN BAINBRIDGE, M.D
NEW YORK

The object of this paper is to consider some of the truths emphasized in my experience with malignant and nonmalignant conditions of the tongue, especially the importance of early recognition and well directed treatment.

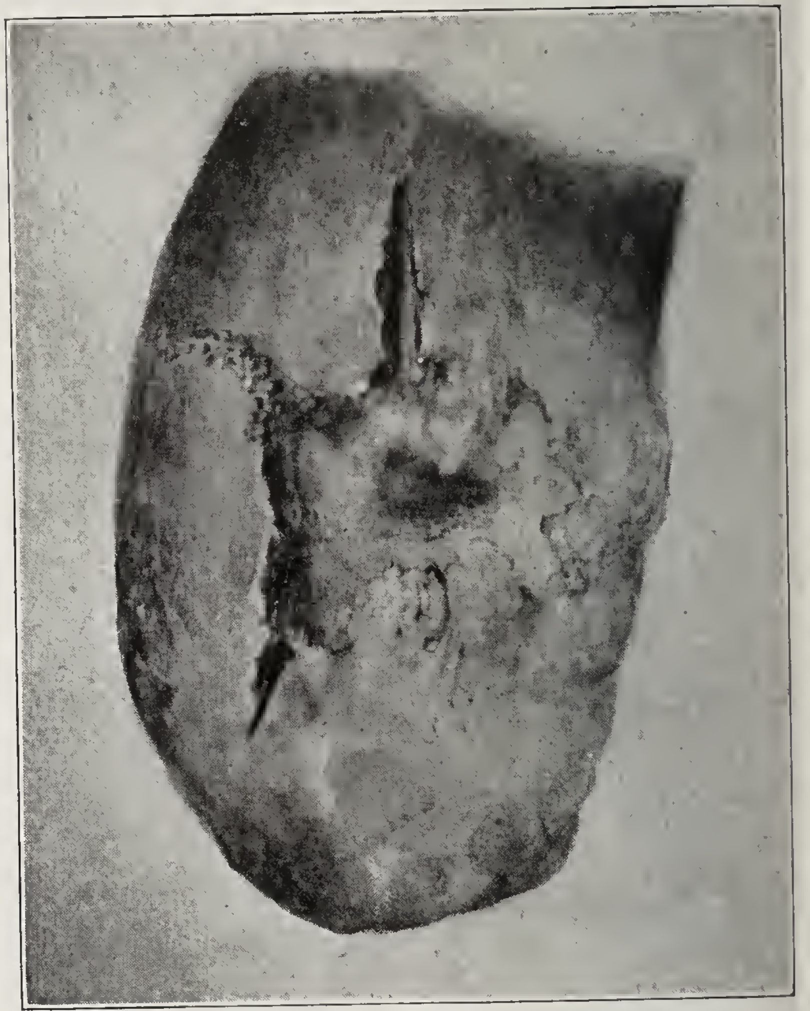

Fig. 1 (Case 1).—Advanced lingual cancer diagnosed as syphilis because the incipient lesions appeared near the center of the tongue, a site more characteristic of syphilis than of epithelioma.

No symptom or set of symptoms can be relied on always in making a diagnosis of cancer, and this is true of cancer of the tongue as well as malignancy in other parts of the body. As there is at present no infallible clinical test for cancer, except the dangerous one of allowing its course under observation to prove its character, a careful correlation of clinical and laboratory methods of diagnosis must be brought to bear on each case. Even the most experienced may make mistakes; but the aim must be toward the minimum of diagnostic errors.

The onset of cancer of the tongue is insidious and except for a small ulcer or nodule, which would alarm only the most nervous patient, is often without other symptoms. Moreover, there is a variety of conditions so closely simulating early cancer of the tongue tha nothing but the most painstaking clinical diagnosis with accurate laboratory analysis, can definitely determine the real character of the disease.

From my examination of 700 of my records o tongue lesions, selected at random, the cases herein reported illustrate the following points:

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* Read before the Section on Stomatology at the Seventy-Thir Annual Session of the American Medical Association, St. Louis May, 1922.

1. Some cancers of the tongue are not recognized as such, but are diagnosed and treated as nonmalignant neoplasms until the condition is too far advanced for hope of cure.

2. Many errors are made in diagnosing the type, stage and extent of tongue cancer.

3. Many lesions of the tongue are diagnosed and treated as cancer when there is no cancer present.

REPORT OF CASES

Case 1 (Illustration of Point 1[1]).—E. S., a man, aged 42, gave an absolutely negative blood reaction to repeated Wassermann tests. He had been an excessive smoker, always holding the cigar on the right side of the mouth. A number of years previous to 1907, when he consulted me, a small sore appeared on the tongue, one-half inch from the right side and 1½ inches back. The sore came and went. It was treated by many methods: mixed treatment, silver nitrate, roentgen ray, etc. When the patient consulted me, the mouth was in a very fetid condition, the glands in the neck were involved, and the disease was too far advanced for hope of cure, but not too far advanced for operative procedure with the aim of relieving the suffering and prolonging life.

The involved glands were removed and the lingual arteries ligated, and a few weeks later the tongue was completely excised. Following the operation, the patient gained in weight and strength and was able to attend to his business; but, eventually, recurrence took place in the neck, and he died one year after operation.

Case 2 (Point 1[2]).—T. M., male, aged 49, in May, 1902, irst noticed a small elevated spot, half way back, on the lorsum of the left half of the tongue. This was treated vith local applications of alum, and smoking was disconinued for a time. The irritated area disappeared, but eturned whenever smoking was resumed.

In December, 1903, the patient first consulted me. At that ime, he had lost considerable flesh and strength and was somewhat cachectic. There was a hard crater-like ulcer, involving the left anterior third of the tongue, except at the tip, which was covered by a brownish, fetid fur. A small piece of the ulcer was examined microscopically by two pathologists, and the diagnosis of vascular epithelioma was confirmed.

Immediate operation was urgently advised, but the patient absolutely refused, and insisted that roentgen-ray treatment be given a trial.

After nine weeks of systematic application of the roentn ray, this treatment was discontinued, as the patient d grown steadily worse. The growth by this time had tended to the right side of the tongue, and induration of e floor of the mouth was evident. Some cervical glands were palpable on both sides of the neck, and there was marked dysphagia.

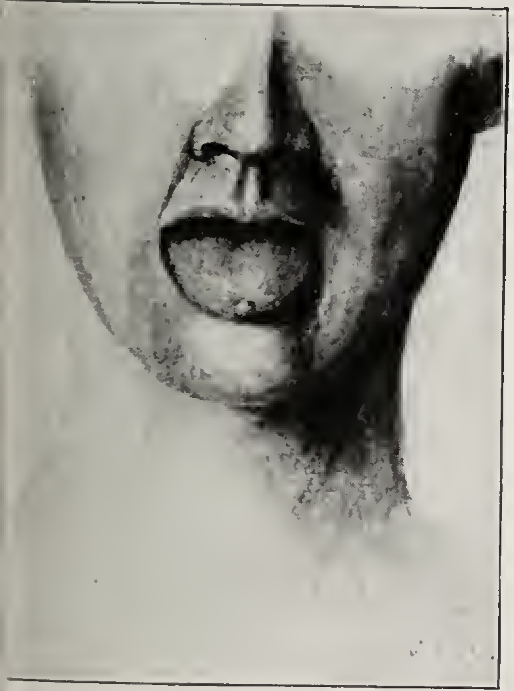

Fig. 2 (Case 3).—Early epithelioma of of tongue. The growth was removed a wedge-shaped incision. The patient mained well ten years, with no recurrence.

In March, 1904, operation was performed. Two incisions were made, the first across the neck, practically from the tip of the left mastoid process to that of the right, and below as far as the thyroid cartilage. The second incision was along the anterior border of the left sternocleidomastoid muscle to the clavicle. The two lingual arteries were tied in situ, and the submaxillary and sublingual glands on either side removed, with the salivary ducts. The lymphatic glands of the neck were also removed, as far as possible, en masse.

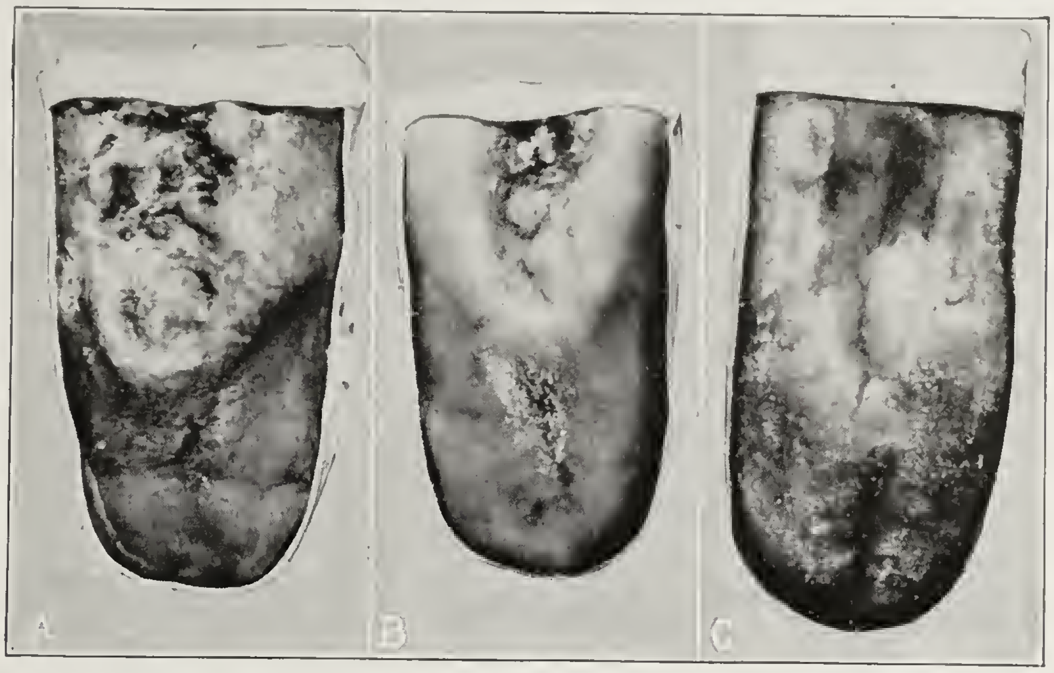

Fig. 3 (Case 6).—Large gummatous ulcer of the tongue, repeatedly diagnosed as cancer: *A*, condition of tongue when first seen; *B*, after one month of antisyphilitic treatment; *C*, after three months of antisyphilitic treatment: cured.

At an operation two weeks later, the tongue was completely excised, and with it a large part of the geniohyoglossi, as well as the hyoglossi muscles, the inferior third of the pillars of the fauces on the left side and part of the anterior pillars of the fauces on the right side. Within a few hours, the patient was able to swallow fluids, and a month later he was discharged, cured. He weighed 10 pounds (4.5 kg.) more than when he entered the hospital, was able to masticate solid food, to taste, to talk intelligibly and even to sing.

For eight years, the patient had no recurrence; but in May, 1912, a new growth appeared in the mouth. The small ulcerating area at the anterior portion of the mouth was fulgurated, but the patient succumbed to pneumonia a few days after the operation.

Case 3 (Point 2).—L. R., a man, aged 41, consulted me in January, 1907, for a small nodule on the tip of his tongue. The nodule, together with a wedge-shaped section of healthy tissue surrounding it, 1 inch long (2.5 cm.), with the apex toward the base of the tongue, was removed. The patient refused to allow the excision of the glands of the neck. Careful microscopic examination was made not only of the tongue nodule itself, but of sections taken along the healthy tissue. No cancer cells were found in the remainder of the wedge-shaped section of tissue, until the very apex of the wedge was reached. There a nest of suspicious cells was found, and, a day later, a longer angle was made by the removal of another small section at the apex of the wedge-shaped incision.

Following this very early and conservative removal of the epithelioma, the patient was free from recurrence for over ten years, but, unfortunately, he disappeared during the late war.

Case 4 (Point 2).—J. G., a man, aged 60, in December, 1915, discovered a small spot resembling a wart, on his tongue. He consulted a physician, who diagnosed the condition as cancer and applied radium, one treatment in January and one in March, 1916. The spot continued to increase in size, and the patient was then advised to have the tongue excised.

On examination, I found the tongue covered with leukoplakia spots, and in the center an ulcerating mass about the size of a 5-cent piece. The ulcer was a typical epithelioma, but the surface of the tongue looked suspicious of syphilis. A Wassermann test was made and a positive four plus report returned.

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[1] Bainbridge, W. S.: Am. J. Dermatol. **15**, No. 7.

[2] Preliminary report of case read at a meeting of the Medical ciety of the State of New York, February, 1905.

Antisyphilitic treatment was commenced, and was continued for five weeks. At the end of that time, the inflammation had subsided and the tongue and mouth were much better, only an ulcer about the size of a split pea remaining. A conservative operation was then performed, and the cancerous and sclerotic parts of the tongue were removed. The pathologic report was epithelioma.

The patient made a good recovery and lived five years without a recurrence. In January, 1921, he died of acute pneumonia.

In this case, what appeared to be an advanced malignant process was in reality but a small cancerous growth surrounded by a marked syphilitic condition.

Case 5 (Point 3).—M. A., a woman, single, aged 28, in September, in another city, had her appendix removed. The day following the operation, a sore appeared on her lower lip, a little to the left of the median line. This was diagnosed as a "fever" or an "ether" sore, and was treated with zinc and various other ointments. The ulcer continued to grow, and, six weeks later, a small piece was excised and sent to a laboratory of standing, the report of which read: "Sections are angiosarcoma. Considerable mitosis is present and the ulcer shows evidence of rapid growth. It is malignant and, as a rule, recurrence follows removal. The only procedure is extensive operation. Look for jaw involvement." The patient then came to me for radical operation.

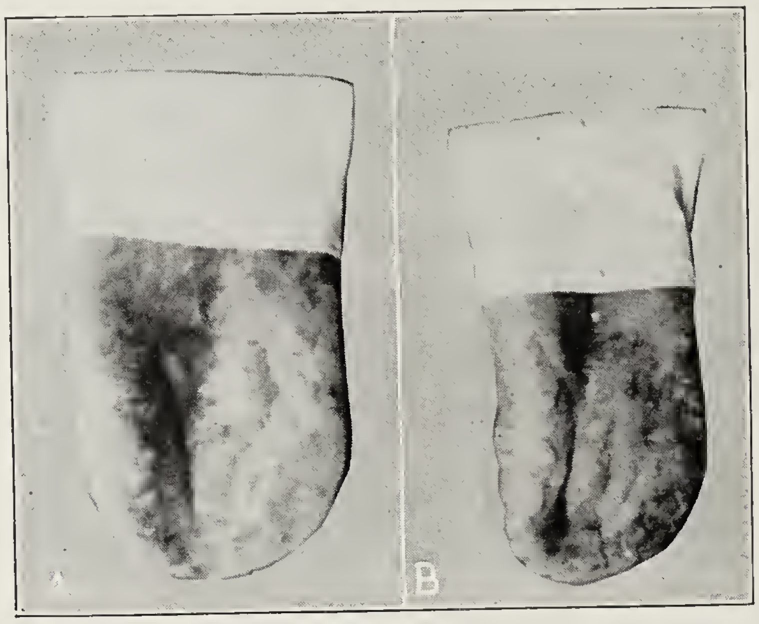

Fig. 4 (Case 7).—*A*, lymphangioma of tongue, papillomatous type, with surface ulceration, referred for radical operation as carcinoma; *B*, appearance of the tongue after removal of the ulcerated area and the mass beneath.

On examination, October, 1919, I found on the lip an elevated ulcer, about the size of a 10-cent piece, hard and indurated. The tongue was covered with leukoplakia spots, one of which was nodular. There were three small glands, one under the chin and two in the left submaxillary region. The growth looked suspicious, and the Wassermann reaction was four plus.

Active antisyphilitic treatment was commenced and, after four intravenous and six intramuscular injections, with constant local application of mercurial ointment, the mass on the lip and the glands in the neck absolutely disappeared. However, the Wassermann reaction was still four plus, so the antisyphilitic treatments were continued. February, 1921, the Wassermann reaction was negative. The patient reported, May, 1922, that she was in excellent health and that for two years the Wassermann tests had proved negative.

This case is of special interest in that it emphasizes the fact that even in the hands of the most painstaking pathologist the microscope is not always without error. At a meeting of the Medical Society of the County of New York, May, 1920, Dr. R. B. Greenough said that, as a clinician, he depended to a great extent on the opinion of the pathologist in making a diagnosis, and that the failure of a surgeon to submit tissue removed to microscopic examination deprived the patient of accurate pathologic knowledge. Dr. James Ewing, who addressed the same meeting, made the statement that he based more faith on clinical methods, carefully applied by a skilful person, than on any other means of diagnosis at the present time. He said that it was a strange fact that the clinician always insisted on the laboratory methods being applied to diagnosis, while the laboratory worker favored clinical methods; palpation, inspection and observation for a period of time; and that he had spent a great deal of time in the laboratory and preferred to base his diagnosis on careful clinical methods. There was, he supposed, a common ground where laboratory worker and clinician would one day meet.

I am in accord with both the clinician and the pathologist quoted above. Before reaching a positive diagnosis, there must be a careful weighing of the evidence from the two sources, clinical and laboratory. Neither pathologist nor clinician is infallible, and an intelligent and a sympathetic cooperation between them is most important in the best interests of the patient; but the final responsibility must rest with the clinician, who should have all the facts in the case before rendering an opinion.

Case 6 (Point 3).—J. T., a man, aged 40, nine months prior to coming to my clinic, June, 1907, noticed a sore at the base of the tongue. As he had a negative Wassermann report, the diagnosis of cancer was so clear in the judgment of a number of physicians that, when I returned from out of town, on reaching the hospital operating room, I found the patient on the table, prepared for radical removal of the tongue.

On examination, I found a deep ulceration, about 1 inch (2.5 cm.) wide and extending backward from the anterior one third of the dorsum of the tongue to the epiglottis, and enlarged cervical and supraclavicular glands. The condition was suspicious of syphilis, and surgical treatment was deferred. A small section of tongue was removed for examination, and two pathologists returned a negative report as far as cancer was concerned. The patient was then placed on antisyphilitic treatment, with the result that in a few weeks the ulceration disappeared. The case was kept under observation for seven years, during which time there was no recurrence, but the patient was lost sight of during the late war.

Case 7 (Point 3).—S. F., a boy, aged 13, when 8 months old, presented a swelling on the tongue, about the size of a cherry. This lump remained stationary for some time; but a few weeks prior to consulting me, March, 1914, there was a rapid increase in the size of the tumor, and, the patient's physician diagnosing malignancy, the case was referred for radical operation.

On examination, I found a tumor about the size of a walnut with irregular edges, over the right margin of the tongue and extending nearly to the center. The surface of the tongue was much inflamed and had a wartlike appearance. Believing the condition nonmalignant, I merely removed the growth and ulcerated area. The pathologist's report was: "Lymphangioma, papillomatous type."

The patient recovered, and, except for a small angioma on the floor of the mouth, which I removed three months later has been free from recurrence for more than eight years.

The tongue and mouth are common sites of malignancy, because of the wide possibilities of irritation Prolonged chewing of any irritating substance may cause a condition bordering on malignancy. In India cancer of the tongue and mouth is of relatively frequent occurrence, in consequence of the chronic aggravation produced by the chewing of the betel-nut. Perhaps the most frequent cause of irritation arises from smoking, since the mechanical aggravation caused by the pipe or cigar often produces the incipient lesion which eventually becomes malignant. Scar tissue is more susceptible to degeneration than normal tissue, in the mouth as elsewhere. Decayed and jagged teeth, ill-fitting crown and bridge work, poorly made dental plates or repeated traumatism may create irritation from which a precancerous condition and, later, a malignant process may arise. At times in an acid mouth, where there are fillings of different metals in close proximity there may be reaction from one filling to the other, which will cause a persistent irritation. I have known cases in which it seemed impossible to rid the mouth of an area of irritation until one or the other metal filling had been removed. Of 159 cases of cancer of the tongue, von Bergmann found leukoplakia in 34.6 per cent. Jacobson includes many forms of irritation as precancerous conditions: chronic glossitis, with hypertrophy and fissuring, leukoplakia and ichthyosis; chronic atrophic glossitis; papillomas and numerous ulcers. The premalignant period is the one in which we can be certain of absolute cure, and all suspicious lesions should be removed and examined microscopically, therefore, before the process becomes too advanced for surgical intervention.

TREATMENT

Today, the consensus of opinion concerning treatment of cancer of the tongue is that:

1. All precancerous lesions should be removed.
2. Abnormal manifestations of irritation should be eradicated.
3. In advanced cases, operation as radical as is compatible with life should be performed.
4. When it is impossible fully to remove the growth, a palliative operation, with ligation of the lingual and external carotid arteries or cutting of the dental nerves, may lengthen life and alleviate suffering.
5. When the disease has progressed beyond surgical intervention, the use of yeast held in the mouth may reduce the fetid condition, while the employment of radium, a caustic or a cautery, in order to shrink the growth and cut down granulation, may help to lessen the suffering.

DIAGNOSIS

There is no other disease in which there are so many pitfalls as cancer. In the clinical diagnosis of the disease, the patient should always be given the benefit of the doubt on the negative as well as on the positive side. Unless the clinical picture is convincing beyond the shadow of a doubt, especially in cases requiring extensive surgery, the microscope should always be employed to reinforce the clinical diagnosis, if it is at all possible to secure a specimen of the neoplasm without breaking down nature's natural barriers. In a paper published in 1917,[3] I laid emphasis on the dangers of biopsy, and spoke of the ability of the cancer cell to reproduce itself at a location other than the original site, a danger always present in the removal of malignant tissue for diagnostic purposes. I said that if the removal of the specimen could not be followed by complete extirpation, the wound in the growth should be sealed by pure phenol, or by the use of the cautery. This is a point which cannot be too strongly stressed.

Indifference to the gravity of an affection which bears any semblance to cancer is extremely disastrous; on the other hand, a reckless tendency to be on the safe side and treat as malignant every lesion of the tongue may be as far reaching in its evil consequences. In an earlier paper,[4] I quoted a surgeon who said that every lump which appeared in a woman's breast should be removed forty-eight hours after it was discovered. Such wholesale mutilation shows a tendency to evade the finer shadings of diagnosis. However, there are some surgeons who are as unnecessarily radical in suspected cancer of the tongue. It is true that many patients suffering from cancer of the tongue consult the surgeon too late; but it is equally true that there are many conditions simulating malignancy when there is no malignancy present.

Tongue lesions are sometimes tuberculous when a person is apparently free from tuberculosis in other parts of the body. Some nonmalignant tumors of the tongue are so surrounded by inflammatory tissue that, unless the inflammation is reduced before a positive diagnosis is made, the condition may easily be mistaken for irremovable carcinoma. A negative Wassermann reaction or the absence of a history of syphilis may prove misleading. Fournier reports syphilis in 155 of 184 cases of buccal cancer. Frequently, cancer and syphilis of the tongue are associated, as reported in one of the cases above, and it is only after reducing the syphilis, by weeks of antisyphilitic treatment, that the surgeon is able to ascertain the true limitations of the cancer.

CONCLUSION

Our professional knowledge of cancer has changed radically from era to era. There was a time when the term "cancer" embraced many conditions which we now know to be separate entities. Gradually, we have eliminated first one disease and then another from the vast whole, until the present cancer problem is no longer the gigantic unsolved riddle of yesterday. Should we not draw inspiration from the fact that that which has already proved of multiplex pathology may one day be entirely solved by the continued processes of elimination and differentiation?

34 Gramercy Park.

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[3] Bainbridge, W. S.: Biopsy and Cancer, M. Rec. **91**: 705 (April 8) 1917.

[4] The Human Breast: a Plea for Well Directed Treatment Based on More Accurate Diagnosis.

Effects of Breathing Carbon Dioxid.—Experiments on the effects of breathing carbon dioxid have been conducted at the Pittsburgh station of the U. S. Bureau of Mines. It was found that about 2 per cent. of carbon dioxid in oxygen produced a slight increase in lung ventilation but no subjective symptoms; 5 per cent. in oxygen caused an increase in lung ventilation of about 100 per cent., but no other signs or symptoms; 7.2 per cent. produced about 200 per cent. increase in lung ventilation; moderate perspiration and a slight fulness in the head were experienced after breathing this mixture for ten minutes; 9 to 10 per cent. produced about 300 per cent. increase in lung ventilation, and the subject complained of frontal headache and was dizzy and perspiring at the end of ten minutes. About 9 per cent. of carbon dioxid in oxygen was breathed by some of the subjects for as long as forty-five minutes, but the breathing was very laborious, and dizziness, headache, and perspiration were marked. In fact, to have done any work while breathing this mixture would have been extremely difficult.

ATYPICAL OPERATIONS ON THE JAWS AND MOUTH FOR MALIGNANT GROWTHS *

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CHICAGO

Teachers of surgery, basing their teachings on their combined experience, have formulated certain set rules and procedures, which are emphatically and categorically set before the student as the only justifiable and recognized technic permissible in the handling of malignant growths in certain given situations. So nearly constant and unanimous and so insistent have these teachings been that he is indeed bold who dares to depart from the accepted routine. He lays himself open to frank condemnation by his colleagues should the question become a medicolegal one, so inflexible is the present attitude of the general surgeon. The recent graduate would have little hesitation in pronouncing as criminal any departure from the recognized formulas. While it will always be highly desirable to be clear, concise and emphatic in teaching students of surgery the laws that shall govern the given situation, there should exist, as does not now obtain, certain rare occasions when the surgeon should be exempt from (*a*) criticism by his colleagues, and (*b*) medicolegal damages made possible by such condemnation.

If any one thing more than another has been emphatically and dogmatically drilled into the student, it is that removal of a malignant growth of the maxilla (upper or lower) must be by radical removal of the entire bone, either upper or lower; in the case of the lower jaw, from the midline or beyond in front, to the articulation or near it in the back, together with all the soft tissues possibly invaded; in the case of the superior maxilla, the entire bone from malar to nasal attachment, orbital plate, palatal process, and soft parts possibly invaded. To this is added by the majority of teachers a block dissection of the lymphatics exercising a police vigilance over the affected area.

Since the revolutionary report of Butlin (1909) of his two series of cases of carcinoma of the mouth (tongue or jaw), ninety-eight cases with simultaneous removal of invaded lymphs and 102 cases with secondary removal of the affected lymph glands from ten days to three weeks later, justification for the delay in removal of frankly enlarged glands is found because, in the last series of 102 cases (an enormous experience for any one surgeon), his mortality was reduced to twenty-three as compared with thirty-one, complications were diminished, and the longevity of his patients was increased, his experience teaching him that however badly invaded the protective glands were, they still offered a better barrier to acute septic systemic infections than none at all. After the wounds in the mouth had begun to granulate, the secondary removal of the glands in the neck was easier and less likely to be followed by systemic or local infections, and there was far less shock to the patient than obtains with the combined operation.

While it is indeed true that students or beginners in surgery are thus best taught in a positive and dogmatic manner the need of radical removal of the infected area, it should be remembered that this teaching does not take into consideration the fact that the improved methods of diagnosis now render possible the recognition of an extremely early and incipient carcinoma. It too is now pretty generally conceded that the early recognition and radical removal of a malignant growth is the surest cure. Until now, however, this very fact of a growth's being incipient has been ignored in laying down the radical dictums referred to above; and so every case is still cut to the same pattern.

While it will probably, in general, result in the greatest good to the greatest number thus to instruct the novice, my argument is that this radical operation occasionally mutilates unnecessarily a few, in order that the operator, making his position secure, may say, "I have followed the recognized practice." These few, these very few instances, I have, by violating all traditions and exposing myself to criticism of my colleagues and possible suit for malpractice, saved from these extensive mutilations, much to their comfort and delight, and to my personal satisfaction. For it is a satisfaction to spare a man or a woman the distressing deformities necessarily incident to the recognized technic. What, then, should determine this departure from recognized surgical procedure?

DETERMINING FACTORS IN CHOOSING A TECHNIC

In my opinion, the oral surgeon of mature judgment, seeing one of these early growths, going carefully into its history, its duration and its extent, can select a few of the many cases of this disease coming to him in which he can spare the patient extensive mutilation and yet effect a cure. His decision to depart from the customary methods taken, his patient should be made thoroughly conversant with the facts, and his or her consent and cooperation secured, particularly in the months of observation following operation. Understanding that at the slightest evidence of recurrence further surgical interference should be immediate, and that faithful frequent observation by the surgeon over a prolonged period, reinforced by systematic skilful irradiation of the affected territory, may offer a permanent cure, an intelligent patient will frequently be rewarded beyond price.

I realize that many of you will consider these teachings dangerous, and their application disastrous, but I ask that you believe me when I state that I have yet to regret departure from the recognized routine, in those few instances in which I have dared so to do. While it has not been feasible to bring the actual patients here for demonstration, there are those present who can testify to seeing them personally and to knowing that they remained free from recurrence for the customary three years before a cure can be claimed.

REPORT OF CASES

Case 1.—Mr. T., aged 40, was referred to me by Dr. Thomas L. Gilmer, with a carcinoma of the gum of the upper jaw, developing on the gum and alveolar process at the site of the first and second incisors, which had been removed four months before for pyorrhea. The gum, not healing, but taking on an exuberant growth, was slowly invaded in both directions. After the dentist had tried various treatments, the patient was referred to Dr. Gilmer, who recognized at once a carcinoma, took a fragment for confirmation, and sent the patient to me for operation. In this instance, it was sufficiently evident to the operator that the antrum and orbital plate were not yet invaded, and that removal of all the superior maxilla except the orbital plate would be a reasonably safe procedure.

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* Read before the Section on Stomatology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

This was done in the usual manner, the customary skin incision through the soft parts having been made, with this exception: after dividing with the electric saw the two superior maxillae from each other (1) at the line of the first left incisor through the palatal portion mesially, (2) at the superior maxilla and malar junction and (3) at the nasal junction, the saw was made to follow the infra-orbital margin in its whole length, with the result that, when the superior maxilla was grasped by the lion-jawed forceps and forcibly removed, there still remained to the patient his inferior orbital plate. By this measure, his eye, having its normal floor, remained undisturbed in function or appearance, though the surgeon had not removed the entire superior maxilla, as is the present teaching when any part of it is invaded with carcinoma. No cervical glands were evident at any point; none are yet excised.

Case 2.—A man, referred to me by Dr. Thomas L. Gilmer for operation for a recent small growth involving the gum and alveolar process and the jaw at the former site of the two lower molar teeth, had a definite palpable gland immediately beneath the right tonsil. Microscopic examination of a fragment taken from the growth for examination was reported carcinoma by Dr. LeCount. Dr. Gilmer assisted me in the operation, which consisted in reflection of the entire cheek by an incision downward from the angle of the mouth to beneath the jaw, curving back past the angle. With this flap detached from the jaw and retracted upward, the entire right side of the jaw was accessible. Because of the recent origin of this growth and the slight involvement of the ramus, the electric saw was used to excise a rectangular section of the ramus, including the alveolar process, but leaving enough of the dense eburnated bone for a bridge below the site of the disease, to maintain the integrity of contour of the jaw and face. The fragment, with soft parts, alveolar process and growth, measured 2 inches (5 cm.) in length. The bridge of healthy bone was one-half inch (1.2 cm.) in each diameter.

Sixteen days after the operation, primary union having been secured, with the incision almost invisible, the gland beneath the tonsil was then removed, the greatest care being taken to avoid tearing its capsule. Microscopic examination here revealed a typical carcinomatous gland. Four and one-half years later, there was no sign of any recurrence and no facial deformity. The patient died as the result of a fall.

Here, the mere statement that the surgeon had failed completely to remove widely the entire thickness of jaw in front of, behind, and below the site of the carcinomatous invasion, would be quite sufficient to expose him to ridicule, contempt, and medicolegal mulcting, for he could scarcely find a colleague who would defend him when he was cross-examined on the witness stand.

Case 3.—A man, aged 44, had a carcinoma similar to that of Patient 2, at the site of an ulcerated gum, surrounding a decayed root of the second right lower molar. This lesion had failed of healing after removal of roots of both molars, curetting and caustics. The trouble had, in all, not been noted for more than ten weeks and was not extensive in area. It was proved to be carcinoma by the microscope. No glands were evident in the neck. The patient having been told of the contemplated violation of the customary operation, which would require the total ablation of the entire right lower half, and the possibility of having later to submit to more mutilating procedure, consented.

I thereupon removed the invaded area after exposing the outer aspect of the lower jaw, by an incision, later to be described. After exposure, the removal consisted in an incision through the normal healthy soft parts and periosteum, from one-half to three-quarters inch (1.2 to 1.8 cm.) in every direction away from the growth, and the detachment of these soft tissues with the periosteum and growth from the invaded bone.

This left exposed to direct view the healthy and the carcinoma-invaded bone, and gave a hint as to how far away, in the undoubtedly healthy uninvaded bone, to make the two perpendicular sawings, and at what level to connect these cuts with a long one made by the electric saw, at such a distance from the free alveolar margin as to evade the beginning infiltration and yet preserve a bony bridge of sufficiently strong eburnated character to prevent the usual deformity accompanying the total resection usually practiced for this trouble. This should always section the canal with nerve and artery, as along this canal the earliest invasion occurs.

For any laterally placed growth, the incision that offers the best access with least future cosmetic deformity is one that, beginning on the lower lip at the angle of the mouth, curves downward, following the natural fold of the cheek, and cuts all tissues but mucosa to and below the jaw. Here, in order to conceal the scar, and at the same time to have a firm background to cut on, the skin of the cheek is drawn firmly upward, and the tissues cut backward (following the jaw) down to the bone. When the soft parts are relaxed, the soft tissues will so drop as to leave exposed the outer surface of the maxilla. With the knife or scissors, the uncut mucosa, beginning at the angle of the mouth, is so sectioned that as much healthy mucous membrane is conserved as is considered safe, back to and beyond the diseased area. This gives complete access to the most extensive growths, permits any surgical interference necessary and, when the operative removal of the growth has been completed, permits closure with but little noticeable deformity and no facial palsy.

For a small malign growth of the mesial line, lower jaw, of recent origin and slight invasion, Dr. Thomas L. Gilmer has taught me the practicability and great cosmetic value of detaching, within the lower lip, the soft tissues of the chin, sufficiently to dislocate the chin through the buccal orifice. In one case, the removal of a giant cell sarcoma involving the mental prominence, except a small alveolar bridge carrying the lower incisors, was thus successfully accomplished, without an external incision.

Clinical experience had taught me that, while the microscopic histopathology of a fragment taken for diagnosis from a tumor may reveal the cellular arrangements that characterize the most malignant of the sarcomas, if that neoplasm has a capsule or limiting membrane, be it ever so thin, these extremely radical procedures always approved as proper may sometimes be ignored and the patient be spared both life and irremediable deformity or loss of limb, as shown in the following case:

Case 4.—A girl, aged 14 years, developed a tumor of the mental prominence, which in growing gradually deformed the chin into a rounded mass and began loosening the incisor teeth of the lower jaw. This case also was referred by Dr. Thomas L. Gilmer, who agreed that surgical interference was absolutely necessary. Arrangements were made for operation, Drs. LeCount and Hektoen being present to pronounce on the nature of the fragment removed for frozen section, their verdict to determine the type of surgical procedure indicated.

At Dr. Gilmer's suggestion, then novel to me, the soft tissues were separated from the chin by an incision within the mouth, and the mental prominence was exposed through the buccal orifice, the lower lip being stretched beneath the bony chin. Incision of the bone over the tumor revealed a thin eggshell layer of bone covering a firm spherical tumor, not bony, which could be cut with a curet only with distinct effort, but which yielded readily to a sharp knife. While the pathologists were freezing, sectioning and studying the fragment first removed, it was found possible to shell out the entire mass, about the size of an English walnut, leaving a smoothly lined bony cavity, into which the roots of the incisors protruded. These roots Dr. Gilmer amputated. With a curet and a dental burr, the walls of this cavity were smoothed away until no suspicious area remained. Enough of the alveolar pocess remained to hold the right and left maxilla, as a bridge.

At this juncture, the pathologists reported findings of "giant-cell sarcoma."

In consideration of the findings, a radical resection of the lower jaw was anticipated by the pathologists; but both Dr. Gilmer and I had seen similar growths similarly removed without radical resection of the jaw; and though under the microscope they are proved malignant, clinically they do not invade but expand the bone and cause pressure absorption. These had proved amenable to less heroic surgical procedures. Four years intervened before we felt justified (when considering the pathologists' findings) in making a plastic operation, by a graft taken from the patient's tibia and inserted beneath the skin that formerly covered the mental prominence. This became more imperative, because, after two years, the alveolar bridge fractured while the patient was chewing some brittle food.

Later, implantation of adipose tissue taken from the patient's body and inserted beneath the skin of the chin served to correct in part the deformity caused by the three years of anxious waiting to prove the cure of the original growth by a nonradical procedure—years which, if the light we now have had been ours, could have been utilized to avoid much of the subsequent deformity, by earlier plastic work.

In more than forty years of active hospital practice, I can count less than twenty cases embracing lesions of tongue, breast and jaws, that have seemed to me to justify such violation of all surgical teachings; therefore, I am not advocating an indiscriminate departure from accepted teachings. Of these twenty, I have used a few private patients for illustration. The cases in which I have thus violated the accepted surgical axioms have been not free ward cases, but those very cases in which it was vital to my professional reputation that no mistake be made, the patients including several persons of national prominence.

While fully realizing the responsibility of the surgeon when so deviating from accepted surgical axioms, and still more fully the gravity implied in daring to recommend, in occasional rare instances, operative procedures absolutely at variance with surgical teachings, I still want the honest support and endorsement of my surgical colleagues; otherwise, surgical judgment is banished, and surgery becomes a set of formulas, the surgeon disappears, and there remains only the operator.

122 South Michigan Avenue.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. BAINBRIDGE AND MC ARTHUR

Dr. A. J. Ochsner, Chicago: I have been intensely interested in the subject of carcinoma for a period of forty years, and in that time have studied many thousands of specimens and observed a very large number of clinical cases and have followed the literature very closely. From my clinical observations particularly I have been thoroughly convinced for many years that aside from the conditions which seem to determine the location of carcinoma there must be a specific substance which causes the cell to go through the changes with which we are familiar. There can be no doubt that the soil on which the carcinoma grows must be prepared before these changes can take place. We know that there are definite forms of irritation, mechanical, thermal, chemical or irritation from the roentgen ray, and that in each instance one of these conditions predisposes to the formation of cancer; otherwise why should there be cancer in the male lip, the seat of the irritation from smoking, and not in the female lip? Why should there be cancer in the lower lip of the male and not in the upper lip? The upper evidently has not the right form of irritation from smoking. The lower lip is exposed to heat, pressure and nicotin; the upper lip is exposed to heat alone. There must be continuous contact of the irritant with the tissues in which the carcinomatous change is determined. In carcinoma of the alimentary canal, filth accumulates about the roots of the teeth; at the pylorus, in the cecum, between the sigmoid and the rectum and at the anus, there is stasis. Between the pylorus and the ileocecal valve, carcinoma almost never occurs; whereas, on the proximal side of the pylorus carcinoma occurs frequently. Heredity has much to do with the occurrence of cancer. Probably the tissues of the offspring of parents suffering from carcinoma are susceptible to the carcinoma infection. Old age also predisposes to cancer. There is a lowering of resistance of all the tissues. Moreover, the tissues of the aged have been exposed to infections for a much longer period of time. Traumatized tissues are also subject to this infection. Cancer of the skin may occur wherever there is long continued irritation. The Hindus who carry charcoal stoves around by resting them on the abdomen have cancers where the charcoal stoves irritate the skin. The Hindus who have filthy mouths have mouth cancer, especially those who chew the betel nut; but cancer of the stomach and of the intestine is almost entirely absent because they do not eat any uncooked, manure-covered vegetables. The Japanese, who eat raw vegetables that have been fertilized with human excrement, have an enormous amount of cancer of the stomach and of the colon. In the tropics, natives are free from stomach cancer. They live on fruits and things that grow so freely that fertilization with excrement is not required, and consequently their stomachs and intestine do not come in contact with filth. One of the surgeons in charge of a large hospital service in the Arctic region has reported statistics of the Eskimos showing that less than 1 per cent. of the patients he has in the hospital have carcinoma. In Glasgow, Scotland, where the poor die more frequently of tuberculosis and the wealthy of cancer, the poor live on cooked porridge; the wealthy live on garden stuff that has been fertilized largely with human excrement.

Dr. A. C. Scott, Temple, Texas: For fourteen years I have been handling cancer cases on the basis that the disease is probably of bacterial or of parasitic origin. With regard to the treatment of cancer, we are making progress rapidly when we undertake to handle cancer on the basis of its being of specific origin. We are much more likely to close lymphatic and capillary vessels at the time of operation and do everything possible to prevent recontamination. It has been a surgical principle for many years to avoid the continued use of a knife which had penetrated cancerous tissue. If we do not use a knife, we should substitute a cautery with which to excise cancerous masses. Carrying along the surgical treatment in this respect, we have gone farther with the cautery than merely to burn into the cancerous masses. We have in a majority of instances excised all the disease just as we would with the knife. When it was impossible to excise the bone in cases of bone cancer, we cooked the bone just as thoroughly as we could and then later on excised the dead bone. We have found it necessary and advisable to remove lymph glands with the cautery. If we adopt a systematic way of excising cancerous masses as completely as possible with the knife and of removing all lymphatic bearing tissues with the cautery, avoiding the contamination of the wound with the cancer cells, we shall get the best results. We should also make proper use of roentgen rays and other agents of that kind.

Dr. J. Shelton Horsley, Richmond, Va.: Many irritants seem to produce cancer. The injection of scarlet red, and, recently, the application of coal tar have been found regularly to cause cancer. While irritation undoubtedly has much to do with the etiology of cancer, certain regions of the body, where irritation is more likely to occur than on any other part of the body, seem to be practically immune from cancer. I have never seen a cancer of the palm of the hand, for instance. Dr. Ochsner's theories about parasites being the cause of cancer are interesting. He thinks that a parasite that produces cancer is present in human excrement. The obvious objection to this theory, however, is that if these parasites are present in the human excrement, cancer of the colon and rectum should be very much more common than cancer of the stomach, where the gastric juice acts as a very efficient bactericide. As a matter of fact, cancer of the stomach is much more common than cancer of the colon. If human feces predisposed to development of cancer, a large proportion of the human race would have cancer by autogenous infection from feces in the rectum. It would also be difficult to explain cancers that arise in the thyroid gland, in the mammary gland, and in various other portions of the body where contact with human excrement would seem improbable, if not impossible. Dr. McArthur's paper was very valuable. A partial operation such as he suggested, followed immediately by cauterization, is much more effective in curing cancer than a more mutilating operation done by the knife alone. The raw surface of the cancer should be cauterized with the electric cautery as the first step in the operation. This seals in the cancer cells, and tends to prevent implantation. A superficial cauterization is sufficient. Under the microscope the destruction by a hot cautery penetrates very much less deeply than is usually supposed, but it is sufficient to kill the surface cells, seal in the deeper cancer cells, and so prevent implantation from the raw surface of the cancer. A complete cauterization of the wound with a hot cautery immediately after the operation will prevent implantation into the raw surface by cells from the deeper portions of the tissues that may have been squeezed out during the manipulation of the operation.

Dr. Theodore Blum, New York: A more complete study of the tumors of the mouth should be undertaken. The general surgeon regards most of the tumors of the mouth as malignant, whereas the specialist in mouth surgery knows that many are not. If they are operated on with the cautery, or, in less extensive cases, treated with radium, those conditions will not recur. I have found in examining small tumors of the mouth that the clinical diagnosis of the tumor is practically impossible, many being diagnosed microscopically as chronic inflammation, hypertrophy and what not.

Lower Puerperal Mortality Rate.—There was a decline of 3.6 per cent. in the death rate for diseases related to childbirth the first six months of this year compared to the corresponding period of last year. This is especially encouraging in view of the very unsatisfactory conditions that have prevailed during the last four years. The improvement for this year appears to be limited to puerperal septicemia, which declined 21.4 per cent. The mortality from this disease tends to rise and fall in fairly definite four and five year cycles, and on that account a decline was expected this year. The periodic fluctuations in the death rate for this disease are so marked that some authorities have ventured to associate these changes with the rise and fall of scarlet fever, and with cyclical variations in the infectivity and virulence of the streptococci. The year 1921 was apparently the peak year of the upward swing which began in 1919. This year and possibly 1923 may show lower death rates, characteristic of the descent of the curve of mortality of puerperal septicemia. It is disconcerting to find that the successive waves do not show any appreciable diminution in the death toll, certainly nothing commensurate with the increasing care which is being given by public and private health agencies to women in confinement. There is still something materially lacking either in the extent or the type of care provided for parturient women.—*Statistical Bulletin, Metropolitan Life Insurance Company*, August, 1922.

LEUKOPLAKIA BUCCALIS *

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This disease was first described by Sigmund, and a few years later by Bazin, as lingual psoriasis. Schwimmer,[1] in 1877, first described leukoplakia under its present name, and definitely separated it from psoriasis. Probably the best descriptions of the condition are found in Butlin's[2] "Diseases of the Tongue," and in Fordyce's[3] excellent article. In 1915, Levy[4] reviewed the subject and his article contains an excellent bibliography up to that date. Since 1915, there have appeared in the world's literature only three references to this disease. They are by C. C. Crunston and by E. C. G. Little, and are scarcely more than case reports. The only comprehensive article is by G. Raillet,[5] in which he analyzes seventy-seven cases of leukoplakia and draws some general conclusions, which may be summarized by saying that he believes that some cases may be of syphilitic origin, but that syphilis is not essential to producing this disease. Bloodgood[6] in his article on cancer of the tongue gives a review of his experience with leukoplakia.

SYMPTOMATOLOGY

Leukoplakia is not confined to the mouth alone. It is comparatively common on the vulva, and occasionally occurs in the vagina, uterus, urethra, bladder and pelvis of the kidney.

The first evidence is a bluish-white or, more rarely, a bluish-red patch on the mucosa, which is often sensitive to either chemical or thermal irritation. We have seen such a patch develop in one week's time as the result of irritation from a rough tooth. At this stage, the condition frequently escapes notice. When first seen by the physician, the patient usually presents a pearly or milky white, slightly indurated patch on the mucous membrane of the tongue or the buccal surface of the cheeks, or, more rarely, of the gums. Patches are sometimes seen on the lips, and here are often the result of chronic syphilitic mucous patches. The area involved may be but a centimeter in diameter, or may involve the entire buccal mucosa and tongue, and even extend into the larynx. The diseased area may be very thin, or it may be so thick and indurated that it is difficult to tell whether or not malignant degeneration has occurred. Cracking, fissuring and ulceration are late stages. Cracking and fissuring in slight lesions of the tongue are frequently the result of syphilis, and any extensive ulceration usually means cancer.

REPORT OF CASES

Case 1.—G. R., aged 24, a moderate smoker, whose teeth had many rough edges and cavities, and whose reaction was negative for syphilis, clinically and serologically, was cured by careful dentistry. He acquired syphilis two years later. This was a mild buccal case.

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* Read before the Section on Dermatology and Syphilology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] Schwimmer: Arch. f. Dermat. u. Syph., 1877, p. 511.

[2] Butlin, H. T., and Spencer, W. G.: Diseases of the Tongue, London, Cassell & Co., Ltd., 1900.

[3] Fordyce: Some Affection of the Oral and Nasal Cavities That Are Related to Skin Diseases, New York M. J., March 6, 1906, p. 465.

[4] Levy: Tr. Am. Laryngol. Ass., 1915, p. 84.

[5] Raillet: Bull. et mem. Soc. med. d. hôp. de Paris **43**: 325 (April 4) 1919.

[6] Bloodgood, J. C.: Cancer of the Tongue: A Preventable Disease, J. A. M. A. **77**: 1381 (Oct. 29) 1921.

Case 2.—Major M., aged 35, a heavy smoker, with very bad teeth, whose test for syphilis was negative, clinically and serologically, presented an advanced case of leukoplakia of the tongue. The patient refused to stop smoking; and there was no improvement after the teeth were cared for. The patient was lost sight of.

Case 3.—Mrs. G. F., aged 60, whose teeth were bad, and in whom tests for syphilis were negative, clinically and serologically, presented severe leukoplakia of the tongue with well developed cancer. She died in spite of radical surgical intervention.

Case 4.—B. D., man, aged 40, a heavy smoker, and with bad teeth, whose Wassermann reaction was positive, was unaffected by antisyphilitic treatment, although it was extensive and severe. The teeth were not attended to and the patient continued to smoke. He was lost sight of.

Case 5.—Colonel W., aged 52, who smoked three cigars a day, and whose teeth were rough, gave a negative reaction to clinical and serologic tests for syphilis. The condition cleared up under simple dental care. This patient has been well more than a year, and still smokes as before.

Case 6.—Mr. G., aged 55, who chewed tobacco and whose teeth were very bad, gave a negative reaction to clinical and serologic tests for syphilis. This was an extensive case. According to the history, it started in the cheek in which the tobacco was habitually held. The teeth were repaired, tobacco stopped, and roentgen-ray treatment given, but no improvement was noted. The patient was lost sight of.

Case 7.—Miss K., aged 60, who did not smoke or use tobacco and in whom rough teeth were present, had a moderately severe buccal leukoplakia. Syphilis was excluded. The patient was permanently cured by smoothing off the teeth and using the cautery locally.

Case 8.—Mr. S., a moderate pipe smoker, whose teeth were very bad, and in whom syphilis was excluded clinically and serologically, presented a moderately severe case, which was cured by cleaning up the teeth and using the cautery locally. This patient is still smoking.

Case 9.—B. F., man, pharmacist, aged 45, with a negative history of syphilis, whose Wassermann reaction was ± with cholesterin, negative with plain antigen, and examination negative for syphilis, was a heavy smoker. He was referred for an ulcer behind the last lower left molar tooth, which proved to be a well marked cancer. He presented a patch of verrucose leukoplakia on the buccal mucosa just inside of the angles of the mouth, about 1 cm. in diameter, and similar lesions about 3 cm. in diameter on the buccal mucosa opposite the posterior teeth, which had extended to the gums. One of these had degenerated as noted. The patient stated that the white colored mucous membrane had started on the cheeks just opposite bad teeth. The upper teeth were drawn a week before and were said to have been worse than the lower, which were certainly rough and badly diseased. The patches just inside the lips were opposite the natural position of the cigar end.

Case 10.—A man, aged 65, whose tests were negative clinically for syphilis, and who did not smoke, had a patch of early leukoplakia opposite a rough tooth. He is still under observation. This condition was discovered in routine examination. Parenthetically, we would note that many such cases have doubtless been overlooked, by ourselves as well as others.

ETIOLOGY

1. *Syphilis.*—This condition was positively diagnosed but once; was positively exluded, so far as possible, in seven; was doubtful in one, and not absolutely excluded in one. Seventy per cent. at least, therefore, could probably be attributed to nonsyphilitic causes. On the other hand, in twelve cases reported in recent years in the American literature, four cases were positive for syphilis, six were negative, and in two no note is made regarding syphilis; while Bloodgood reports positive Wassermann reactions in 27 per cent. of 33 cases.

2. *Tobacco.*—Seven of our patients used tobacco in some form, three to excess, and two of these had cancer when first seen. Two of the patients were cured without giving up tobacco. Three did not use tobacco. In the twelve cases previously reviewed, seven patients used tobacco and one did not, and in four cases there were no notes on this subject. Bloodgood states that all his cases give a definite history of excessive use of tobacco.

3. *Teeth.*—In all ten of our cases, a definite note of rough or diseased teeth is recorded. Bloodgood records bad teeth in all but one case of leukoplakia. On the other hand, in the twelve cases found in the literature, the condition of the teeth is noted in only one case, in which rough and diseased teeth were found. It is interesting to note in this connection that in our private series of the four cases that were mild enough to be cured, two cleared up by the simple procedure of caring for the teeth properly, and the other two by this treatment plus the cautery. Out of a total of fifty-five cases, there were bad teeth in forty-three, and no notes regarding dental trouble in eleven. In the same number of cases, syphilis was definitely excluded in thirty-five, and was very doubtful in six. Forty of the patients used tobacco in some form, and four who had never used tobacco had a well marked leukoplakia. Two of our patients were cured without discontinuing the use of tobacco.

As a result of these observations, the following deductions seem logical: 1. Syphilis represents an accidental rather than a causative factor in this disease. 2. The use of tobacco is not necessarily a factor. 3. Rough teeth, by causing mechanical irritation, inaugurate the disease in the vast majority of cases.

We would call attention to the fact that, etiologically, leukoplakia is analogous to keratosis of the skin, in that the former is a defense reaction against mechanical irritation in the mouth, the latter a defense reaction against the actinic rays or mechanical irritation, or both, on the skin. Each develops as a result of functional overactivity.

ETIOLOGIC FACTORS AND NUMBER OF CASES

	Positive	Negative	Doubtful, or Not Noted
Syphilis	14	35	6
Tobacco	40	4	11
Teeth	43	1	11

PATHOLOGY

Most observers, ourselves included, agree with Fordyce that the earliest change is an inflammatory process in the papillary region, with secondary hyperkeratosis. Once the disease is developed, there is found marked hyperkeratosis, acanthosis with thickening and prolongation of the rete pegs, so that the papillae may become obliterated, and an inflammatory infiltration of the corium with small round cells. There may be distinct fibrosis of the deeper layers in more advanced cases. Here again there is an analogy with senile keratosis, the pathologic picture being very similar.

CLINICAL COURSE

These cases are extremely rebellious. They tend to remain stationary or gradually to progress over a period of months or years. They are distinctly precancerous. Many cases have already developed cancer when first seen—two of our ten—and those that fail to clear up under treatment should be carefully observed periodically and radical procedures instituted the minute ulceration or fissuring with increased induration indicates the development of cancer. In the tendency to carcinomatous degeneration, we have a third resemblance to the keratosis on the skin.

TREATMENT

Whether syphilis is present or not in a case of leukoplakia, antisyphilitic treatment is of no avail, and need not be considered in the treatment. Some of the earlier cases will clear up if the source of irritation is removed. We believe this will nearly always be found in the teeth. However, as tobacco is undoubtedly a very important factor, its use should be interdicted. These two steps should always be employed, because, whether they are the cause of the leukoplakia or not, cancerous degeneration may thus be warded off. If the cases are very extensive and severe, no treatment is likely to avail, even radium, according to MacKee, being useless. A majority of cases that are not already carcinomatous will fall into the following group. They will not disappear with removal of the cause alone, but can be cured by appropriate destructive treatment. In our hands, the roentgen ray has been of no use. We have had no experience with radium, but its users are enthusiastic. MacKee advocates an erythema dose with an unfiltered plaque, believing that the beta ray is the most efficient. Others advocate the use of gamma rays only. In our hands, the best agent has been the cautery. This is used at red heat, with local anesthetic. With a little experience, one can learn to burn deep enough to destroy all leukoplakia, and yet leave a functioning membrane.

ABSTRACT OF DISCUSSION

Dr. Francis E. Senear, Chicago: It has been my belief that not all cases of leukoplakia are of syphilitic origin. I believe this opinion is rather generally accepted. I have been in the habit of avoiding treatment in those cases in which the leukoplakia has not been severe and in which there has been no evidence of degeneration of the mucous membrane, disliking to replace the mucous membrane with scar tissue. I am glad to hear Dr. Eichenlaub's results with the cautery. I have used radium and the roentgen ray without excessively satisfactory results, and have become an advocate of the use of the actual cautery in many dermatologic conditions during the last few years. It seems to me that the cautery might be an admirable thing to use in these cases. It does not set up any radiodermatitis, which would be as dangerous as the original leukoplakia.

Dr. William H. Guy, Pittsburgh: This paper is interesting because it crystallizes opinion as it exists today as to the cause of the leukoplakia. We should realize that we are dealing with a lesion that is due to irritation, and that mouth hygiene is of prime importance from the standpoint of prophylaxis. Therapeutic suggestions interest me most, because I advocate the use of radium, and being a pupil of MacKee, naturally my technic is his. We use one-half strength flat applicators unscreened, covered with rubber to remove secondary rays from the metallic edges, leaving them in place long enough to get a reaction. This means varying lengths of time, from ten to twenty minutes, never using the one-half strength applicator for longer than half an hour. In this way we get a fairly sharp localized reaction. The treatments are never repeated until the reaction following the first application has entirely subsided. The results are favorable in a fair number of cases. I do not think that any one method of attack in all cases will be successful. We occasionally find cases in which more than ordinary treatment is advisable. In deep, infiltrated lesions, a filtered application is definitely indicated. In such cases if only a plaque is available, one should use complete filtration and leave it in place for from eight to ten hours. If tubes are used, a corresponding dosage may be given. In superficial lesions the beta ray is used because depth penetration is not only not necessary, but actually undesirable. Radium, of course, is not the only treatment, and, perhaps, not always the method of choice; but it certainly is of definite service in the majority of cases.

Dr. J. M. King, Nashville, Tenn.: I wish to endorse the method Dr. Guy mentioned. I use the flat plaque with very good results. I am under the impression that the cautery should be used in the deep or thickened patches. Radium could be used, but I would prefer the radium in the cases Dr. Guy mentioned.

Dr. William T. Corlett, Cleveland: There is at least one good feature of a long medical career because it enables one to see fashions in medicine come and go. I treated quite a number of cases of leukoplakia during the eighties and nineties of the last century with electrolysis, with very good results. Since then, however, other methods have come into vogue, and I have used in turn the roentgen ray and radium, so that I believe I am in a position to judge without prejudice the merits of at least three methods mentioned for this disease. I might say, in addition, that the subject of syphilis, in my experience, might be excluded in the etiology of the disease. First, then, in the treatment by electrolysis, as first advised by Dr. Hardaway a number of years ago and used by him and other dermatologists for hypertrichosis and various other cutaneous conditions, including cases of leukoplakia, the results in my experience were better than they have been with either the roentgen ray or with radium. I wish to emphasize the point made by Dr. Senear in regard to the actual cautery; and while I think the actual cautery is good, yet one cannot regulate the depth so accurately as can be done with a fine electric needle.

Dr. I. L. McGlasson, San Antonio, Texas: I should like to endorse what Dr. Guy has said. In the thickened cases of leukoplakia, then, we need not hesitate to transfix them with the radium needles. In one case with a vegetative overgrowth which section showed to be nonmalignant, we transfixed the plaques with a radium needle very successfully. I think the difficulty some men get into with a flat applicator is that they give too long an exposure. I do not think it is necessary to give a long exposure to get rid of these patches. I agree with Dr. Corlett that antisyphilitic treatment does not do any good. Whether the leukoplakia is on a syphilitic base in some cases I cannot say, but antisyphilitic treatment does not assist in clearing them up.

Dr. Erwin P. Zeisler, Chicago: I should like to report two cases in which all ordinary methods of treatment were unsuccessful. They were both extensive leukoplakias of the tongue and had been treated by some of our best radium experts. Both patients were referred to the Mayo Clinic and treated by Dr. New by his cautery method under general anesthesia, and the results were remarkable. The thick leukoplastic patches entirely disappeared.

Dr. W. H. Goeckermann, Rochester, Minn.: I do not know the exact method that Dr. New uses, but I know that in some cases he uses the plaque Dr. Guy mentioned. The local treatment is all under his direction. I find that syphilis is frequently present in cases of leukoplakia. Often we find small patches of leukoplakia in the routine examination, when the patient calls no attention to it. Compared with the dermatologic cases, I should say that its prevalence in syphilitic cases is very large, although I do not mean to say that it is syphilitic.

Dr. F. J. Eichenlaub, Washington, D. C.: The chief object in presenting this paper is to try to establish so far as possible the idea that leukoplakia does not always mean syphilis. We are ready to admit that the site of an old syphilitic lesion is more likely to develop leukoplakia, but the field of syphilis is large enough as it is, and I think we should separate definitely those cases that are not syphilitic from those that are. We have had no experience with radium, and it may be good treatment. However, my feeling, and that of Dr. Hazen, is that the cases that are deep and extensive should be left alone and watched for the development of cancerous degeneration.

AMPUTATIONS

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ROCHESTER, MINN.

On a recent clinical trip, I happened to see four different amputations performed by four different surgeons. Without wishing to appear in the least hypercritical or dictatorial, I should like to bring before the profession some of the bad results of carelessness in amputations, and to endeavor to point out the necessity for greater care in selecting the site and type of amputation, having in view at all times the ultimate value of the stump as a pressure-bearing and useful limb.

This article is based on approximately 1,200 amputations performed in my unit in France, and on my experience while in charge of the limbless at the Third London General Hospital, and of the surgery at the Paddington Military Hospital, London, after the armistice, where we had several hundred limbless men.

It is unfortunate to lose a limb; but it is a positive disaster if the limb has been so amputated that after months, and even years, it is still impossible comfortably to wear an artificial limb. We saw patients who, because of faulty amputations or neglect subsequent to operation, were not able to wear an artificial limb even after repeated minor operations, and in some patients even after successive reamputations.

Amputations should be thought of and planned as a geometrical, mechanical and anatomic problem. They have been practiced since the earliest times; but to my mind, Farabeuf, the great French surgeon, has handed down a book which should be on the desk of every surgeon called on to perform traumatic surgery. It is ritualistic in its principles of amputations.

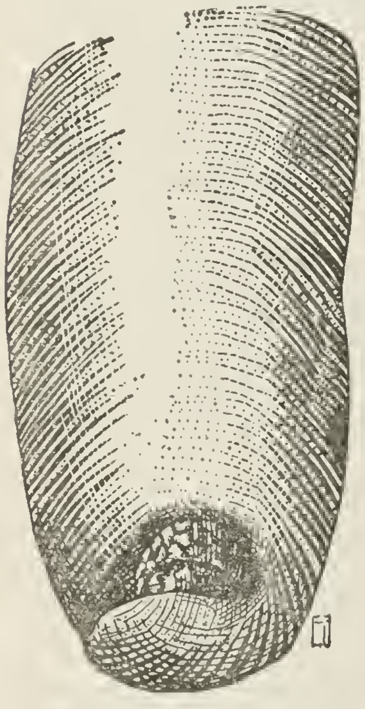

Fig. 1.—Ulceration, the result of an imperfect flap.

The surgeon who is called on only from time to time to perform an amputation does not seem to recognize always the indications for amputation, the best site to select, or the ideal type of operation.

In traumatic cases, amputation of the limb is indicated in the following instances: (1) when there is a massive gas gangrene which can no longer be cleared up by ablation of muscle (fortunately, this condition is rare in North America, but cases are seen from time to time); (2) when the main nerves and blood vessels to the limb are completely destroyed; (3) when there is a double compound fracture of the same bone of a limb; (4) when there is so extensive compound fracture of the component bones of a joint that even resection would not insure a useful limb; (5) when a patient has purulent arthritis, and when, even after thorough drainage has been established, his life is endangered from absorption.

The necessity of amputations for varied clinical conditions is well recognized and need not be reiterated here. It is unfortunate that the loss of a limb cannot always be compensated for in some measure by a thoroughly good stump that can be early fitted with a temporary bucket, and later with a permanent limb, without the sleeplessness, the pain, drawing, aching and sense of a phantom limb that so commonly are complained of in a "bad stump."

Some of the causes for bad results are: (1) The best site for amputation is not selected. (2) The flaps are not properly placed to avoid pressure on the scar later. (3) The flaps are cut too short and closed under tension, or cut too long, leaving a redundant stump. (4) The nerves have not been properly dealt with. (5) Sufficient care has not been taken in sectioning the bone. (6) Asepsis has not been maintained. (7) Sufficiently close attention has not been directed to the after-care of the limb.

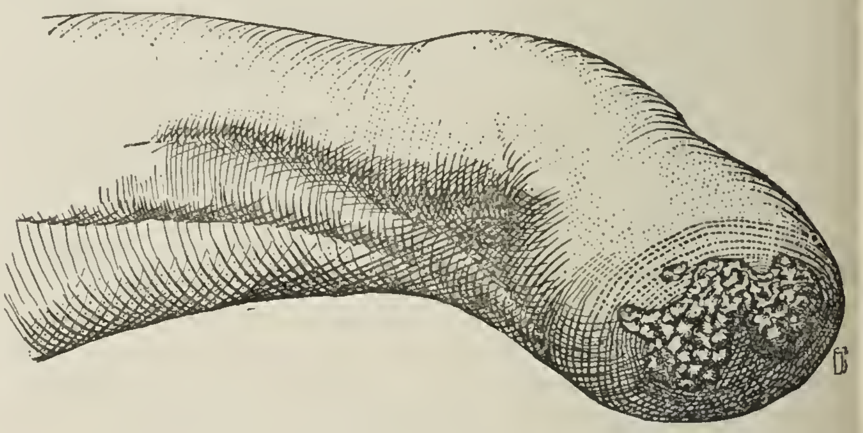

Fig. 2.—Ulceration in amputation performed at the site of election.

A thorough examination of every bad stump will reveal a good reason for the complaint. In a careful study of about 500 patients who came for treatment before fitting or refitting, the following conditions were found to account for their trouble: (1) an adherent scar, (2) ulceration, (3) infolding skin with excoriation or eczema in the sulcus, (4) a tender cicatrix, (5) sinuses, (6) eczema about the scar, (7) redundant tissue in the stump, (8) sequestrums, (9) bony spurs and spicules, (10) osteomyelitis and periostitis, (11) fibroma, (12) bulbous nerves, (13) a small aneurysm, and (14) contractures and limitation of movement of the joint immediately above the amputation.

Thackeray is credited with saying that life would not be worth living if a man had to wear a pea in his boot. There is more truth than fiction in such a statement. It was early realized that palliative measures were no longer justifiable in dealing with the cause of the disability in those unfortunate men who for months and even years had sought relief that they might wear a peg or a limb and return to their families and occupations. A question arises as to why these bad results develop and what is to be done for them.

CONDITIONS RESPONSIBLE FOR A BAD STUMP

Adherent Scar.—This is usually due to too short a flap or to insufficient muscle being left in the flap. Occasionally, it is due to a mild infection in the incision. If the scar is sound and the surrounding skin is not drawn too tightly, traction on the skin, gentle massage, manipulation of the scar and the rubbing in of oil of theobroma (cacao butter) will often the scar and release it from the end of the bone. Otherwise, under local anesthesia, a long, thin bladed knife may be passed in and the scar freed from the bone, and then the traction and gentle massage carried on to prevent the scar from becoming adherent again. If, on the other hand, the stump is cone-shaped and the skin drawn tensely over it, the scar should be excised and the bone reamputated at once.

Ulceration.—In ulceration, the length of time the ulcer has been present should be determined, and whether or not it is indolent. If it has developed from pressure on a too tightly drawn flap, or if the flaps are retracted so that the ulcer is pressing directly on a bony edge or spur, early excision of the ulcer as well as a portion of the bone is necessary. If, on the other hand, the flap is sufficiently loose and there is no undue bony pressure, the ulcer may have remained stationary because the patient has been up and about too much and the congestion resulting from the dependent position of the stump has delayed the healing. In such a case, rest in bed and elevation, with exposure to sunlight or artificial light, will cause the sore to heal quickly. If, however, the ulcer has remained indolent because of a hard, fibrous limiting layer of tissue that has formed about it, cutting off the blood supply to it, wide excision and suture are necessary even though it may mean removing a portion of bone. I have seen patients with such an ulcer who were treated for months and eventually had to submit to excision. Prompt healing usually followed, and very soon these patients were able to be about on a peg again, with a well healed stump. Much valuable time was lost to patients and expense to the nation incurred by palliative measures in dealing with these indolent ulcers. Most ulcerations occur in lower leg amputations (Figs. 1, 2 and 3).

Infolding Skin.—This is seen usually in patients with large, flabby limbs and redundant flaps. Occasionally, it occurs in the puckering scar that sometimes follows circular amputations. On separating the skin edges, if the bottom of the groove is dry and clean, no interference is necessary. Should, however, the sulcus be moist, reddened and chafed, excision is necessary. If eczema has not already developed, it soon will. The groove should be thoroughly cleaned out with alcohol, and an alcohol compress kept in it for a few days before operating. At operation, the skin edge and the sulcus should be excised *en masse* and the skin edges sutured so that they pout rather than pucker.

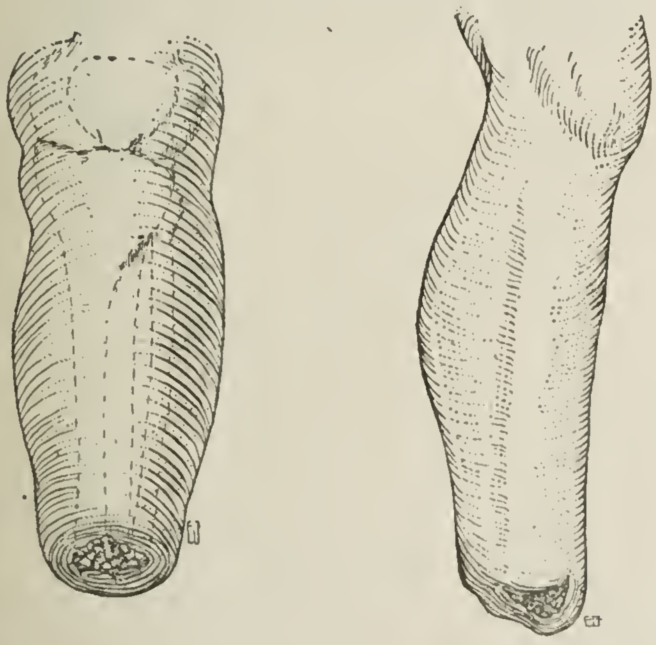

Fig. 3.—Common types of ulceration in amputation of the lower leg.

Tender Scar.—This may be due to insufficient muscle or fat between it and the bone, to a nerve filament embedded in it, to a spicule of bone or to a piece of igature in it. Occasionally, no reason whatever can be found for the tenderness. Care should be taken to determine the cause; but if no obvious reason can be found and if the skin is sufficiently loose, gentle massage, alcohol compresses and such palliative measures may overcome the tenderness. Otherwise, the scar must be excised and a search made for something in the scar or in the tissue between it and the end of the bone.

Sinuses.—These are usually the result of drainage, but they may be due to sequestrums, bone fragments, ligatures or other foreign material. If they do not heal after a thorough curettage, they should be excised.

Eczema About the Scar.—This is a fairly common complication, and it is extremely resistant to palliative measures. If it does not respond readily to palliative treatment and roentgen ray, excision of the eczema bearing area is necessary.

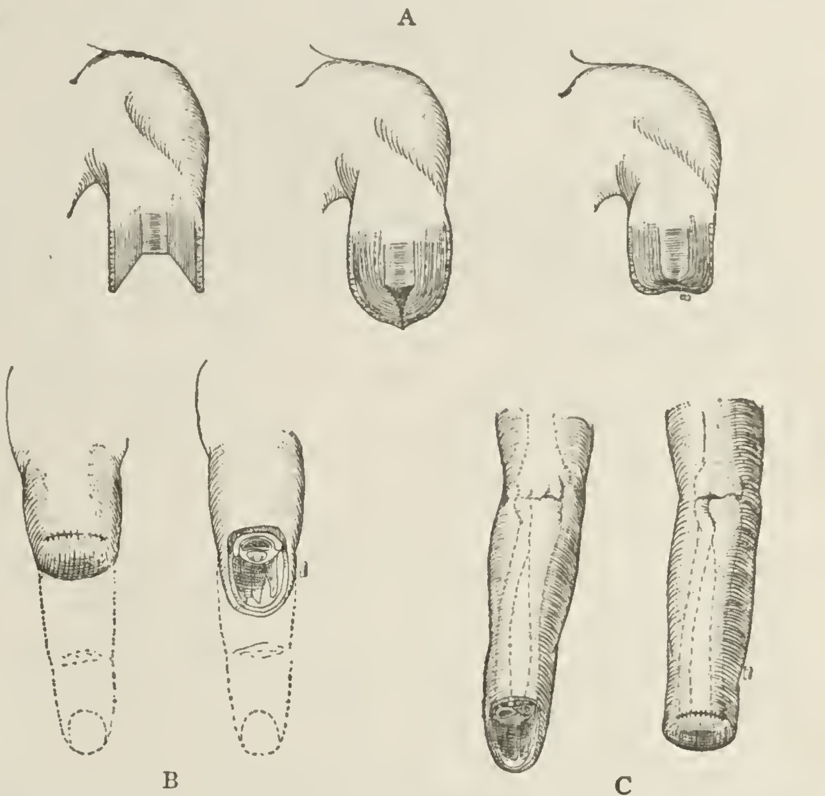

Fig. 4.—Types of amputation: *A*, circular amputation through the humerus; *B*, flap amputation through the finger; *C*, flap amputation through the lower arm.

Redundant Tissue in the Stump.—Anxiety on the part of the operator lest the flaps be too short is the cause of redundant tissue in the stump. After having amputated the limb, a speculative apposition of the flaps should at once indicate whether or not they might be shortened. A redundant flap is a very troublesome one to fit well. If the patient has been about in a bucket for some weeks and the tissues are still very lax, operation is necessary. Operation must not be undertaken, however, until the stump has shrunk as much as it is going to. Roentgenograms should be taken of all bad stumps when the trouble is not on the surface.

Sequestrums.—These usually follow a mild infection. Operation should not be resorted to until the sequestrum is entirely detached. They have an iniquitous way of recurring.

Osteomyelitis and Periostitis.—These conditions may account for chronic sinuses in bad stumps; but considering the conditions under which many of the amputations were performed, these two conditions were not so commonly found. Once they had developed, if they did not readily respond to Carrel-Dakin treatment, reamputation was performed.

Bony Spurs and Spicules.—Care should be taken in sawing through the bone to prevent bone dust from falling on the tissues. A moist pad laid over the soft parts under the bone will protect them. It is not uncommon to find new bone entirely separated from the parent shaft forming in the tissues. Sharp spicules should not be left on the end of bones, and a portion of a sharp spine like the crest of the tibia should be removed with bone forceps. The fibula may grow after being sectioned, and it should be cut at least 1 inch (2.5 cm.) shorter than the tibia.

Fibroma.—Peculiar firm, fibrous masses sometimes develop, usually directly beneath the end of the bone. They are probably due to a mild infective and irritative process, but may be due to organized blood clots. In some cases in which bismuth iodoform petrolatum paste was applied to the stump too freely, such a mass developed. These so-called fibromas are not extremely tender, but cause rather a sense of soreness. Wide excision is necessary, as the fibromas will recur if excision does not include the entire mass. In one patient, we found it necessary to operate three times within four months. In this particular patient, the paste undoubtedly had been the exciting agent at first.

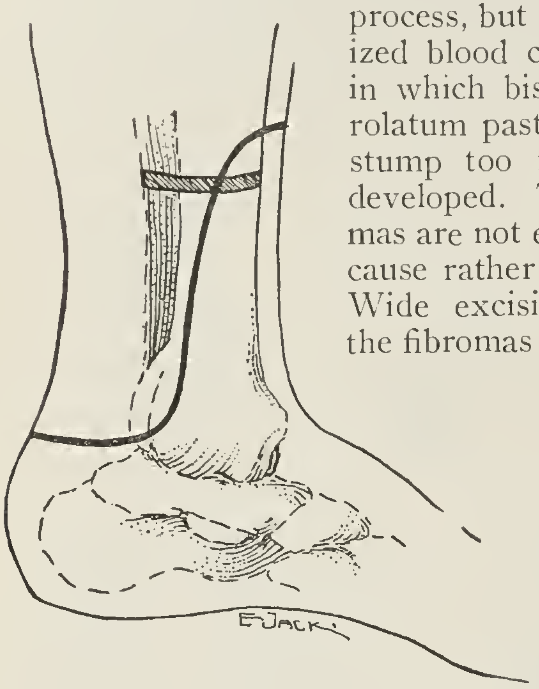

Fig. 5.—Line of incision for posterior flap.

Bulbous Nerves.—These are a common cause of painful stumps, especially in amputations that are followed by a mild infection. They can usually be located on deep pressure, and require excision followed by alcohol injection at the terminal portion of the nerve. Every effort should be made to avoid reinfection. We have seen patients who repeatedly had bulbous nerves removed, only to have them recur. One patient had had seven different operations on the median nerve following an amputation just above the elbow, and there had never been any evident infection.

Aneurysm in the Stump.—In three patients, we found a small arterial aneurysm which was the site of the pain in the stump. The patients were at once relieved by operation. In the first two of these patients we expected to find bulbous nerves. The aneurysms were arterial and in the terminal portion of the main vessel—one brachial, one popliteal and one femoral. They were probably due to injury of the intima by artery forceps.

Contractures and Limitation of Movement of the Proximal Joint.—A flexion deformity is common. It occurs especially at the hip following thigh amputations, but also at the knee and elbow joints. Abduction deformity at the hip joint is difficult to overcome. Limitation of abduction at the shoulder joint should be avoided. These deformities are all difficult to correct, are unnecessary, and should be guarded against. While flexion deformity at the knee and elbow joint is readily recognized, it is easily overlooked at the hip joint. It can readily be determined at the hip by flexing the sound thigh on the hip and at the same time attempting to extend the thigh stump.

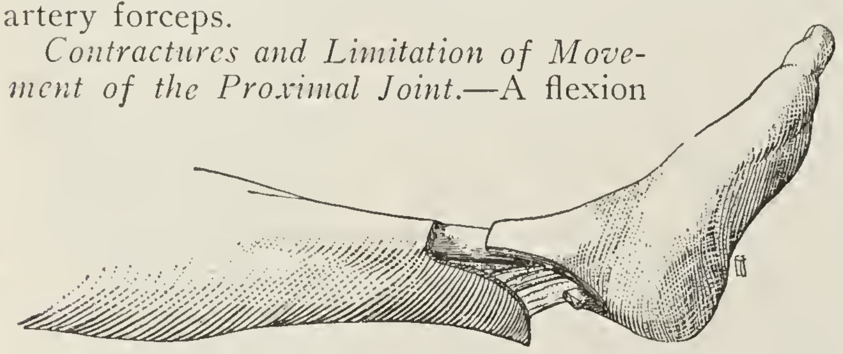

Fig. 6.—Posterior flap amputation operation.

Forced extension under anesthesia is rarely of any use in correcting these deformities. Flexion at the hip joint is due to contraction of the psoas, particularly, and only slow, persistent extension on a stretching table will overcome it. It is usually necessary to bind the knee joint to a posterior splint with a rubber bandage. The splint is attached to the limb with a plaster-of-Paris jacket so that it is held firmly in position. The appliance must be worn continuously until the joint is straight. An elbow is often very difficult to straighten; but extension exercises, with weights and upright bars, and the wearing of a splint at night with the elbow bound to it, will eventually straighten the joint.

COMMENT

In the war, because of the prevalence of anaerobic organisms in the highly cultivated and heavily manured fields of France and Belgium, and the vast number of ghastly wounds produced by shells, shrapnel, bombs and grenades, the proportion of amputations was high as compared with that of other wars.

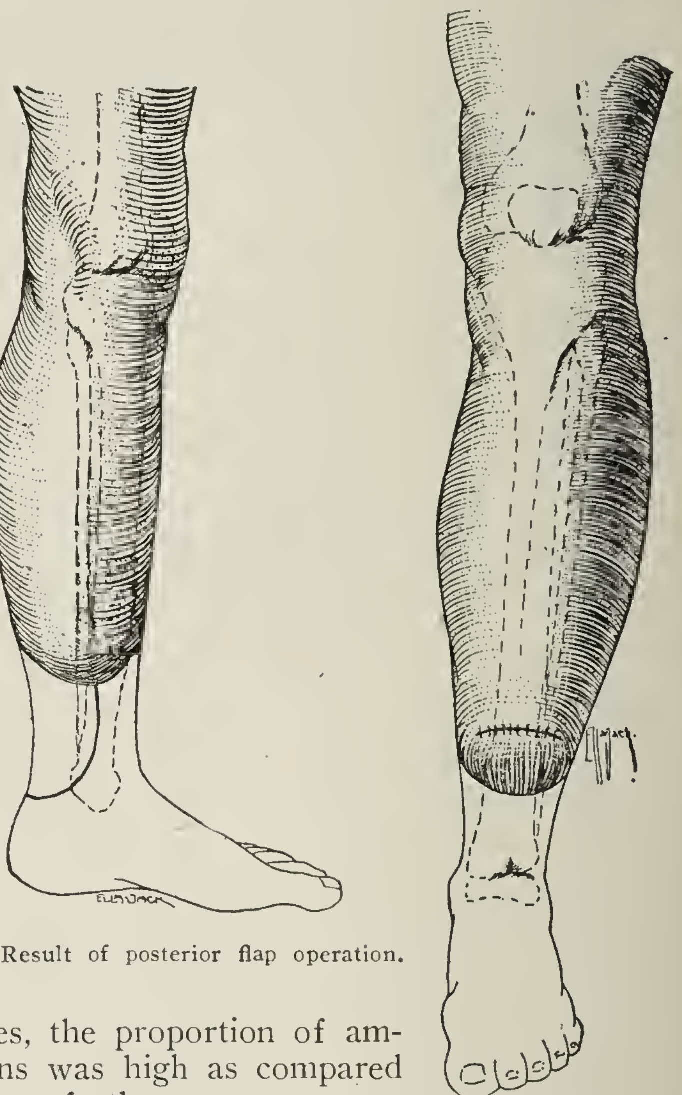

Fig. 7.—Result of posterior flap operation.

It was early recognized that the types of amputation should be standardized to deal with the enormous number of amputations that were inevitable. As Corner pointed out, it took the World War to prove the relative uselessness of the numerous amputations that we all, as students, had been obliged to learn. The amputations of Lisfranc, Chopart, Pirogoff, Roux, Tripier, Skey, Hey, Teale, Farabeuf, Lister, Gritti and Stokes have been forgotten—Corner[1] says for good.

The guillotine amputation, which, because of the horrible infections, was rediscovered and employed, was fortunately short lived and soon gave way to the modified circular (flap) operation. The guillotine amputation no doubt saved many lives, but it was unnecessarily mutilating. Two minutes more employed to fashion a cuff of skin, retract it, cut the muscles a little higher and the bone still a little higher, so that the stump looked like an everted cone, allowed as good drainage, almost as easy exposure for dressing, and made a good stump without further operation. For a single bone, the modified circular (flap) operation is one of the best. It requires but a few minutes, and the end-result is good.

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[1] Corner, E. M.: Amputations—The Effect of War Knowledge on Teaching, Practice and After-Care **1**: 114, 1921.

Certain requirements must be borne in mind in planning amputations:

1. The stump must be long enough to grasp the bucket.
2. Stumps should be as nearly 100 per cent. end-bearing as possible, except for counter pressure on the tuber ischii in thigh amputations.
3. The insertion of muscles acting on a stump should be carefully preserved at operation, and the function of the muscle as a whole maintained after operation, remembering that the muscles acting on a stump must develop more than their normal power to compensate for the leverage lost by shortening the bone.

AMPUTATIONS THROUGH THE UPPER EXTREMITY

The Hand.—The palmar flap method is an ideal incision in finger amputations. Amputations through a joint are not advisable. All surgery about the hand should be performed piecemeal, and every effort should be made to preserve as much as possible of the palm and fingers, and particularly the thumb. The power to coapt the thenar and hypothenar eminences is most important. Traumatic surgery of the hand is an art that the average surgeon does not in the least appreciate. "Infections of the Hand" by Kanavel[2] is an important contribution to surgery (Fig. 4).

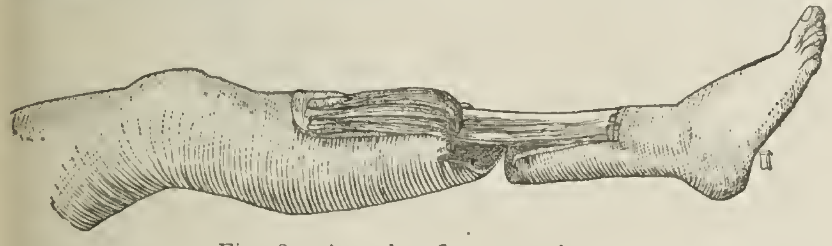

Fig. 8.—Anterior flap operation.

Forearm.—Amputation through the forearm should be at least 3 inches (7.6 cm.) below the elbow joint, and if possible below the insertion of the pronator radii eres. The function of pronation and supination should be maintained. The long posterior flap operaion, as indicated, or equal anterior and posterior flaps may be employed.

Upper Arm and Shoulder.—Amputations through he elbow joint are impracticable for fitting purposes. Unless 3 inches (7.6 cm.) of the forearm can be preerved, amputation 1 inch (2.5 cm.) above the condyles s better than through the joint.

At least 3 inches (7.6 cm.) of the shaft of the humerus should be saved, that is, 2 inches (5 cm.) elow the anterior axillary fold. A shorter stump is o difficult to fit that disarticulation through the joint s preferable. In the upper arm, amputation by circular r short equal flaps at the lowest possible level is best. ollowing a short amputation, especially, adduction ontracture at the shoulder joint must be guarded gainst. Any of the variously described racket amputions are equally good for disarticulation at the houlder joint.

Five times during the war, I was obliged to perform a complete fore quarter amputation, removing the scapula with the humerus and sectioning the clavicle as far out as possible. The operation is a ghastly one. However, all the patients survived. I saw one of the patients four years later, and the deformity was very considerable and difficult to disguise.

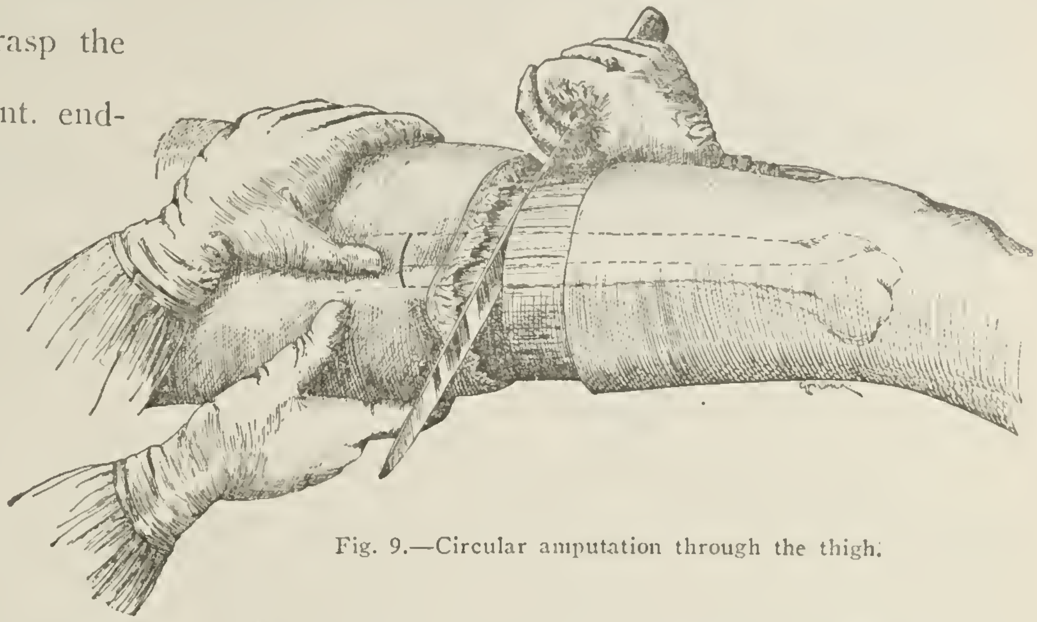

Fig. 9.—Circular amputation through the thigh.

AMPUTATION OF THE LOWER EXTREMITY

Toes and Foot.—The toes are relatively unimportant as compared with the fingers. Many surgeons during the war were particular to save the great toe. This was a mistake. If it is the only toe left, it should be removed, as it soon becomes deflected, functionless, and only a worry to the patient. Above the metatarsophalangeal joints, I do not believe there is any amputation that gives a good functional result except a Syme. Cathcart,[3] who has had an extensive experience in late amputations, still practices the Heys, Lisfranc and Chopart amputations at the tarsometatarsal level. He says that, provided there are sound plantar flaps with a well padded boot, a useful limb is insured. In the few late cases I saw after a Chopart amputation, the heels were drawn up by contractions of the Achilles tendon. The scar was dependent, and little pressure could be exerted on it. Corner says there is nothing between a high Syme and a metatarsophalangeal amputation. Certainly in traumatic cases, in which there is an injury to the plantar flap, crushing of the tarsal bones or trauma of the joint, nothing short of a high Syme amputation should be considered. I believe that all patients with a fixed ankle joint in malposition, in whom the foot is not fixed at right angles to the limb and the arch of the foot is preserved, a Syme amputation is indicated, especially if they have rheumatic pains through the ankle joint and foot, as many of them do.

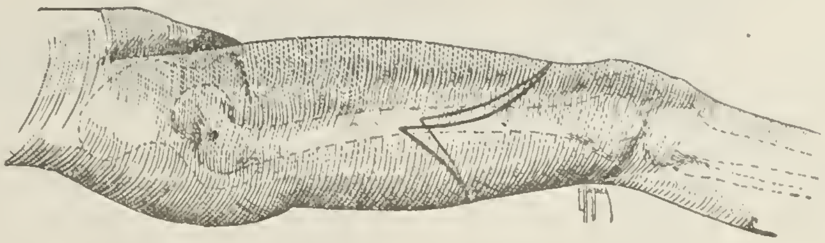

Fig. 10.—Flap amputation through the thigh.

In 1843, Sir James Syme, in Edinburgh, described his amputation. Except in the country of its birth, it was almost abandoned till the Great War. It is an excellent amputation. It permits of 100 per cent. end pressure, and there is so little shortening that the amount of actual crippling is slight. I especially appreciated the Syme amputation after watching the ease with which the patients got about the ward on the bare stump.

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[2] Kanavel, A. B.: Infections of the Hand, Philadelphia, Lea & ebiger, 1912.

[3] Cathcart, C. W.: Stumps After Amputation in Relation to Artificial Limbs, Edinburgh. M. J. 25: 281-295 (Nov.) 1920.

The amputation is described in every textbook of surgery, but perhaps I may be pardoned if I point out the necessity of avoiding injury to the posterior tibial artery as it descends behind the internal malleolus. The heel of the flap is dependent for its blood supply on the internal calcaneal branch of the posterior tibial artery, which is given off just before the latter divides into the internal and external plantar vessels at a point about 1 inch (2.5 cm.) below the tip of the internal malleolus. By keeping close to the bone, the vessel is avoided. A common error in the Syme amputation is to leave a flap that is too redundant. The scar should be just above the bone edge.

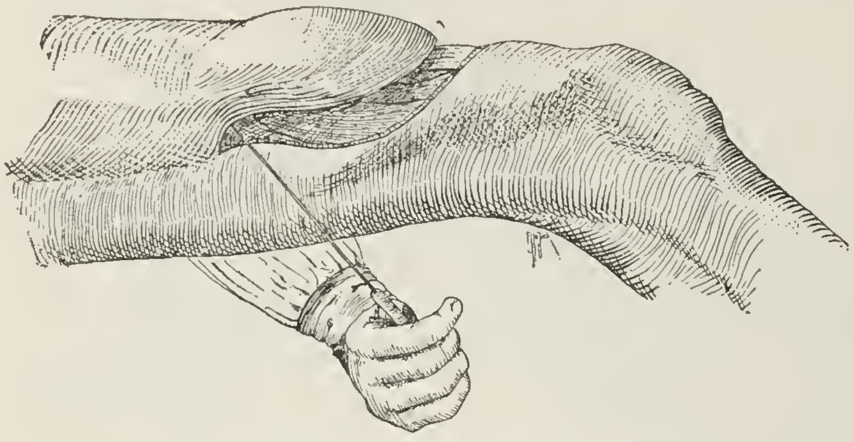

Fig. 11.—Flap amputation through the thigh.

Leg.—The high Syme operation, which was developed during the war, is also a most valuable amputation. In the presence of trauma and possible infection, with perhaps the necessity of later reamputation, it is the operation of choice in the leg. It must be remembered that in amputations through the lower third of the leg, flaps are slow to heal and quick to break down, gape and ulcerate. The dorsal flap, as illustrated in Figures 5, 6 and 7, with as short a skin incision as possible in the anterior aspect, is an ideal amputation. The nutrition is preserved, and the scar is above the edge of the bone, away from pressure. A well padded flap is available for end bearing. The high Syme is a better amputation that the Farabeuf (Fig. 8).

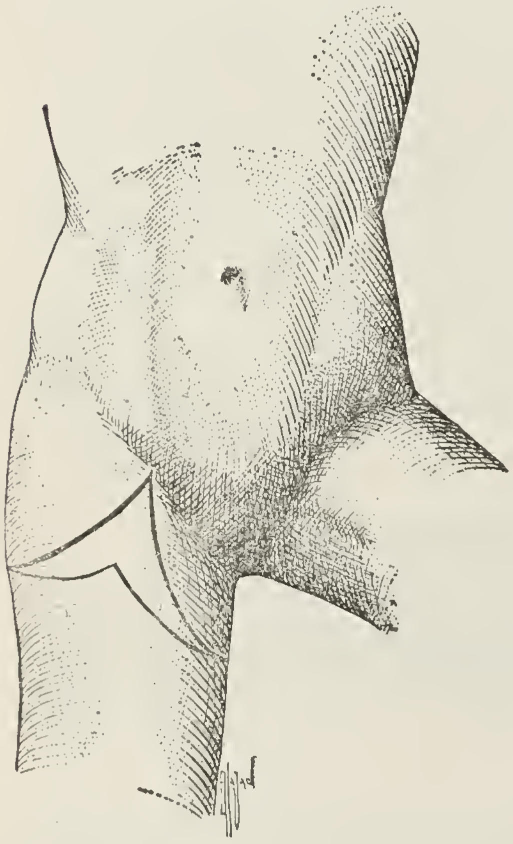

Fig. 12.—Y-flap amputation through the hip.

In the absence of infection, the best place for amputation of the leg is 4 inches (10 cm.) below the level of the knee joint. The anterior hooded flap, with the scar behind and above the level of the bone, gives an excellent stump which is good end-bearing, which will carry the entire weight, and which allows the patient to walk without the least limp. I cannot see the indication for removal of the fibula to insure ease of fitting. Kneeling stumps are no longer considered, and, with this in mind, all legs after an amputation below the knee should be kept straight in extension on a splint.

Amputation Through the Knee Joint or Condyles of the Femur.—In traumatic cases with considerable shock, amputation through the joint is the safest procedure; but it must be appreciated that reamputation is usually advisable before attempting to fit a limb.

The Stokes-Gritti operation seems to have won favor in this country. It is not a good amputation, for it unnecessarily prolongs the operation and the stumps are not good end-bearing. If the patients are followed, it is very common to find that the patella will loosen, months later, and be drawn forward by the quadriceps. It then slips on pressure, often becoming painful and usually a source of worry and annoyance to the patient.

In senile gangrene, amputation at least at, or above, the level of the knee joint is indicated, because usually the site of arterial obstruction is at, or near, the bifurcation of the popliteal artery. In preference to any amputation through the knee joint, amputation at least 3 inches (7.6 cm.) above the lower articular surface of the femur or 2 inches (5 cm.) from the most prominent part of the condyles is better for the easy fitting of an artificial knee joint with the mechanism spoken of by fitters as the knee control.

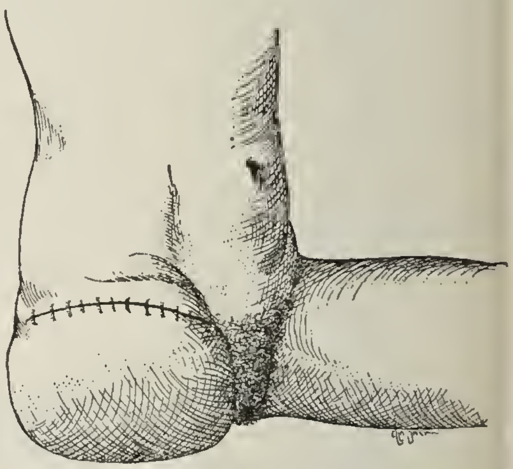

Fig. 13.—Amputation through the hip.

Both financial and social conditions should be considered in deciding for or against the simple joint amputations. Usually the patient is able to bear weight directly on the end of the stump, and in a laboring man the better gait that is insured by an end-bearing stump compensates for the bulkiness of the apparatus. The patella should not be disturbed in such an operation, and a long anterior flap is advisable.

Thigh.—A thigh stump should be as long as possible, as the greater the amount of leverage, the easier the artificial limb is handled. As pointed out, 2 inches (5 cm.) of the femur above the most prominent part of the condyles must be removed; but it should be remembered that the abductors of the thigh extend down the shaft to the abductor tubercle. The long anterior and short posterior flap method, with the scar above the edge of the bone, gives the best result. Too often, amputations planned to be low become lower or mid-third amputations as illustrated in Figures 9, 10 and 11. The principle is right, but both are too high. The geometrical principles are overlooked, and while the flaps are properly placed, the bone is cut too high.

A flexible piece of steel ruled off in centimeters is extremely convenient in measuring the flaps in thigh amputations. It requires but a moment to measure them and insures amputation at the proper site, with perfectly fitting flaps. The anteroposterior diameter should be measured at the level at which the bone is to be sectioned. The anterior flap should measure a little more than two thirds of the diameter from a point on the anterior aspect opposite the level at which the bone s to be sectioned, and the posterior flap should mea-ure a little less than one third of the diameter from a oint directly posterior. The point of division of the nterior from the posterior flap should be opposite the ower third of the thigh in its anteroposterior diameter. This insures a good posterior scar, the line of which is lightly above the level of the femur. The modified ircular amputation through the thigh, when performed y an experienced surgeon, is an equally good opera-ion in every respect.

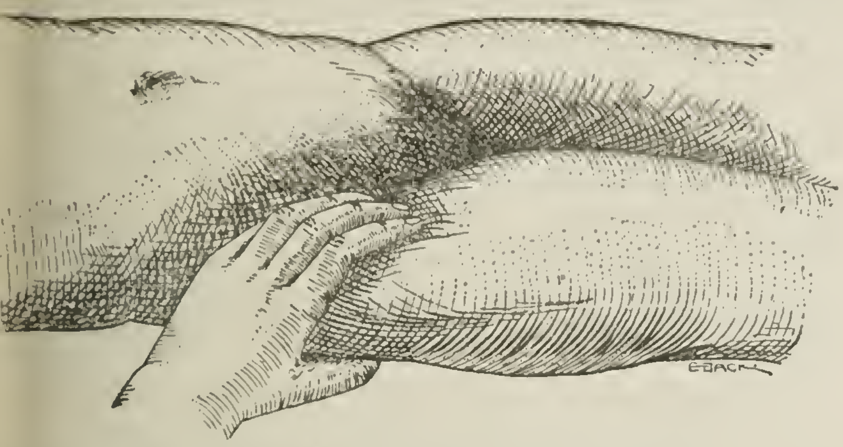

Fig. 14.—Digital control of the femoral artery.

The equal anterior and posterior flaps, which are still ccasionally employed, should be entirely abandoned.

High Thigh and Hip Amputations.—In the high igh amputations, at least 3 inches (7.6 cm.) of the emur below the lesser trochanter should be preserved. f 4 or 5 inches (10 or 12.7 cm.) of the thigh below e perineum cannot be preserved, it is better to ampu-ate through the neck of the femur, being careful to ut the muscles short. The ordinary racket operation, ith a long postero-internal and short antero-external ap, allows easy access to the femoral vessels and gives good result (Fig. 12). The anterior muscles in mputation through the neck should be sectioned just here they enter the thigh, beneath Poupart's ligament.

In traumatic cases, a long posterior flap, with the car well above the fold of the groin and away from e pubic hair line, gives a good result, provided the uscles are trimmed short (Fig. 13). The Fourneaux-ordan amputation that was popular for a time dur-ig the war leaves a large, flabby mass of ssue in the posterior flap and is difficult to t to.

I was happily surprised to find how well atients who had had high thigh amputa-ons got on with the "tilting table" fitting.

CHOICE OF ANESTHETICS

In traumatic cases in which shock may be factor, or in patients whose vitality is re-uced, the selection of anesthesia is impor-nt. Open ether may be employed safely r most amputations; but when there any question as to whether the patient will be le to stand the operation, block anesthesia, associated, necessary, with gas and oxygen, is safer. For any nputation of the upper extremity, injection of the achial plexus with 1 per cent. procain is sufficient. or thigh amputations, it is a wise precaution to block e sciatic and anterior crural, and if a local infiltration the site of the incision is associated, no further esthetic is required. Morphin (1.6 grain) and opolamin (1/300 grain) should be administered at ast forty-five minutes before operation. A light s-oxygen analgesia may be wisely employed in all major amputations to avoid undue apprehension on the part of the patient.

POINTS IN TECHNIC

The use of a tourniquet should be discouraged. An operating room orderly can be instructed in a moment in the method of digital control of vessels. Immediately before amputating, elevation of the limb and application of a spiral rubber bandage, distal to the site of amputation, will save blood that is frequently wasted (Fig. 14).

Flaps.—Before undertaking an amputation, the surgeon should have planned in his mind the type of flap that he is going to employ, remembering that 100 per cent. end-bearing stumps are best. Too much muscle should not be left in the flaps, but the variously described dissections in planes of the underlying tissues are unnecessary.

Sectioning the Bone.—One saw cut should suffice, and the bone should not be sectioned higher than was planned. This is a common mistake. A convenient type of retractor insures easy retraction, good exposure of the bone, and also protects the softer tissue from injury by the saw.

Treatment of Nerves.—Odier, at the beginning of the nineteenth century, first described enlargements or swellings which develop on the distal end of a proximal segment of a peripheral nerve after partial or complete division. Nerves should be carefully separated high up, injected with absolute alcohol for a distance of 2 cm. and sectioned just below the injected area. I never was in favor of the crushing and tying method of dealing with nerves to prevent neuromas from developing. Nor could I see the desirability of the perineurial flap method as suggested by Corner. Huber and Lewis,[4] in a very thorough experimental study, have shown that the swing door, or reversed V-operation, and the crush and tie method do not prevent neuroma formation. Their results were much better following the injection of absolute alcohol from three-fourths to 1 inch (19 mm. to 2.5 cm.) above the plane of section.

Ligation of Vessels.—The arteries should be left long and tied separately, and care should be taken not to tie a nerve filament in with an artery. It undoubtedly has been the cause of many a painful convalescence. The insertion of a purse string suture through the muscle to close them over the main artery to the limb is a wise precaution against secondary hemorrhage. Silk ligatures should never be employed.

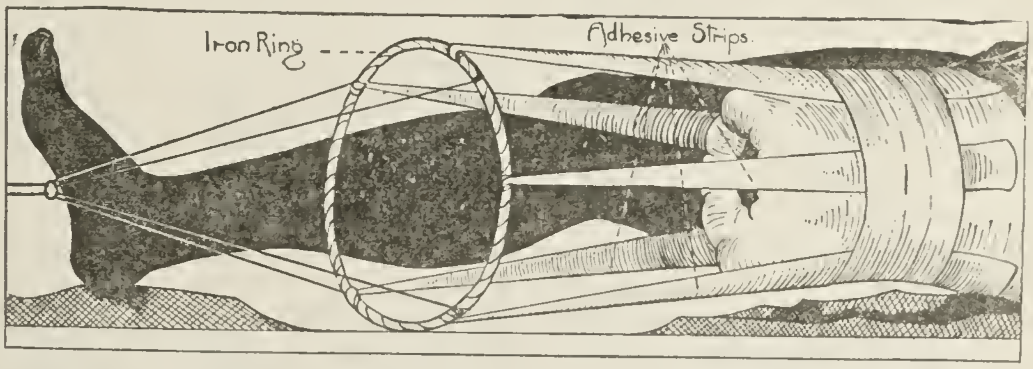

Fig. 15.—Method of preventing or overcoming retraction in circular amputations.

Drainage of Stumps.—When in doubt one should drain a stump, especially a large flabby one, but not for longer than thirty-six or forty-eight hours. A soft rubber tissue drain or strands of silkworm-gut drawn through the suture line is sufficient. Primary suture is advisable in amputation; but the surgeon must carefully observe the limb for the first three days and be prepared to open the flaps should infection develop.

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[4] Huber, G. C., and Lewis, Dean: Amputation Neuromas—Their Development and Prevention, Arch. Surg. **1**: 85-103 (July) 1920.

It is a wise precaution to put all limbs at rest on a splint and to bandage them so that it is unnecessary to remove the bandage that binds the splint to the limb in order to expose the incision.

After-Care of Stumps.—In circular amputations or any amputation in which, for one reason or other, the flaps are retracted and tense, a device, such as the one illustrated in Figure 15, is extremely useful to release tension on the flaps and prevent retraction.

Once the scar is firmly healed, firm bandaging helps to hasten consolidation of the soft parts. It takes from weeks to months for the tissues in a stump to retract completely and consolidate. As soon as the tenderness leaves the stump, movement in all directions of the joint above should be started, and periodic pressure should be made on the stump. A lacing bucket should be worn and the patient urged to move about. At least four or five months should elapse before a permanent limb is secured. Contracture deformity at the knee, hip and elbow joint must always be guarded against, and patients should be frequently examined for such deformity, even though they are up and about and fairly active on a peg.

While amputations, on the whole, are elementary in principle, it is just these elementary principles that are so often overlooked. It is extraordinary to observe how little disability there is from the loss of one limb, provided a useful artificial limb can be worn. It is also surprising how completely disabled a patient is by a painful stump or by an ill fitting limb. A little more care on the part of the surgeon who amputated the limb, or who had the postoperative care of the limb, would avoid most of the bad results observed.

THE NORMAL HEMOGLOBIN STANDARD *

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The clinical estimation of hemoglobin has always been a most unsatisfactory procedure. Few scientific data are available concerning the behavior of hemoglobin in health and in disease. Few of the clinical determinations are of any real value, since nearly all are expressed in relative terms and have no exact meaning.

There are numerous technical difficulties in the way of accurate hemoglobin work. Perhaps the greatest two obstacles, however, have been the lack of a simple method of calibration for hemoglobinometers, and the absence of a uniform standard. All hemoglobinometers are graduated to read in percentages, yet there is no agreement as to what the 100 per cent. shall be equivalent. One reads in a clinical report that the hemoglobin was a certain per cent., but has no exact idea of what the hemoglobin is in terms of grams.

It is usually stated that 100 per cent. on a hemoglobinometer should represent the average normal number of grams of hemoglobin per hundred cubic centimeters of blood. The hemoglobin content, however, varies with age and sex and with the red cell count. In calculating the color index, we consider 5 million cells per cubic millimeter as 100 per cent. cells. The most logical hemoglobin standard is certainly one which takes as 100 per cent. the average value of hemoglobin in grams per hundred cubic centimeters for each 5 million red cells.

If we accept such a standard as the most desirable one, what is the correct value for this standard and how is it to be determined? Unfortunately, it is impossible to isolate hemoglobin in pure form from blood quantitatively. There are only two available methods by which quantitative determinations may be made. One is the direct oxygen capacity method of Haldane, the other an indirect method employing the spectrophotometer.

Leichenstern,[1] in 1878, made sixty-one determinations of hemoglobin on normal individuals of different ages, using the spectrophotometric method. He found that men have 14.14 gm. per hundred cubic centimeters, and women 13.10 gm. In most of the textbooks of clinical diagnosis, Leichenstern's figures are quoted, and the statement is made that the normal hemoglobin content of blood is from 13 to 14 gm. per hundred cubic centimeters. The accuracy of estimations with the spectrophotometer depends on the correctness of the absorption ratio, which varies with different observers. Williamson,[2] in 1916, using the same method, made more than 900 determinations in both sexes at all ages, and found that men between the ages of 16 and 60 have 16.92 gm. of hemoglobin per hundred cubic centimeters, and women 15.55 gm. for the same age interval. The findings of these two workers vary by 20 per cent. The spectrophotometric method is also too difficult and the instrument too expensive to allow it to come into general use as a means of calibrating hemoglobinometers.

The oxygen capacity method is based on the fact, first demonstrated by Haldane, that on the addition of potassium ferricyanid to a solution of oxyhemoglobin, the oxygen is quantitatively released. It is known that 1 gm. of hemoglobin combines with 1.34 c.c. of oxygen; hence one can very simply calculate the hemoglobin content from the oxygen capacity. This method, as adapted by Van Slyke[3] to his blood gas apparatus, is rapid, simple and accurate. It affords an excellent method by which hemoglobin estimations may be made and instruments standardized.

Accepting the oxygen capacity method as the one of choice, it is necessary that we know the normal values for hemoglobin per hundred cubic centimeters for each 5 million cells if we are to express results in terms of percentage. Haldane and Smith,[4] working with Haldane's original large blood gas apparatus, found the oxygen capacity of twelve normal persons to be 18.5 c.c., corresponding to 13.8 gm. of hemoglobin per hundred cubic centimeters. He did not count the erythrocytes in any case. Van Slyke,[3] Palmer,[5] Cohen and Smith,[6] and Newcomer[7] accept the Haldane standard of 18.5 oxygen capacity as equivalent to 100 per cent., and record the hemoglobin percentage in terms of this scale, although the standard is based on only twelve determinations. The hemoglobin content of a normal blood containing 5 million cells per cubic millimeter, when determined with the Van Slyke apparatus, is equal to about 112 per cent. on the Haldane scale. This scale is evidently not the ideal one to use, since the 100 per cent. is not equal to the hemoglobin content of a normal blood containing 5 million cells per cubic millimeter. Likewise, the reading would be too high if Leichenstern's figures were used, and too low if Williamson's were employed. Newcomer[7] has shown, however, that the hemoglobin content of a blood when determined by the oxygen capacity method with the Van Slyke apparatus checks closely with the results that are obtained with the spectrophotometer, provided the correct absorption ratio is used.

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* Owing to lack of space, this article is abbreviated in The Journal by the omission of four tables. The complete article appears in the author's reprints.

[1] Leichenstern, quoted by Sahli: Diagnostic Methods, Philadelphia, W. B. Saunders Company, 1911, p. 742.

[2] Williamson, C. S.: The Influence of Age and Sex on Hemoglobin, Arch. Int. Med. **18**: 505 (Oct.) 1916.

[3] Van Slyke, D. D.: J. Biol. Chem. **33**: 31 (Jan.) 1918.

[4] Haldane and Smith: J. Physiol. **25**, 1899-1900.

[5] Palmer, W. W.: J. Biol. Chem. **33**: 119 (Jan.) 1918.

[6] Cohen, B., and Smith, A. H.: J. Biol. Chem. **39**: 489 (Oct.) 1919.

[7] Newcomer, H. S.: J. Biol. Chem. **37**: 465 (March) 1919.

To determine the normal average hemoglobin content of blood per hundred cubic centimeters for each 5 million cells, I have counted the erythrocytes and estimated with the Van Slyke apparatus the hemoglobin of fifty-two normal persons. All technical errors in the work have as far as possible been eliminated. The glassware used, including the Van Slyke apparatus, was recalibrated. The hemocytometer and the blood counting pipets were checked by the Bureau of Standards and certified as correct.

The following procedure has been used: Ten cubic centimeters of blood was withdrawn by venipuncture and run into a 200 c.c. Erlenmeyer flask containing 40 mg. of dry potassium oxalate. Dilutions of the oxalated blood, 1:200, were made in two red cell counting pipets, and two separate counts made from each pipet. The four counts were averaged for the final result. The Erlenmeyer flask was then so rotated for five minutes as to keep the blood in a thin layer on the sides of the flask. Two determinations of the oxygen capacity were then made in the Van Slyke apparatus. Part of the determinations were made by the method as originally described,[3] and part by the more recent procedure.[8] Identical results were obtained by the two methods. All calculations have been made as suggested in Van Slyke's recent article,[8] making the proper allowance for the nitrogen in physical solution in the blood.

A volume index has been determined on each blood at the same time to show that the cells were of normal size.

The men and women used as normals are physicians, medical students, nurses and hospital employees. Reasonable assurance was made that they are healthy.

The results obtained in normal men between the ages of 18 and 30 are given in Table 1. The average red cell count is 5.08 millions per cubic millimeters. The oxygen capacity is 21.20 c.c., corresponding to 15.83 gm. of hemoglobin per hundred cubic centimeter. These figures are equivalent to an oxygen capacity of 20.85 c.c., or 15.57 gm. of hemoglobin per hundred cubic centimeters for each 5 million cells.

The average of twenty determinations on men between the ages of 30 and 50 (Table 2) shows 4.865 million cells per cubic millimeter and 20.25 oxygen capacity, corresponding to 15.23 gm. of hemoglobin per hundred cubic centimeters. When calculated on the normal standard basis, we obtain 21.00 c.c. oxygen capacity and 15.65 gm. of hemoglobin.

Twelve determinations were made on women between the ages of 20 and 40. The average count of the red blood cells is 4.26 million per cubic millimeter; the oxygen capacity is 17.33 c.c., and the hemoglobin is 13.34 gm. per hundred cubic centimeters. These figures are equivalent to 21.00 c.c. oxygen capacity and 15.65 gm. of hemoglobin per hundred cubic centimeters for each 5 million cells. The details are shown in Table 3.

The results in the fifty-two determinations are summarized in Table 4. The close correspondence of the hemoglobin in both sexes at the ages covered when calculated on the normal standard basis (per hundred cubic centimeters for each 5 million cells) is most striking. We believe that the variation in hemoglobin with age and sex as given by various observers in the past is probably entirely a matter of difference in red cell count. The amount of hemoglobin per cell varies little.

The average normal value found in the fifty-two persons, that is, 20.9 c.c. oxygen capacity, or 15.6 gm. of hemoglobin per hundred cubic centimeters for each 5 million cells, represents the ideal and correct figure to accept as corresponding to 100 per cent. on all hemoglobinometers. When the hemoglobin is expressed in percentage in terms of this scale, the color index will always be close to 1.00.

We suggest that 15.6 gm. per hundred cubic centimeters be adopted as a uniform standard for hemoglobinometers, and that readings on this standard be termed the normal scale.

SUMMARY

All hemoglobinometers should be calibrated in terms of a uniform standard.

The ferricyanid method as adapted by Van Slyke affords the most desirable means of standardization.

The ideal standard takes as 100 per cent. the average normal number of grams of hemoglobin per hundred cubic centimeters for each 5 million red cells.

The average hemoglobin content of the blood of fifty-two normal persons with the Van Slyke apparatus has been determined to be 15.6 gm. per hundred cubic centimeters for each 5 million cells.

All hemoglobinometers should be calibrated with the Van Slyke apparatus on this basis, so that 100 per cent. equals 15.6 gm. per hundred cubic centimeters.

It is suggested that readings with this standard be called the normal scale.

Origin of Fecal Diagnosis of Hookworm.—Until 1877 the hookworm had been found only at necropsy. A simple method for diagnosing hookworm infection in living beings was still wanting. This was supplied as a direct result of extensive research in Italy. In a paper written in 1878, Grassi and two brothers, Ernesto and Corrado Parona, demonstrated that hookworm disease could be recognized from ova passed in the feces. Hookworm was still a comparatively unknown malady in 1880, when the Saint Gothard tunnel was under construction. From the Saint Gothard tunnel, which was completed in 1882, hookworm disease spread over Europe. The tunnelers sought work in European mines, and seemed to revive an epidemic of the malady that had existed in these mines at intervals for centuries. The disease became most severe in the sulphur mines of Sicily; in the gold and silver mines of Hungary; in the coal mines of Germany, Holland, Belgium and France; in the lead mines of Spain, and in the tin mines of England.—Bibliography of Hookworm Disease, International Health Board, 1922.

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ACUTE HEMORRHAGIC JAUNDICE OF EPIDEMIC NATURE IN NEW YORK CITY *

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During the latter part of the years 1919 and 1920, there were admitted to Bellevue Hospital a number of patients with acute hemorrhagic jaundice. The disease, which previously had not been recorded in the Second Medical Division, occurred in epidemic form, usually appearing in December and in the early part of January. Sixteen of the cases in which admission occurred during a period beginning the middle of December, 1919, have been reported by Dr. Douglas Symmers,[1] with special emphasis on the symptomatology and pathology. In view of the fact that he was unable to produce the disease in animals, he was inclined to regard the condition as a toxic process. The purpose of the present paper is to report eleven additional cases in the Second Medical Division of Bellevue Hospital.

In Dr. Symmers' group of sixteen cases, the severity of the disease was most pronounced. In general, his cases were divisible into two symptomatic groups. The first was characterized by bronchitis, lassitude, occasional vomiting and diarrhea, intense jaundice, epistaxis, hematemesis, melena, and hemorrhagic vesicles about the lips and chin. Frequently the disease was associated with pains in various localities, stupor and delirium. The second group was characterized by severe jaundice, wild delirium and rapid death. Of the sixteen patients, nine died—a mortality of 56.2 per cent. In our cases, ten of which occurred in December, 1920, and one in December, 1921, the disease ran a much milder course with but two deaths, a mortality of 18 + per cent.

Clinically, these cases presented features which were strikingly like spirochetosis icterohemorrhagica, formerly known as Weil's disease, and also resembled cases of that disease which I saw in France. Since the publication of the first thorough study of the epidemic type by Weil, in 1886, outbreaks of the disease have been reported in various parts of the world. Epidemics have been reported from Syria, Greece, Egypt, India, South Africa [2] and Japan.[3] During the recent war, an epidemic was reported among the British soldiers on the western front.[4] An outbreak of jaundice throughout the state of New York [5] has attracted considerable attention during the past year. It is difficult to estimate accurately the number of cases which have occurred in the various localities throughout the state, but from the published reports the total number would apparently exceed 400.

In 1914, a group of Japanese, Inada and his co-workers, studying the disease, showed that the blood of patients produced jaundice when injected into guinea-pigs, and also obtained spirochetes from the blood and urine of the patients themselves. Stokes later confirmed this work in an epidemic occurring on the western front in the British Army. The organism has been found by the Japanese workers,[6] Stokes,[7] Noguchi [8] and others [9] in rats, and it is probable that the disease is conveyed to man by this rodent. The disease, as described, is generally characterized by sudden febrile onset with pronounced gastro-intestinal symptoms and rapidly developing jaundice with relapses.

OBSERVATIONS IN ELEVEN CASES

All of the cases to be reviewed in this paper occurred in men, the ages varying between 22 and 65, four of the number being between the ages of 22 and 30. The onset of illness was sudden, characterized by severe pains in the calf muscles and back, headache, nausea, vomiting, nosebleed, herpes, and chills and fever. Briefly, the patients were seized with an acute febrile illness, with muscle pains and prostration. The jaundice appeared from the third to the seventh day after the onset of the illness, the average day of onset in the eleven cases being the fifth. On admission to the hospital the patients were seen to be acutely ill, and some were delirious. One patient had a bronchitis. The jaundice was marked; the tongue was frequently dry, sometimes showing dry blood on the surface. In the majority, there was an herpetic eruption about the lips and chin which contained thin, sanguineous fluid. In drying, dark red crusts were formed.

Fever.—At the time of admission, the temperature ranged between 99 and 104 F., the average temperature being around 101. After from four to fifteen days, the temperature reached normal, and usually remained so from five to ten days. In seven cases there was a definite period of secondary fever, which lasted from four to nine days. At the end of from ten to twenty-five days the patients showed signs of convalescence.

Gastro-Intestinal.—Anorexia was common to all. Bloody diarrhea was present in three cases. The stools were generally clay-colored and constipated. The vomiting was constant at the onset of the illness, often recurring after admission and subsiding with improvement. Abdominal pain was present in five cases—in three, sufficient to warrant suspicion of gallbladder infection.

Parotid Gland.—In one fatal case the parotid gland was infected. From the gland a pure growth of *Staphylococcus albus* was obtained. It is probable that the infection occurred from the mouth.

Liver.—In two cases the liver was found slightly enlarged. It was not frequently tender.

Spleen.—This was not palpable in any case.

Lymph Glands.—These were not enlarged.

Respiratory System.—Bleeding from the nose occurred in five of the series. Hemoptysis was present in two cases. Pain was referred to the chest in three cases—two of these showing definite signs of a bronchitis. In one case, the sputum was described by the intern as brownish.

Circulatory System.—There was little noteworthy in the examination of the heart in cases of this series.

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One patient had auricular fibrillation on admission, and died late in the course of his disease. Vascular thickening was found common to the senile patients. The white blood cell counts varied between 9,000 and 21,000, the average being about 10,000. Polymorphonuclears varied between 60 and 90 per cent. One patient, however, had a leukopenia of 3,000. The hemoglobin varied between 70 per cent. and normal.

Urinary System.—The most constant feature of the urine was the large quantity of bile present. Albumin was present in quantities varying from a faint trace to a cloud. Hyaline and granular casts were found in all cases. At times, free red blood cells and pus were found. In one case, sugar was found, which was not in sufficient quantity to be fermented by yeast.

Nervous System.—Frontal headache was a common complaint. Delirium was recorded in three cases. Pruritus, probably due to jaundice, occurred in several cases. Weakness to the extent of prostration was at times marked. Dizziness as an initial symptom was not common. Drowsiness was noted in two cases. Coma occurred late in two fatal cases. Mental confusion and restlessness were present in two cases.

Muscle and Abdominal Pains.—Muscle pains were complained of in nine cases, usually beginning in the calf muscle, and extending to the back. Often there was general muscular soreness. Tenderness of the calf muscles was not uncommonly found. Frequently, in the latter part of the disease, when the patient was allowed up, generalized pain, particularly in the lower extremities, was recorded.

Skin.—The jaundice varied in appearance from a greenish yellow to a lemon yellow tint. At times of relapse there was no appreciable increase in jaundice. Besides herpes, the noteworthy features in the skin were purpuric spots on the sides of the abdomen and chest in two cases and, in one case, a diffuse macular erythema over the body. In another case, petechial spots were recorded.

In eight cases, bile was obtained from the duodenum by the Rehfuss tube. This was examined microscopically, and in two cases in which there was bleeding elsewhere, contained blood that was apparently nontraumatic. Cultures were taken on blood agar plates, on plain agar plates, aerobically and by the petrolatum anaerobic method. *Bacillus proteus* was reported in one case. *Staphylococcus albus* was frequently found, as well as other types of cocci which were not identified. Sediments of urine were injected into guinea-pigs in quantities of from 2 to 5 c.c. at different periods during the course of the disease and, in several of the cases showing relapses, repeated daily. Sediments of bile were also injected intraperitoneally with negative results. In the early cases, blood was obtained and njected into the peritoneal cavity of a guinea-pig. The results were uniformly negative. Attempts were made o detect spirochetes in stained specimens of the urinary ediment. The method employed consisted in the xation of the smear of the sediment by methyl alcohol, nd staining from two to twenty-four hours with Giemsa's solution. In one case of the series, a spirochete was found resembling *Spirochaeta refringens.* This was thought to be a contamination; the finding was not repeated after the examination of many other lides, and the guinea-pig injected from this case was ot jaundiced. Stains of the kidneys and liver of this uinea-pig made by Dr. Symmers, after the method f Levaditi, were reported negative for spirochetes.

SUMMARY AND CONCLUSIONS

1. In the epidemic of eleven cases of jaundice reported, the symptomatology, physical findings and progress resembled those of Weil's disease.

2. The cases are similar to a group of sixteen occurring a year before at Bellevue Hospital, but are of a less severe type and show a lower mortality.

3. Repeated attempts to determine the causative agent have been uniformly without success.

4. In view of the repeatedly futile attempts to isolate the leptospira from this group of cases, it would seem that we have been dealing with another type of infection or toxemia, the nature of which is at present unknown.

850 Park Avenue.

SIMULTANEOUS VARIATION IN ACIDITY OF DIFFERENT PORTIONS OF GASTRIC CONTENTS

ITS RELATION TO FRACTIONAL ANALYSIS *

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Papers have been published during the past year by Gorham,[1] Wheelon[2] and Kopeloff[3] showing the simultaneous variation in acidity in different portions of the gastric contents. These observations are important from a clinical standpoint, if they can be verified. We have carried out a series of similar observations in about fifty cases, making about 500 analyses of gastric contents, to (1) see what variation exists; (2) determine the cause of the variation; (3) try to overcome it, and (4) study its relation to fractional gastric analysis as ordinarily carried out.

Fractional analysis is based, either consciously or unconsciously, on the assumption that small fractions of the gastric contents are representative of the whole contents of the stomach at the time, and that fractional curves, as ordinarily obtained, represent changes in gastric secretion.

METHODS

Forty of these fifty cases were routine gastrointestinal patients, and ten were healthy persons. An Ewald test breakfast was given, the Rehfuss tube was passed, and at the end of an hour 10 c.c. fractions of the gastric contents were aspirated rapidly, one after another, by the method suggested by Gorham, so that the stomach was completely emptied in this way in from three to five minutes. These fractions were titrated for free and total acid, Toepfer's reagent and phenolphthalein, the most commonly used indicators, being employed. The position of the tip of the Rehfuss tube was located exactly by means of the fluoroscope before, during and after aspiration of the gastric contents. The presence or absence of duodenal regurgitation was decided by tests for trypsin and bile in the gastric contents. In about one third of these cases an ordinary fractional analysis by the Rehfuss method, fractions being taken at fifteen or twenty minute intervals, was carried out for comparison on another day. In some of the cases the fasting content was taken out in rapid fractions, and in some cases the rapid fractions after a test breakfast were taken on another day, at a period somewhat earlier or later than one hour.

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* Read before the Association of American Physicians, Washington, D. C., May 2, 1922.

[1] Gorham, F. D.: Variations of Acid Concentration in Different Portions of Gastric Chyme, and Its Relation to Different Methods of Gastric Analysis, Arch. Int. Med. **27**: 434 (April) 1921.

[2] Wheelon, Homer: Relation of Gastric Content to Secretory and Motor Functions of Stomach, Arch. Int. Med. **28**: 613 (Nov.) 1921.

[3] Kopeloff, Nicholas: Proc. Soc. Exper. Biol. & Med. **19**: 154, 1922.

PRECAUTIONS

We have taken every precaution we could think of to reduce accidental variation in acidity, and to get uniform results. We have passed a dry stomach tube with a clip on the outer end to avoid dilution of the first fraction with possible liquid in the tube. We have excluded cases in which there was considerable retching, on account of the possibility of duodenal regurgitation. The patients were carefully instructed not to swallow saliva, but to spit it out, so that it would not be mixed with the stomach contents. We have excluded from our series stomach contents containing mucus, bile or blood, as these tend to make the exact estimation of acidity difficult. The stomach content was filtered through cheese-cloth to make it more uniform. Great technical care was taken in the end-points of the analyses. The controls showed that the variation from this cause did not exceed two or three points in careful routine work. The tip of the tube was found almost invariably (in 95 per cent. of the cases) in the antrum where the contents of the stomach are best mixed. The tip of the tube lay like a sinker almost invariably on the lowest point of the greater curvature of the stomach in the median line, or just to the right or left of it, and did not move a half inch in position during the taking out of the rapid fractions of gastric contents. The tip was not moved much by peristaltic waves, and did not shift about to different portions of the stomach. It should be borne in mind that this rapid extraction method, the same syringe, and the same tube for consecutive aspirations being used, tends, if anything, to reduce acid variation in the portions of gastric contents. It certainly does not tend to increase them.

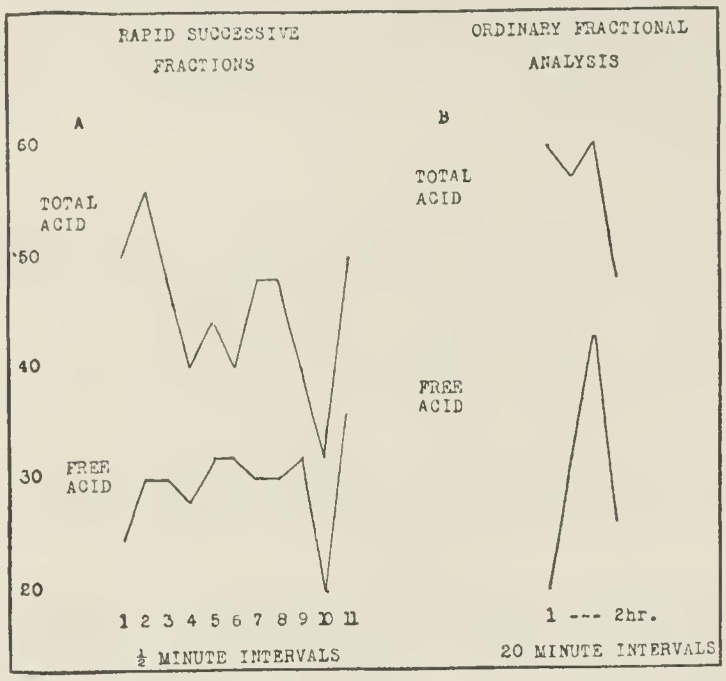

Chart 1.—Variation in acidity in Case 1. In this and the accompanying charts there is comparison of (*A*) rapid successive fractions one hour after a test breakfast with (*B*) ordinary fractional analysis on another day beginning one hour after the test breakfast and ending when the stomach is empty.

THE SIMULTANEOUS VARIATION IN ACIDITY

In Table 1 is shown the amount of simultaneous acid variation of fractions taken from the same stomach by the rapid method described, in terms of free hydrochloric acid and total acidity. The maximum, minimum and average variation is shown; also the number of cases in which the variation was from one to ten points (tenth-normal sodium hydroxid × 10); also the cases in which the variation was from ten to twenty points and from twenty to thirty points, and over thirty points.

This simultaneous variation in acidity of different portions of the stomach contents was found to be quite large. In 40 per cent. of the cases it was from twenty- to thirty points or over. The average variation was seventeen points for free hydrochloric acid and twenty-two points for total acidity. In Table 2 is given the results of rapid emptying of the stomach at the end of an hour by successive withdrawals of 10 c.c. amounts. The figures for free and total acid in each of the fractions of the fifty cases are shown; also the variations in free acid and total acidity of the different fractions taken simultaneously from the same patient.

In several cases the simultaneous acid variation an hour after a test breakfast has been charted to show graphically the marked variation back and forth in the acidity of successive fractions. This simultaneous variation at the end of an hour was frequently greater than the variation in acidity shown in the ordinary fractional curves taken at fifteen minute intervals, beginning an hour after the test breakfast and ending when the stomach was empty. The cases charted are not the most striking cases, but are fairly typical of the group.

In short, the gastric content at the end of an hour is not a uniform mixture. Single fractions do not represent the whole. This may explain, in part, the marked variation in fractional analysis which may be obtained in the same patient on different days.

The simultaneous variation in acidity was lowest in the fasting stomach. In ten cases the variation was nine points for free acid and eight points for total acidity, the acidity being quite constant in the absence of mucus or retained food. The acid variation increased with the pouring out of the acid secretion of the stomach, usually reaching its highest at the height of digestion, which was usually (but not invariably) from three quarters of an hour to one and one-quarter hours after the test breakfast. The variation in acidity was often less in the later stages of digestion on account of the smaller amount of gastric contents and the well mixed secretion. Incidentally, fewer 10 c.c. fractions could be obtained, which would naturally show less variation. Occasionally, the acid variation in the later stages of digestion was considerable, as a result of regurgitation of alkaline contents of the duodenum.

TABLE 1.—SIMULTANEOUS ACID VARIATION OF GASTRIC CONTENTS ONE HOUR AFTER TEST BREAKFAST

	Free Hydrochloric Acid	Total Acid
Maximum	36	50
Minimum	4	2
Average	17	21
Variation	Cases	Cases
From 1 to 10 points	13	15
From 10 to 20 points	25	11
From 20 to 30 points	8	15
Over 30 points	4	9

CAUSE OF THE VARIATION

We have, then, a variation in acidity of fractions of from twenty to fifty points in about 40 per cent. of our

TABLE 2.—ACIDITY OF SUCCESSIVE 10 C.C. FRACTIONS TAKEN RAPIDLY FROM STOMACH ONE HOUR AFTER TEST BREAKFAST

			Fractions																Variation	
Case	Diagnosis	Acid	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Free	Total
1	Duodenal ulcer	Free	36	38	35	44	35	25	32	..	..	..	..	..	..	..	..	..	19	
		Total	60	66	68	64	64	53	56	..	..	..	..	..	..	..	..	..	..	15
2	Hyperacidity	Free	27	46	45	34	44	..	..	..	..	..	..	..	..	..	..	..	19	
		Total	35	72	72	66	64	..	..	..	..	..	..	..	..	..	..	..	..	37
3	Hyperacidity	Free	60	60	52	53	53	65	66	68	60	..	..	..	..	..	..	..	16	
		Total	85	95	93	93	92	93	90	100	94	..	..	..	..	..	..	..	..	15
4	Gastric neurosis	Free	40	21	27	30	27	40	..	..	..	..	..	..	..	..	..	..	19	
		Total	79	47	45	68	69	60	..	..	..	..	..	..	..	..	..	..	..	34
5	Duodenal ulcer	Free	49	57	68	69	65	61	52	65	74	..	..	..	..	..	..	..	25	
		Total	67	81	87	90	85	78	70	77	95	..	..	..	..	..	..	..	..	28
6	Ptosis	Free	14	17	20	18	21	22	20	24	21	16	17	21	10	21	15	10	14	
		Total	21	24	27	28	30	36	39	34	32	26	29	38	23	33	25	30	..	18
7	Chronic cholecystitis	Free	43	40	46	50	52	53	53	48	35	40	40	48	45	35	44	43	18	
		Total	66	68	66	65	70	68	68	64	55	68	70	70	65	47	63	68	..	23
8	Constipation	Free	17	21	19	20	20	20	32	12	10	7	25	..	..	..	..	..	25	
		Total	27	30	32	31	30	29	44	26	32	39	51	..	..	..	..	..	..	25
9	Hyperacidity	Free	8	15	15	17	20	25	18	20	28	20	15	20	13	..	..	..	20	
		Total	40	40	40	40	35	35	40	38	35	35	34	32	28	..	..	..	..	12
10	Gastric neurosis	Free	30	28	33	25	24	30	33	..	..	..	..	..	..	..	..	..	9	
		Total	61	50	54	55	50	55	57	..	..	..	..	..	..	..	..	..	..	11
11	Gastric neurosis	Free	0	0	0	0	0	0	0	4	20	8	16	..	..	..	..	..	20	
		Total	16	17	19	16	19	22	24	26	46	33	30	..	..	..	..	..	..	30
12	Ptosis	Free	12	15	10	10	8	10	12	11	10	8	8	12	8	10	10	10	7	
		Total	27	29	25	25	20	23	20	22	19	20	19	25	20	22	20	24	..	10
13	Chronic cholecystitis	Free	36	45	34	25	35	..	..	..	..	..	..	..	..	..	..	..	20	
		Total	50	56	50	50	47	..	..	..	..	..	..	..	..	..	..	..	..	9
14	Ptosis	Free	36	50	62	62	70	60	60	..	..	..	..	..	..	..	..	..	34	
		Total	64	64	82	80	80	80	80	..	..	..	..	..	..	..	..	..	..	18
15	Ptosis	Free	10	20	18	24	30	30	..	..	..	..	..	..	..	..	..	..	20	
		Total	26	36	32	38	48	48	..	..	..	..	..	..	..	..	..	..	..	22
16	Constipation	Free	24	30	30	28	32	32	30	30	32	20	36	..	..	..	..	..	16	
		Total	50	56	48	40	44	40	48	48	40	32	50	..	..	..	..	..	..	24
17	Gastric neurosis	Free	14	16	16	16	14	16	14	12	..	..	..	..	..	..	..	..	4	
		Total	22	22	24	22	20	24	22	24	..	..	..	..	..	..	..	..	..	6
18	Duodenal ulcer	Free	50	60	52	50	40	40	..	..	..	..	..	..	..	..	..	..	20	
		Total	60	70	64	64	56	48	..	..	..	..	..	..	..	..	..	..	..	22
19	Ptosis	Free	30	40	42	36	39	40	..	..	..	..	..	..	..	..	..	..	12	
		Total	44	53	48	50	52	50	..	..	..	..	..	..	..	..	..	..	..	9
20	Constipation	Free	6	6	8	12	16	14	14	16	..	..	..	..	..	..	..	..	10	
		Total	20	20	24	26	34	26	24	28	..	..	..	..	..	..	..	..	..	14
21	Duodenal ulcer	Free	17	40	47	50	44	53	46	34	36	37	43	40	..	..	..	..	36	
		Total	39	48	57	58	52	60	56	43	48	49	57	45	..	..	..	..	..	21
22	Colitis	Free	13	13	12	16	15	16	..	..	..	..	..	..	..	..	..	..	4	
		Total	35	38	36	36	35	30	..	..	..	..	..	..	..	..	..	..	..	8
23	Duodenal ulcer	Free	24	21	28	20	31	24	..	..	..	..	..	..	..	..	..	..	11	
		Total	44	50	48	22	36	33	..	..	..	..	..	..	..	..	..	..	..	28
24	Hyperacidity	Free	41	39	41	42	38	42	..	..	..	..	..	..	..	..	..	..	4	
		Total	51	52	50	52	52	50	..	..	..	..	..	..	..	..	..	..	..	2
25	Gastric neurosis	Free	12	5	16	15	20	29	..	..	..	..	..	..	..	..	..	..	24	
		Total	19	12	41	41	44	46	..	..	..	..	..	..	..	..	..	..	..	34
26	Ptosis	Free	18	18	26	23	27	..	..	..	..	..	..	..	..	..	..	..	9	
		Total	24	29	42	41	35	..	..	..	..	..	..	..	..	..	..	..	..	18
27	Ptosis	Free	15	21	15	13	18	20	22	19	16	15	6	..	..	..	..	..	12	
		Total	44	26	23	13	18	21	23	23	19	17	8	..	..	..	..	..	..	36
28	Constipation	Free	31	39	51	46	36	34	31	..	..	..	..	..	..	..	..	..	20	
		Total	39	54	62	74	44	45	39	..	..	..	..	..	..	..	..	..	..	35
29	Cholecystitis	Free	26	20	27	17	31	35	..	..	..	..	..	..	..	..	..	..	18	
		Total	42	39	47	18	38	38	..	..	..	..	..	..	..	..	..	..	..	29
30	Duodenal ulcer	Free	40	43	46	15	46	46	..	..	..	..	..	..	..	..	..	..	31	
		Total	52	54	55	56	57	55	..	..	..	..	..	..	..	..	..	..	..	5
31	Ptosis	Free	12	15	4	11	11	4	..	..	..	..	..	..	..	..	..	..	11	
		Total	29	35	23	19	21	15	..	..	..	..	..	..	..	..	..	..	..	20
32	Gastric neurosis	Free	27	21	13	4	3	..	..	..	..	..	..	..	..	..	..	..	24	
		Total	38	32	27	22	7	..	..	..	..	..	..	..	..	..	..	..	..	31
33	Ptosis	Free	12	12	12	12	14	13	16	15	12	..	..	..	..	..	..	..	4	
		Total	22	20	22	26	26	26	26	26	24	..	..	..	..	..	..	..	..	6
34	Ptosis	Free	20	26	22	20	22	20	26	26	..	..	..	..	..	..	..	..	6	
		Total	32	36	30	30	34	30	36	36	..	..	..	..	..	..	..	..	..	6
35	Cholecystitis	Free	33	28	23	40	46	..	..	..	..	..	..	..	..	..	..	..	23	
		Total	72	60	70	80	80	..	..	..	..	..	..	..	..	..	..	..	..	20
36	Gastric neurosis	Free	28	28	30	33	30	30	30	29	30	30	31	28	..	..	..	..	5	
		Total	46	42	40	40	38	40	36	38	40	37	40	38	..	..	..	..	..	10
37	Ptosis	Free	28	30	29	32	33	33	33	30	38	29	..	..	..	..	..	..	10	
		Total	48	40	42	43	43	46	43	42	48	40	..	..	..	..	..	..	..	8
38	Duodenal ulcer	Free	25	17	16	14	28	37	42	39	44	40	47	41	40	39	..	..	33	
		Total	55	52	51	54	58	50	53	52	53	55	54	50	54	53	..	..	..	8
39	Neurosis	Free	15	12	22	27	15	27	27	26	27	28	27	..	..	..	..	..	16	
		Total	42	40	39	39	32	37	36	34	40	38	37	..	..	..	..	..	..	10
40	Ptosis	Free	25	22	29	19	32	25	..	..	..	..	..	..	..	..	..	..	13	
		Total	42	48	48	20	38	35	..	..	..	..	..	..	..	..	..	..	..	28
41	No disease	Free	51	60	53	51	41	40	..	..	..	..	..	..	..	..	..	..	20	
		Total	62	72	66	64	57	50	..	..	..	..	..	..	..	..	..	..	..	22
42	No disease	Free	53	41	43	51	31	36	46	59	24	27	..	..	..	..	..	..	35	
		Total	64	66	79	56	32	50	63	73	31	29	..	..	..	..	..	..	..	50
43	No disease	Free	26	32	25	15	32	34	..	..	..	..	..	..	..	..	..	..	19	
		Total	42	40	45	22	36	39	..	..	..	..	..	..	..	..	..	..	..	23
44	No disease	Free	38	36	39	40	38	39	..	..	..	..	..	..	..	..	..	..	4	
		Total	51	50	48	51	51	49	..	..	..	..	..	..	..	..	..	..	..	3
45	No disease	Free	43	46	52	53	40	35	43	41	..	..	..	..	..	..	..	..	18	
		Total	66	65	69	69	68	46	62	67	..	..	..	..	..	..	..	..	..	23
46	No disease	Free	43	54	52	46	48	..	..	..	..	..	..	..	..	..	..	..	11	
		Total	53	60	60	57	57	..	..	..	..	..	..	..	..	..	..	..	..	7
47	No disease	Free	19	23	42	31	22	34	33	..	..	..	..	..	..	..	..	..	23	
		Total	36	44	69	60	37	44	54	..	..	..	..	..	..	..	..	..	..	33
48	No disease	Free	24	21	28	20	31	24	..	..	..	..	..	..	..	..	..	..	11	
		Total	44	50	50	22	36	33	..	..	..	..	..	..	..	..	..	..	..	28
49	No disease	Free	23	29	20	24	26	41	49	21	43	..	..	..	..	..	..	..	29	
		Total	47	43	55	45	49	76	89	41	91	..	..	..	..	..	..	..	..	50
50	No disease	Free	42	46	50	42	48	50	50	42	50	44	..	..	..	..	..	..	8	
		Total	73	70	68	70	66	70	70	68	70	60	..	..	..	..	..	..	..	13

cases, which is definitely not due to variation in secretory output. We cannot for a moment consider this variation of ten, twenty, thirty or more points repeatedly back and forth at half minute intervals to be due to changes in secretion. What, then, is this variation due to? Not to the method of analysis, for our controls show only a variation of two or three points. The variation is not due to the position of the tip of the tube and the taking of contents from different portions of the stomach. Fluoroscopic examination discloses that the tip of the tube remains in the same place, namely, in the antrum, during the process of taking out the rapid fractions of gastric contents. The variation is not due to regurgitation of duodenal contents as a rule at the end of an hour after a test breakfast. This is shown by our tests for trypsin and bile, which revealed little or no duodenal contents present in the stomach as a rule at that time. To what, then, is this simultaneous variation in acidity of different portions of the gastric contents due? Poor mixing of the contents seems the best explanation. We can lessen the variation greatly by artificial mixing of the contents of the stomach before withdrawal of the fractions. The variation is almost absent in fasting contents, which are well mixed. The variation is decidedly less after the use of a diffusible water test meal in which the mixing of the acid secretion and the meal is easy.

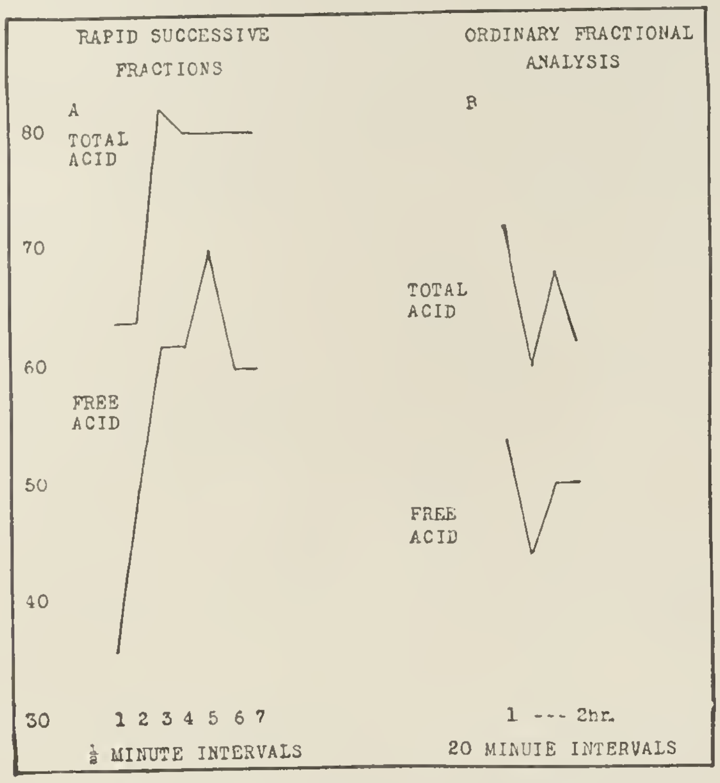

Chart 2.—Variation in acidity in Case 2.

It has long been known that food in the fundus of the stomach is not very well mixed with the acid gastric secretion, from the work of Pawlow,[4] Cannon,[5] Prym,[6] Sick,[7] Taussig and Rush [8] and others, and we know that salivary digestion may go on in the interior of the food mass for hours after it is swallowed.

It is not so well known that the gastric contents, an hour after an Ewald test breakfast, in the antrum from which portions are commonly taken for routine fractional analyses, are also not very well mixed, and the different portions vary much in acidity.

EFFORTS TO OVERCOME THIS VARIATION

We tried to mix up the gastric contents as well as possible before taking out the fractions in a series of cases by aspirating portions of the gastric contents and squirting them back forcibly through the tube, and by repeatedly blowing in air bubbles through the tube. The effect of this was to reduce the variation in the acidity of the fractions from one half to two thirds. In a series of cases treated in this way, the maximum variation was sixteen points of free hydrochloric acid and fifteen points of total acidity. The minimum variation was five points of free hydrochloric acid, four points of total acidity, the average variation, ten points of free hydrochloric acid and eight and one-half points of total acidity.

This average variation when the stomach content was partly mixed before withdrawal should be compared with the average variation found in the unmixed series, namely, seventeen points of free hydrochloric acid and twenty-two points of total acidity. Objections may be made to this method of mixing the contents before withdrawal of fractions, that it takes time, is rather clumsy and is unphysiologic: that this is not the way the ordinary process of digestion goes on. We admit these objections, but we also emphasize that after this mixing process, the fractions taken out for analysis are more representative of the stomach contents as a whole than when no artificial mixing is done.

The use of water test meals, which are naturally very diffusible, gave us a better mixing of the acid secretion with the stomach contents, and decidedly less acid variation in the fractions than with the Ewald test meal. We have found, however, various objections to the use of a water test meal, and on that account have not thought it worth while to tabulate our results. The objections are rapid emptying of the stomach in from fifteen to twenty minutes, which occurs quite often. There was occasionally poor stimulation of gastric secretion after the use of a water meal, in a patient in whom there was a full normal secretion after an Ewald meal.

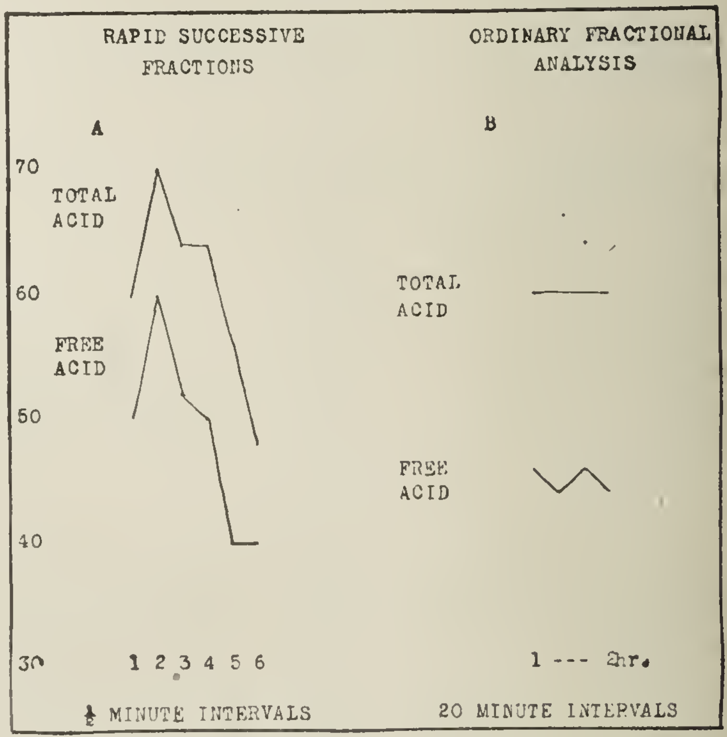

Chart 3.—Variation in acidity in Case 3.

The frequent presence of bile in the stomach contents was confusing, and the water meal also lacks the standard quality of the Ewald test breakfast.

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[4] Pawlow: The Work of the Digestive Glands, Ed. 2, London, Charles Griffin & Co., 1910, p. 182.

[5] Cannon: The Mechanical Factors of Digestion, New York, Longman's Green & Co., 1911, p. 63.

[6] Prym: Deutsch. Arch. f. klin. Med. **90**: 310, 1907.

[7] Sick: Deutsch. Arch. f. klin. Med. **88**: 199, 1906.

[8] Taussig and Rush: Boston M. & S. J. **158**: 79, 1908.

RELATION TO FRACTIONAL ANALYSIS

It is common and fair to criticize the single one-hour test, (1) because it gives only a single phase of the digestive curve; (2) because it gives no information as to what has preceded or will follow, and (3) because it may not record the high point of gastric secretion.

It is common in fractional work to speak of "the withdrawal of representative samples of gastric contents," to speak of fractional curves as "curves indicating digestive work," "showing the amount of secretion," and to speak of fractional analysis as "an exact determination of secretory and motor functions."

We must remember that (1) there is an important source of error in fractional work; (2) small samples of gastric contents are frequently not representative of the gastric contents as a whole; (3) fractional analysis is not an exact determination of secretory function; (4) the variation in fractional curves is due to other factors beside gastric secretion, and (5) unless some way is found to overcome mixing variation, fractional curves will represent partly accidental variation in acidity due to poor mixing of the gastric contents, and partly changes in gastric secretion.

In comparing the one hour and the fractional examination of gastric contents, each has some disadvantage in estimating gastric secretion. The single examination (one hour test) does not represent the whole course of digestion; the single fraction (fractional test) does not represent the whole contents of the stomach at the time. An accurate quantitative analysis of gastric contents will usually require emptying of the stomach at the time.

Our only suggestion in routine fractional analysis for overcoming the simultaneous variation in acidity of different portions of gastric contents is to (1) take out larger fractions than 10 c.c., and (2) mix artificially the gastric contents in the stomach before aspiration, as already described. Neither of these suggestions is entirely free from objections. Another important clinical point arises: Is fractional analysis of the stomach contents worth the time and trouble which it takes, or shall we give it up because of the large accidental variation in the acidity of the fractions, amounting at times to 50 or 100 per cent. of the actual figures obtained? It is true that tests of secretion are probably the least important of the tests of gastric contents, the other more important factors being the time of emptying of the stomach and the detection of abnormal material and cells, such as mucus, pus, blood and epithelium; but we must surely remember that the testing of gastric secretion by fractional analysis is a rough method, that there is much accidental variation, amounting at times to 50 or 100 per cent. of the figures obtained, and that only gross changes in acidity are important. It is useful to know whether the analysis shows much free acid or little acid or no free acid; out exact mathematical details of gastric acidity have ittle clinical value.

The recognition of these limitations seems likely to essen its clinical use in the future. This does not mean hat we shall give up the analysis of gastric contents; ar from it: we shall examine fasting contents and use he single one hour test of secretion more freely, and ise the fractional method largely in the study of low ecretion cases and of achylias, and for testing the mptying time of the stomach.

Furthermore, it does not seem that the fractional iethod with its large accidental variation in acidity is entirely suitable for physiologic experiment in detecting slight or moderate variations in the gastric secretory response to different kinds of foods.

SUMMARY

About 500 analyses of gastric contents in fifty cases after an Ewald test breakfast were made by rapid (one-half minute) and slow (fifteen to twenty minute) fractional methods. The position of the tube tip was located by the fluoroscope.

The Variation.—The content of the stomach at the end of an hour is not usually a uniform mixture. The acidity of different fractions taken in rapid succession varies from twenty to thirty points or more (tenth-normal sodium hydroxid × 10) in 40 per cent. of our observations. The acidity of single fractions taken at that time does not usually represent the acidity of the contents as a whole. The maximum simultaneous variation in acidity at the end of an hour was thirty-six points of free hydrochloric acid and fifty points of total acidity. The minimum variation was four points of free hydrochloric acid and two of total acidity. The average variation was seventeen points of free hydrochloric acid and twenty-one of total acidity. A simultaneous variation of from one to ten points was found for free hydrochloric acid in thirteen cases, and for total acidity in eleven cases. A variation of from ten to twenty-five points was found for free hydrochloric acid in twenty cases, and for total acidity in eleven cases. A variation of from twenty to thirty points was found for free hydrochloric acid in eight cases, and for total acidity in fifteen cases. A simultaneous variation of more than thirty points was found for free hydrochloric acid in four cases, and for total acidity in nine cases.

Cause of the Variation.—This simultaneous variation is due not to the variable position of the tube tip in the stomach (fluoroscopic observation) or, as a rule, at the end of an hour to variable duodenal regurgitation (tests for trypsin), but to very incomplete mixing of acid secretion with the contents of the stomach.

Efforts to overcome this variation by artificial mixing of the contents in the stomach and by the use of water test meals were partially successful.

Relation to Fractional Analysis.—The simultaneous variation of fractions at the end of an hour is very often greater than the variation in the usual "fractional curve," beginning one hour after the test breakfast and ending when the stomach is empty. Unless a suitable way of overcoming this mixing variation is found, "fractional curves" will represent partly accidental variation in acidity due to poor mixture of contents, and, partly, to changes in gastric secretion.

Fractional analysis is only a rough method of testing gastric secretion; accidental variation may amount to 50 or 100 per cent. of the figures obtained. Only gross changes in acidity have clinical importance. The recognition of these limitations seems likely to lessen its clinical use in the future.

Infant Mortality in New York.—During the year of 1922, thus far, 184 fewer children have died from diarrheal disease than for the corresponding period of 1921. The excess of deaths from all causes is only 224. Deaths from measles and pneumonia show a slight increase, as compared with last year. The other diseases have, however, dropped considerably. The infant death rate for the first thirty-five weeks of 1922 is seventy-nine, which is remarkable considering the epidemic of measles which prevailed during the early part of the year, when about 40,000 cases of that disease were recorded.

RADIUM VERSUS SURGICAL REMOVAL OF CARCINOMA OF THE BLADDER *

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In this brief review of the results of the removal of carcinoma of the bladder by radium, an attempt is made to compare radium and operative removal of bladder carcinomas. The work herein reported covers a period of more than six years, from December, 1915, when the first patient with bladder carcinoma (still living) was successfully treated with radium, to January, 1922.

Much of the work during this period has been of necessity experimental. Beginning with the somewhat inaccurate intra-urethral application of radium, we have steadily worked toward the more accurate and easier application of radium through the cystoscope. To this end, instruments have been devised and simplified which can be used through an operative cystoscope.

Enlarging the scope of our work, we have for three years applied radium through the bladder opened suprapubically, to cope with carcinoma too large to be treated intravesically. If a tumor has grown beyond the bladder, removal should not be considered. The object of all our modification of technic has been more accurately to apply radium to the base of the carcinoma, and, if the base is indurated, to implant radium in this base.

The comparison between operative and radium removal of bladder carcinoma is made by giving the results of using radium in (1) operable cases; (2) inoperable cases; (3) cases in which operation is used as an adjunct to radium—that is, the tumor is exposed by cystotomy in order to implant radium in its base—to compare the mortality results, etc., of this procedure with the mortality and results of operative removal of carcinoma.

Any classification of operable and inoperable cases is, of course arbitrary, and it varies with the successes any individual operator may have had in different kinds of carcinoma. We have put in the inoperable class carcinoma in which successful removal by operation alone was highly improbable: (1) Multiple carcinoma or large carcinoma of a base more than 4 cm. in diameter. 2. Carcinoma which has affected the trigon and posterior urethra. 3. Carcinoma which has previously been operated on and has recurred. 4. Carcinoma in patients whose age or condition contraindicated operable removal.

GROSS PATHOLOGY OF TUMORS

The ten operable and twenty inoperable tumors described below may be classified thus, according to characteristics: multiple, 8; indurated base, 18; involving ureter, 5; involving trigon, 8; involving bladder neck, 12; lateral wall, 6; vault, 1; grown through bladder, 1.

TABLE 1.—SMALL OPERABLE BLADDER CARCINOMA, TREATED BY RADIUM

Case	Age	Date	Description of Tumor	Pathology	Method of Removal	Result
1. W.	60	April, 1920	Pedunculated, (small tangerine) covered with incrustations on left bladder wall; indurated base	Papillary carcinoma (Ewing)	Suprapubic	Bladder clear (cystoscopy) twenty-three months after operation
2. H.	62	July, 1916	Rapidly growing, flat, ulcerated, small operable, near ureter	Carcinoma (Ewing)	Intravesical	Bladder clean four years after operation (cystoscopy) kidney did not function on side of tumor
3. V. W.	59	May, 1917	Papillary tumor, some slough, left trigon, 2 by 2 cm.	Papillary carcinoma (Ewing)	Intravesical	Bladder clean (one cystoscopy) one year after treatment
4.	..	....	Small ulcerated tumor of left trigon	Carcinoma	Intravesical	Patient died two years later, with extension of condition beyond the bladder; possibly primary in seminal vesicles
5. G.	64	....	Tumor, flat, ulcerating, on right lateral wall, 2 by 3 cm.	Epidermoid carcinoma (Ewing)	Intravesical	No tumor eight months later (cystoscopy); radium burn; well, 2/22
6. W.	50	....	Small, ulcerating, flat, back of left ureter, 3 by 3 cm.	Epidermoid carcinoma (Ewing)	Intravesical	No tumor eight moths later (cystoscopy)
7. H.	50	....	Red, smooth, rounded tumor, near right sphincter, 3 by 3 by 2 cm.	Questionable whether carcinoma	Intravesical	No tumor one year later (cystoscopy)
8. G.	..	July, 1921	Solid tumor back of left ureter, 2 by 2 by 2 cm.; some slough	Squamous carcinoma (Ewing)	Intravesical	February, 1922, cystoscopy, slight slough at site of tumor, but no tumor
9. V.	45	April, 1921	Papillary red tumor, firm edge, two sloughy areas; on left lateral wall, 3 by 2.5 cm.; indurated carcinoma	....	Intravesical	March, 1922, no tumor; slight slough at site of tumor
10. E.	56	Aug., 1920	Sloughy, flat carcinoma, right bladder wall, 3 by 3 cm.	Carcinoma (Ewing)	Suprapubic	Five per cent. of sugar in urine at time of operation; patient died three months after operation of perirectal abscess

SMALL OPERABLE CARCINOMA

In the ten cases of small operable carcinoma, one of these a borderland case (Table 1), two patients died. The removal of the carcinoma in eight cases was proved by cystoscopy. We have insisted on the cystoscopic proof of removal. Simply to say that a patient looks and feels well for a year or two after an attempt at removal of bladder carcinoma, means little.

Determination of results in the eight successful cases was made on one cystoscopy in 1 case; from six months to one year after operation in 4 cases; from one year to two years after in 2 cases, and four years after in 1 case. Pathologic examination revealed: papillary carcinoma, 2; carcinoma, 2; epidermoid carcinoma, 2; squamous carcinoma, 1; no pathologic diagnosis, 1.

One patient died two years after treatment by radium, from a growth in the seminal vesicle. Possibly it was primary there. One patient died three months after cystotomy. Before operation, 5 per cent. of sugar had been found in the urine.

Removal was made intravesically in seven cases, suprapubically in one of the two fatal cases; intravesically in one, and suprapubically in one.

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* Read before the Section on Urology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

Complications: In one patient, the kidney on the side on which the tumor was situated was nonfunctioning and draining pus into the bladder. The patient is living five years after the removal of the tumor. He has, in addition, an enlarged prostate, with residual urine and a diverticulum.

Summary: In eight of ten operative cases (80 per cent.) the carcinoma was removed from the bladder. The two patients who died lived two years and three months, respectively, after they were first seen. This is, perhaps, too small a number of cases on which to base conclusions, so we now turn to the inoperable cases for confirmation.

TABLE 2.—INOPERABLE CARCINOMA OF BLADDER; TUMOR REMOVED BY RADIUM

Case	Age	Date of Treatment	Description of Tumor	Pathology	Method of Removal	Result
1. V.	36	June, 1919	Papillary tumor, large as an orange; base 5 by 5 cm., on left bladder base	Papillary infiltrating carcinoma (Ewing)	Suprapubic	Bladder clean (cystoscopy), twenty months after operation slight papilloma of urethra; reports well, three years and two months after operation; there had been one previous operation
2. K.	54	Jan., 1920	Papillary tumors, indurated base (largest 3 by 3 cm.) all around bladder neck	....	Suprapubic	Bladder clean (cystoscopy), twenty-four months after operation
3. W.	61	Mar., 1920	Solid tumor, ulcerated surface (6 by 6 by 6 cm.) on anterior wall of bladder, growing through bladder and adherent to pelvis	....	Suprapubic	Bladder clean (cystoscopy), twenty-four months after operation
4. H.	48	Sept., 1919	Number of hard nodules around bladder base (scar of radium in bladder neck from preoperative treatment)	Papillary carcinoma (Brooklyn Hosp.)	Suprapubic	Eighteen months after operation there is urinary frequency (once at night); patient looks and feels entirely well; refuses cystoscopy; there had been one previous operation
5. G.	50	April, 1920	Solid flat tumor 3 by 4 cm., within 1 cm. of left ureter	Infiltrating carcinoma (Ewing)	Suprapubic	Recurrence after operation; treated intravesically; bladder clean (cystoscopy) February, 1921; extravesical carcinoma twenty-three months after operation
6. D.	33	May, 1920	Solid tumor, left wall, 2 by 4 cm.; papillary tumors around bladder neck	Infiltrating carcinoma (Ewing)	Suprapubic	Recurrence after operation; treated intravesically (three times); March, 1921, no tumor, radium slough; well, twenty-three months after operation
7. S.	55	July, 1920	Papillary tumor, 4 by 5 cm., of left bladder base; base indurated	Infiltrating carcinoma (Ewing)	Suprapubic	Bladder clean (cystoscopy) seventeen months after operation
8. W.	50	Aug., 1920	Indurated ulcerated tumor, 3 by 3 cm., around sphincter of bladder	Epidermoid carcinoma (Ewing)	Suprapubic	Bladder clean (cystoscopy) six months after operation; recurrence, January, 1922; still treated
9. R.	70	Dec., 1920	Indurated, flat, irregular tumor, 3 by 3 cm., centering in left trigon and touching bladder neck	Papilloma (Ewing)	Suprapubic	Bladder clean (suprapubic observation) two months after operation; sinus, one year and six months after operation
10. M.	50	Dec., 1920	Indurated ulcerating tumor touching internal urethra 4 by 3 cm.	Squamous infiltrating carcinoma (Ewing)	Suprapubic	Well, no tumor, fifteen months after operation (suprapubic sinus)
11. T.	59	June, 1920	Flat, irregular tumor around urethra (treated by radium before operation); small tumor seen at operation	Infiltrating carcinoma (Ewing)	Suprapubic	No tumor six months after operation; radium slough (cystoscopy); patient died, one year and two months of postoperative infection
12. C. A. C.	69	Dec., 1915	Cauliflower, nonpedunculated, sloughy; base 3 cm., over left ureter	Carcinoma (Ewing)	Intravesical	Bladder clean, four years and four months (cystoscopy); well six years after operation
13. E. J. S.	54	July, 1916	Papillary tumor, sloughy, extensive, all around the bladder neck; vaginal induration of 5 cm.	Papilloma (Ewing)	Intravesical	Bladder clean, one year; well, four years after operation
14. M.	70	Oct., 1916	Multiple, papillary, red tumor on bladder base; vaginal induration	Carcinoma (Ewing)	Intravesical	Bladder clean two years, then recurrence; removed by radium, one year
15. R.	68	June, 1917	Sloughy, papillary tumor, extensive; on bladder neck	Papilloma carcinoma (Ewing)	Intravesical	Bladder clean, three months; recurrence; bladder clean, one and a half years; well, two and a half years after operation
16. P.	63	Nov., 1916	Two tumors, one sloughy, around bladder neck	....	Intravesical	Bladder clean, two months after operation
17. S.	53	....	Multiple sloughy tumors on bladder neck, largest 0.5 by 3 cm.	Carcinoma (?)	Suprapubic	Bladder clean, five months; slough
18. W.	58	Oct., 1921	Indurated tumor on bladder neck, 3 by 2 by 2 cm.	Infiltrating carcinoma	Suprapubic	No tumor; radium slough, five months
19. P.	45	April, 1921	Recurrent after operation; small solid growth, 2.5 by 1 cm., near left ureter	Papillary carcinoma	Intravesical	Bladder clean (edema), eight months after operation; there had been one previous operation
20. D.	70	Sept., 1920	Left bladder base, sloughy indurated mass, 2 by 2 cm.	....	Intravesical	Bladder clean, one year; recurrence, one year and seven months; still treated
21. W.	38	Nov., 1920	Multiple sloughy tumors; base indurated; on left bladder neck and urethra	....	Intravesical	Bladder clean, one year and five months after operation

INOPERABLE CARCINOMA OF THE BLADDER

In the cases of inoperable carcinoma are recorded only the cases in which the carcinoma was removed by radium.

Of the twenty cases, proved by cystoscopy, results were determined after six months in 4 cases, from six months to one year in 3 cases, from one year to two years in 10 cases, from two to three years in 2 cases, from four to five years in 1 case.

In a case not herewith reported the patient is well eighteen months after treatment by radium, but refuses cystoscopy. In one of the foregoing cases the patient has an extravesical extension of carcinoma, to which he will succumb. One patient had a recurrence of carcinoma two years after radium treatment. This was removed by radium, and she has been well one year. Two patients have had slight recurrences (one year after removal) at the interior urethral orifice [still treated]. One died one year and two months after first treatment by radium, from sloughy, infected bladder, a result of radium burn.

Pathologic examination revealed: carcinoma, 2; papillary carcinoma, 2; infiltrating carcinoma, 6; epidermoid carcinoma, 1; papilloma, 2; squamous infiltrating carcinoma, 1; carcinoma (?) 1. No diagnosis was made in five cases.

Removal was made intravesically in eight cases and suprapubically in twelve cases. Three patients had been previously operated on.

Summary: In twenty inoperable cases of bladder carcinoma, the tumor was removed from the bladder. In three cases, the carcinoma has recurred after removal. In one of these three, the recurrence is beyond the bladder; the other two are being treated. One patient died from radium slough of the bladder.

RADIUM AS ADJUNCT TO OPERATION

Let us, briefly, take the third point of comparison. At the Memorial Hospital we have, in carcinoma which was too large to be removed intravesically, and which we believed was confined to the bladder, exposed the tumor by a cystotomy, to see whether it was susceptible of removal by radium. If, on exposure, a tumor is too large for removal, the bladder is simply closed, and the removal of the tumor by radium is not attempted. We are always attempting to extend the field of radium, and to remove larger and larger tumors. Thus, we almost invariably implant radium in what we regard as hopeless tumors, to see if we cannot control them, at least for a time. Thirty-five bladder carcinomas have been treated in this way. In but two of these cases might the tumor have been called operable. In two cases, the tumor was so large that the bladder was not opened, although radium was implanted in the tumor.

In twelve of these thirty-five cases, the carcinoma had been removed from the bladder. Nineteen of the thirty-five patients are living. The deaths in this series occurred in from one to two months in 1 case; from two to three months in 1; from three to six months in 6; from six to twelve months in 4, and from twelve to twenty-four months in 4.

The conclusion is that, in those cases in which we could do no good, we probably did not appreciably hasten the death of the patient. On the contrary, in some hopeless cases, we have retarded the tumor's growth, lengthened the span of life and stopped bleeding.

KIDNEY COMPLICATIONS

Probably not a few of the postoperative deaths are due to kidney complications. We have found that in two out of three cases of carcinoma of the bladder there is a distinctly reduced kidney function. In the radium removal of bladder tumors, we never transplant a ureter, but simply implant the radium in the base of the tumor, and deal with kidney complications which may arise subsequent to the operation. In but one case have we had a severe enough infection of the kidneys to demand opening of the kidney. This was done under procain, and the patient subsequently died. The implanting of the ureter likewise lengthens the operation.

The whole operation for the suprapubic implantation of radium in the bladder carcinoma described elsewhere[1] takes considerably less time than operative removal of such tumors.

Let us now turn briefly to operative statistics. Scholl[2] reports from the Mayo Clinic ninety-four cases of solid carcinoma of the bladder in which operation was performed. Of the ninety-four patients, 67 (71.2 per cent.) are dead after an average duration of life of seven and one-half months. Twenty-seven (28.7 per cent.) have lived an average of three years and three months. In 20 per cent. of patients operated on for infiltrated carcinoma, death occurred during the first month after operation, as compared with no immediate postoperative deaths in radium removal.

DISADVANTAGES OF RADIUM

Much of our seven years' work with radium has, of necessity, been experimental. We have had radium burns; in three cases of extensive carcinoma in which the dose of radium has been too great, the patient has died of sepsis, caused by radium slough. In cases in which a suprapubic operation has been performed, the healing sometimes has been slow and protracted. These conditions can be and are being overcome by more accurate dosage and more accurate application of radium.

CONCLUSIONS

In eight out of ten operable cases of bladder carcinoma and in twenty inoperable cases the tumors were removed by radium. Radium removal is superior to surgical, because it can cope with inoperable cases. If a suprapubic radium removal is necessary, the time of operation is shorter and the kidneys are less disturbed by the operation. Postoperative or postradium recurrences can be better dealt with. Many so-called operable tumors can be removed intra-urethrally without any operation.

134 East Seventy-Sixth Street.

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[1] Barringer, B. S.: Radium Treatment of Carcinoma of the Bladder, Ann. Surg. **74**: 751 (Dec.) 1921.

[2] Scholl, A. J., Jr.: Histology and Mortality in Cases of Tumor of the Bladder, Surg., Gynec. & Obst. **34**: 189-198 (Feb.) 1922.

THE QUANTITATIVE DETERMINATION OF GLUCOSE AND LACTOSE IN BLOOD AND URINE

PRELIMINARY REPORT *

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A new method is needed for the quantitative determination of glucose and lactose when both are present in a solution. The method of Cole[1] is generally considered unsatisfactory for several reasons: (1) it is for the identification and not for the quantitative determination of glucose and lactose; (2) it depends on the specific ability of "good, blood charcoal" to absorb lactose, but not glucose, in the presence of acetic acid; (3) a satisfactory sample of the specified charcoal is difficult to obtain and must be carefully tested before it is used, and (4) the technic is rather complicated.

Mathews'[3] method is based on the selective action of yeast for fifty minutes, which will destroy glucose but not affect lactose. A solution which contains a mixture of these two sugars is analyzed before and after fermentation for its total reducing power; the difference, calculated as glucose, gives the quantity of this sugar present, and the remainder is reported as lactose. We have not found this method satisfactory: if a delicate method for the determination of glucose is used (the latest method of Folin and Wu), it will be found that, even after shaking for five minutes, some lactose will be removed (adsorbed) by yeast;

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* From the laboratories of Columbia Hospital.

[1] Cole, S. W.: Lancet **2**: 367, 1913.

[2] Mathews, A. P.: An Easy Method for Distinction and Estimation of Lactose and Glucose in Urine, J. A. M. A. **75**: 1568 (Dec. 4) 1920.

and that, after a variable length of time, lactose is actively attacked by yeast, and comparatively large amounts are completely destroyed within twenty-four hours. Furthermore, we have found that even the large amount of yeast recommended by Mathews (one half an ordinary cake of yeast to 20 c.c. of solution) did not remove 6 per cent. of glucose, in fifty minutes, as stated in his article.

Our method is very simple. The total amount of sugar present in a sample of the unknown is first determined as glucose; the Folin-Wu[3] blood sugar method is used for blood or serous fluids; the recent method of Folin and Berglund[4] for sugar in normal urine is used when the specimen is urine. The material is then heavily inoculated with *B. paratyphosus* B,[5] from a twenty-four hour growth on an agar slant, and is incubated for forty-eight hours. The amount of sugar remaining is then determined by the appropriate method. If no reducing substance is left, only glucose is present; if there is still a reducing substance, this is determined as lactose.[6]

The strain of *B. paratyphosus* B we have been using was obtained from the Society of American Bacteriologists, from the collection of type cultures maintained by them in the Army Medical Musuem. This strain has been subjected to a number of tests and has been found very satisfactory. Its ability to use up glucose has been rigorously controlled by comparison with the marked sugar-splitting action of *B. coli*. In low percentage glucose solutions, such as blood serum, B. *paratyphosus* B is just as efficient as *B. coli*. We have found repeatedly that, if lactose is present, *B. paratyphosus* B will remove all of the glucose after orty-eight hours' incubation, and leave the lactose ntouched. However, *B. coli,* under the same conitions, removed both sugars completely, as might be expected.

When the sugar solutions are more concentrated, per cent. for example, neither *B. paratyphosus* B or *B. coli* will remove all of the sugar within twenty-our hours. We are surprised, however, to find that . *paratyphosus* B is almost as efficient as *B. coli* in its bility to split glucose. We resorted to the expedient of adding a small amount of calcium carbonate (sterilized either in a hot air oven or in an autoclave), more than sufficient to neutralize the acid as it is formed, which, when not neutralized, inhibits the growth and the sugar-splitting action of these organisms. By this means, the sugar destruction is markedly increased, as shown in Table 1. Under these conditions, *B. coli* will reduce a 1 per cent. glucose broth to 0.4 per cent. and *B. paratyphosus* B will reduce the glucose to 0.6 per cent. In blood serum, even without the addition of calcium carbonate, *B. paratyphosus* B removed 0.221 per cent. of glucose and left 0.0565 per cent. of lactose unchanged, as shown in Table 2. Similar results were obtained with solutions of glucose and lactose in urine.

TABLE 1.—INCREASE OF SUGAR DESTRUCTION BY B. COLI AND B. PARATYPHOSUS B IN THE PRESENCE OF AN EXCESS OF CALCIUM CARBONATE

Medium	Per Cent. Dextrose
Dextrose broth (original)	1.0600
Dextrose broth plus calcium carbonate	1.0600
Dextrose broth, B. coli*	0.8582
Dextrose broth, B. paratyphosus B*	0.9090
Dextrose broth plus calcium carbonate plus B. coli*	0.4120
Dextrose broth plus calcium carbonate plus B. paratyphosus B*	0.6080

* Sterile broth or serum was heavily inoculated with the specified organism and incubated for forty-eight hours at 37 C.

TABLE 2.—IDENTICAL RESULTS FOR TWO DIFFERENT SOLUTIONS DILUTED IN THE SAME MANNER

Dilution	Dextrose Per Cent.
Blood serum (cow) 9 c.c., water 1 c.c.	0.2210
Water 9 c.c., lactose solution 1 c.c.	0.0565
Serum 9 c.c., lactose solution 1 c.c.	0.2770
Serum 9 c.c., lactose solution 1 c.c., B. paratyphosus B*	0.0555
Serum 9 c.c., water 1 c.c., B. coli*	0.0
Serum 9 c.c., water 1 c.c., B. paratyphosus B*	0.0

* Sterile broth or serum was heavily inoculated with the specified organism and incubated for forty-eight hours at 37 C.

Sterile solutions for inoculation with *B. paratyphosus* B were obtained by heating in an autoclave at 15 pounds for fifteen minutes. Sugar determinations, for the sake of control, were made before and after sterilization; the weak solutions showed practically no loss of sugar, as shown in Table 3. Contaminated urine was sterilized by filtering through a Mandler filter, without loss of sugar.

Since the sugar-splitting ability of *B. paratyphosus* B is limited, preliminary sugar determinations of an unknown solution should be made; and, if necessary, the concentration of glucose, or of lactose, should be reduced, before inoculation, to about 0.3 per cent. The Folin-Wu method is most accurate for glucose in percentages not above 0.3 per cent.; hence, it is necessary to make this dilution ultimately when sugar is present in excess of this figure. Whereas, each dilution in a method introduces an additional possibility of error, several dilutions must be made in the Folin-Wu method; and we have found that we are working well within the limits of error in making this additional dilution. Table 2, showing almost identical results for two different solutions, diluted in the same manner, demonstrates this.

TABLE 3.—ABSENCE OF SUGAR LOSS IN WEAK SOLUTIONS ON STERILIZATION

Solutions	Dextrose Per Cent.
Dextrose broth before sterilization	0.2597
Dextrose broth after sterilization	0.2632
Dextrose broth before sterilization	0.1052
Dextrose broth after sterilization	0.1070
Urine before sterilization in autoclave (15 pounds for 15 minutes)	0.1253
Urine after sterilization in autoclave (15 pounds for 15 minutes)	0.1160

This method, which we have satisfied ourselves is both reliable and accurate, can be used especially to study the glucose and lactose content of blood and of urine of pregnant and of lactating women.

The principle on which the method is based, that is, the selective destructive action of different bacteria on different sugars, we believe is a broad one, and, based on it, various methods will be evolved for studying carbohydrate metabolism. We are at present engaged in investigating some phases of this large problem.[7] Kendall[8] has pointed out in a most suggestive manner the important possibilities of "Bacteria as Chemical Reagents."

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[3] Folin, O., and Wu, H.: J. Biol. Chem. **41**: 367 (March) 1920.

[4] Folin, O., and Berglund, H.: J. Biol. Chem. **51**: 209 (March) 22.

[5] It must be remembered that B. paratyphosus is a pathogenic ganism; hence all glassware coming in contact with solutions containg the organism must be carefully sterilized after use.

[6] Since the possibility of having reducing substances other than ucose and lactose in urine has been demonstrated (Folin and Bergnd, and paragraph below "Reducing Substances Other Than Glucose Normal Urine") it is necessary to prove that a part of the reducing bstance remaining after forty-eight hours' incubation with B. paratyosus B is lactose. This may be done by inoculating a control sample urine with B. coli; any difference in the amounts of reducing subance remaining in the two samples may then be considered lactose. he presence of other sugars which might be utilized by B. coli may disregarded.

The recent studies of Folin and Berglund are of extreme importance in this relation. These investigators have found that the body handles different simple sugars in various ways. Some are easily and completely utilized; some are not utilized at all; and some must reach a certain concentration in the blood before they pass the barrier of the kidney and appear in the urine, that is the "threshold value." This threshold varies for the various sugars; but for some sugars there is no renal threshold, and even small amounts present in the blood are excreted by the kidneys. Folin and Berglund believe that this must be true for a number of polysaccharids and some simple sugars; and they bring forward excellent, although indirect, proof that not only is glucose present in the urine of normal persons, as shown by Benedict[9] in 1918, but polysaccharids are also present. More direct proof of this conclusion is brought forward in the following paragraphs.

TABLE 4.—THE PRESENCE OF REDUCING SUBSTANCES OTHER THAN GLUCOSE IN NORMAL URINE

Specimen	Dextrose Per Cent.
Urine A	0.1160
Urine A, B. coli*	0.0533
Urine A. B. paratyphosus B*	0.0533
Urine A, calcium carbonate, B. coli*	0.0406
Urine A, calcium carbonate, B. paratyphosus B*	0.0499
Urine B	0.0476
Urine B, B. coli	0.0220

* Sterile urine was heavily inoculated with the specific organism and incubated for forty-eight hours at 37 C.

REDUCING SUBSTANCES OTHER THAN GLUCOSE IN NORMAL URINE

The amount of reducing sugar in normal sterile urine was determined by the method of Folin and Berglund.[4] Portions of the same urine, with and without the addition of an excess of sterile calcium carbonate, were inoculated with *B. coli,* incubated at 37 C for forty-eight hours, and the sugar again determined. Some sugar was destroyed, as shown in Table 4; about one half the amount present. Similar results were obtained when the urine was inoculated with *B. paratyphosus* B, which has a specific action for glucose. We believe that this demonstrates that reducing substances other than glucose were present in the specimens of normal urine examined.

The use of the selective action of various types of bacteria for different carbohydrates offers a means, which we are now investigating, of more completely determining the substances which constitute the reducing material in normal and in abnormal urine.

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[7] After this article was submitted for publication, Mr. W. F. Monfort called our attention to an article by Carl Lange (Die Fehler bei der Zuckerbestimmung durch Hefegarung, Berl. klin. Wchnschr. **58**: 957-959, 1921). This investigator has made extensive studies of the yeast method for determining lactose and glucose in urine and has reached the conclusion that it is open to many errors and is unreliable. He also suggests the possibility of utilizing B. coli, B. proteus, and B. aerogenes in determining the presence of glucose, lactose or saccharose in urine. No experiments were cited and no quantitative methods were given.

[8] Kendall, A. I.: Chem. Met. Eng. **24**: 3, 1921.

[9] Benedict, S. R.: Osterberg, E., and Neuwirth, I.: J. Biol. Chem. **34**: 217 (April) 1918.

A METHOD FOR THE EARLY DIAGNOSIS OF PERTUSSIS

PRELIMINARY REPORT

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Pertussis is at present probably one of the commonest of the acute infectious disorders of childhood over the entire civilized world. The period of greatest infectiousness is during the catarrhal stage, although there is no doubt that it can also be transmitted during the paroxysmal stage and period of decline. Our therapeutic armamentarium brings us the best results when applied early in the disease, that is, during the incubation period and catarrhal stage. With these facts in view, it is evident that a diagnostic test, if specific and of a simple enough nature to be generally applied to the early diagnosis of this disease, during the incubation period and catarrhal stage, would be of a distinct advantage.

We have attempted to follow the work done by Modigliani and Villa, of Rome.[1] Their method consisted of the intradermal injection, similar to that used for the Schick test, of the Bordet-Gengou bacilli prepared by a special method, giving characteristic and specific reactions. Being unable to obtain the necessary material prepared by the special method of Modigliani and Villa, we attempted to use *Bacillus pertussis* protein, the scarification method being utilized. Failing to obtain any definite results in active cases of pertussis, we discarded it. The mixed vaccines were then tried intradermally, with the same result. Definite results, however, were finally obtained by using a vaccine of *Bacillus pertussis* containing 2,000,000,000 bacilli per cubic centimeter.

TABLE 1.—FINDINGS IN GROUP 1

No. of Cases	Stage	Number Reacted	Number Negative	Strength of Reaction
4	Incubation	3	1	3 +++
14	Catarrhal	14	0	2 ++++ 4 +++ 8 ++
7	Paroxysmal	7	0	4 +++ 3 ++

Our technic in making the test is the same as that employed in the Schick test, pertussis vaccine being used instead of the toxin of diphtheria. The upper portion of both forearms having been cleansed, 2 minims of sterile saline solution is injected into the upper portion of the right forearm intradermally, to be used as a control. Into the upper portion of the left forearm is injected intradermally 2 minims of pertussis vaccine. The first reading was taken within from three to six hours after the test had been made; subsequent readings were taken at twenty-four hour intervals for one week.

This work was done in the pediatric clinic at the Mount Sinai Hospital. Three groups of children were tested, their ages varying from 4 weeks to 9 years. Group 1 consisted of children who we definitely knew had been exposed to the disease, some other child in the family usually having it: those in the catarrhal stage and paroxysmal stage. This group, as seen from Table 1, contained twenty-five children, four being in the incubation period, having but shortly before been exposed to the disease; fourteen in the catarrhal stage and seven in the paroxysmal stage when tested. Twenty-four of these twenty-five children gave a characteristic reaction, a reddened area varying in size from 5 to 25 mm., painful and slightly raised. The one negative reaction in this group was that of a boy, aged 9 years, who, according to his mother, had repeatedly been exposed to the disease, but had never contracted it. His two sisters and brother, who were in the catarrhal stage at the time of testing, gave positive reactions. He was retested two weeks later, and at that time also gave a negative reaction. This group also contains two children that are listed among the control group in Group 2, who at the time of the first testing before exposure to pertussis were negative. Two months later, after accidental exposure to the disease, when retested, they showed a markedly positive reaction, + + + +.

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[1] Modigliani, E., and de Villa, S.: A New Method of Diagnosing the Presence of or Susceptibility to Pertussis of Children but Recently Exposed to the Disease, Pediatria **29**: 337 (April 15) 1921.

Group 2, the control group, as will be seen from Table 2, consisted of fifteen children of varying ages. These children had been brought to the clinic with various complaints, such as nasal trouble, constipation, malnutrition and epilepsy. In selecting these children as controls, we were extremely careful that no cough was present, that the child had never had pertussis and that there had been no possibility of recent exposure to the disease. Two of this group, as stated in the foregoing paragraph, gave a pseudoreaction, that is, a slight area of redness at the site of the injection less than 5 mm. in diameter, and were counted as negative. Two months afterward, these children, on accidental exposure to the disease, were retested while in the catarrhal stage, and gave a strongly positive reaction. The other thirteen members of this group did not react in any way whatever.

Group 3, which really acts as an additional control group, consisted of fifteen children, all of whom were suffering with bronchitic coughs, some acute and others chronic. In selecting these children we were careful to make sure that these children had never had pertussis and had not of late been exposed to the disease. All tests on this group of children proved negative.

All reactions were recorded according to the following plan: A slightly raised coppery red area appearing t the site of the injection at least 5 mm. in diameter was considered a + reaction; one of from 5 to 10 mm. n diameter, + +; from 10 to 15 mm. in diameter, + + +, and one above that, + + + +. Reactions ess than 5 mm. in diameter were considered as pseudoeactions and therefore negative.

TABLE 2.—FINDINGS IN GROUP 2

Diagnosis	Number of Cases	Number Reacted	Number Negative	Comment
Nasal trouble...	3	0	3	
Constipation...	2	0	2	
Malnutrition...	5	0	5	2 pseudoreactions
Epilepsy........	1	0	1	
Chorea.........	1	0	1	
Eczema.........	1	0	1	
Enuresis........	1	0	1	
Anemia.........	1	0	1	

Positive reactions usually manifested themselves as lightly raised, coppery red, circular areas appearing t the site of injection within three hours after the test ad been applied, gradually increasing in size to the xth hour; from then on a gradual recession of the erythema took place, leaving a slight area of induration, which lasts for about one week. This reaction occurred in children recently exposed to the disease, in those in the catarrhal stage, in those in the paroxysmal stage, and during the period of decline.

Although one is hardly justified in drawing any definite conclusions from so small a number of cases, it would seem from the results obtained that the method may hold forth some hope of the possibility of an early diagnosis, at least before the paroxysmal stage is reached, so that everything possible may be done to alleviate the sufferings of these children by such meager methods as we have at present at our command.

TABLE 3.—FINDINGS IN GROUP 3

Diagnosis	Number of Cases	Number Reacted	Number Negative
Acute bronchitis......................	10	0	10
Chronic bronchitis....................	5	0	5

It is sincerely hoped that this preliminary report will help to stimulate work along these lines, so that if possible some definite conclusion may be reached as to the value of this method.

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THE RECOGNITION OF MILD HYPERTHYROIDISM

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In a clinical entity due to increased glandular activity, we might anticipate that there would be all gradations of intoxication, depending on the degree of hyperactivity. Furthermore, the intensity of the symptoms in the same individual might fluctuate considerably, depending on variations in secretory activity.

Until a comparatively recent period, a triad of signs and symptoms—tachycardia, goiter and exophthalmos—was essential for a diagnosis of hyperthyroidism. Very gradually we have deviated from this triad until at present tachycardia alone remains. Exophthalmos was present in only 45 per cent. of 1,400 cases of exophthalmic goiter recently reported from the Mayo Clinic, and in only 3 per cent. of toxic adenomas. Large goiter is far from constant, although visible or palpable enlargement of the thyroid is rarely lacking. The question should be asked, however, Are we, with our present group of signs and symptoms, considered essential for making a diagnosis, still overlooking some of the milder forms? In other words, What is the minimal clinical symptomatology needed to make a diagnosis? It is generally conceded that the symptoms must be continuous, and that transitory tachycardia and tremor, when combined with increased nervousness, should not be interpreted as hyperthyroidism. This phase of the subject forms the basis of our discussion.

Not infrequently we see patients in whom the diagnosis of neurasthenia has been made who present under certain circumstances, especially excitement or moderate exertion, peculiar manifestations, especially tachycardia and tremor similar to those observed in hyperthyroidism. The question arises as to the significance of this symptomatology.

If we accept Cannon's views, based on very careful experimental observations, we might conclude that in this type of case there may be continuously present in the blood an increased thyroid secretion, below, however, the amount required to excite recognizable clinical symptoms. On excitement or moderate exertion, this secretion is increased to a point at which definite symptoms might be observed. If we accept this view, it offers a ready explanation of the peculiar symptomatology of this group of cases.

With this in mind, we have collected during the last three years, almost exclusively from office patients, a group of sixty-one cases, which we have considered as probable hyperthyroidisms. Only during the last year have there been suitable facilities for determining the basal metabolism in all cases, so the total number in which this test has been made is only twenty-six.

The signs and symptoms of special import in this group are tachycardia, tremor and increased nervousness. In their character and intensity they differ in nowise from the same signs and symptoms observed in classical cases of hyperthyroidism. The ease with which these symptoms develop varies greatly, as does also their duration. In the interval, a careful physical examination may not elicit any suspicious findings; therefore, for their detection, careful questioning is most important.

For the purpose of this study, every case in which the chief complaint is nervousness should be considered as a possible hyperthyroidism. The statement that these patients have tachycardia on excitement or moderate exertion is the first clue as to the possible nature of their trouble. In some instances this is definitely more marked at the menstrual period. Whether the tachycardia is detected at the first examination is dependent on the degree of excitement attendant on the visit. In nine of our sixty-one cases the pulse rate at the first visit was 90 or less, and in one patient it was 68, although he gave a definite history of tachycardia on excitement and showed a decided increased basal metabolism. Several patients with a pulse rate of 100 were not aware of rapid heart action. All of these, however, gave a definite history of tachycardia on excitement. Mention has already been made of the importance of a careful history in detecting this very suggestive symptom.

That continuous tachycardia is not essential in making a diagnosis has been emphasized by some of the older writers. Sattler refers to the importance of tachycardia, but also mentions the not infrequent temporary presence of a normal rate. In ten of his 105 cases, the pulse rate did not exceed 90 at the time of examination. Romberg, in a recent discussion of cardiac neuroses, makes the statement that F. Müller told him that the majority of so-called cardiac neuroses he saw were in reality mild hyperthyroidisms. Such a step may be too radical; symptoms of this character, however, should excite our curiosity and lead to a very careful consideration of such a possibility.

Increased nervousness was present in all of our series, usually manifested by increased irritability, easily disturbed by minor annoyances and often moderate insomnia. Lack of endurance was frequently emphasized. There is nothing in this symptomatology different from that observed in so-called neurasthenia. As very suggestive that we were dealing with something unusual was the frequent statement that these symptoms had developed in recent months or years and without apparent cause. At times these patients will volunteer the information that their nervousness was peculiar, as they were unable to control it.

Either all of the patients in this series were conscious of a definite tremor when excited, or it could easily be detected in the outstretched hand. In some instances they complained of a general tremulousness throughout the body, but were not aware of a tremor in the hands. It can scarcely be said that the tremor in hyperthyroidism is characteristic; but the tremor in this type of case resembled that seen in recognized hyperthyroidism.

Loss of weight was present in only 30 per cent. of this group, compared with 75 per cent. in Kocher's series of classical cases. There was no definite relation between the loss in weight and the basal metabolic rate. In nine of the twenty-six cases in which the metabolic rate was taken there was no loss in weight, although the basal metabolism ranged from + 16 to + 56, with an average of + 27. One patient with a normal basal metabolism had lost 40 pounds (18 kg.) in weight, although there was no definite history of impaired appetite. Perhaps this discrepancy between metabolic rate and loss in weight might be explained by the sum total of time during which marked toxic symptoms were present, rather than intensity at the time the metabolic rate was taken.

Visible or palpable enlargement of the thyroid was present in fifty-six of the sixty-one cases. In a considerable number of instances the patient was not aware of the presence of a goiter. A very definite goiter was rarely present. In one case the patient was first aware of a goiter one year after the onset of symptoms. One patient without palpable goiter had a basal metabolism of + 50.

Exophthalmos, even of a moderate degree, was present in only ten of the sixty-one cases. It was pronounced in only four. In one it was unilateral. One patient with exophthalmos had a normal metabolic rate. This group of ten cases would generally be considered as definite hyperthyroidisms, yet in all of these the tachycardia and tremor was transitory in character, developing on varying degrees of excitement or exertion.

It was impossible in this series of cases to differentiate definitely between the primary exophthalmic type and the toxic adenomas. In this classification much stress is placed on the duration of the goiter preceding toxic symptoms. Since the thyroid enlargement was very moderate in the majority of our cases, its duration, or even its presence, was not known. A bruit was never noted over these small goiters. Our deductions were that approximately 75 per cent. of this series would be classified as toxic adenomas.

One patient in this series had been discharged from the army with the diagnosis of "irritable heart." He had a basal metabolism of +30. Under roentgen-ray treatment his symptoms have largely disappeared. To distinguish between mild hyperthyroidism and irritable heart is most difficult—in fact, it is, we believe, impossible to outline a differential diagnosis without including basal metabolic rates; and whether this should be accepted as conclusive is open to discussion.

In all cases observed during the past year, the basal metabolic rate has been taken. It has been of great value in determining the degree of intoxication and in estimating the results of treatment; and in a few cases it was of assistance in making the diagnosis. It should be emphasized, however, that the diagnosis of hyperthyroidism, based on purely clinical observation, should not be immediately abandoned because the results of basal metabolism fail to confirm it. More and more cases are being reported with normal metabolic rate.

Mention has frequently been made of the intermittent character of the symptoms in this series. When the patient is placed at physical and mental rest, the symptoms largely or entirely subside. One patient in this series had a basal metabolism of + 94, with a pulse rate of 140. When at rest in the ward, a pulse rate of 80 was repeatedly recorded; attempts to secure a determination resulted always in marked exacerbation of the symptoms. It was possible, however, on different days to secure variation of twenty points in the reading. Are we right in insisting that the rate be determined at a time when the clinical manifestations have largely disappeared? These individuals behave quite differently from the normal under moderate excitement. A further argument that in mild hyperthyroidism there may be a normal rate is evidenced by the normal basal metabolism in "cured" cases treated either by surgery or by the roentgen ray. Many of these patients for months, or even years, will show tachycardia and tremor on excitement, owing probably to the persistence of a mild degree of intoxication.

The basal metabolism was determined in twenty-six consecutive cases in this series. In seventeen, or 65.4 per cent., it was + 20 or above, with a maximum of + 94. Three had a rate between + 15 and + 20, and three between + 10 and + 15. One had a rate of + 7; the remaining two a normal rate. The average rate of the twenty-three cases definitely above normal was + 35.7.

In this series of sixty-one cases, only four or five had been previously diagnosed as definite or probable hyperthyroidisms, although all of them had been examined by one or more physicians. The most frequent diagnosis was nervousness. A few had been considered as organic heart disease. The diagnosis of tuberculosis had been made in a few instances, based on the rapid pulse and loss in weight. They represent, therefore, quite a different type of case from that seen at surgical clinics. The question naturally arises, Are we correct in our diagnosis or are these patients actually psychoneurotics? An honest difference of opinion is justifiable. It should be admitted, however, that the patients in this series either presented or gave a history of transitory symptoms, which, if continuous, would have been accepted as adequate evidence that they were suffering from hyperthyroidism. If we are to accept an increased metabolic rate, when combined with certain clinical findings, as evidence of hyperthyroidism, then this group should be considered as mild types of this disease.

The results of treatment might be brought forward as further evidence of the correctness of the diagnosis. True, the psychoneurotic might be much benefited by the suggested effect of roentgen-ray treatment. However, when improvement is associated with a fall in the metabolic rate to normal, it destroys much of our skepticism.

In addition to the sixty-one cases in the series, we have under observation a number of patients whose basal metabolism is normal and the symptoms are present at such infrequent intervals and are so very transitory in character that the diagnosis of hyperthyroidism is merely in the realm of possibility. This shading off to scarcely recognizable cases might be expected in a condition in which we are dealing with increased glandular activity of varying degrees.

Roentgen-ray treatment is especially applicable to this type of case. There is no special urgency in getting rapid results. Few of these patients had a disfiguring goiter. Many of them would have objected to surgical interference on account of the mildness of their symptoms. During the treatment, all but five patients in this series pursued their usual manner of living. Many were working women who could ill afford to stop work or pay the expenses associated with hospitalization.

Seventy-four per cent. of this series now consider themselves cured. They are able to pursue their ordinary vocation with, at most, only slight inconvenience. The remainder showed varying degrees of improvement, but all received more or less benefit. One, moderately improved, wished to expedite his recovery, and surgical measures were resorted to. In those patients in whom the basal metabolism had been taken, 66 per cent. had returned to normal.

SUMMARY

In hyperthyroidism, in which we are dealing with increased glandular activity, it is not improbable that we have varying degrees of intoxication.

The possibility of hyperthyroidism should be borne in mind in all cases of suspected neurasthenia in which there is a history of tachycardia on excitement.

Recognizable clinical symptoms may be lacking at the time of examination. A careful history is therefore of the greatest value.

The salient diagnostic points in such a history are (1) transitory tachycardia on excitement and moderate exertion; (2) nervousness without cause and beyond the patient's control, and (3) tremor on excitement or exertion.

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HEMOLYSIS FOLLOWING TRANSFUSION *

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The occurrence of isohemolysis without iso-agglutination has not been observed in man. Experimentally, however, Ottenberg and Thalheimer [1] have produced isohemolysis in cats whose serum did not agglutinate. This was done by transfusing blood from one cat to another, whose blood before the transfusion was entirely compatible with that of the first. This has not yet been shown to be true for man. The production of isohemolysins and the iso-agglutinins in human blood by means of transfusion is demonstrated by the following case reports:

Case 1.—J. H., a girl, aged 18 months, a first child, born of healthy parents, was admitted to the hospital with signs and symptoms indicating a nasopharyngitis and bilateral acute otitis media. Both ear drums were incised, and much pus was evacuated. One week after admission there were signs of involvement of the mastoid process, and it was decided to perform a blood transfusion because of the poor general condition, and to operate on the mastoid process. The child's and the mother's blood were reported compatible, and the child was transfused immediately after the operation, Dec. 24, 1921. About 180 c.c. of citrated blood obtained from the mother was introduced, with no reaction, either imme-

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[1] Ottenberg, R., and Thalheimer, W.: Studies in Experimental Transfusion, J. M. Res. 33: 213 (Nov.) 1915.

diate or delayed. Twenty days after the first transfusion, Jan. 13, 1922, transfusion was again performed, the mother again acting as donor. No tests were made, since the first transfusion had resulted in no symptoms, and it was thought perfectly safe to use the previous donor. After the child had received 130 c.c. of citrated blood, she began to vomit, became cyanotic and unconscious, the breathing became labored, and the clinical picture was that of shock. The transfusion was stopped, stimulation was resorted to, and at the end of two hours the child became conscious; but the cyanosis persisted. Six hours after the transfusion, the bladder was catheterized, and about 30 c.c. of urine containing hemoglobin was obtained. Microscopic examination did not reveal any erythrocytes, though blood shadows could be made out. Bleeding also took place from the incision into the mastoid process and from the lips. The condition was critical. No urine was passed until the next morning; but when the bladder was again catheterized, about 10 c.c. of smoky looking urine was obtained. Jaundice developed the following morning, which persisted for several days. The temperature rose to 106 F., and gradually returned to normal in four days. The vomiting and hemoglobinuria, as well as the other symptoms, gradually disappeared, and the child made a complete recovery. The blood of the child and that of the mother were retested and found to be incompatible. The mother belonged to Group II, and the child to Group I.

TABLE 1.—JANSKY CLASSIFICATION

Group	Agglutinogens Hemolysinogens	Iso-agglutinins Isohemolysins
I	None	a and b
II	A	b
III	B	a
IV	A and B	None

Case 2.[2]—In January, 1917, a man, aged 22, suffering from hemophilia, underwent transfusion with 50 c.c. of blood, by the syringe method, from a friend, reliance being placed solely on mutual agglutination tests. There was no reaction, and the patient's urine was examined and found normal after the transfusion. Approximately one month later, another transfusion of the same amount was given from the same donor, no further tests being made. Transfusion was followed by collapse, cyanosis, urticaria and hemoglobinuria. Samples of blood obtained from the patient and the donor about one week after the second transfusion showed that the patient's serum strongly agglutinated the red blood cells of the donor. The first transfusion apparently stimulated the production of isoagglutinins and isohemolysins, which produced their effects at the time of the second transfusion.

COMMENT

Attention is here called to the occurrence of two cases in which severe reactions took place in patients who were recipients of blood from donors who had previously acted as such without any reaction having taken place following the first transfusion. The mechanism of the reaction following the second transfusion may best be understood by examining Table 1, in which are set forth the characteristics of the various blood groups. In his work on blood groups, Landsteiner[3] brought forth the hypothesis that there were present, in all human blood serums, two sets of isoagglutinins and isohemolysins, and in its red blood cells two sets of cell receptors. It will be seen that Group I has both agglutinins and hemolysins in its serum, while its cells contain neither one of the receptors A and B; Group II has agglutinogen A and isoagglutinin and isohemolysin b; Group III, agglutinogen B and iso-agglutinin a, while Group IV, the rarest group, contains both agglutinogens A and B, and no iso-agglutinin or isohemolysin.

It has been shown repeatedly that the red blood cells attain their group characteristics, known as receptors, or agglutinogens, very early in life. Since the mother and child belonged to different groups, why is it that no reaction took place following the first transfusion reported above? The answer lies in the fact that the child's red blood cells, because they belonged to Group I, had neither one of the susceptible substances and, therefore, its own cells could not be agglutinated or hemolyzed. Its serum, on the other hand, had not yet developed the antibodies belonging to its group (a and b), or they may have been present, but in such weak titer that no significant reaction took place. The group to which the child belongs (Group I) was incompletely established at the time of the first transfusion, while twenty days later the child's serum had acquired its full quota of antibodies, presumably as a result of the stimulation of the first transfusion. The development of these iso-antibodies apparently can take place in a shorter period of time, as is proved by one of Lindeman's[4] cases, in which hemolysins developed after a period of five days. It must be stated that the first grouping reported from the laboratory was incorrect. Both the mother and the child were then reported as belonging to Group I. Subsequent determinations showed that the mother belonged to Group II, and the child to Group I. It is to be regretted that the second transfusion was performed without a retest of the donor and recipient. These cases and others of a similar nature in the literature demonstrate conclusively the danger confronting us, chiefly in the case of children, whose blood groups are incompletely developed, when tests for compatibility are not repeated before each transfusion.

It was important to determine the exact antibody content of the mother's and child's blood. Accordingly, blood was obtained from the veins, separated into serum and cells, the cells were twice washed with isotonic saline solution, and a 5 per cent. suspension of each one's cells was made.

Tests were performed, using the suspensions given in Table 2.

TABLE 2.—TESTS PERFORMED

0.1 c.c. 5% suspension of child's cells plus 0.2 c.c. mother's serum
0.1 c.c. 5% suspension of mother's cells plus 0.2 c.c. child's serum
0.1 c.c. 5% suspension of mother's cells plus 0.2 c.c. Group II serum
0.1 c.c. 5% suspension of child's cells plus 0.2 c.c. Group I serum
0.1 c.c. 5% suspension of child's cells plus 0.2 c.c. saline
0.1 c.c. 5% suspension of mother's cells plus 0.2 c.c. saline

All were incubated for one hour at 37.5 C. No reaction took place in any tube except that containing mother's cells and child's serum, this tube showing both agglutination and hemolysis. This discloses that after the second transfusion the child's serum was lytic for the mother's cells, and explains the intravascular hemolysis.

The hypothesis advanced by Landsteiner of the presence in human blood serum of two sets of agglutinins and hemolysins, and in the red blood cells of two sets of cell receptors was, confirmed by Decastello and Stürli[5] in 1902 and later investigators. Koeckert,[6] in 1920, in carefully controlled experiments, proved by absorption methods the existence of these two agglutinins and hemolysins, known as a and b, and the two agglutinable substances in the red blood cells (otherwise known as cell receptors or agglutinogens), A and B. By this method of differential absorption, one may remove from any serum either one or both of its two agglutinins, and with the agglutinins the corresponding hemolysins. This may be done by combining the serum of one group with the red blood cells having receptors for the agglutinins contained in that serum.

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[2] This case is presented through the courtesy of Dr. Ottenberg.

[3] Landsteiner, K.: Ueber Agglutinationserscheinungen normalen Menschlichen Blutes, Wien. klin. Wchnschr. **46**: 1132, 1901.

[4] Lindeman, Edward: Blood Transfusion, J. A. M. A. **62**: 993 (March 28) 1914.

[5] Decastello, A., and Stürli, A.: Ueber die Isoagglutinine im Serum gesunder und kranker Menschen, Münch. med. Wchnschr. **49**: 1090, 1902.

[6] Koeckert, H. L.: A Study of the Mechanism of Human Isohemagglutination, J. Immunol. **5**: 529 (Nov.) 1920.

Since this child belonged to Group I, its serum could have contained both agglutinins and hemolysins a and b. To determine which of these were present, known Group II and Group III cells (containing agglutinogen A and B, respectively) were taken, and to 0.1 c.c. of a 5 per cent. suspension of these cells, 0.2 c.c. of child's serum was added and incubated as explained above. Apparently both a and b agglutinins and a and b hemolysins were present, since agglutination and hemolysis of Group II and Group III cells occurred to about the same degree. This shows that at the time of the second transfusion, the serum of the child contained a and b agglutinins and hemolysins, and its group was now fully established.

Pepper and Nisbet,[7] in 1907, reported a case of fatal hemolysis following direct transfusion of blood by arteriovenous anastomosis, blood groups being undetermined. This was a second transfusion, the first one having been followed by very slight reaction as judged by the amount of hemoglobin in the urine.

Lindeman,[4] in 1914, reported a case in which the first transfusion was not accompanied by any reaction, and tests showed no hemolysis, while the second transfusion, five days later, using the same donor, bloods not being retested, was followed by hemoglobinuria. Tests now showed hemolysis of the donor's cells by the recipient's serum. This shows the development of iso-antibodies in five days following the first transfusion. Recovery followed.

Thalheimer,[8] in 1921, reported a case of hemoglobinuria after a second transfusion with the same donor in a child, aged 6 years. Recovery followed. In this case a direct test, prior to the first transfusion, disclosed no agglutination. Eighteen days later another transfusion was done, and severe hemoglobinuria followed. The father belonged to Group III, and the child to Group I. Here the success of the first transfusion either was due to the presence of weak agglutinins in the child's serum, or they had not yet developed.

The conditions which require a second or repeated transfusion are not rare and, therefore, the foregoing observations are important. Close analysis demonstrates that all the reactions were due to the transfusion of blood cells which were susceptible to agglutination and hemolysis by the patient's serum. There is current opinion that the criterion of compatibility of bloods ies in testing the donor's cells against the recipient's serum; and more thoroughly to safeguard against any accident, it is also advisable to test the recipient's cells against the donor's serum. While these mutual tests are satisfactory for a first transfusion, the results of he tests made before the first transfusion cannot be relied on for the second transfusion. The tests must be done over again, since new antibodies may have developed after the first transfusion.

According to Karsner's[9] observations, mutual tests are not as safe as group tests. In cases of chronic anemia, it was shown by Karsner that the agglutinin titer of the patient's serum may be so low as not to produce agglutination on the slide, though the red blood cells of these patients contain their full cell receptors, and transfusion in such cases results in intravascular agglutination and hemolysis. This has not been reported by others, who have found intravascular effects only when the serum of the patient contained the demonstrable antibodies.

In the case of infants and children, it is not at all uncommon to find weak agglutinating serums; and sometimes adults, especially those belonging to Group III[10] have a similar lack of agglutinins in their serum, and mutual tests may be negative, yet intravascular hemolysis will take place. Testing the group to which a child belongs by testing its corpuscles against known strong serums, particularly in the case of children under 2 years of age whose groups may be incompletely established as regards agglutinins, does away with the danger of mistakes due to weak agglutinins in a child's serum. Likewise in the case of children (and only in the case of children), if, instead of mutual tests, the method of grouping donor and patient by reference to known agglutinating serums of Groups II and III has been followed, it is necessary to repeat these grouping tests; for the agglutinogens of the blood cells of young children are not always fully developed. The foregoing cases illustrate the rapid development of a previously absent group character—agglutinins and hemolysins—(not a change of group). There are no observations reported as yet to indicate whether agglutinogens can be developed as rapidly.

Numerous authors have established that the agglutinogens or group specific substances residing in the cells appear earlier and more completely than the group specific substances present in the serum. In the mutual tests the serum qualities are chiefly depended on, and these, as has been pointed out, are often incompletely established in the case of infants. Reliance, therefore, is placed on a method which has inherent defects. In determining the group to which a child belongs, one always should select strong serums of the known Groups II and III, and reliance is then placed on the qualities of the red blood cells which develop earlier and more completely. The mutual or direct tests may, however, be used as a check on the determination of the blood groups, but by itself is not as reliable as the grouping method. Moreover, the grouping method is by far the simpler and the less time consuming.

CONCLUSIONS

1. Iso-agglutinins and isohemolysins originally absent or weak may develop to full strength after a single transfusion.

2. Because the serums of infants and children often possess only weak iso-agglutinins and isohemolysins, or contain none, it is important to determine the group to which the child and the donor belong, by testing their red blood cells against known strong Group II and Group III serums.

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[7] Pepper, William, and Nisbet, Verner: A Case of Fatal Hemolysis Following Direct Transfusion of Blood by Arteriovenous Anastomosis, A. M. A. **49:** 385 (Aug. 3) 1907.

[8] Thalheimer, William: Hemoglobinuria After a Second Transfusion with the Same Donor, J. A. M. A. **76:** 1345 (May 14) 1921.

[9] Karsner, H. T.: Laboratory Problems of Blood Transfusion, J. A. M. A. **76:** 88 (Jan. 8) 1921.

[10] Decastello and Stürli: München. med. Wchnschr. **49:** 1090, 1902.

3. The mutual tests may be used as a check, but should not be solely relied on, particularly in the case of infants and children, and especially for second or third transfusions in the same individual.

4. The tests should be repeated before each transfusion in the case of children.

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SOME NEGLECTED PSYCHOPATHIC FACTORS *

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Before the American Psychopathological Association in 1911 there was presented a study of psychogenic disorders in childhood [1] in which psychogenic factors were revealed dependent on fear, anxiety, jealousy and mortification of sources independent of sex; and in 1910 an analysis of three cases of contrasting types [2] which illustrate that other factors than the sexual were responsible for the maladjustment because of which the patients were eventually brought to me. In the last of these, in which suicide had been attempted four times, I attempted to show that the sexual aspect of masturbation was of negligible importance both in the induction of severe psychotic disturbance and in the recuperation of the patient, which was effected in ten days. The disadaptative factor was psychosocial.

Although the mechanism, consisting of powerful sadistic impulses, in the first of these cases was highly sexual, yet catharsis was ineffective therapeutically, and the cure was effected only when a psychosocial situation was remedied two years later.

In the second of these cases, there was no question of sexuality at all, a habit of fear being the sole factor incriminable, the dealing with which effected, within ten days, a recovery which is maintained until this day, twelve years later.

In spite of these paradigms, very little attention seems to have been paid by most of the members of the association to the thesis they illustrate. It may be because of the obtusion of intelligence produced by adhesion to exclusive dogmas, and the affective attraction these exercised because of their erotic coloring. However it may have been, many were affected in disposition so that they failed in scientific adaptations. By the heads of those in a trance only a sledge hammer can be felt. The war furnished this; many then awoke from their daze, and perceived their pragmatic impotence, to find already in the hands of sociologists much hitherto neglected psychologic material. A view then began to adumbrate that not alone by the honey of the phallic flower could nourishment be given; and the busy bees began charily to widen their flight. Let us hope that the new flowers may prove less artificial than some of the old. In a hope, perhaps vain, to encourage these tentative new strivings I venture, in a spirit perhaps less scientific than of old, to present anew some further reflections upon neglected factors which play a part in the induction and management of psychoneurotic situations. They illustrate again the old principle that all things are not always what they seem, and that very often the presenting symptom is not that of the highest importance.

REPORT OF CASES

Case 1.—*Phobias from discordances in childhood.* A woman having multiple phobias, which rendered her life and occupation very difficult, was referred to me recently because she had previously been under a psychanalyst for a year and had after a while relapsed into as distressing a state as before. Her chief fear was that she would poison some one by accident.

Out of a highly discordant environment in childhood the psychanalyst had projected several erotic experiences on the pathogenic nature of which he had insisted. A more judicial study of the situation of her childhood, however, led me to believe that the sexual factors were relatively insignificant, and that great importance should be attached to prejudices aroused by family quarrels, which had centered her interest on herself because affection for either parent caused friction on the part of the other. This led to a watchfulness for blame which created a sense of guilt; but, being a character of sthenic and active tendencies and of high suggestibility, she was in constant flux, finding no stability in her discordant home. Against these conditions a resentment occurred, of which she scarcely knew the meaning, which she exhibited apropos of what seemed trifles, and which made her afraid lest she should do violence in her rage against some one for a transgression of slight degree. Because of the frequent scoldings she received, the fear of doing the wrong thing became obsessive; and this led to her trying to avoid the expression of her impulses. This, of course, added further to her resentfulness.

Naturally of a joyous and expansive disposition, she became attuned pejoratively, and hence attracted every vibration of calamitous import which came within her range. Naturally, among her calamities, the sexual transgression took its place, which in her case was a comparatively small one until the suggestiveness of the freudian procedure exalted it. The man of straw, having been set up by the psychanalyst, was in the course of a year knocked down by him; and the suggestion of well being from the elaborate procedure relieved the patient for a time, and she felt that she had no grounds for her fears, as the "sexism" supposed to be responsible for them had been dealt with so learnedly. But the suggestion was not proof against the further assault of circumstance; and the patient, not having been truly reeducated, relapsed.

Better adjustment and greatly improved physical health occurred when a truer perspective was acquired by the patient through the learning of the great importance of her feeling of resentment, more especially during the inception of her disadaptation in childhood, and after constructive activities were fomented.

Case 2.—*Impotence from diffidence grounded in misinformation.* In the case of a man sent by a genito-urinary specialist because of an impotence in view of which he was afraid to marry, an undue emphasis on the physical sexual had caused him to lose perspective, and rendered him almost hypochondriac, as is often the case. When a new setting of his mind was given by a dispassionate presentation of the whole sexual relation, his difficulties were enormously mitigated in only a few days; for the efficient factor in his disability proved to be diffidence, which is not sexual at all.

Case 3.—*Craving of security and for fulfilment.* In another patient the overemphasis on the sexual factor almost paralyzed the efforts of some of those who had been dealing with her in fear of what is termed by some "the transference." As a matter of fact, an affection which seemed inordinate, and wore a carnal mask, was in reality a craving for protection, safety and trust.

Vacuity played a part in this also. The patient, in an institution thoroughly discordant, had been left to her resources, which became more and more circumscribed. She fell into ruminations concerning her hard lot and how to escape from it. When she was set at liberty, comparatively speaking, and when incentives toward accomplishment were furnished, she became interested in the art she had formerly professed, which was one of the principal motivations of her former life.

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* Read before the American Psychopathological Association, Washington, D. C., May 1, 1922.

[1] Williams, T. A.: Psychogenetic Disorders in Childhood, J. of Abnorm. Psychol., 1911; Juvenile Psychasthenia, Am. J. M. Sc., 1911.

[2] Williams, T. A.: A Contrast in Psychoanalysis Shown by Three Cases, J. Abnorm. Psychol., 1910.

Even the frank expression of wish for sex gratification proved to be rather the yearning for upliftment from a state of depression due to prolonged anxiety, with ensuing doubt and suspicion and ultimate bewilderment.

Few psychopathologists seem to realize the great importance of this mechanism when sex stimulation is concerned, even though there have been many studies concerning attempts to compensate for feelings of inadequacy by the patient's emphasizing qualities that will utilize them. (Little persons, big esteem; weakly persons, prowess in sport; dull persons, working hard and becoming wealthy and distinguished; physically unattractive persons, cultivating charm.)

One would have thought that the exhilaration from depression sought in alcohol and other drugs would have afforded a parallel sufficiently striking to permit of its application in the sphere of libidinous craving.

CASE 4.—*Awkwardness and shame, paralyzing initiative in work and society, due to environmental repression.* A woman, aged 26, was referred by a physician who had unsuccessfully treated her several months. She was very reticent, disclosing her complete story with much difficulty and trepidation. She was eating her heart out in routine work in which she was neither using her college education nor satisfying her craving for contact with other human beings. Nor did her leisure afford her the kind of companionship she longed for. She did not know how to reach away from the safe monotony of a sheltered life into the adventurous variety of the constructive idealism which she worshipped. She was immensely handicapped by a lack of ease of manner and charm, which she envied in others: she was ashamed of her awkwardness.

This situation might only too readily have been attributed to the humiliation she felt at the intense and facile stimulability of her physical sexuality, and a prolonged analytic search might have proved too strong a temptation to those psychopathologists who can think only conventionally.

But as insistent as were the physical discomforts of the patient, I considered that the psychosocial problem was even more important, and that to solve this, a change of environment was imperative. It should not need to be said that explanations as to the significance of reproductive physiology were given, and that these were of great comfort to the patient. Although they scarcely affected the phenomena themselves, they altered many of the psychologic consequences. The patient was assisted to take steps to prepare for an occupation which would favor human contact in constructive work, in which she is now, a year and a half later, happily engaged without supervision.

In each of these four patients the superficial aspect of the case is highly sexual, and in one of them physical ebullitions are perhaps the most painful of the discordant elements of a scarcely tolerable situation. But even in this case they are not the main factor of the maladjustment at all; for the adjustment was effected without any success in mitigating these difficulties. The real issue was a psychosocial one, and affective satisfaction was gained by the provision of opportunity for the kind of intellectual activity craved.

HEDONIC FACTORS

There are some who smile at the assertion that the hedonic factors of the psychoneuroses have been much neglected; nevertheless, many of them have been entirely ignored because of the overemphasis placed on one of them. So great has been the desire of some to drag everything into one net that efforts have been made to interpret the pleasure derived from stroking, and the sensation of tickling, as having to do with sex stimulation.

One of the arguments adduced in favor of this is that occasionally stroking elsewhere will stimulate the erectile tissue of the genitals. The argument ignores the fact that any kind of stimulus anywhere may at times induce genital erethism. Furthermore, the opinion is disregardful of the fact that cutaneous stimulation elsewhere may stimulate the nasal erectile tissue also, and that such stimulations influence the blood pressure, pulse rate and respirations, sometimes quite strongly, and often interfere with both peristalsis and secretion in the digestive tube; while another reflex almost invariably consists of a series of motor contractions and relaxations often calculated to escape excessive stimulation.

The argument that because some of these purely hedonic sensations are sometimes utilized to reinforce sexual pleasure they are therefore sexual might be applied to cold, warmth, certain special foods and drinks, music, painting, literature, philosophy, ethics and religion, or any other human activity, as all are sometimes used to reinforce sexual impulse. And yet all of them have primary uses of their own entirely apart from the pleasure contingent on reproduction.

That stroking and caressing are primary pleasures apart from sex is easily seen in the watching of a group of geldings on a hot day stroking one another's necks, and the nestling of reptiles and swine in heaps for mutual comfort. Among human beings the slap on the back of cronies, the linking of arms of boy and girl companions, and such rapprochements, although hedonistic in purport, are surely primitive, even though at times some of them are manifested previous to and during the approaches of courtship. For this is equally true of all animal gests; any may be carried over into the dearer relationship, even though originating otherwise. But the busy bees were too firmly wedded to the phallic flower to see aught else, sipping the only honey they love.

FRUSTRATION OF CONSTRUCTIVE IMPULSES; POWER

The impulse toward self assertion, dominance of one's surroundings, usually accompanied by a feeling of self esteem, has until recently received surprisingly little attention from psychopathologists. This is all the more astonishing when one remembers the emphasis already laid on these tendencies by certain philosophers, more particularly Hobbes, by whom what he calls "sudden glory" is made into a most important nucleus round which constellate his concepts of human psychology.

In this respect he anticipates the better known philosophy of Nietzsche, whose writings are perhaps responsible for belated recognition of the "will to power," which was, however, already foreshadowed in the philosophy of Schopenhauer.

Not only have these three philosophers strongly emphasized the rôle of the will to power in human motivation, but the inevitability of its frustration has been used as the basis for the consolations afforded by two religions, one of which still pervades the earth more widely than any other hitherto has. The declaration, "Blessed are the meek, for they shall inherit the earth," is a prophylactic against countless disadaptations.

Buddhism preaches a mental hygiene very similar, in which gentleness and love for one's fellows replace force and ferocity as ideals.

The mitigation of the assertion of power having been a prime essential of life in community, devices have been elaborated from the cradle up calculated to curb it; hence the opportunities of adjustment in this sphere are afforded to most individuals, but, unfortunately, in a haphazard fashion, and they often stultify development through unwise restraints of the conventional type. The psychologic reactions against frustration of ambition are conspicuous enough in the biographies of such men as Napoleon, Julius Caesar and Byron. But even when not conspicuous, they exist in the lives of every one, and when looked for can be detected as important factors in the disadaptations of many of our patients.

Still greater stultification of the individual ensues, however, when immoderate play is permitted to the craving for power without corresponding intellectual and moral cultivation. Many of the sons and daughters of the newly rich afford a glaring example in our day. Even though ludicrous, this has its dangers in the fomenting of unwise revolutionary impulses of the kind that appeal less to reason than to passion. We smile, too, at such pretensions as were exercised by the Stuart dynasty with the mystical justification of their power known as the divine right.

We have reached a degree of political cultivation in which the scandalous tyranny of the Roman emperors would not be tolerated. But there are still large bodies of men whose intelligence has not yet developed to a point at which they cease to tolerate the assumption of power by authority which speaks in the name of religion, and who rest still benighted in darkness where superstitions impede each groping for a healthier adaptation, condemned to lifelong inadequacy, and enthralled without possibility of egress into a better day.

That the exercise of untrammeled power is psychologically unhealthy for those who exercise it is clearly shown in the history of dynasties and of all institutions which have oppressed. But it is unhealthy also for those who are oppressed, as it arouses resentment and hate, when it does not paralyze personal initiative in the development of the intelligence and the truly moral qualities.

The ascendency of peoples who have succeeded in dislodging that old man of the sea, hierarchal government, is demonstrating itself politically at least. For when all but a few were fatally condemned to the anguish of spirit of Prometheus bound, constructive adaptation was only a rare possibility.

THE MYTHOMANIAC

The craving for power has always led to craft and deceit on the part of those who cannot overcome by force. The mechanism of this is simple enough to be understood by any schoolboy. But the apparently purposeless misrepresentation which has been called mythomania is sometimes to be interpreted also as a manifestation of the search for power. The pathologic liar, even when he cannot thereby dominate his surroundings, at least deludes himself that he is doing so in part at least. Thereby a personality without ability to overcome circumstances or to circumvent them, instead of folding his hands in resignation, feeds his craving for power by heroic solutions of terrific difficulties largely the product of an unbridled imagination.

ACQUISITIVE TENDENCIES

The disjunctions caused by the frustration or interruption of acquisitive tendencies are very striking in some persons. The morbid fear of robbery of the miser is a byword. And the rage of many propertied individuals against political theorists who threaten to subvert their economic régime is a commonplace of politics which we are witnessing in great activity in these days.

VACUITY AND MALADJUSTMENT

Action.—Former somewhat empiric neurologists laid great emphasis on ennui as a prime cause of neurotic disturbances, so much so that what was then called neurasthenia was considered to be a disease solely of the leisured rich. While we have learned better than this, there is no justification for modern psychopathologists to ignore completely the state of boredom as a potent and not infrequent prime factor in the development of psychoneurotic states. Much of the alleged feminine restlessness of today expresses an implicit craving to escape the ennui to which artificial life subjects women, more especially when childless, having command of modern domestic conveniences and devoid of cultural interests. From the stagnation of their psychic life, they seek to escape through meretricious amusements; but when they are not shallow-minded enough to be satisfied by these, when they find no interest within their narrow walls, and when external solicitations make no appeal, the monotony of their existence, even if not an active explicit discontent like that of a caged animal, or expressing itself as domestic nagging, fretfulness and quarreling, may cause them to adopt the attitude of resignation so very prone to turn to obsessive thinking, with the fabrication of fears, the product of inturned imagination with its magnification of trifles.

It is surprising that this syndrome has been so neglected when we think of its physiologic basis. This is evident when we observe young people whose physical energies are frustrated, when we note their spiritlessness, and even dejection, in a distasteful schoolroom, and when we watch its transformation under an inspiring teacher, or when the energies are set free in play. The factor of frustration of this imperative tendency for activity should surely have appealed to those who proclaim that they were motivated by curiosity strictly scientific to study closely the frustrations of that other innate tendency which demanded satisfaction, of which a by-product happened to be the perpetuation of the race.

Creation.—The frustration of the creative impulse is a factor of the poor psychic adjustment of some persons which has been almost entirely neglected by psychopathologists, if one is to judge by the literature. These are individuals in whom desire for a particular intellectual activity is the dominant passion. This usually has quite a specific direction, whether into a manual art, into a fine art, or into invention of science. Not every one has the strength of character and special advantages of young Shelley, who succeeded in overcoming colossal impediments toward the growth of his passion for human welfare and beauty; nor is every one gifted with the tenacity of Charles Darwin, who quietly developed his natural bent even in an English public school. There must be countless mute, inglorious Miltons whom not environmental inertia, but the actual antagonism of others has frustrated into psychoneurotic misfits unable to channel into another direction the urgings of their spirit, and who eat out their hearts in introverted desolation.

ANGER AGAINST FRUSTRATION

Of the passion of rage and its correlates resentment and hatred, and perhaps jealousy in some of its features, as a primary factor, I need say nothing, as Stanley Hall in a masterly fashion has drawn attention to its neglect before this very association.[3]

I have encountered numerous cases in which maladjustments and character deviations have been the product of the need for frustration of the impulse of rage against irrefragable impediments imposed by the authority of parents and guardians of the young, and of managers and supervisors of adults.

A considerable number of situations have been presented to me in which the fundamental element of discordance has been the resentment of the patient concerning situations into which he has fallen. In some of these cases the feeling reaches an abhorrence for the particular person or persons who have initiated the discordance. The torticollis in a treasury employee which I reported some years ago in my study of occupational dyskinesias is a striking example in point.[4]

In other instances the resentment is against a situation not of social but of purely economic character, *res angustae* proving too much for these patients' equilibrium, at least to permit of a competent outlook from their difficulties, to which they accordingly become adjusted badly, so that the impediments to means of transforming their lot in reality arise more from the patients' mental discordance than from the circumstances themselves. This situation is very frequent among those in whom accustomed means of livelihood have diminished. It is a frequent consequence not only among the defeated in wars, but also as a result of economic upheavals after industrial transmigrations, changes of taste, or alteration of the channels of trade.

To many of these persons the sentiment becomes one of subdued despair, the initial resentment having fallen into abeyance. The disadaptation of persons in this frame of mind is a commonplace which should not need setting forth here.

MORTIFICATION

Many of the situations which have been invoked in support of the sexual origin of the psychoneuroses are in reality issues depending on mortification. But the inhibitions of personality produced by mortifying experiences or the dream of them occur even perhaps more frequently regarding social intromission of kinds other than sexual. The conventions of fashion are a particularly frequent source of these. In young persons the ethics of sport furnish occasions. Relationships in business are another source in which motivation by fear of mortification plays a strong part. This is particularly true with hierarchal organized services, such as the army. It is most true of all, perhaps, in that form of activity among women which, under the misappellation of society, has become an occupation to which great devotion is paid.

THE FEAR FACTOR

Dread, anxiety and fears are in my experience the commonest efficient factors in maladjustments with which we psychopathologists have to deal. These factors, however, have been adequately realized and dealt with by only a few since Hobbes. However, I shall have to refrain from the discussion in this short paper, having already dealt with them casuistically,[5] and being about to issue a book devoted to dreads and obsessions.[6] I cannot forbear, however, referring to the dread so prevalent among the gregarious which drives them to seek the safety of dogma, and causes them to smother the germinations of truth, which would otherwise produce a conflict from which they cower in terror of the disapproval of those with whom they herd. For though the day of inquisitions is passing, that of anathema is still with us in full force. In the absence of the motive of personal animosity, which is the usual man behind the gun in apostates, the avenue of escape from conformity is a thorny one. The path is passable only by one who is armed with truth, a weapon quite exceptional, unfortunately; for the average education is far from calculated to foster a search for a way to verity through the thorns of error, which so often bear the sensual berries of acquiescence, companionship, wealth and preferment. The spirit of the martyrs, which inspired men even to die for the right as they saw it, and which made the political institutions of Great Britain and the United States, is being corroded into a self-satisfied and narrow partisanship voiced in such expressions as "My country, right or wrong."

Pusillanimity which refuses to look at right lest it may threaten one's prejudice sidesteps a conflict of readjustment at the price of the otiose self contentment which is only the prelude to decay.

The limitation of time forbids a discussion of two other very important occasional psychopathogens, namely, disgust and grief. Envy and jealousy, too, should enter into consideration in a small proportion of cases. The latter, in my experience, has been rapidly dispelled in every case.

1748 K Street.

Clinical Notes, Suggestions, and New Instruments

RIGHT URETERAL CALCULUS SIMULATING ACUTE APPENDICITIS

Montague L. Boyd, M.D., Atlanta, Ga.

This case is of interest because of: (1) the severity of the nausea and vomiting; (2) localized pain in the appendix region; (3) leukocytosis, and (4) absence of pain or tenderness in the kidney, absence of referred pains to the groins and testicle, and lack of urinary symptoms.

REPORT OF CASE

History.—E. B. R., a man, aged 28, barber, single, admitted to the surgical service of Grady Hospital, April 17, 1922. awoke at 6:30 with a severe pain in the lower right abdomen followed shortly by nausea and vomiting, which consisted of a small amount of mucus. The pain remained localized about over the region of the appendix. The past history was negative excepting for pneumonia four years before, with relapse; the patient was ill thirty days in all; there were no sequelae. He had had gonorrhea in 1917, from which he had been cured in five days. There were no aches or pains suggesting previous kidney involvement. His habits were fairly good.

Examination.—The patient was thin and rather poorly nourished, with slight anemia of the skin and mucous membranes. There was no glandular enlargement. There was a blowing systolic murmur at the apex of the heart, more pronounced on expiration. The right rectus muscle was very rigid; the patient was unable to straighten the right leg. Tenderness on pressure over the lower right abdomen was very marked. The pulse was 80, the temperature 95.3, rising to 99.2 by noon. The urine was slightly cloudy, and contained a good deal of albumin. Microscopic examination revealed a moderate amount of blood, a small amount of pus and a few granular casts, but no organisms. Blood examination revealed: white cells, 12,000; polymorphonuclears, 80; small lymphocytes, 13; large lymphocytes, 7. A soapsuds enema at 2:35 on the day of admission returned almost clear. No morphin was given until 5 a. m., the day after admission. Nothing was given by mouth until 5 p. m., on the day after admission, when he received 6 ounces (178 c.c.) of lemonade, which he at once vomited. In the meantime, he had vomited a couple of times and had been nauseated most of the time. The highest temperature on the day of admission was 99.3 F. at 8 p. m.; the following day, 97.2 at 4 a. m., and about normal until 6:30 p. m., when it was 99. April 18, at noon, a catheterized specimen of urine showed numerous red blood cells, a few pus cells and no casts. In the afternoon the leukocytes numbered 18,800; polymorphonuclears, 84 per cent.; small lymphocytes, 12 per cent.; large lymphocytes, 4 per cent.

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[3] Williams, T. A.: J. Abnorm. Psychol., 1915.

[4] Williams, T. A.: Studies, Genesis of Writers' Cramp, etc., J. Neurol. u. Psychiat., 1911.

[5] Williams, T. A.: Differentia Regarding Obsessions and Phobias with Reference to Their Pathogenesis and Treatment, Internat. Clinics 4: 180, 1919; Removal of Morbid Fear, M. Rev. of Rev., 1921.

[6] Williams, T. A.: Dreads and Besetting Fears, Boston, Little, Brown & Co., to be published.

I was asked to see the patient about 9 p. m. on the 18th. The pain of which the patient complained had remained constantly localized at a little below McBurney's point, and there had been no pain or discomfort in the kidney region, testicle or groin. There was no increased frequency of urination no burning on urination, and no pain or burning after urination. Palpation revealed a marked right rectus rigidity, which was much less, I was informed by the intern, than it had been, because he had just had a hypodermic injection of morphin.

The lower part of a normal sized right kidney could be felt very distinctly on full inspiration. It was not tender when pressed between my fingers.

Examination of the lower abdomen was unsatisfactory, because, on pressure about the region of the appendix, the abdomen became quite rigid, and the patient complained of pain beneath the fingers. No mass could be felt, nor anything which I could mistake for a palpable appendix.

I reported that the genito-urinary tract was probably not responsible for the condition, and that I did not wish to perform a cystoscopy, for fear that the straining incident to such an examination might cause the rupture of a much distended appendix.

Operation and Result.—Following my report, the patient was operated on at 11:30 p. m., April 18, by Dr. John Turner, who had previously stated that he did not believe the condition to be an acute appendicitis. A normal appendix was found. The pain was not completely relieved. However, there were no severe pains and no vomiting, but a persistent dull ache in the region of the incision. This persisted for three or four days, growing gradually less. The urine, April 22, showed many pus and red blood cells, with many clumps of cocci and an occasional bacillus like the colon bacillus. Roentgen-ray examination, May 2, detected no stones in the genito-urinary tract. Cystoscopic examination, May 4, revealed a congested bladder, with several small petechiae about the right ureteral orifice, which were dark colored and discolored the mucous membrane quite distinctly. In the bladder beyond the interureteric ridge, and easily moved about by the irrigation through the cystoscope, there was a small stone about 0.2 cm. in diameter, which looked phosphatic. The left ureteral orifice was virtually normal, though slightly reddened. The right was turned toward the left side, instead of being on the top of the ridge or on the right side of it, and was quite difficult to enter with a ureteral catheter, suggesting some obstruction.

Ureteral Catheterization.—The roentgen-ray catheter was passed to the right kidney. The kidney capacity was about 12 c.c. When pain was reproduced, it was stated to be the same kind of pain as that experienced during an attack of appendicitis and located in the appendectomy wound. The roentgen ray (Buckey diaphragm) gave a very clear picture of the pelvis and ureter and catheter, though only about 7 c.c. of sodium bromid was injected into the kidney. The left ureteral catheter was seen to pass along the ureter, but not as high as the kidney. There was almost no reaction from the examination. The pyelogram and ureterogram disclosed no abnormality.

A functional kidney test, May 4, of 1 c.c. of phenolsulphonephthalein intravenously, showed an appearance on the left side in three and one-half minutes; on the right side, in four minutes. The output in twenty minutes was 17 per cent. on the right side and 18 per cent. on the left.

Microscopic examination of the urine revealed no pus and no infection. The bladder urine contained a very occasional pus cell, but no organisms.

The patient was discharged from the hospital, May 8, having promised to watch the urine for the stone, and return for examination if he did not pass it. Nothing has been seen of him since then.

COMMENT

The mistake made in the diagnosis of this case was due in a large measure to a failure to examine the patient cystoscopically and to pass a ureteral catheter. Had this been done, I should probably have discovered that the pain was ureteral; probably I should have obtained a scratch mark on the wax-tipped catheter, and the ureteral orifice would have been seen to be edematous.

When the existence of a largely distended, ready-to-rupture appendix exists, I believe that a cystoscopic examination is contraindicated, as I felt it to be in this case. If my mistake proves anything, it is that it is for the surgeon rather than for the urologist to say whether the condition of the appendix contraindicates urologic procedures.

The absence of pain in the kidney and of the tenderness to pressure was probably due to a lack of obstruction to the urinary flow. The pain was a ureteral colic, such as we not infrequently see following a ureteral catheterization. In the uninfected cases which I have seen in which the descending stone was extremely small and did not lodge long enough in any one place to cause well marked swelling of the mucous membrane, there was an absence of distinct pain and tenderness in the kidney. But in cases in which an infection of the kidney has existed, when the stone has been large enough to itself produce an obstruction of the ureter, or when, though small, it was stopped for a day or even twelve hours, at some one point there has always been some tenderness of the kidney on pressure, and usually pain in the kidney region.

The cause of the slight rise in temperature and the leukocytosis would be readily explained if there had been an infection of the kidney. In its absence I have no good theory to offer, unless it could have been produced by the gastrointestinal disturbance.

820 Hurt Building.

PENILE CHANCRE WITH RINGWORM: REPORT OF CASE

F. J. Eichenlaub, M.D., Washington, D. C.

This case seems worthy of record as a warning to those who might make the same error in a similar case.

A man, aged 28, married, was referred to me for diagnosis of a penile lesion. Examination revealed an elevated, circular, well indurated, scaly lesion. There was no real ulceration. The patient admitted extramarital exposure, with the use of a condom. The duration of the lesion was two weeks, and there was no palpable inguinal adenopathy and no sign of generalized syphilis. Dark-field examination by Dr. LeComte had been negative.

In spite of the location, I made a clinical diagnosis of epidermophytosis. Dr. Hazen saw the patient and diagnosed chancre, clinically. He was convinced of his apparent error when I was able to demonstrate the ringworm fungus to him, and found typical ringworm lesions on the feet. The patient disappeared for two months, during which time the lesion rapidly healed under treatment with Whitfield's ointment. He then returned to Dr. LeComte with mucous patches, roseola and a four plus Wassermann reaction.

Three explanations are possible: (1) that both Dr. Hazen and myself mistook an artefact for the mycelia, which seems improbable, since the demonstration of mycelia is an almost daily occurrence in this office; (2) that the patient had another lesion which was the syphilitic chancre, the history of which none of us were able to obtain (this also seems unlikely, as he admitted exposure and had nothing to gain by concealment), and (3) that the lesion was a chancre and the ringworm fungus a secondary invader. This seems the most probable explanation, and it is on this account that the case is recorded.

1912 R Street, N.-W.

New and Nonofficial Remedies

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application. W. A. Puckner, Secretary.

ALUMINUM COMPOUNDS

Several of the compounds of aluminum are official, including the ordinary alum (alumen, U. S. P.). The acetate and the acetotartrate of aluminum (official in the National Formulary) are used in the form of solutions.

The aluminum compounds are used for their astringent action. Since they are but little absorbed, they are relatively nontoxic, although long-continued use may lead to slight symptoms of metal poisoning.

Compounds of aluminum are astringent because of their property of precipitating albumin. The exsiccated alum is more energetic, not only because it contains a larger proportion of alum than the crystalline, but also because it absorbs water from the tissue at the same time. The acetate is milder than the sulphate, as is usual with metallic salts.

The aluminum compounds are not so astringent as the corresponding lead salts, but they may exert an irritant and even caustic action when used in concentrated solutions or in the form of the "burnt" alum. When swallowed in overdoses in such concentrated form, they may cause gastritis and diarrhea. Alum is sometimes used as an emetic.

The aluminum compounds are slightly antiseptic, a property which goes with their astringency. Some of the organic compounds are said to be more actively antiseptic than the inorganic.

Several proprietary preparations, consisting of aluminum combined with organic acids, have been introduced with a view to utilizing the astringent and antiseptic properties of their components. Many of these possess no special advantages and have fallen into disuse, or have been largely replaced by others of a more or less similar nature.

ALUMNOL. — **Alumini Naphtholsulphonas.** — Aluminum Betanaphthol-Disulphonate. — $Al_2(C_{10}H_5.OH.(SO_3)_2)_3$. — The aluminum salt of betanaphthol-disulphonic acid.

Actions and Uses.—Alumnol is used as a mild antiseptic and in concentrated solutions as an irritant or caustic. It is used for the destruction of the gonococcus, especially in cases of gonorrhea in women in which the endometrium is affected.

Dosage.—As a surgical antiseptic, in from 0.5 to 3 per cent. solutions; in gynecology, in from 2 to 5 per cent. solutions; in otology and laryngology, either as a powder or in from 0.25 to 1 per cent. solution as douches, washes or gargles; as a cautery, in from 10 to 20 per cent. solution.

Manufactured by Farbwerke, vorm. Meister, Lucius & Bruening, Hoechst a.M., Germany (H. A. Metz Laboratories, Inc., distributor).

Alumnol is a fine, nearly white, nonhygroscopic powder. It is soluble in 1.5 parts of water, easily soluble in glycerin, sparingly soluble in alcohol and insoluble in ether. An aqueous solution is slightly fluorescent and produces a faintly acid reaction. When dried, it loses about 9 per cent. of water, and, when exposed to the air, it is darkened in consequence of its reducing properties. It is precipitated from solution by albuminous and gelatinous bodies; but these precipitates are redissolved in excess of the latter bodies. It is decomposed by salts of silver or other reducible salts, by alkalis and by ammoniacial compounds.

Dissolve about 1 Gm. of alumnol in 10 Cc. of water; the solution is clear. Acidulate with hydrochloric acid; the liquid becomes at most only slightly turbid. Add a few drops of potassium ferrocyanide solution; the liquid is tinted slightly bluish. On the addition of diluted sulphuric acid or of ammonium oxalate solution to the aqueous solution, no precipitate is formed.

Incinerate about 2 Gm. of alumnol, accurately weighed; the amount of ash (alumina) is 12.7 per cent.

NOVOCAIN BASE. — Procaine Base. — Para-amino-benzoxydiethylamino-ethane. — $C_6H_4.NH_2COO.C_2H_4.N(C_2H_5)_2$. — The base contained in procaine.

Actions and Uses.—The same as those for procaine. (See N. N. R., 1922, p. 36.) Because of its solubility in oil, it is suitable for an oil spray. A 10 per cent. solution in expressed almond oil may be used.

Dosage.—The same as that for procaine. (See N. N. R., 1922, p. 36.)

Manufactured by H. A. Metz Laboratories, Inc., New York. U. S. patent 812,554 (Feb. 13, 1906; expires 1923) by license of the U. S. Federal Trade Commission. U. S. trademark 53,072.

Novocain base occurs as a white, odorless, granular powder; permanent in air; insoluble in water; soluble in alcohol, ether, chloroform, and benzene; also soluble in fixed and volatile oils. Novocain base melts at not below 61 C.

Dissolve 1 Gm. of novocain base in 50 Cc. of hydrochloric acid, 2 per cent. Portions of the solution respond to the tests for procaine, which see. Dissolve about 0.1 Gm. of novocain base in 1 Cc. of sulphuric acid. The solution is colorless (organic impurities). Incinerate about 0.5 Gm. of novocain base, accurately weighed. Not more than 0.1 per cent. of residue remains.

PROCAINE NITRATE (See N. N. R., 1922, p. 37).

Novocain Nitrate.—A brand of procaine nitrate-N. N. R.

Manufactured by H. A. Metz Laboratories, Inc., New York. U. S. patent 812,554 (Feb. 13, 1906; expires 1923) by license of the Federal Trade Commission. U. S. trademark 53,072.

DIPHTHERIA TOXIN-ANTITOXIN MIXTURE (See New and Nonofficial Remedies, 1922, p. 282).

Lederle Antitoxin Laboratories, New York.

Diphtheria Toxin-Antitoxin Mixture (0.1 L+).—A mixture containing 0.1 lethal dose of diphtheria toxin neutralized with the required amount of diphtheria antitoxin. Marketed in packages of three vials, each containing 1 Cc.; also in packages of thirty vials, each containing 1 Cc.

ACNE BACILLUS VACCINE (See New and Nonofficial Remedies, 1922, p. 298).

E. R. Squibb and Sons, New York.

Acne Vaccine.—Marketed in packages of four syringes containing, respectively, 50, 100, 250 and 500 million killed bacilli; in packages of four ampules containing, respectively, 50, 100, 250 and 500 million killed bacilli (with a syringe); in vials of 5 Cc., 10 Cc. and 20 Cc., each cubic centimeter containing 1,000 million killed bacilli.

GONOCOCCUS VACCINE (See New and Nonofficial Remedies, 1922, p. 301).

E. R. Squibb and Sons, New York.

Gonococcus Vaccine.—Marketed in packages of four syringes containing, respectively, 100, 250, 500 and 1,000 million killed gonococci; in packages of four ampules containing, respectively, 100, 250, 500 and 1,000 million killed gonococci (with a syringe); in vials of 5 Cc., 10 Cc., and 20 Cc., each cubic centimeter containing 1,000 million killed gonococci.

MENINGOCOCCUS VACCINE (See New and Nonofficial Remedies, 1922, p. 302).

E. R. Squibb and Sons, New York.

Meningococcus Vaccine, Curative.—Marketed in packages of four syringes containing, respectively, 100, 250, 500 and 1,000 million killed meningococci; in packages of four ampules containing, respectively, 100, 250, 500 and 1,000 million killed meningococci (with a syringe); and in vials of 5 Cc., 10 Cc. and 20 Cc., each cubic centimeter containing 1,000 million killed meningococci.

PERTUSSIS BACILLUS VACCINE (See New and Nonofficial Remedies, 1922, p. 303).

E. R. Squibb and Sons, New York.

Pertussis Vaccine, Immunizing.—Marketed in packages of three syringes containing, respectively, 500, 1,000 and 1,000 million killed bacilli; in packages of three ampules containing, respectively, 500, 1,000 and 1,000 million killed bacilli (with a syringe).

Pertussis Vaccine, Curative.—Marketed in packages of four syringes containing, respectively, 100, 250, 500 and 1,000 million killed bacilli; in packages of four ampules containing, respectively, 100, 250, 500 and 1,000 million killed bacilli (with a syringe); and in vials of 5 Cc., 10 Cc. and 20 Cc., each cubic centimeter containing 2,000 million killed bacilli.

PNEUMOCOCCUS VACCINE (See New and Nonofficial Remedies, 1922, p. 304).

E. R. Squibb and Sons, New York.

Pneumococcus Vaccine.—A suspension of killed pneumococci Types I, II, III and Group IV in equal proportions. Marketed in packages of four syringes containing, respectively, 100, 250, 500 and 1,000 million killed pneumococci; in packages of four ampules containing, respectively, 100, 250, 500 and 1,000 million killed pneumococci (with a syringe); and in vials of 5 Cc., 10 Cc. and 20 Cc., each cubic centimeter containing 5,000 million killed pneumococci.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, OCTOBER 28, 1922

PROTECTING SCIENTIFIC RESEARCH AT THE POLLS

At the polls in November, in California, Colorado and Washington, scientific medicine will be tried at the bar of public opinion. The verdict will depend in part on public knowledge of the attainments and conduct of physicians in the past. The true physician, as attorney for the defense, will be actively campaigning against the antis of all kinds, and he will be especially active on election day, when the case goes to the jury.

In Colorado and in California, the people will decide by popular vote whether medical research involving the use of living animals shall be prevented. The antivivisectionists in these states, mistrusting or despising their legislatures, are seeking, through the initiative, to bring about the enactment of such measures by playing on the ignorance and the emotions of the people. No properly informed person can vote in favor of the antivivisectionist measures proposed.

In Washington, the contest is being fought under the referendum to restrict the activities of the health authorities with respect to the sanitary and hygienic control of the public schools. The foes of scientific medicine, among them those who even deny the existence of disease, procured the passage of an act in 1921 granting to parents the privilege of forbidding examination of their children in school by the health authorities. The public health forces of the state, recognizing the danger to public health inherent in this measure, have procured its submission to the people, and it will be voted on, November 7. The demand for this uncivilized legislation was presumably due to recognition, by the enemies of medical science, that medical mysticism and quackery cannot thrive in a community enlightened with respect to modern medicine, and that the public schools constitute the great channel through which the people can be enlightened and future generations gain from the past. In fact, opposition to the rejection of this measure is an attempt to destroy one of the most effective methods of teaching facts concerning disease, namely, by their active application in school administration.

In California, members of two of the cults that now infest the medical underworld are fighting through the initiative to free themselves from control. The liberal and fair-minded provisions for licensing their practitioners do not satisfy them. Chiropractors have been defying the law, and, when convicted and sentenced, have gone to jail rather than pay fines, thus posing as martyrs. Apparently neither cult will be satisfied by any measure that does not allow it to pursue its own course at its own sweet will.

The medical profession must see that no ground is lost to the enemies of scientific medicine and particularly of preventive medicine. The debt of the physician to his patient and his community cannot be discharged by proxy. Personal service, intelligently, energetically and loyally rendered, is absolutely essential to success, if the results of the contest are to be certain and complete. Every physician in each of the communities now laboring under the threat of this dangerous legislation should devote an hour or two each day between now and election to enlightening his patients and friends, to informing them as to what is right and to urging them to act on behalf of the right. Thus he will not only be doing his proper part as a true physician but also as a good citizen.

NEWLY DISCOVERED FACTORS IN NATURAL IMMUNITY

Although man lives continually in an environment that harbors virulent micro-organisms of the most diverse nature, he is surprisingly free from infection by them. This is apparently due to the unique modes of defense, and numerous sources of immunity that he possesses. The modern science of immunology has been concerned with endeavors to ascertain how immunity is acquired and developed—to learn the precise nature of the undeniable defenses of the human organism. Distinction has long been made between those mechanisms of resistance to disease which are termed natural immunity, and the acquired immunity that plays an equally important part in life. The development of such studies has made it clear that immunity can be transmitted from mother to offspring under certain conditions. According to the classic investigations of Ehrlich,[1] more than thirty years ago, it may depend on a passive transfer of specific antitoxins both by the blood and by the milk of the mother. In some cases the antibodies appear to be transmitted to the fetus in utero; in others they seem to be conveyed only in the milk.

Considerations of the function of the blood in immune phenomena have been prominent in the development of the subject. Comparatively little attention has been accorded to the milk. It is a highly significant contribution of Theobald Smith and his collaborators in the Department of Animal Pathology of the Rockefeller Institute at Princeton, N. J., to have demonstrated the remarkable value of colostrum to the new-born, not merely as a source of nutriment but also as the conveyor of highly essential immunity factors. The detailed study now published[2] demonstrates that the calf deprived of colostrum lacks something that prevents intestinal bacteria from invading the body and multiplying in the various organs. Heretofore the diarrhea ("scours") and multiple exudative arthritis observed with frequency and serious outcome under certain circumstances in the new-born of this species have been treated by hygienic measures involving isolation and disinfection, all aimed at the invading micro-organisms. Sometimes the animals survive and subdue the invading bacteria successfully; in other cases, troublesome localizations arise. Smith finds the difficulties to be enormously more common in animals deprived of colostrum. He concludes that the function of the colostrum is essentially protective against miscellaneous bacteria that are harmless later on when the protective functions of the calf have begun to operate and accumulate energy. There appears to be no function inherent in colostrum which controls development or growth, or which is essential to the starting of the mechanism of digestion, since calves not having had colostrum appear to do as well as the others when the infection has been overcome.

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[1] Ehrlich, Paul: Ztschr. f. Hyg. **12**, 1892.

The conclusions are supported by a study of the appearance of agglutinins of *Bacillus abortus,* one of the disturbing micro-organisms in the calf disorders under investigation. These antibodies do not occur in the blood of the normal new-born before it has received colostrum. There is a correspondence between the appearance of certain protein fractions in the blood of the new-born animal and the simultaneous absorption of the agglutinins. Furthermore, Orcutt and Howe,[3] likewise working in the Rockefeller Institute laboratories, have found that a comparison of the appearance of the agglutinins for *Bacillus abortus* in the blood of new-born calves with the first appearance of globulins in the same blood following the ingestion of colostrum indicates that the agglutinins are associated with the globulins. These observations are supported by the removal of the agglutinins from serum or colostrum with concentrations of sodium sulphate which precipitate globulins present in the blood of calves that have ingested colostrum, but which are not present at birth. There can be little doubt that these investigations, though not conducted on the human species, warrant the placing of greater emphasis on the importance of colostrum in the feeding of the new-born infant. The early days of postnatal life, during which an adjustment to the new environment of the world is being made, are of the utmost importance. Evidently Nature has provided safeguards for this critical period in ways that we are only beginning to realize.

ANTIVIVISECTIONISTS SEEK TO CRIPPLE NATION'S DEFENSE

The first gas attack against unprotected troops during the World War caused 5,000 deaths and injured more than 10,000 soldiers. The tortures of those who died and the long suffering and disablement of those who survived are well known. And yet some persons are opposing the development of adequate defense, not only against this menace but also against diseases to which the military forces are liable. Just as they sought to cripple the American Red Cross financially during the World War, antivivisectionists today are opposing research intended to alleviate the sufferings of humanity.

First came a preliminary attack in the form of a campaign to induce antivivisectionists to appeal to Congress to "remedy" the situation arising out of the use of dogs at the Edgewood arsenal, in connection with researches being carried on by the United States Army to develop adequate methods of protection against poison gas. Next came the introduction of "A Bill to forbid the employment of noxious substances upon the living bodies of domestic animals," aimed solely at officers, enlisted men, and civilian employees of the Army and Navy. Now, comes an effort to take the measure out of the line of direct attack, where it must stand or fall solely on its merits, and have it enacted as a section in the Army Bill, where its iniquities can be more or less effectively obscured among the many other features of that measure. The legislation proposed, as embodied in Representative Johnson's bill, is of the adroit, subtle type to which agitators of the antivivisection group are so prone to resort. To the average person to whom an appeal is made for its support, and even to the average senator or representative who casually examines it, it will appear as being directed merely against research for the development of better methods of gas attack, rather than better methods of defense. It purports on its face to forbid merely "research, investigation, or test of the efficacy of any gas, liquid, powder and other noxious substance." But clearly the "efficacy," in a military sense, of any gas is so intimately associated with the feasibility of neutralizing that gas when used by the enemy, of developing an efficient gas mask to protect against it, and of relieving and curing persons gassed, that to forbid an inquiry into the "efficacy" of a gas is to forbid an inquiry into defensive methods against its use. At the very least, if such legislation should be enacted, any officer, enlisted man, or civilian employee of the Army or the Navy who had the temerity to make any investigations whatsoever for the development of defensive methods would be liable to find himself facing a criminal charge inspired by some zealous antivivisectionist, and confronted with the possibility of a fine of $500 or imprisonment for one year, or both.

The situation is one that calls for vigorous and prompt protest and action, not only by the medical profession but also by every patriotic American. Members of the medical profession are urged to let their influence be felt in opposition to this legislation. Many senators and representatives are now at home, where they can be most effectively interviewed; but, in all cases, written protest should be sent to them so as to make such protests matters of official record.

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[2] Smith, Theobald, and Little, R. B.: The Significance of Colostrum to New-Born Calf, J. Exper. Med. **36:** 181 (Aug.) 1922.

[3] Orcutt, M. L., and Howe, P. E.: The Relation Between the Accumulation of Globulins and the Appearance of Agglutinins in the Blood of New-Born Calves, J. Exper. Med. **36:** 291 (Sept.) 1922.

SOME MECHANISMS OF INCREASES IN METABOLISM

Although it is generally appreciated that the thyroid gland exerts a profound effect on metabolism and consequently on the state of nutrition, the mechanisms involved are by no means clearly understood. The mere designation of widely different physiologic conditions of the body by the terms hyperthyroidism or hypothyroidism gives no explanation of the underlying reactions which may be exaggerated or inhibited in contrast with the normal. Studies of the basal metabolic rate repeatedly have shown that this may vary in direct relation to the functional behavior of the thyroid. The exchange of matter in the body and its physiologic oxidations are notably augmented by feeding thyroid in substance or by administration of the unique chemical component thyroxin, which Kendall first isolated from the glands; in fact, the metabolism may readily thus be increased so as to bring about marked loss in body weight. These are facts of the newer knowledge of the ductless glands.

Precisely how is the increased metabolism and attendant heat production in hyperthyroidism of any sort to be accounted for? The tremor of the hands of patients in certain stages of the disorder is a well recognized symptom. Is muscular fibrillation or increased tonus of the entire musculature the immediate cause of the greater transformation of energy? These are questions to which members of the staff of the Laboratories of Physiology of the Harvard Medical School have lately addressed themselves. The researches of Aub, Bright and Uridil[1] have negatived the assumption that muscular movements or marked tonus can account for the increased combustion following ingestion of thyroxin, for example. In experimental animals under anesthesia, so that all muscular activity ceased and the muscles became flabby and soft, the thyroid product still produced its characteristic metabolic effects.

It has occasionally been asserted that the thyroid acts as a metabolic stimulant in conjunction with the suprarenals; yet the Boston investigators have found that the increased metabolism due to thyroxin can be brought about even in the absence of the suprarenal glands. This may be taken as proof positive that the metabolic effects of the two glands are not due to a single mechanism, or, at least, that they may work independently. This brings us to the probability that through thyroid stimulation the general basal rate of cellular combustion is raised. As it has been somewhat fancifully expressed, the thyroid secretion acts as a draught, stimulating the resting body cells to an increased rate of combustion so that cellular metabolism assumes a higher plane.

In this connection it is important to note the latest evidence that the suprarenals also may promote the metabolism independently.[2] Suprarenalectomy in animals leads to prompt fall in the metabolism; and the few reports from cases of Addison's disease in man[3] are in substantial accord. Aub, Forman and Bright suggest that there may be two mechanisms which may function independently in relation to metabolism. The suprarenal glands, probably by means of epinephrin, may help in the acute chemical regulation of metabolism, and may be the basis of the increased rate seen during excitement. The slower acting regulation would then be accomplished normally by the thyroid secretion. This, they remark, is analogous to the mechanism of the body for maintaining a normal hydrogen ion concentration, in which elimination of carbon dioxid by the lungs is the acute, rather rough method, but elimination of phosphates by the kidney is the slower, more accurate regulating mechanism.

Current Comment

FOOD INSTINCTS IN THE NEW-BORN

It seems highly probable that under conditions in which food is easily available in abundance and in liberal variety, mankind would be likely to find instinct a fairly safe guide to the choice of nutrients. There are few places, if any, however, where such utopian conditions exist. Changes in economic, sociological and political conditions, as well as the evolution of various industries, have brought with them shifts of custom and alterations of eating habits within comparatively short periods.[4] Australian meats are available in London, Wisconsin milk in Manila, eggs from China in Chicago. In consequence of altered and altering conditions of living which may entail restriction as well as abundance, instinct is no longer the sole guide to nutrition. Civilized man is slowly adjusting his regimen to what appeals to him as rational suggestions of science. Thousands of persons, wisely or unwisely, think of their diet in relation to factors which the physiology of nutrition and chemistry of foods have suggested. These change with increase in our knowledge. There is a growing tendency to apply the prescription and proscription of dietary components not only to adult man but to the untutored young as well. Sometimes, in these days of measured values and discriminating dietetics, it almost seems as if instinct had lost its place in the nutritive functions. Even our domestic animals are in large measure fed by rule. How effective and successful free choice of nutrients may be among the latter has been demonstrated by actual experiment.[5] Recently Faber[6] has frankly voiced the belief that appetite provides a fairly accurate index to the needs of the new-born infant. In such trials as he has made with supplementary foods, the appetite also appeared to be a safe guide so far as the avoidance of dangers to digestion is concerned. Calorific needs can be measured with extreme accuracy; they must be administered with common sense. Practically, as Faber expresses it, the clinician, unless he is very conservative, will adjust his prescription for healthy infants to the point at which the infant is usually satisfied. Many persons will find silent satisfaction in the assurance that for infants who cannot have breast milk the claim of appetite to be satisfied may with less hesitation be given a hearing.

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[1] Aub, J. C.; Bright, Elizabeth M., and Uridil, J. E.: Studies upon the Mechanism of the Increased Metabolism in Hyperthyroidism, Am. J. Physiol. **61**: 300 (July) 1922.

[2] Aub, J. C.; Forman, J., and Bright, Elizabeth M.: The Effect of Adrenalectomy upon the Total Metabolism of the Cat, Am. J. Physiol. **51**: 326 (July) 1922. Aub, J. C.; Bright, Elizabeth M., and Forman, J.: The Metabolic Effect of Adrenalectomy upon the Urethanized Cat, Am. J. Physiol. **51**: 349 (July) 1922.

[3] Loeffler: Ztschr. f. klin. Med. **87**: 280, 1919. Aub, J. C., and Du Bois, E. F.: The Basal Metabolism of Old Men, Arch. Int. Med. **19**: 823 (May) 1917. Muirhead, A. L.: An Autograph History of a Case of Addison's Disease, J. A. M. A. **76**: 652 (March 5) 1921.

[4] Mendel, L. B.: Changes in the Food Supply and Their Relation to Nutrition, Yale University Press.

SEASONAL VARIATIONS IN THE BLOOD IN RELATION TO SUNLIGHT

Although the therapeutic potency of short wave rays of radiant energy such as correspond to the ultraviolet region of the solar spectrum or emanate from the admium spark, the ferric chromium condenser spark r the mercury vapor quartz lamp is now generally dmitted, the new heliotherapy of rickets has served to ocus attention more effectively on this subject. Huldschinsky[7] has demonstrated that when children uffering from rickets are exposed repeatedly to the ays of the mercury vapor quartz lamp, healing of the achitic process ensues, as is also the case when such atients are exposed to sunlight. These observations ave been amply confirmed in this country. It has urther been established by American investigators hat in cases of uncomplicated rickets the concentra- on of inorganic phosphorus in the blood is markedly educed. The cure of the condition involving orderly rogress of calcification is attended by or associated ith a return of the content of this blood phosphorus a normal level, whether the curative result is secured the administration of cod liver oil[8]—the classic medy in such cases—by frequent exposure to the n's rays,[9] or by artificial methods of irradiation with traviolet rays.[10] Kramer, Casparis and Howland ate that in their experience healing of the bones following irradiation occurred at about the same time as it does after the administration of cod liver oil. Hess and Lundagen[11] have just reported the astonishing observation that there is a seasonal tide of blood phosphate in infants. Their studies show that the higher concentrations occur in the summer and fall, a steady and marked ebb following in the winter months. These changes seem to occur irrespective of the nature of the diet. They correspond with the allegation that the rays of the sun during the summer are incomparably richer in ultraviolet than those during the winter and early spring. The seasonal variation in the incidence of rickets offers a similar correspondence. Perhaps it will be found, as some of these investigators have proposed, that the ultraviolet rays are necessary for the normal metabolism of the growing infant, especially in relation to its exchange of inorganic salts.

"'PROPRIETARY MEDICINES AND THE DOCTOR'—AND BOTTLE MAKER"

A few weeks ago The Journal commented in these pages on a leaflet that was being sent, apparently, to all physicians of the country either by the "patent medicine" interests or by an organization interested in the glass bottle business. The nominal thesis developed in the pamphlet was to the effect that physicians and "patent medicine" makers should be friends because the "patent medicine" people "keep the American public sold to the curative properties of drugs." This, we say, was the nominal thesis. The real thesis, however, was that so long as the American public can be fooled into believing that everything that ails them can be cured by taking something three times a day out of a bottle, the success of the glass bottle business is assured. Apparently, the interests that distributed this pamphlet to physicians did not cease there; they sent them also to newspaper editors. The editor of the Boston *Traveler* received one, and his reaction to it will interest physicians. Here is an editorial that appeared in the Boston *Traveler* of October 14:

> An interesting pastime for an editor, when not otherwise engaged, is to trace the sources of the propaganda that flows in a constant stream to his desk. Today we pick from the general miscellany a leaflet which urges physicians to lay aside their prejudices against patent medicines. Various arguments are set forth to show that the medical fraternity would be aiding its patients and itself by cooperating with the makers of proprietary remedies.
>
> Who, think you, is behind this particular bit of propaganda? You might guess several times before you hit it right; the makers of glass jars and bottles! The source being discovered, the connection is easily seen. If the physicians would prescribe proprietary medicines, instead of those specially compounded by the apothecary, glass bottles would be more in demand.
>
> Unfortunately for the nostrum makers, the average physician is not inclined to prescribe their products, regardless of how efficacious he may believe them to be. His patients come to him with the expectation of individual attention. They would be disappointed if he handed them a prescription in plain English, bearing the name of an article already packaged for them on the druggist's self. The physician is a dealer in made-to-measure, not ready made. There's the nib of the difficulty.

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[5] Mitchell, Helen S., and Mendel, L. B.: Studies in Nutrition: ie Choice Between Adequate and Inadequate Diet, as Made by Rats d Mice, Am. J. Physiol. **58**: 211 (Dec.) 1921. Evvard: Proc. Iowa ad. Sc. **22**, 1915.

[6] Faber, H. K.: Food Requirements in New-Born Infants, Am. J. s. Child. **24**: 56 (July) 1922.

[7] Huldschinsky, K.: Heilung von Rachitis durch künstliche Höhenne, Deutsch. med. Wchnschr. **45**: 712 (June) 1919; Die Behandlung Rachitis durch Ultraviolett Bestrahlung, Ztschr. f. orthop. Chir. **39**: , 1920.

[8] Howland, John, and Kramer, Benjamin: Calcium and Phosphorus the Serum in Relation to Rickets, Am. J. Dis. Child. **22**: 105 (Aug.) 1.

[9] Hess, A. F., and Gutman, P.: The Cure of Infantile Rickets by nlight as Demonstrated by a Chemical Alteration of the Blood, Proc. Exper. Biol. & Med. **19**: 31 (Oct.) 1921.

0. Kramer, Benjamin; Casparis, H. R., and Howland, John: Ultraet Radiation in Rickets: Effect on the Calcium and Inorganic Phosrus Concentration of the Serum, Am. J. Dis. Child. **24**: 20 (July) 2.

[11] Hess, A. F., and Lundagen, Marion A.: Seasonal Tide of Blood Phosphate in Infants, Proc. Soc. Exper. Biol. & Med. **19**: 380 (May) 1922.

We especially commend to physicians the thought-provoking sentence: "The physician is a dealer in made-to-measure, not ready made." There is text for a sermon here.

THE REACTION OF BOSTON TO THE "REACTIONS" OF ABRAMS

A few weeks ago the editor of the *Boston Medical and Surgical Journal* pointed out the fallacies of Albert Abrams' claims and the absurdities of his cult. Then Abrams came to Boston and was given an opportunity to lay his cards on the table, face up. The *Boston Medical and Surgical Journal* reports editorially in its issue of October 19 the results of Abrams' visit. On Monday, October 9, Abrams appeared before the Board of Registration in Medicine in an informal hearing. The opportunity had been given a representative of the "electronic" cult to inspect the room and arrange for proper wiring so that Abrams could give a demonstration of his method. When the meeting came to order, however, Abrams said that it was impossible for him to give a demonstration at that time. His followers then started to hold an "experience meeting," detailing the marvels they had wrought. Naturally, the chairman of the Board of Registration in Medicine refused to permit the meeting to be turned into an advertising "stunt," and the meeting was adjourned. The day following Abrams gave a clinical demonstration of his method in the laboratory of one of his disciples. Our Boston contemporary points out that, by a remarkable coincidence, while Abrams' followers in the rear of the room were able to see and hear the reactions claimed by Abrams, those members of the Massachusetts Medical Society who occupied chairs close to the demonstration, could neither see nor hear them. Abrams, it is said, refused to submit the method to any test offered, but confined himself to demonstrating the presence of lesions "the existence of most of which could be proved only by post-mortem examination." A member of the staff of the *Boston Medical and Surgical Journal,* a man in perfect health, was selected for experiment. By his diagnostic methods, Abrams discovered in this healthy individual a streptococcus infection, tuberculosis of the intestinal tract, congenital syphilis and intestinal sarcoma—otherwise the man was all right! It is understood that the volunteer inconsiderately refused to submit to a postmortem examination. The *Boston Medical and Surgical Journal* declares that Abrams' visit to Boston disclosed two outstanding facts: First, the man persistently refused to submit his methods to tests that could be scientifically controlled or to give a demonstration under conditions that would be subject to the usual rules of scientific criticism; second, in the one case in which he did demonstrate his method, he found syphilis, tuberculosis, sarcoma and streptococcus infection in a healthy individual. As the *Journal* points out, if Abrams can diagnose disease where no symptoms exist, he certainly should have been willing to submit to a test based on the diagnosis of blood specimens from patients with definite ailments. The fact that Abrams refused to perform such tests speaks more eloquently than any critic. Abrams, it is said, claims that his electronic reactions are either the greatest miracle of the age or the greatest fake. Here we have a point of agreement with Abrams—and the electronic reactions are no miracle.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ARKANSAS

Graduate Courses in Venereal Disease.—Thirty-day courses in diagnosis and treatment of venereal disease will be given at the venereal disease clinic of the U. S. Public Health Service, Hot Springs, this winter. The class begins on the first of each month and is limited to ten students. Applications should be addressed to the Surgeon-General, U. S. P. H. S., Washington, D. C.

CALIFORNIA

Physicians Organize Scientific Society.—At a meeting of physicians in Fresno, October 12, the Fresno Scientific Club was organized and officers elected. Regular meetings will be held in the future.

Physician's Portrait Presented to Medical Society.—At a special meeting of the San Francisco County Medical Society, recently, a portrait of the late Dr. Harry M. Sherman was presented to the society by his widow. Dr. Douglas W. Montgomery delivered the address of acceptance.

Fake Doctor Arrested.—An individual using at different times the names Leslie Hollen, Leslie Powell, J. Mitchell Palmer, Thomas Hollen and Dr. Fredericks was arrested recently in Los Angeles on a charge of passing bogus checks, and of having forged names of reputable physicians to prescriptions for narcotics. He asserted that he had practiced medicine in New York and in Philadelphia. He claimed also to have been a major in the army.

CONNECTICUT

Yale University News.—Dr. Willard Cole Rappleye, superintendent of the New Haven Hospital, was recently elected professor of hospital administration with assignment to Yale University School of Medicine. Dr. Rappleye was formerly superintendent of the Pacific Colony for the Feebleminded and director of hospitals for the University of California, San Francisco.——Prof. Richard Swann Lull has been appointed director of the Peabody Museum, New Haven, for a term of five years.——Yale Corporation has accepted from Prof. Hiram Bingham a gift of the anthropologic and archaeologic collections of the Peruvian expeditions.

DISTRICT OF COLUMBIA

Cancer Clinic for Capital.—Plans for the establishment of a cancer clinic in the District of Columbia are under way, it was announced by the American Society for the Control of Cancer, October 7. A schedule of the clinic was placed before the District of Columbia Medical Society for approval. Dr. Edwin A. Merritt is chairman of the cancer clinic committee.

DELAWARE

State Medical Meeting.—At the annual meeting of the Delaware State Medical Society, held in Dover, October 9-10, under the presidency of Dr. John W. James, Dover, the following officers were elected for the ensuing year: president, Dr. Dorsey W. Lewis, Middletown; vice presidents, Drs. William T. Jones, Laurel, and Clarence J. Prickett, Cheswold; treasurer, Dr. S. C. Rumford, Wilmington, and secretary, Dr. William O. LaMotte, Wilmington. The next convention will be held in Wilmington, in 1923. A resolution was adopted calling on Secretary of the Treasury Mellon to recommend that provisions be made for the supply of bonded whisky for medical use only, and that a fixed retail price for the liquor be established by the government. The Sheppard-Towner Maternity Act was condemned as undesirable legislation with socialistic tendencies.

GEORGIA

State Board of Medical Examiners.—At a meeting of the oard, October 11, in Atlanta, Dr. Alfred F. White, Flovilla, was elected president; Dr. Clarence M. Paine, Atlanta, vice resident, and Dr. Charles T. Nolan, Marietta, secretary.

Physician's Widow First Woman U. S. Senator.—Mrs. W. H. Felton, Cartersville, became the first woman member of he United States Senate, October 3, when she was appointed y Governor Hardwick to fill the vacancy caused by the eath of Senator Watson. Mrs. Felton, who is 87 years of ge, is the widow of Dr. William H. Felton, who served as epresentative in the state legislature for four terms.

ILLINOIS

Physicians Fined.—It is reported that Drs. Frederick C. uitzereau and W. Dietz of the Anna State Hospital were onvicted, October 20, on charges of practicing medicine ithout state licenses and were fined $100 each and costs.

Campaign for Health Center.—A campaign for $10,000 to nance the work of the Elgin Tuberculosis Association and he nurses' council was conducted by the Elgin Health Center ommittee, October 23-28. Physicians and dentists of the ity contribute their services free to the health center.

Committee on Medical Research Appointed.—Dr. Charles . Mayo, Rochester, Minn., has accepted the chairmanship of e committee on medical research and advancement of the ri-State District Medical Society. The other members of e committee are: Drs. Dean Lewis, Chicago; Frank illings, Chicago; George W. Crile, Cleveland; Campbell P. oward, Iowa City, and John L. Yates, Milwaukee.

Lake County Observes Health Week.—Plans were comleted through the county superintendent of schools for rrying out a public health program in the rural schools and urches of Lake County during the week which began ctober 22. The state department of public health appointed vo field physicians, Dr. A. J. Markley, Belvidere, and Dr. lmer M. Thomas, Aurora, who devoted their efforts toward e success of the occasion. The program consisted of prossional talks, health movies and presentations by a profesonal public health entertainer.

To Cooperate in Cancer Campaign.—The state department public health will actively cooperate with the American ciety for the Control of Cancer in its nationwide anticancer mpaign, which will be intensively carried out during the eek of November 12-18, according to a statement made by r. Isaac D. Rawlings, director of public health. An nouncement of the plans for the week is carried in the ctober bulletin of the department, and arrangements have en made for publishing in the November issue of the same riodical one or more articles on cancer, written in popular yle by well known authorities on the subject. The departent is also prepared to furnish detailed information conrning the plans of the campaign.

Chicago

Cancer Week in Chicago.—The National Cancer Week, vember 12-18, will be celebrated in Chicago by moving ctures, lectures and the distribution of pamphlets. In icago alone, it is stated, 2,663 died of the disease in 1921.

Gift to Chicago Hospital.—Through the generosity of Mr. thur Lowenstein, a new department for the care of preture infants has been made possible at the Michael Reese spital, the superintendent, Dr. Herman Smith, announces. adequate supply of human milk and continuous special rsing care will be features of the newly opened department.

Medical Graduates Banned.—Director A. M. Sheldon of Illinois Department of Registration and Education, cording to report, recently informed Dr. Charles Hill, head the Chicago Medical School, that students from that instiion will not be accepted for examination for the license to actice medicine in Illinois. This ban followed Dr. Hill's usal to permit a committee of physicians, which Mr. eldon appointed for that purpose, to inspect the college.

merican Association of Railway Surgeons.—At the annual eting of the association held at the Hotel Sherman, tober 18-20, the following officers were elected for the uing year: president, Dr. John H. Rishmiller, chief surn of the Soo Line, Minneapolis; vice presidents, Drs. ncan Eve, Jr., Nashville, Tenn.; Peter A. Nestos, Minot, D., and John W. Martin, Des Moines, and secretary, Dr. is J. Mitchell, Chicago. Dr. S. C. Plummer, Chicago, reelected a member of the board of directors.

Personal.—Dr. Woodruff L. Crawford, Chicago, read a paper on "Intra-Peritoneal Injection of Fluids" before the Winnebago County Medical Society, October 10, at Rockford.——James Minnick, superintendent of the Chicago Tuberculosis Institute, has resigned, following ten years' service.——Dr. Henry Schmitz read a paper before a joint meeting of the medical societies of Hancock and McDonough counties, October 3.——Dr. George H. Miller, Nelson Morris Research Institute, has accepted a position as assistant professor of pharmacology at the State University of Iowa, Iowa City.——Dr. and Mrs. Robert A. Anderson of Honolulu are visiting their daughter in Chicago.——Dr. William J. Bowes, Chicago, sailed on the *Chicago* for Havre, October 5.——Dr. Archibald L. Hoyne has been appointed superintendent of the Municipal Contagious Disease Hospital, Chicago, to succeed Dr. Arthur E. Gammage, who was suspended, October 19.

INDIANA

Physician Not Guilty.—In the damage suit brought against Dr. Henry S. Leonard, Indianapolis, charging malpractice and asking $15,000 damages, it is reported that the jury, October 14, returned a verdict of not guilty. The plaintiff suffered contusion of the toes of one foot and was treated by Dr. Leonard. The foot later had to be amputated.

Health Work Discontinued for Lack of Funds.—The health work of the Howard County Tuberculosis Society, of which Dr. J. Martin, Kokomo, is president, has been discontinued owing to lack of funds. It supported a visiting nurse, provided eggs and milk for tuberculous persons and conducted public health clinics and hygiene crusades in the public schools. To continue this work to the end of the year more than $600 would be needed.

Clinic to Be Operated by Health Board.—The general board of the new Family Welfare Society of Indianapolis, a consolidation of the Charity Organization Society, the Children's Aid Association, and the Mother's Aid Society, at its first fall meeting, in Indianapolis, October 10, decided to agree to the request of the city board of health and charity that the infant welfare stations and the dental clinics conducted by the Children's Aid Association, with the cooperation of the Public Health Nursing Association, be turned over to the board, November 1.

IOWA

Polk County Medical Society.—The first annual clinic of the society was held in Des Moines, October 18-20, under the presidency of Dr. Alva P. Stoner. A testimonial dinner was given in honor of Dr. James Taggart Priestley, who is retiring from practice, November 1. Dr. John H. Stokes, Rochester, Minn., and Dr. Vilray P. Blair, St. Louis, delivered addresses during the meeting.

Survey of Children's Susceptibility to Diphtheria.—Under the auspices of the state board of control, Dr. Don M. Griswold, professor of hygiene and preventive medicine, State University of Iowa, has recently completed a survey of the inmates of the child-caring institutions of the state to determine their susceptibility to diphtheria. It was found that 24 per cent. of the boys and 27 per cent. of the girls were susceptible to the disease. The most susceptible age group was found to be from 6 to 16 years, 38 per cent. of the children between these ages showing susceptibility. All of those children who were found susceptible were immunized with toxin-antitoxin.

Personal.—Dr. Robert V. Funsten of the University Hospital, Iowa City, has located in Detroit for the practice of orthopedic surgery.——Dr. Frederick W. Mulsow is acting professor of pathology and bacteriology for the present school year at the Iowa State University.——Dr. Edward L. Rohlf, Waterloo, and Leonard A. West, Waverly, were elected president and secretary, respectively, of the Austin-Flint-Cedar Valley Medical Association, recently.——Dr. Gladys L. Carr, formerly roentgenologist with the American Near East Relief Commission in Asia Minor, has been appointed to the Finley Hospital, Dubuque.——Dr. David S. Bradford, Janesville, practitioner for more than sixty years, spoke on the "History of Medicine" before a special meeting of the Cedar Falls Medical Society, recently.——Dr. Oscar H. Plant has been appointed professor of materia medica, therapeutics and pharmacology at the state university medical school, to succeed Dr. Charles S. Chase, who has resigned after thirty years' service.——Dr. Harry Rogers Jenkinson has been appointed city health officer of Iowa City to succeed Dr. Andrew W. Bennet, who resigned recently.——Dr. Arthur Steindler, professor of orthopedic surgery, State University of Iowa, has recently returned from a three months' visit to the clinics of Vienna.——Dr. Charles D. Martin, Davenport, following a serious illness which incapacitated him for many months and in the course of which the amputation of one of his legs was necessary, has resumed his practice.

KENTUCKY

Presentation by Physician.—A handsome bronze tablet in memory of Abraham Lincoln's foster mother, who was born and reared in Hardin County, was presented to Elizabethtown, on Lincoln Day, October 12, by Dr. William Allen Pusey, Chicago. Dr. Pusey was born in Elizabethtown.

LOUISIANA

David Trautman Schwartz Research Fund.—The president of Tulane University of Louisiana School of Medicine, New Orleans, recently announced the receipt of $20,000 for establishing a medical research department, at that institution. The donation was made by Mr. and Mrs. Leon E. Schwartz, in memory of their son, who died in May. It will be known as the David Trautman Schwartz Research Fund.

MAINE

Tuberculosis Conference.—The New England Tuberculosis Conference was held in Augusta, September 28-30, under the presidency of Dr. Stephen J. Maher, chairman of the Connecticut Tuberculosis Commission. Dr. Hugh B. Campbell, Norwich, and Dr. Edward J. Lynch gave addresses at the meeting.

MARYLAND

Survey of State Prisons.—Dr. Lewellys F. Barker is chairman, and Dr. Francis Lee Dunham, secretary, of the medical committee recently appointed by the board of prison control to make a survey of conditions in the state prisons.

MASSACHUSETTS

Physiotherapy Technic.—Major C. M. Sampson, U. S. Public Health Service, recently gave a course of lectures on the subject of physiotherapy in Boston. These classes started October 16 and were limited to licensed physicians and registered nurses or reconstruction aides vouched for by hospitals or physicians. The course consisted of ten lectures, five each week.

Hospital News.—The seventy-sixth anniversary of Ether Day was celebrated at the Massachusetts General Hospital, October 16.——Petitions are being circulated throughout the eastern part of the state by the Massachusetts Association of Disabled Veterans of the World War, urging Congress to make an appropriation sufficient to maintain the Elks' Memorial Hospital on Parker Hill, Boston, for observance and rest cases. It is expected that more than 50,000 signatures will be sent to Washington on this petition.——A new pathologic department is being established at St. Luke's Hospital, New Bedford, with a capacity for seventy-five private patients. This will bring the capacity of the institution to more than 200 beds.——Work has been started on a new surgical and maternity building for the New England Sanatorium, Melrose. It will have accommodation for fifty-five patients, also a large operating room, sterilizing room with high pressure equipment, nursery, diet kitchen and sun parlors.

MICHIGAN

Health Officer Dismissed.—Dr. R. M. Olin, state health commissioner, following an investigation of an epidemic of diphtheria in Stanton, has removed the local health officer from office, it was announced, October 6. Health officials declared that three deaths could have been prevented if the state department of health had been notified in time.

Illegal Practitioner Arrested in Denver.—It is reported that "Dr. Harold Crown Breeze" Jackson, Detroit, who was sentenced to serve six months for violation of the medical law in 1918, stayed in the workhouse till 1919, when he furnished $2,000 bail for his release and filed an appeal. When the appeal came up for hearing, Jackson did not appear. He was caught a few weeks ago in Denver, it is announced, and was ordered to complete his term, his bail being forfeited.

MINNESOTA

Central Neuropsychiatric Association.—The annual meeting of the association was held in Rochester, October 21, under the presidency of Dr. Peter Bassoe, Chicago. Dr. Edward C. Rosenow and Dr. Harry L. Parker were among those who read papers at the session.

Hospital News.—The Grygla Hospital reopened, October 1, following extensive repair work. Dr. Charles M. Adkins, Thief River Falls, who for a number of years conducted the hospital, will return to Grygla for the purpose of becoming medical director of the institution.——It is announced that plans have been made for a large general hospital group to be erected on Nicollet Island, Minneapolis, to replace the present general hospital of the city.——The board of welfare of Minneapolis contemplates making an appropriation of $35,000 to aid the county in the conversion of the quarantine hospital in St. Louis Park into a hospital for tuberculosis patients.

MISSISSIPPI

Personal.—Dr. Charles W. Bufkin, Hattiesburg, was seriously injured, October 11, when he fell between a box car and the siding platform at the railroad station.——Dr. Charles E. Mullens, Bude, was recently elected president of the Homochitto Valley Medical Society.——Dr. Robert A. Clanton has been appointed county health officer of Grenada County to succeed Dr. J. B. Middleton, deceased.

MISSOURI

French Physicians Visit University.—The French physicians from the University of Strasbourg who are visiting in this country inspected the Medical College of Washington University and the St. Louis Children's Hospital, during their visit in St. Louis from October 9-13. Dr. Clifford W. Wells of the Rockefeller Foundation is accompanying the physicians on their tour through the states. While in the city they were guests of the St. Louis Medical Society.

Investigation of Juvenile Delinquents.—The psychiatry clinic of the juvenile court, financed by the Commonwealth Fund to investigate juvenile delinquents, has completed the experimental stage and is now ready to be transferred to the control of the city. The benefits of the clinic have been so pronounced that Director of Public Welfare Cunliff is desirous to have the city provide for the permanency of the clinic. The plan has been endorsed by the St. Louis Medical Society.

Campaign for Birth Registration.—Under the auspices of the bureau of vital statistics (division of child hygiene) of the state board of health, an attractive colored pamphlet has been issued and distributed throughout the state, in an effort to secure complete registration of births in Missouri. Missouri falls far below the government requirements in birth registration, and the state reports of births are not accepted by the United States for publication, because of their inaccuracy. Parents who are not sure of the registration of their baby's birth are advised to write to the local registrar and inquire. An attractive birth registration certificate has been presented to all babies born since Jan. 1, 1922, whose birth has been properly reported.

MONTANA

Organize New Health Center.—The sixth in the circuit of health centers in Yellowstone County has been established in Custer in connection with the Sheppard-Towner Maternity Act. The first clinic was held, October 13, with Dr. John C. E. Hagen, Hysham, in attendance. Consultation centers have already been established at Broadview, Laurel, Worden, Ballantine and Pineview. It is planned to open centers at Billings and Acton in the near future.

NEBRASKA

Personal.—Dr. Ernest B. Downs, formerly of Kilgore, assistant surgeon, National Home Service, is taking graduate courses at the Mayo Clinic, Rochester, Minn.——Dr. Ida Scudder, head of the Women's Medical College, Velore, India, recently addressed the physicians of Lincoln. Dr. Scudder has spent twenty-seven years in India and represents the oriental colleges for women, of which there are seven, two of these being medical colleges. She is in this country for the purpose of raising funds to carry on their building program in India.——Dr. Russell W. Johnson, resident physician at St. Elizabeth's Hospital, Panama, was recently presented with a certificate signed by the hospital commission and staff, in recognition of his services.——Dr. Chester D. Barnes, Tecumseh, gave an address before the third annual meeting of the Third Councillor District Medical Society, at Table Rock, October 12.——Dr. John Mills Mayhew, Lincoln, lecturer on medical jurisprudence at the University of Nebraska College of Law, gave the first of a series of ten weekly lectures, October 6, in that city.

NEW JERSEY

Passaic County Medical Society.—At the annual meeting of the society held in Paterson, Dr. Joseph Maclay was elected president; Drs. John N. Ryan and Thomas A. Dingman, vice presidents, and Dr. Leon E. De Yoe, secretary.

Venereal Disease Survey.—Dr. Walter M. Brunet of the American Social Hygiene Association has recently concluded a survey of the venereal disease clinics of New Jersey, at the request of the state board of health. New Jersey ranks high among the states in regard to treatment, having twenty-three clinics.

NEW YORK

Bill to Protect Against Illegal Practitioners.—A new bill has been drafted by the state education department, prohibiting the use of a medical degree without due authorization, the *New York Medical Week* announces. This is the first of a series of constructive measures which it is hoped will be enacted into laws.

Jewish Medical School.—Drs. Samuel J. Kopetzky, Nathan Ratnoff and Davis Kaliski have recently returned from Palestine, where, through the action of American physicians, and has been purchased on Mount Scobus to erect a Jewish Medical School and Hospital as an integral part of the new University of Palestine. As members of the board of governors of the new university, they are authorized to state hat departments of pharmacy and dentistry will also be ncluded.

Remarkable Typhoid Carrier.—In four cases of typhoid ever among an Albany woman's sons-in-law, occurring some ime ago, the source of infection was finally traced by the health authorities to the mother-in-law, who was found to be a typhoid carrier. A boarder in the family was infected by this carrier in 1900, and contracted typhoid. Since that ime, in addition to the four sons-in-law, she has infected wo grandsons, a visitor and a nurse employed in one of the ases. Her own children, seven daughters and three sons, have all escaped the disease. Specimens recently taken prove beyond doubt, it is stated by the health authorities, that she s a carrier of typhoid bacilli.

Personal.—Dr. Howard C. Murray, Herkimer, has been ppointed medical inspector of schools, to succeed Dr. F. H. Moore.——Dr. Norman H. Haviland, Fulton, celebrated his ftieth anniversary in the medical profession as the guest of onor of thirty-five physicians from all parts of the United States, at the Pontiac Hotel, Oneida, September 26. He was resented with a gold handled cane. Both of his sons are hysicians; Dr. Clarence Floyd Haviland is chairman of the tate hospital commission, and Dr. Frank Ross Haviland is ssistant superintendent of the Brooklyn State Hospital, and rofessor of psychiatry in Fordham University School of Medicine, N. Y.——Dr. Murray E. Ramsey was elected president of the Westfield Medical Society, recently.——Dr. Fredrick C. Mason, Massena, was recently elected president of he Medical Society of the County of St. Lawrence.——amuel Paul Capen, Ph.D., has been appointed chancellor of he University of Buffalo.——At a recent meeting of the committee on science and the arts of the Franklin Institute, the Howard N. Potts medal was granted to Charles Raymond owns and John Morris Weiss of New York, for their otable achievement in the scientific development of the atalytic vapor-phase oxidation of benzene to maleic acid, nd their pioneer work in developing a commercial process or changing aromatic to aliphatic compounds.

New York City

Good Health Week.—Dr. Frank H. Monaghan, acting ealth commissioner, set apart the week beginning October as Good Health Week. In making the announcement, Dr. onaghan suggested that every citizen of New York City ake an effort to overcome some habit or mode of living hich has been conducive to ill health.

Mother's Milk for Special Cases.—The attempt to collect east milk has been a failure in most of the baby health ations, with the exception of the one at 108 Cherry Street. t present, breast milk is being obtained there from seven others, and the amount averaged daily is 99 ounces. These others receive for their milk 10 cents an ounce. The milk distributed to several hospitals.

Hospital News.—The Salvation Army of New York plans addition to the Booth Memorial Hospital in that city at a cost of $250,000.——The cornerstone of the new building of the Union Hospital of the Bronx was laid, with appropriate ceremonies, October 8. The new addition will have accommodations for fifty-six patients.——Deficits totaling $132,650 were sustained during the last fiscal year by fifty-six institutions which are participants in the United Hospital Fund, according to the secretary of the organization. Twenty-seven of the participating hospitals, with the aid of money received from the United Hospital Fund and from other sources, show surpluses.

NORTH CAROLINA

Personal.—Dr. Edgar S. Thompson, Winston-Salem, city physician, has resigned and has accepted a position as medical director of the department of industrial medicine of the R. J. Reynolds Tobacco Company. He will succeed Dr. Samuel W. Hurdle and Dr. Herbert F. Hunt.——Dr. William J. Crawford, La Grange, has been appointed city and school physician to succeed Dr. Thompson.——Dr. Charles L. Outland, who has recently returned from medical missionary work in Sibera, has been appointed full-time health officer of Carteret County. He will locate in Beaufort.

OHIO

Central States Pediatric Society.—At the annual meeting of the society held in Cincinnati, October 16-17, under the presidency of Dr. Kenneth D. Blackfan, professor of pediatrics at the University of Cincinnati, the following officers were elected: president, Dr. Thomas B. Cooley, Detroit; vice president, Dr. Frank P. Gengenbach, Denver; secretary-treasurer, Dr. H. Thompson Price, Pittsburgh, and executive committeeman, Dr. George E. Baxter, Chicago.

Naming of Chair of Medicine Deferred.—The directors of the University of Cincinnati have received a letter from the chairman of the General Education Board, asking that action taken to name a chair in the college of medicine after John D. Rockefeller be deferred because of Mr. Rockefeller's objection to such a course. The communication said that "Mr. Rockefeller would prefer to have his name recorded in the hearts and lives of those using the improvements which donations from him have made possible rather than having it carved in stone or officially connected with the building."

OKLAHOMA

Memorial to Public Health Secretary.—The next legislature will be asked to name one of the state tuberculosis sanatoriums the "Jules Schevitz Memorial," in honor of the former secretary of the Oklahoma Public Health Association, who died last winter, it was recently announced by Dr. A. R. Lewis, state health commissioner.

PENNSYLVANIA

Graduate Medical Lectures.—Dr. John H. Muller lectured on "Germanium in Erythropoiesis" and Dr. Jay F. Schamberg on "The History and Prevalence of Syphilis; Its Social and Economic Importance," at the university extension medical graduate course of the University of Pennsylvania Graduate School of Medicine, during the week ending, October 28.

Elizabethtown Is Shrine for Masons.—Thousands of Free Masons from Philadelphia journeyed to Elizabethtown, October 21, to take part in the dedication ceremonies of the Memorial Hospital of the Masonic homes. The funds were contributed by the Philadelphia lodges. Edgar Fahs Smith, Ph.D., provost emeritus of the University of Pennsylvania, and Dr. Edward Martin, state commissioner of health, gave speeches at the exercises.

Philadelphia

Free Public Lecture Course.—The second free lecture was given at the Philadelphia College of Pharmacy and Science, October 18, by Freeman P. Stroup, professor of general chemistry, Philadelphia College of Pharmacy and Science.

Clinicopathologic Surveys.—The clinicopathologic surveys held weekly in the Philadelphia General Hospital were resumed, October 11. At these meetings, six or eight of the most important of the cases in which necropsy was performed during the week are presented.

RHODE ISLAND

Fiske Fund Prize Essay.—At the annual meeting of the state medical society, the trustees of the Fiske Fund announced the subject selected for the Fiske Fund prize essay for 1923: "Has Surgery Lessened the Mortality of Cancer?" For the best essay on this subject, the sum of $250 will be offered. The essay must be forwarded to the secretary of the trustees, Halsey DeWolf, M.D., 305 Brook Street, Providence, on or before May 1, 1923.

TEXAS

Hospital News.—The government hospital at Kerrville for tuberculous ex-service men is nearing completion. When completed, it will accommodate 550 patients, but if at any time there are vacancies in the hospital, with no ex-service men on the waiting list, citizens will be admitted to the institution.

UTAH

Health Extension Lectures.—Under the direction of the department of hygiene of the University of Utah, extension health lectures will be given this winter in various towns throughout the state. Dr. Heber J. Sears, Salt Lake City, is in charge of the department. Besides a series of fourteen regular lectures on health education, there will be lectures on infant welfare work and correlated subjects.

VERMONT

New University Director.—Dr. Elmer W. Pike has been appointed medical director of the University of Vermont College of Medicine, Burlington, to succeed Dr. David Marvin.

State Medical Meeting.—At the one hundredth and ninth annual meeting of the Vermont State Medical Society, held at Burlington, October 12-13, under the presidency of Dr. Fred W. Sears, Burlington, the following officers were elected for the ensuing year: president, Dr. John A. Stevenson, Chester; vice president, Dr. Frank E. Farmer, St. Johnsbury; secretary, Dr. William G. Ricker, St. Johnsbury, and treasurer, Dr. David Marvin, Essex Junction. The next annual meeting will be held in Burlington. Dr. Olin West, field secretary of the American Medical Association, gave an address on "Functions of the State Society."

VIRGINIA

Medical Annals of Roanoke.—*The Medical Annals of Roanoke* has recently been published by the Roanoke Academy of Medicine. Dr. Edmund Pendleton Tompkins compiled the volume.

WEST VIRGINIA

Physician Elected to Mayoralty.—Dr. Harry C. Tonkin has been elected mayor of Martinsburg on the Republican ticket.

Personal.—Dr. Samuel J. Morris, professor of anatomy at the West Virginia University School of Medicine, has obtained a year's leave of absence and will study anatomy at Harvard University, Boston.——Dr. Irvin Hardy, Morgantown, president of the Monongalia County Medical Society, has gone to Europe and will study in London, Paris and Vienna.

CANADA

Memorial to Nurses.—A war memorial will be placed in the Hall of Fame, Ottawa, by the Canadian Association of Nurses, to honor the memory of the nurses who died during the World War. A campaign is being conducted to raise approximately $70,000 for this purpose.

McGill Opens New Building.—The new biologic building of McGill University, Montreal, erected at a cost of more than $500,000, was formally opened, October 5. Sir Arthur Currie presided over the exercises and Sir Charles Sherrington, Waynefleet professor of physiology at Oxford University, England, gave the opening address. Lectures were given by Dr. Harvey Cushing, Boston, Dr. H. J. Hamburger, University of Groningen, and John M. Coulter of the University of Chicago.

GENERAL

American Prison Association.—The fifty-second annual conference of the American Prison Association was held, October 12-18. Dr. Valeria Parker gave an address and participated in the symposium on the incidence and treatment of venereal disease in reformatory institutions. Mrs. Martha Falconer addressed the newly formed National Conference of Juvenile Agencies.

Social Hygiene Conference.—The annual conference on social hygiene was held in Cleveland, October 19-20, with headquarters at the Hotel Statler. The public was invited to all meetings. Dr. Edward L. Keyes, Jr., chairman, spoke on "Standards of the Venereal Disease Campaign." Dr. Haven Emerson and Dr. Benjamin C. Gruenberg also read papers at the session.

Annual Convention of the American Red Cross.—The annual convention of the Association was held in Washington, D. C., October 9-11. The Hon. Emilio del Toro, chief justice of the Porto Rico supreme court, presided at a meeting of the Pan-American Red Cross, October 11. Representatives were selected to attend the Red Cross conference from the Dominican Republic, Haiti, Rio de Janeiro, Cuba and the Panama Canal Zone.

International Cooperation in Child Health.—Miss Jean, director of the Child Health Organization of America, and Miss Harrison returned, September 18, from their mission in Belgium for the Commission for the Relief of Belgium Educational Foundation. They selected fifteen teachers to hold one year fellowships offered by the foundation in health education in this country. Ten will go to Columbia University, New York, and five to the Massachusetts Institute of Technology, Boston.

Study of War Gases Approved by American Public Health Association.—The American Public Health Association, October 18, in Cleveland, unanimously adopted a resolution opposing the enactment of the legislation now pending in Congress, H. R. 12605, to punish and to brand as a criminal any officer, enlisted man or civilian employee of the army or the navy who ventures, in the interest of humanity, even possibly at great personal risk, to pursue any investigation through animal experimentation, to develop methods for protecting the military forces or the civilian population of the United States against gas attack in time of war. The association directed that a copy of this resolution be sent to the committees on military affairs of the United States Senate and of the House of Representatives. To make the action of the association effective, it will go to its committee on the defense of research, which is authorized to take such action as in its judgment may be expedient.

American Field Service Fellowships for French Universities.—To provide an enduring memorial for the 127 field service men who gave their lives to the cause, and in order to perpetuate among future generations of French and American youth the mutual understanding and fraternity of spirit which marked their relations during the war, the American Field Service Fellowships in French Universities has been established. The organization proposes to award fellowships for advanced study in France to students selected from American colleges, universities and technical establishments and occasional fellowships for French students in American universities. These fellowships, when endowed, will be named after the men of the American Field Service who died in France. The fellowships of 1923-1924, not to exceed fifteen in number, will be of the value of $200 plus 8,000 francs, and are tenable for one year, renewable for another year on application. Candidates recommended for fellowships will be required to submit a medical certificate before the award is confirmed. The American branch of the Office national des universités et écoles françaises is at 1819 Broadway, New York.

Personal.—Charles B. Davenport, Ph.D., director of the station for experimental evolution and the eugenics record office of the Carnegie Institute, Washington, D. C., is in Europe for the purpose of attending the International Commission of Eugenics in Belgium, and the Third International Congress of Eugenics in Paris, October 24, as delegate of the Carnegie Institution and the Eugenics Research Association. During his trip, he will visit Brünn, Czechoslovakia, to attend the international Gregor Mendel centenary. He will also visit Vienna, Upsala, Christiania and Holland.——Capt. George R. Harris, Jr., M. C., U. S. Army, sailed for Liverpool, September 28, on the *Scythia*. He will remain in England for several months.——Col. Harry Williard spoke on "Military Sanitation" before the Fergus County Medical Society at Lewistown, Mont., recently.——Surg. Lionel E. Hooper, U. S. Public Health Service, has been assigned to duty at Rotterdam, Holland.——Asst. Surg.-Gen. Louis L. Williams, Charleston, S. C., has been appointed director of the District of the Gulf, New Orleans.——Surg. Frances H. McKeon, U. S. Public Health Service, Camp Kearney, Calif., has been appointed medical officer in charge of the U. S Marine Hospital, Detroit, to succeed Senior Surg. George M Magruder, who has been assigned to duty at Seattle.

Public Health Bills Before the Sixty-Seventh Congress.—Only 1.5 per cent. of the bills and resolutions introduced in he Sixty-Seventh Congress were concerned with national health. During the two sessions of this congress, the first ession of which convened in April, 1921, and the second ession of which adjourned on Sept. 22, 1922, more than 8,000 bills and resolutions were introduced in both houses. Of this number, less than 300 pertained to public health; 587 bills and resolutions became laws, and only about twenty-ive of these were of direct interest to sanitarians. This nformation comes from the National Health Council, which has issued thirty-six biweekly statements on national health egislation, beginning in April, 1921, and continuing throughout the sixty-seventh session. Statement No. 36, dated Oct. 5, 1922, contains a review of this national legislation, which has been before Congress. The legislative statements are ssued from the Washington office of the National Health Council and contain abstracts and reports of progress on bills relating to medicine, nursing, child hygiene, school hygiene, mental hygiene, control of diseases, social hygiene, health education and various other aspects of public health. The statements, which will be continued throughout the third ession of the Sixty-Seventh Congress, and during the Sixty-Eighth Congress, have a subscription rate of $4 a year, which s slightly less than cost price. Single copies are sold for 0 cents each. These statements may be obtained from James A. Tobey, Washington Representative, National Health Coun-il, Seventeenth and D streets, Washington, D. C.

American Public Health Association Meeting.—The Ameri-an Public Health Association held its fifty-first annual meet-ng in Cleveland, October 16-19, with approximately 700 in ttendance. A new constitution was adopted, fundamentally hanging the plan of organization and providing essentially or professional and nonprofessional groups. The direction f the affairs of the association is vested in a professional roup, made up of the "fellows" of the organization. Besides he fellows, four other classes of membership are provided or, with stated variations in qualifications and in member-hip dues. Section meetings were held to discuss public ealth administration, foods and drugs, laboratory work, hild hygiene, industrial hygiene, public health nursing, vital tatistics, sanitary engineering and health education and ublicity. One standard of fitness for all who desire to ractice the healing art was recommended by the associa-on, and the association recommended the teaching of public ealth and preventive medicine in medical schools on a more xtended basis than that on which it now rests, and a larger ecognition of health instruction and of the development of ealth habits in the general educational system. A committee was created to study the incidence and mortality of neumonia and the means for preventing and controlling it. Officers were elected as follows: President, E. C. Levy, Richmond, Va.; first vice president, Henry F. Vaughan, Detroit; second vice president, Gabriel M. Malda, National Department of Health, Mexico; third vice president, H. L. Lockwood, Cleveland; executive secretary, A. W. Hedrich, New York; treasurer, Roger I. Lee, Cambridge, Mass.

LATIN AMERICA

New Cuban Journal.—The medical society of Santa Clara, uba, has begun the publication of a journal entitled *Villa-ara Medica.* The editor is Dr. O. Lubián Morell.

Hospital Tax in Guatemala.—The Guatemalan government has assigned 1 peso, out of the present 15 pesos tax on each ottle of liquor, to the maintenance and construction of ospitals.

The Pasteur Centennial.—The *Anales* of Guayaquil pub-shes an appeal from the Sociedad Médico-Quirúrgica asking l bacteriologists to send cultures and apparatus for the xhibition which is to be held in connection with the celebra-on at Guayaquil, by the society, of the Pasteur centennial, ecember 26.

Prizes Offered by the Academy of Medicine of Brazil.—he *Archivos Brasileiros de Medicina* mentions that, in addi-on to the four usual prizes offered by the Academia acional de Medicina at Rio de Janeiro, the Araujo prize is be awarded this year in honor of the national centennial, r the best work on any medical topic, published in any rt of the country.

International Conference on Foot and Mouth Disease.—he first Congress on Contagious Epizootic Aphthae was held Buenos Aires in 1920, and the second was organized as ne of the recent important gatherings in honor of the Brazil ntennial. The former minister of argriculture, Dr. M. almon, presided, the vice presidents being Dr. Alcides de iranda and Dr. Carlos Chagas.

Mexican Medical Congress.—The Seventh Mexican Medical Congress held at Saltillo, September 24-October 1, proved a great success, with many physicians in attendance. The public sessions were attended by many laymen, who showed great interest in the proceedings. At the exhibit held in connection with the meeting, a number of American firms were represented. The next congress will be held at Monterey, at a date to be determined in the future by an organizing committee, headed by Dr. F. Castillo Nájera.

Brazilian Congress.—The Second Brazilian Congress of Neurology and Psychiatry was held, Aug. 20-28, 1922, at Rio de Janeiro. Dr. J. Moreira, director general of the insane asylums in Rio, presided. In his address, he discussed mental care in Brazil. Among others, papers were read by Moreira and Vianna on neurosyphilis; Austregesilo, psychanalysis; Paulino, nerve surgery; Peixoto, professional secrecy; Pacheco Silva, dementia praecox; Seng, pituitary surgery; Marinho, Bárány test; Moura, neurorecidives; Pernambuco, morphinism; Adaucto, cocainism; Lopes, stupor; Esposel, brain tumors; Moses, standardization of the Wassermann test; Galotti, the four neuropathologic tests, and Malagetta, epidemic (lethargic) encephalitis. Three illustrated lectures were delivered by Professor Nonne of Hamburg, on experimental syphilis, epidemic (lethargic) encephalitis and shell shock. Visits were made by members of the congress to insane institutions at Rio and nearby places.

Personal.—Drs. Juan Diaz and Alvaro A. Iznaga of Santa Clara, Cuba, are taking graduate courses in the United States. Dr. Iznaga recently translated into Spanish the "Principles of Medical Ethics," of the American Medical Association.——Prof. A. de Castro of Rio de Janeiro, who is in Europe as representative of South America in one department of the work of the League of Nations, was invited to lecture at the Paris faculty of medicine. He spoke in French on "Genito-Glandular Dystrophias."——Dr. Cora Mayers of Santiago, Chile, has been inspecting the medical institutions of Buenos Aires since her return from the Child Welfare Congress at Rio to which she was an official representative of Chile.——The Argentine Medical Association recently held a special meeting in honor of Prof. P. Abrami of Paris, who spoke on "Present Status of Disease of the Kidneys."——Prof. P. Belou of Buenos Aires, one of the editors of the *Prensa Médica Argentina,* has just returned from Europe, where he was the official delegate of the Argentine Otolaryngologic Society at the International Congress. He was at the same time on an official mission of inspection of institutes of anatomy, and he bore to Prof. Ramón y Cajal at Madrid an address on vellum, sent by the Círculo Médico y Centro Estudiantes de Medicina.——Prof. C. Bonorino Udaondo, one of the directors of the *Prensa Médica Argentina* was presented, on the conclusion of his course in semeiology, with an address on vellum, signed by all his pupils.——Prof. R. A. Lambert of Yale has been lecturing at San Salvador under the auspices of the Rockefeller Institution. Among his topics were "Necropsies" and "Cancer." The *Clínica* of San Salvador relates that he was given an honorary degree by the University of El Salvador.——The *Brazil-Medico* mentions the arrival at Rio of Prof. P. Janet and Professor Chiray of Paris, members of the special mission in honor of the Brazil centennial, and Professor Brumpt, who is on an official mission to study parasitic disease. They were guests recently of the Academy of Medecine and of the local medical society.——The medical officers of the Brazilian navy tendered a banquet to the medical officers of the ships of foreign nations at Rio during the centennial.

FOREIGN

Irish Medical Association.—Owing to the disturbed condition of the country the annual meeting of the Irish Medical Association has been indefinitely postponed. It usually takes place in June.

Memorial Lecture.—At the meeting of the Model Abattoir Society, in London, October 12, Sir William J. Collins delivered a memorial lecture on Sir Benjamin Ward Richardson, F.R.S. Sir James Crichton-Browne was in the chair.

Honorary Degrees Conferred.—The University of Leeds has conferred the honorary degree of doctor of science on Sir Charles Scott Sherrington, the Duc de Broglie, Paris, Dr. C. G. John Petersen, of the Danish Biologic Station of Copenhagen, and Prof. P. Weiss, director of the physical laboratory of the University of Strasbourg.

Eugenics Week at Brussels.—The Société belge d'eugénique organized a series of international conferences and lectures at Brussels in the second week of October, with the collaboration of the French and English eugenic societies. The opening address was by Professor Apert of Paris on "Morbid Heredity." All the lectures were open to the public.

Encephalitis Report.—The English Ministry of Health has recently issued a report on epidemic (lethargic) encephalitis. It is largely composed of an analysis of 1,300 cases which occurred in England and Wales in 1919-1920. There is a bibliography which occupies seventy pages. The comparable and suggestive epizootics among the animals have also been considered in the report.

The "Acta" Medical Archives.—Almost at once after the close of the World War, the Scandinavians inaugurated a series of international medical journals which publish articles in the three congress languages, English, French or German. They translate all their own articles into one of these three languages. The *Acta Medica Scandinavica* and the *Acta Chirurgica Scandinavica* took the place of the *Nordiskt Arkiv,* so they are now in volume 55. The other *Acta* journals were a new departure, and there are now seven in all, the *Acta Gynecologica Scandinavica* being the third one to include "Scandinavica" in its heading. The others drop this restrictive title, and are entitled, *Acta Dermato-Venereologica, Acta Oto-Laryngologica, Acta Paediatrica* and *Acta Radiölogica.* The address for all is Stockholm, Sweden, although the editorial staff comprises leading specialists in the various lines in Denmark, Finland and Norway, as well as Sweden. The subscription to each is $5 or $6. The *Medica, Chirurgica and Paediatrica* are indexed regularly in the Current Literature Department. The whole series represent an important achievement, the paper, printing, etc., being worthy of the high grade contents. They are issued irregularly, with 500 or 600 pages to the volume.

Personal.—Dr. T. Asano, Tokio, is visiting this country to study American public health work. He is accompanied by Prof. Kanichi Tanaka, Tokio Teachers' College, and Yukiyoski Koga, Nagoya College of Commerce, Japan.——Dr. Bruno Kozlowski, delegate of the Polish Ministry of Education, recently arrived in America to study social and educational methods. He is collecting literature for the archives of the ministry in Warsaw.——Dr. Jaroslav J. Drbohlov, director of the bacteriologic laboratory, Ostrava, Czechoslovakia, has been touring the United States. He expressed keen interest in biologic motion-picture photography.——Dr. Melanie Lipinska, a blind physician from Poland, arrived in New York, September 29, on the *Chicago.* She will carry on experimental research work for the blind. Representatives of the American Society for the Blind met her at the dock. Dr. Lipinska was born in Warsaw. She graduated from a French medical school.——Prof. R. A. Millikan, chairman of the board of the California Institute of Technology and director of the Norman Bridge Laboratory, has been appointed a member of the committee on intellectual cooperation of the League of Nations, to succeed George Ellery Hale, who resigned from the committee.——Dr. Lèon Bernard, professor of hygiene at the University of Paris, France, recently arrived in the United States to study public health methods. Dr. Bernard is secretary of the National Antituberculosis Association, recently organized in France.——Dr. E. Barnard Fuller, Cape Town, has been making a tour of American medical schools. He expects to return to South Africa this month.——Dr. N. F. Tilander has sailed from Europe to take medical charge of the Swedish Mission Station and Hospital, Dundee, Natal.——Dr. Hermann Hamman, Cape Town, has been appointed German consul at that city.——Dr. J. E. V. Barling, lecturer and demonstrator in pathology at the University of Sydney, Australia, has resigned, following twenty years of service.——Dr. H. Hartmann, the founder and moving spirit of the Leipzig league to defend the interests of the profession, has had to resign his leadership on account of illness. He was the pioneer in rousing the profession in Germany to the necessity for organization when the social insurance legislation threatened to crush it completely. Our exchanges comment that he succeeded in accomplishing for the profession far more than had been dreamed to be possible. His successor is Dr. Streffer of Leipzig. It is proposed to change the name of the organization to "Hartmann League."——A large ornamental tablet, with a bas relief of Cajal and the inscription "Dr. Ramon y Cajal Street," was recently installed at Talavera, giving the name of Cajal to one of the principal streets.——A banquet was tendered to Dr. Gómez Ulla on his return to Spain from the seat of war in Africa, and a complimentary telegram was sent from the banquet to his mother at Santiago.——The *Medicina Ibera* relates that Dr. J. L. Duran of Madrid has had to have one finger of the right hand disarticulated on account of roentgen-ray injury sustained in his professional work.——Dr. P. Zuloaga, a well known obstetrician of Valladolid, Spain, was recently thrown from his automobile as it tipped over when swerving to avoid running over a pedestrian. The *Siglo Médico* relates that he will probably have to lose some of his fingers from the injuries received.——Dr. Manfredi of Palermo has been awarded a gold medal by the Italian public health service in tribute to his work for the tuberculous and the war disabled.

Deaths in Other Countries

Dr. **Andrew Young,** surgeon in charge of the Baptist Hospital, Tsinanfu, China, from typhus; also, Drs. **Stanley Jenkins** and **Cecil Robinson,** both of the Baptist Hospital, Tsinanfu.——Dr. **James F. Agnew,** principal medical officer in the department of repatriation of Victoria, Australia; while on leave of absence in Glasgow, Scotland.——Dr. **Leonidas Jorge Facio,** professor of pathology at the University of Buenos Aires, on the editorial staff of the *Semana Médica,* and author of numerous articles on internal medicine and biology.——Dr. **F. Vidal Solares** of Barcelona, founder of the hospital for children, and of the *Archivos de Ginecopatía y Pediatría,* a Cuban by birth.——Dr. **Thibault,** professor of pathology at Angers.——Dr. **S. Carbó** of Rosario, physician to the railroad and medical chief of the Spanish Hospital, aged 68.——Dr. **P. Giraldi,** also of Rosario, chief of the Italian Hospital.——Dr. **G. di Giandomenico** of Cappelle, Italy.——Dr. **M. Boidard,** chief of the Blois asylum, aged 44.——Dr. **A. A. Cortes,** professor of pathology and dean at the University of Valladolid.

CORRECTION

Abstract Editor Appointed.—In the News, Louisiana, The Journal, October 14, was the announcement that Dr. Fayette C. Ewing had been appointed abstract editor of the proceedings of the Royal Society of Medicine of Great Britain. The item was incorrect in that Dr. Ewing has been appointed to abstract these proceedings for an American publication devoted to eye, ear, nose and throat.

Government Services

Vocational Training in Veterans' Bureau

Transfer of forty-five occupational and vocational aides at St. Elizabeth's Hospital, Washington, D. C., from the authority of the central office, U. S. Veterans' Bureau, to the district office is the first movement made by Director Charles R. Forbes for the more direct control of World War patients at the nation's largest psychopathic institution. While the hospital is operated by the Interior Department, it is caring for 872 mental patients for the U. S. Veterans' Bureau, and the new shift in authority will operate to the betterment of conditions there. Out of approximately 3,500 patients in the hospital the Veterans' Bureau has 872, of which 500 are able to work at some kind of occupational or vocational training. Four doctors and forty-five aids under control of the Veterans' Bureau are directly over the war patients there, although the strictly medical treatment is carried out by the authority of the Interior Department.

Promotions in the Navy

The Navy department announced this week that promotions in the Medical Corps have become due as follows: To be passed assistant surgeons with the rank of lieutenant from October 11, Charles F. Behrenn, Albert J. Dessautels, Frank T. Baker, Robert M. Cockrane, Duncan D. Bullock, Ben Hollander, Camille J. Flotte, Charles R. Clark, N. F. Banvard, James J. O'Conner, Lloyd L. Edmisten, Fred M. Rohow, Frank M. Moxon, Lyle J. Milon and Robert E. Duncan.

U. S. Public Health Service Promotions

Asst. Surg. Richard B. Norment has been promoted and commissioned a passed assistant surgeon. The following passed assistant surgeons have been promoted and commissioned as surgeons in the U. S. Public Health Service: James F. Worley, William C. Witte, Ora H. Cox, Marion S. Lombard, William F. Tanner, Carl Michel and Robert L. Allen

Foreign Letters

LONDON

(From Our Regular Correspondent)

Oct. 7, 1922.

Surgery and Internal Medicine

In an address delivered at the opening of the session at St. George's Hospital, Sir Clifford Allbutt, after giving reminiscences of his student days at the hospital, said that, from the time of Hippocrates, surgery had ever been the salvation of internal medicine, in which physicians have dwelt too much on dogmas, opinions and speculations, their errors too often passing undiscovered to the grave. The surgeon, for his good, had had a sharper training on facts; his errors hit him promptly in the face. The unhappy cross division between medicine and surgery, an unhappy, cramping division handed down from the middle ages, especially through the formalist University of Paris, a contempt of handicraft as menial, had been a blight on our profession even until now. For a fully competent specialist (and specialism there must be) to undertake one half of a case and leave the other half to someone else was absurd. This lesson the gynecologists had taught us; and the study of diseases of children was reinforcing it. Sir Robert Jones had lately urged the need of a better and closer integration of medicine and surgery. The surgeon who is making necropsies daily on internal diseases, such as gastric ulcer, gallstones and other abdominal troubles, must learn much more of such perversions of living function than the physician, who makes only a few necropsies. The old division must cease, and the specialist must take over entire responsibility for his portion of the body.

Regulations Against Physicians Addicted to Drugs

The home secretary has made new regulations under the Dangerous Drugs Act of 1920, in order to correct certain defects revealed in the working, especially with regard to physicians addicted to drugs. Persons authorized to give prescriptions for dangerous drugs no longer may prescribe or themselves. This regulation, which has the concurrence f the general medical council, is made because several cases ave occurred of physicians addicted to drugs procuring considerable quantities of cocain and morphin by giving prescriptions made out to themselves. This regulation will not n any way affect the physician's procuring drugs for the ractice of his profession. It is made an offense to attempt o obtain the drugs to which the act applies, even though nsuccessfully. Persons dealing in the drugs are required o preserve for two years all prescriptions and records which he act and regulations direct them to keep.

Food Poisoning

The tragedy in which eight persons died from botulism ter eating sandwiches made from wild-duck paste has been escribed in a previous letter (THE JOURNAL, Sept. 16, 1922, 782). Several other cases of food poisoning have recently ccurred, but none appears to have been due to *Bacillus otulinus.* In one case, forty of eighty wedding guests were ken ill after eating some "trifle" which had been served. he symptoms were traced to Gaertner's bacillus. The min- ter of health has issued a circular stating that he has no eason to anticipate further outbreaks of botulism, but the ravity of the condition is such that all arrangements should e made to provide expeditiously a supply of antitoxin. He advised that its immediate use is of paramount importance d that the lapse of a few hours may make all the differ- ce between success and failure. Further, on the occurrence of an outbreak of botulism, all who have consumed the affected food should be offered protective doses of the antitoxin (10 c.c., intramuscularly) even though they may not present symptoms.

ADMINISTRATION OF BOTULINUS ANTITOXIN

The antitoxin has been prepared with great care, but there has not been any extended opportunity in England for its use. It is the only remedy known for botulism, and it should be given as soon as the earliest symptoms of blurrred or double vision, giddiness, ptosis, or difficulty of speech or swallowing suggest the diagnosis. Intravenous injection is the most effective method of administration and should be employed if possible (otherwise, the intramuscular method should be used). The risk of serious symptoms in persons highly sensitive to horse serum must be recognized. When such a risk is likely to be great, a preliminary injection of a small quantity of antitoxin (0.5 c.c.) should be given subcutaneously. If this produces clear evidence that the patient is sensitive (that is, if a reaction appears in half an hour) the antitoxin must be given with particular caution, the first intravenous injection consisting of 0.5 c.c. diluted with 50 c.c. of saline, and subsequent injections being diluted less and less, until a full dose is administered. Only large doses will avail in acute cases. The intravenous dose should be from 20 to 50 c.c. of antitoxin, previously warmed to body temperature, and injected very slowly. This amount may be repeated daily if necessary. Persons who have consumed the suspected food but have not yet presented symptoms should be given a prophylactic dose of 10 c.c. intramuscularly, to be followed by larger doses intravenously should symptoms appear.

Ex-Service Men in Asylums

In its eagerness for the sensational and the scandalous, the daily press has made an unfounded attack on the ministry of pensions. Statements have appeared to the effect that all ex-service men in asylums who are now being paid for as "service patients" will no longer be paid for and will become pauper patients. The ministry has issued statements showing that the state is liable for compensation and provision of medical treatment for all men disabled by war service, including those who before enlistment suffered from some complaint which was aggravated by their service. A certain number of men enlisted with disabilities of various kinds, including mental affections, and were discharged without any aggravation of their affection. Under the regulations, they could simply be discharged from the service without title to receive anything, but special provision was made whereby they were given a lump sum, a gratuity or a small weekly allowance for a time, and the ministry of pensions was empowered to provide them treatment for the period of the war and one year after. Moreover, they were given the right of appeal to an independent body—the pensions appeal tribunal. The minister of pensions still remains responsible for the maintenance and treatment of more than 5,000 ex-service men who are in asylums either temporarily or permanently.

The Discovery of Vaccination

A correspondent of the *Times* calls attention to the fact, not generally known, that Jenner was anticipated in his discovery of vaccination. In the graveyard of the ancient Dorset Church of Worth Matravers, among the Purbeck Hills, there is a headstone with the inscription: "Sacred to the memory of Benjn. Jetsy (of Downshay), who departed this life April 16th, 1816, aged 79 years. He was born at Yetminster in this county, & was an upright & honest man; particularly noted for having been the first person (known) that introduced the Cow Pox by inoculation, & who from his great strength of mind made the experiment from the cow on his wife & two sons in the year 1774." Thus, the humble Dorset farmer successfully experimented with vaccine twenty-two years earlier than Jenner did. But all great discoveries have been anticipated in some form or other, and, although here the anticipation was complete, it is generally held that the greatest credit is due to the man who forces the discovery on an unwilling world.

PARIS

(From Our Regular Correspondent)

Oct. 7, 1922.

The Thirty-First French Congress of Surgery

The thirty-first French congress of surgery was held in Paris, October 2-7, under the chairmanship of Dr. Hartmann, professor of clinical surgery at the Faculté de médecine of Paris. The opening session was presided over by Monsieur Strauss, minister of hygiene, public charity and social welfare. Among the subjects on the program, two especially are live topics, having a wide general interest: (1) recent results of bone grafting, and (2) remote results of operations on the trunk arteries of the upper and lower extremities.

BONE GRAFTS

The main idea brought out by the communication presented by Professor Cunéo of Paris and Dr. Rouvillois, military surgeon, is the superiority of the graft taken from the subject himself—the autoplastic graft. In the form of a pedunculate graft, it represents the theoretic ideal, since, biologically speaking, it is the only real graft. On the cranium and the face, the procedure is easy and is the preferred method. On the limbs, this graft is usually difficult of application. It should be reserved for complex cases in which the method of free transplants is inapplicable or at least inconvenient. Pseudarthrosis of the femur with extensive loss of substance is the most typical example.

In the form of a free graft, the autoplastic graft possesses marked superiority over homoplastic and heteroplastic grafts. The cause of this superiority is found in the marked osteotropic qualities it possesses, which are, for the most part, lacking in the two other varieties of grafts.

The one-piece bone graft (for example, a portion of the fibula), having been employed to a great extent and with success, seems to be giving way to grafts after the methods of Albee and Delagenière, which are made up of a tissue that is more permeable and more susceptible of adjustment and adaptation. Aside from its use for the reinforcement of pseudarthroses of the neck of the femur and to replace certain extensive loss of substance (removal of an osteosarcoma), the fibular graft has virtually no further indications.

The rigid grafts after the Albee method and likewise the osteoperiosteal grafts of Delagenière have been successful in innumerable cases, and it is very difficult to give either of the two methods the preference. However, after studying the technic and the results in their minutest detail, the essayists are inclined to prefer the Delagenière grafts in pseudarthroses, with contiguous fragments or slight loss of substance, and the Albee grafts when there is marked loss of substance and deviation of the fragments. Cunéo and Rouvillois hold that these two forms of technic should not be allowed to exclude each other but should rather supplement each other, and that, in complex cases, the more rational solution would be to combine the two methods, and to proceed in stages as developments indicated.

The homoplastic graft finds no other indications than in the restoration of large articular bone segments. It plays simply the part of a temporary prosthesis. This prosthesis, which has the great advantage of being easily tolerated, is unfortunately resorbable. While we can scarcely hope for a complete union of this graft with the surrounding tissues, the technic should work toward the discovery of procedures by which resorption can be prevented.

As for the rôle of the heteroplastic graft, it would seem to be reduced to serving as material for osteosynthesis, giving support to the osteoperiosteal grafts, to which alone must be assigned the osteogenic rôle.

The communication of Cunéo and Rouvillois gave rise to a very interesting exchange of views. It was regrettable that Dr. Albee of New York was delayed on his journey and was unable to take part in this discussion. Dr. Leriche, assistant professor at the Faculté de médecine of Lyons, remarked that, in view of the progress realized in recent years, the question of bone grafts seems to have reached a standstill. If further progress is to be brought about, we must not become too exultant over the tangible results that we have accomplished, but must press on and endeavor to solve the less understood features that the problem presents.

There are, he thinks, two points that more particularly merit our attention: (1) the mechanism of the reconstruction or restoration of bone, and (2) the problem of the transplantation of dead bone, which is not such a settled question as the essayists affirmed, for the subject has in reality been merely grazed, so far. The fact is, the observations published are still open to criticism. Why has the heteroplastic transplant been employed so much? Why has not the homoplastic graft been used more, since the results would certainly be better? Why has a hard bone, which is only slightly permeable, always been used? Furthermore, are there not other procedures that can be resorted to other than those that have been used up to the present and would it not still be possible to improve the results? There are many problems which go to show that the question deserves to be taken up again on a different basis and studied more profoundly.

Dr. E. Forgue, professor of clinical surgery at the Faculté de médecine of Montpellier, stated that he had undergone the same change of opinion as the essayists, and, after first using the rigid Albee graft, he came to recognize the superiority of the Delagenière graft in the majority of cases. He emphasized the need of perfect immobilization as one of the chief conditions of success and recalled, in this connection, the excellent results he had obtained in the lower jaw, owing to the aid received from skilful manufacturers of prosthetic appliances. The examination of anatomic parts at necropsy shows that the graft develops rapidly as a bone-like callus; which raises the question whether in reality these grafts are of necessity doomed to resorption, as is asserted.

Dr. Bérard, professor of clinical surgery at the Faculté de médecine of Lyons, presented an important collection of serial roentgenograms, from the study of which it may be seen that, in the case of segments of a single bone, the humerus more particularly, the indications for the bone graft are very rare. If one has the patience to wait, there will be seen, at the end of several years, some very extraordinary restorations, even when there has been extensive loss of substance The same thing is true in certain cases in which an attempt to insert a bone graft resulted in its later elimination. In flail elbows, one frequently obtains excellent results with a simple osteosynthesis secured by means of a wire, without its being necessary to resort to a graft. In case there are segments of two bones, the indication is more frequent, especially for the lower extremity of the radius and the tibia where an unwedging or loosening of the bones must be avoided at any cost, in order to prevent functional trouble. The use of Lambotte plates seems less satisfactory than bone grafts, for partial necrosis always occurs under the plate and a new intervention is often necessary. Bone grafts give better results. Bérard declared himself an advocate of rigid segmentary grafts and recommends shaping them with chisel and mallet rather than by electric power, as done by Albee, holding that larger and more solid fragments are thus secured. Delagenière grafts should not, in Bérard's opinion, play other than a supplemental rôle; when placed about an Albee graft, they accelerate the work of reparation.

Dr. Putti of Bologna also prefers the ragid graft to the Delagenière grafts. He regards the tibia as superior to the fibula as material for transplants. He thinks it is also useful always to fasten the graft firmly by an encircling metal band, which is usually well tolerated.

Dr. Fermier of Grenoble spoke of the results of cranioplasty, on the basis of thirty-one personal cases and seventeen cases of other operators that he has had an opportunity of observing and controlling. From the standpoint of amelioration of nervous troubles, the results are mediocre. Headache, it is true, has been relieved, in certain cases, but, in general, the important troubles (cerebral accidents, jacksonian epilepsy, etc.) become worse. On the other hand, as in the reconstitution of the cranial cap, the results are uniformly excellent, especially since he gave up cartilaginous grafts and has been using the osteoperiosteal fragments as recommended by Delagenière.

OPERATIONS ON THE TRUNK ARTERIES OF THE LIMBS

In their papers, Dr. Leriche of Lyons and Dr. Paul Moure of Paris brought out more particularly the gravity, hitherto unsuspected, of ligatures from the functional standpoint, and the necessity of familiarizing oneself with the technic of sutures and grafts, in order to use them as often as possible. We should always consider a ligature as a serious matter with reference to the future functioning of a limb, and apply in preference a suture, if there is the possibility of a choice, even in dealing with certain vessels that seem at first sight to tolerate well a ligature; for instance, the brachial artery. The ligature of the trunk artery of a limb almost always causes a definite functional defect more serious for the ower limb than for the upper limb. It is true the functional leficiency in a limb with a ligated artery may be compatible with the work required in a normal life. But, while the unctioning of such a limb may seem perfect, a study of the lood pressure will show almost always that the oscillometric ndex has dropped to approximately half of its normal value. A lower limb with a ligated artery is, as a rule, unable to accomplish any work necessitating forced and long continued exertion. In view of the mediocre results that are secured by ligating the trunk arteries of limbs, it is only rational to ndeavor to bring about a complete restitution of the arterial ath by conservative operations. Vascular suturing and vasular grafts have been proved to be a legitimate part of uman surgery. The trials of lateral suturing, circular suturng and even of vascular grafts are now numerous, and have urnished definite and durable results. The quality of the esults has been controlled not only by the complete funconal restitution of the limb operated on, but also by a study f the oscillometric index and by the direct palpation of the rtery sutured or the graft transplanted. The early and late omplications that may impair the results of the sutures and he arterial grafts, such as rapid thrombosis, hemorrhage nd progressive narrowing of the vascular lumen, may be scribed to a fault in the operative technic, or they may be consequence of infection. The progressive dilatation of the tery sutured is not the inevitable result of every arterial ture, but is due to the pathologic or traumatic changes in e walls of the vessel.

In judging the remote results, we must take account of the nditions that determined the surgical act, and learn what purpose the operator had in view. An emergency ligature performed in an extremity on an anemic and infected injured person in danger of dying has but the one object, that of saving the patient's life by arresting the hemorrhage by the most simple means. In such a case, we need not concern ourselves with the probably mediocrity of the remote functional result. But when an operation can be performed *à froid* (during the intervals between attacks) for a traumatic or pathologic aneurysm, the surgeon must endeavor to reestablish the continuity of the trunk artery. Likewise, the accidental wounding of a trunk artery during surgical intervention imposes on the surgeon the duty of repairing by means of a suture the defect he has caused in the wall of the artery.

Conservative vascular surgery must not be regarded as the performance of an acrobatic feat but must be undertaken like any other methodically regulated operation, the indications and the contraindications to which should be considered without prejudice. One should never attack at the start the hematoma or the aneurysm, for the first stage of an operation on a trunk artery should be hemostasis effected by direct compression of the artery by means of two clamps placed one above and one below the lesion. In a septic lesion, one should, above all, prevent peripheral dissemination of the infection by the open route of the trunk artery. In an aseptic lesion the hematoma or the aneurysmal sac should be opened and, dependent on the nature of the lesion, one should make a lateral suture, a circular suture, aneurysmorrhaphy or apply a vascular graft, considering a ligature as the worst form of intervention. The results of late operations on traumatic aneurysms, and more particularly on arteriovenous aneurysms, are better than those of early operations done in emergencies in treating recent wounds of trunk arteries. Aneurysmorrhaphy, commonly employed in the United States in the treatment of an aneurysm of the limbs, is a simple and logical operation, the remote results of which seem satisfactory. The results of arteriotomy, done in case of embolism or thrombosis of the trunk arteries of the limbs, are frankly bad, and its indications should be confined to recent embolisms.

Statistical data are still lacking by which to compare the results of performing a ligature or the more conservative operations. These two methods have both been employed with too much prejudice, whereas they should supplement each other, the indications and contraindications being carefully considered in each case. It is just as much a technical error to ligate routinely as it is to suture without discernment. In order to increase the application of conservative surgery to the trunk arteries of the limbs and to improve its results, surgeons should perfect themselves in the simple but very special technic of vascular sutures, for it is difficult to succeed in this operation without previous practice on animals. It is probable that before long vascular suturing will have as irreducible opponents only those who do not wish to go to the trouble of experimenting with it.

Sir C. H. Makins of London, who was an invited guest of the congress, stated that, during the war, he had performed 863 ligatures as against only thirty-eight sutures. The 863 ligatures resulted in a mortality of approximately 30 per cent.; 30 per cent. of the cases resulted in primary complications and 50 per cent. in secondary complications. The sutures, which were rarely indicated, were always lateral sutures. They yielded a mortality of about 8 per cent. (two femoral, one popliteal); 50 per cent. of good results and 5 per cent. of perfect results. As for arteriotomy, he expressed himself in accord with the essayists, regarding it as a useless operation, since the clot forms again and results fatally. But such is not the opinion of Dr. Sencert, professor of clinical surgery at the Faculté de médecine of Strasbourg, who believes that arteriotomy is indicated in localized thrombosis of traumatic origin, and in embolisms. He reported a recent case of embolectomy of the axillary artery, which was entirely successful. Arteriotomy is not often indicated, but it is, he has found, successful in 50 per cent. of the cases and consequently should not be rejected.

Dr. Matas of New Orleans, an invited guest of the congress, gave a complete demonstration of his method and of the results he has secured. The record of his work and that of his collaborators, covering a period of fifteen years, deals with a series of 548 cases, 162 of the patients being white and 386 negroes. The frequency of aneurysms in the negro race bears possibly some relation to the large number of syphilitic negroes. Aneurysmorrhaphy, according to Matas, must be regarded today as the method of choice in the treatment of aneurysms of the limbs. But it must not be undertaken without full knowledge of what is involved, and the physician must assure himself first of the conditions prevailing in the circulation of the patient. Of 350 patients operated on by his method, Matas performed in 230 cases obliterative aneurysmorrhaphy, in sixty-eight cases the object was restorative and in forty cases reconstructive. The mortality in his cases was 4 per cent., the recoveries amounted to 96 per cent. He observed twelve cases of gangrene, six cases of secondary hemorrhage, and three recurrences (two recoveries following a second intervention). The remote results were good, in the main.

Professor Bérard of Lyons observed, during the war, thirty-one cases of arteriovenous aneurysms. In the outset, he endeavored, following the example of Carrel, to restore by suture the continuity of the vessels. In two recent cases of injury, in spite of a favorable evolution of the wound, he suffered two defeats. Two attempts, after waiting from two to eight weeks after the injury, could not be made to turn out well. In twenty-seven other cases of injury Bérard performed in every case a quadruple ligature with extirpation of the sac. In spite of the considerable technical difficulties that one encounters at times, the remote results are sufficiently satisfactory, so that Bérard regards the view of Moure exaggerated when he states that a limb with a ligature is, in general, unable to perform strenuous work for any length of time.

Professor Vanverts of Lille thinks that the suturing of arteries, in spite of the fact that the technic has been much improved, will remain an exceptional operation by reason of the conditions required for success which are seldom found to obtain. Ligature will therefore remain the operation that will almost always be applied to wounds of the arteries. In order to improve the results of such ligatures, the necessity of preventive hemostasis at some distance from the injury cannot be too strongly emphasized.

In the opinion of Dr. de Fourmestraux of Chartres, ligation, which carries with it a grave immediate prognosis in war practice, is infinitely less to be feared when the anastomotic paths are adequate (arterial or arteriovenous aneurysms) than when it is a question of performing a ligation that is absolutely required by the exigency of the moment.

Nevertheless, whenever possible, suturing will be preferred to ligation. From the technical standpoint it is indispensable that the arterial tunic on either side of the suture shall not be damaged. It is also extremely useful to sterilize in an autoclave gloves and operative material in a 5 per cent. solution of sodium citrate. In this way, especially if the wound itself is cleansed with the same solution, one will prevent the formation of blood clots, which are not only bothersome in the application of the suture but may collect about the endovascular segment of the thread and cause the appearance of a localized thrombosis.

Congress of Hygiene for the Colonies

A congress for the discussion of problems of public health and social welfare in French colonies was recently held in Marseilles. Dr. Paul Gouzien, "medical inspector general," who presided, recounted in his opening address the history of the important hygienic movements brought about in the public health services of the colonies during the last forty years. Monsieur Paul Strauss, minister of pubilc health and social welfare, presided at the closing session. Among the various desiderata formulated by the congress, I will mention the following: Emigration to the colonies should be placed under strict hygienic control; the campaign against tuberculosis, trypanosomiasis and malaria should be organized on a more intensive basis; a medical school should be established at Marseilles, where instruction in hygiene and public health work pertaining to the colonies could be fully developed.

BERLIN

(From Our Regular Correspondent)

Sept. 22, 1922.

The Centennial of the Society of German Scientists and Physicians

The Versammlung deutscher Naturforscher und Aerzte, founded by Dr. Lorenz Oken, in 1822, recently celebrated its centennial in Leipzig, where it was founded. Inspired by the promising program of the meeting and the desire to participate in this festive celebration of the oldest society of German scientists and physicians, several thousand members convened in Leipzig, in spite of the enormous expense that a railway journey in Germany today entails. Many guests from foreign countries were present.

The famous Swedish scientist Sven Hedin was received with particular enthusiasm. More than 800 addresses were delivered, including both the general sessions, which were open to any one (including the laity) who was interested in the sciences, and the special scientific sections. An expected address by Einstein failed to be delivered, as Einstein started a short time previously on a lecturing tour of Japan. In his stead, the Berlin physicist von Laue delivered a discussion of the subject from the standpoint of the physicist; while the Kiel philosopher Schlick dealt with the theme from the philosophical angle.

Johannsen of Copenhagen gave a survey of the progress in the science of heredity, during the past hundred years. Johannsen began in 1901 his propagation experiments in pure line of descent; that is, the propagation of a line of offspring of a self-fecundating organism with continued self-fecundation. Under these conditions, all the offspring are of identically the same extraction. There are no disturbing factors entering in through crossing. His experiments furnished no evidence of the hereditary influence of selection. The old conception of type had to be revised. We now make a sharp distinction between the phenotype, the form in which the single individual organism appears, and the fundamental type, the *Anlage,* as it is termed in German, or the genotype. This is the given basic organism in the fecundated ovum—the higher unity, as it were. Brothers and sisters though having the same genotype may differ from one another—have a different phenotype; or the phenotype may be the same while the genotype is different.

In the ultimate analysis, it is the genotypical factors that play the main part here, as well. Wherein these genotypical factors consist is not fully known. However, it has been discovered that, with the same degree of probability with which in mendelian crossings certain qualities or characteristics may be foreseen, sex also may be foretold.

Meisenheimer of Leipzig spoke on the external appearance in relation to heredity, modern theories concerning this relationship being based on propagation experiments which, in the choice of breeds and varieties for crossings, bring into interplay the opposing characteristics of the various breeds and varieties. The chief significance in all modern study of the laws of heredity lies in researches on the first succeeding daughter generation. Here we must distinguish two possibilities. One involves the mendelian law of inheritance based on the continual resolution or splitting of the hereditary *Anlagen* or capacities that appear in the first daughter generation. The second has to do with the formation of a concrete, irresolvable mixed type formed from two opposing hereditary characters. For example, the mixed offspring of certain long and short eared rabbits have ears of medium length, and, in the following generations, the short and the long ears do not reappear in accordance with mendelian law, but the ears of medium length remain. This cannot be explained by mendelian laws, but we may doubtless assume that the chromosomes of the cell nuclei must be regarded as the carriers of the total hereditary characters and tendencies. Further research will be needed to make the matter perfectly clear.

In view of the small body of material facts that experimental hereditary science has furnished thus far, it will be readily understood why Dr. Lenz of Munich was not able to present much that was definite in regard to the science of heredity in man. He began his discussion of the subject with the statement that the essential nature of a living organism does not lie in that which comes from without but is based rather on the sum total of hereditary capacities and tendencies. It is evident that in hereditary science as applied to man no propagation experiments can be made. Conclusions must be based partly on the analogy of results derived from experiments on animals and plants, but more particularly on statistical data which have been derived from genealogic researches.

It has been shown today that the mendelian laws apply to man as well as to plants and animals. It is also well established that in man there is no hereditary transmission of acquired characters. In this connection, Dr. Lenz stated that what the sons inherited from the fathers in the way of mental or psychic qualities did not need to be acquired in order to become an absolute possession. The type and the sum total of cultured endowment depend essentially on the differences n the hereditary mental qualities. The discoveries in the ield of hereditary science acquaint us with the ways and neans which, if rightly used, will not only preserve mankind rom degeneration but will even bring man to a height of cultured development such as he has never before reached. n order to accomplish this uplift, institutions for research n racial biology are needed; for the study of race characterstics and their origin will furnish us with the fundamental ata on which further progress can be based.

At the general meeting of the chemical sections, the Swedish scientist Svante Arrhenius spoke on the physical aws in cosmic chemical processes. He feels compelled to ssume that the earth has harbored organisms for about one illion years. For the same space of time, the sun must ave shed its warmth almost unchanged on the earth.

Bier of Berlin and Lexer of Freiburg spoke on the subject f regenerative surgery. Hitherto, we have been taught that, hile it is true that in certain of the lower animals destroyed rgans may be spontaneously restored, in the case of the igher animals, more particularly in the case of man, uch a thing is impossible—scar formation must be he inevitable outcome. After many trials, extending over any years, Bier has succeeded in effecting genuine restoraons in man; all that is needed is that the preconditions ecessary shall be complied with. He did not merely bring bout cicatrization of the bones, but he succeeded in forming genuine new bone. Complete reports on his work are found in the *Deutsche medizinische Wochenschrift* (1917-1919). He accomplished the same thing with tendons and other tissues. An important prerequisite for the creation of new bone or new tissue is the creation and preservation of a gap where the new growth can take place. Then stimuli and irritations that further regeneration must be established, while irritants that disturb or check new growth must be eliminated. Bier suggested that old views in regard to cicatrization should be discarded.

Lexer discussed the subject of transplantation and plastic operations. Many pictures were shown to prove the success of operations, such as transplantation of tissue parts, application of splints, reconstructive bone surgery by means of appliances, restoration of defects of the upper arm by implantation of portions of the shin bone, implantation of parts of the pelvis to reconstruct the lower jaw, facial paralysis cured by shifting of muscles, restitution of the biceps from the musculature of the chest, etc. The pictures of rigid joints that had been made movable were no less significant.

PEKING, CHINA

(From Our Regular Correspondent)

Sept. 25, 1922.

The Medical Organization of the Chinese Armies *

The Chinese armies are made up of divisional units of approximately 9,000 men each. The divisions consist of two brigades. Each brigade has three regiments and each regiment three companies of 500 men each. Each army has a surgeon general. For each division, there is one chief surgeon and one chief pharmacist with the rank of colonel. The brigades have one surgeon and one pharmacist with the rank of lieutenant-colonel. Each regiment has a surgeon and a pharmacist with the rank of major. Companies are similarly supplied with medical officers holding the rank of captain. Each company also has a "student surgeon" with the rank of lieutenant, and two privates of the medical corps.

The "pharmacists" are all graduates of some medical school. In general, the pharmacists of the victorious General Wu are graduates of the Army Medical College in Peking; while those of the defeated General Chang are for the most part graduates of the National Medical College in Peking. Nothing, however, should be inferred from this fact regarding the superiority of one or the other of these medical colleges. Of the surgeons, about half have graduated from a medical school. The other half are "old style" Chinese physicians. The "student" surgeons are promoted from the ranks of the medical corps. Graduation from a medical school is sufficient qualification for a position as officer in the army, but the appointment is made by the divisional commanding officer. The "old style" Chinese physicians are appointed by the same authority. One of their qualifications is "influence." Surgeons need not know the art of surgery provided they have "influence" with their commanding officers.

The pay for medical officers is about 50 per cent. less than that of line officers of similar rank. It ranges from $20 a month for lieutenants, up to $200 for the chief surgeon of a division. Furthermore, the medical officers have no military authority over other officers of lower rank, or even over enlisted men.

The organization of medical units is in the hands of the individual divisional commanders, and the money spent for medical supplies varies annually from a few hundred to a few thousand dollars, depending on the interest of the com manding officer. Even in peace time, the supplies are inadequate, and in war there is no way of suddenly increasing the store. The Chinese Red Cross can give very little assistance at such times, because of lack of funds for the purpose. (It is said, however, that, before hostilities began, the Chinese Red Cross offered its service to General Chang Tso Lin and he refused help, saying that his medical corps was fully able to handle the situation).

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* The facts given in this article were furnished by a high medical officer.

Every division has a general hospital in the city in which the division headquarters are situated. There is no fixed number of beds for the divisional hospitals, and very poor operating facilities are provided.

In war time, there are no first-aid dressing stations, field hospitals or other mobile units for the care of the sick or wounded. There are no stretcher bearers nor ambulances, and there is no organization for the transportation of the wounded back from the fighting line to the divisional hospitals. After a battle, coolies are hired to go out onto the battle field and bring back, on rough litters, any of the wounded who cannot walk by themselves. The coolies carry the wounded to the nearest railroad station, where they are put on trains bound for the nearest city. Those who are helpless are more or less in charge of the less severely wounded. Small groups may be in charge of an officer. On their arrival in a city, coolies are again pressed into service, and the wounded carried to any convenient hospital, either civil or military.

If the battle is waged at some distance from the railroad, the wounded may be carried to Buddhist temples or Christian missions, where they are cared for as best they can be with the facilities at hand. At such times, the medical officers may take charge of a large number of wounded, but there is very little that they can do except apply a simple first-aid dressing, and in the event of a retreat the wounded may be deserted. This actually happened when General Chang Tso Lin retreated so precipitately from the neighborhood of Peking; 700 wounded were left in an old temple south of the city walls. The medical officer in charge (who was of high rank) managed to get into Peking. The Chinese Red Cross, hearing of the serious plight of the wounded, asked the various hospitals in Peking to help. About 100 of the most severely wounded were brought into the city and cared for by the Central Hospital, the Army Hospital, and the Peking Union Medical College Hospital. Several hundred more reached Peking by other routes, during the fighting which took place south and southeast of the city. All of the hospitals of the city shared in the care of these wounded.

The total number of casualties has been variously estimated. Probably 10,000 is the figure nearest to actuality. The wounds were produced chiefly by rifle and machine gun bullets. Consequently, there were many clean cut, through and through wounds which needed little or no surgery. The bullets were frequently of low velocity because of the poor quality of the ammunition and were frequently lodged in the soft parts. In these cases, surgery was greatly handicapped in those hospitals which had no roentgen-ray facilities. Great numbers of wounded were cared for by the mission hospitals at Paotingfu, General Wu's headquarters in Southern Chili, and at K'aifengfu in Honan. When the drives were at their height, and the wounded were pouring into these centers, the Peking Union Medical College sent operating and roentgen-ray units to aid the local hospitals. Operating units also went from the Union Medical College at Tsinanfu in Shantung and from other medical centers. The roentgen ray demonstrated its value so strikingly at those times that General Wu offered to purchase a complete roentgen-ray outfit for the mission hospital in Paotingfu, and the Christian General Feng followed his example in K'aifengfu, in gratitude for the service which these hospitals rendered.

Marriages

Harold Thompson Nesbit, Rochester, Minn., to Miss Dorothy D. Tennant of Lake City, Minn., in September.

Christopher Howson of Vancouver, B. C., to Miss Ada Victoria Dorway of Alameda, Calif., September 30.

Wilford Merriam Nelson, Northville, Mich., to Miss Eleanor S. Bourne of West Falmouth, October 7.

William Wilwerding Moir, Minneapolis, to Miss Blanche Kummer of Piedmont, Calif., in September.

Imogen Baldwin to Maurice S. Redmond, both of Pittsburgh, September 2, in Youngstown, Ohio.

Herman Isaac Pifer, Winchester, Va., to Miss Lillian Paulett Bugg of Farmville, October 4.

William Edgar Sperow, Carlisle, Iowa, to Miss Lola Rogers of Montezuma, Iowa, recently.

Delos Schuyler Pulford, Jr., Rochester, Minn., to Miss Olive Day of Detroit, October 7.

Charles E. Salyer to Mrs. Hallie Gerald O'Haver, both of Hannibal, Mo., recently.

Frank N. Knapp, Minneapolis, to Miss Lulu S. Crosier of Somerville, October 4.

Carson V. Merritt to Miss Ida Mae George of Flint, Mich., recently.

Deaths

Elmer Ellsworth Heg, Seattle; Bellevue Hospital Medical College, New York, 1887; at one time secretary and president of the Seattle Board of Health; state commissioner of health, 1909-1911; formerly medical director, Pulmonary Hospital of Seattle; veteran of the Spanish-American War; United States delegate, Fourteenth International Congress on Hygiene, Berlin, in 1907; secretary, 1891-1892; president, 1904-1905, of the King County Medical Society; died at his ranch in Riverton Heights, September 25, aged 61.

Robert D. MacArthur ⊕ Chicago; McGill University Faculty of Medicine, Montreal, Canada, 1867; emeritus professor of dermatology and syphilology, Chicago Policlinic; practitioner in Chicago for more than half a century; formerly staff physician at the Henrotin, Presbyterian and St. Joseph's hospitals; since 1871 senior attending physician to the Scottish Home at Riverside; aged 79; died suddenly, October 24, at the Henrotin Memorial Hospital, from chronic myocarditis, following an operation.

William Whitall Requardt ⊕ Baltimore; University of Maryland School of Medicine, Baltimore, 1896; associate professor of surgery at his alma mater; member of the Medical and Chirurgical Faculty of Maryland and the Baltimore City Medical Society; served in the M. C., U. S. Army, during the World War; aged 48; on the staff of the Mercy Hospital, where he died, October 9, from septicemia, which developed from a throat infection.

Samuel Raymond Burroughs, Buffalo, Texas; Galveston Medical College, Galveston, Texas, 1869; member, and at one time president, of the State Medical Association of Texas, and the Leon County Medical Society; formerly dean of the Texas Medical College, Galveston; at one time vice president of the board of medical examiners of Texas; Civil War veteran; died, October 5, aged 80.

Andrew G. Friedrichs ⊕ New Orleans; Charity Hospital Medical College, 1877; also a dentist; formerly dean of the dental department of the Tulane University and professor of oral hygiene at Tulane University School of Hygiene and Tropical Medicine; at one time president of the Odeontological Society of New Orleans; died, October 14, aged 65, at Metairie Ridge.

Theodore Joseph Jacquemin, Echternach, Luxemburg; University of Ghent, Belgium, 1888; formerly practicing physician of West Hoboken, N. J., and Los Angeles; at one time consulting surgeon at the Hudson Hospital, Hudson, N. Y.; specialized in ophthalmology, otology, laryngology and rhinology; died, August 10, aged 61.

Amos Frankfort Rogers, Ottawa, Ont.; McGill University Faculty of Medicine, Montreal, Que., Canada, 1874; L.R.C.S. L.R.C.P. Edinburgh, 1875; represented the Ottawa district on the Ontario Medical Council for several years, acting as vice president in 1895 and president in 1896; died, September 3, aged 68.

Mary Best Newell, Pittsburgh; Northwestern University Woman's Medical School, Chicago, 1890; studied bacteriology in Japan under Dr. Shiga; resident physician at the Leech Farm Sanatorium; at one time connected with the Kenzie Hospital of Chicago; died suddenly, October 7, aged 64.

Charles S. Moore, London, Ont. Canada; McGill University Faculty of Medicine, Montreal, Que., Canada, 1874; for several years professor of gynecology at the Western University Faculty of Medicine, London; member of the Institute of Public Health; died, September 27, aged 70.

Frederick R. Bernard, Lake Providence,- La.; Medical Department University of Louisiana, New Orleans, 1876; at one time president of the board of health; aged 71; died September 7, at the home of his daughter in Costello, Pa., from cerebral hemorrhage.

Theodore L. St. John, Center Brunswick, N. Y.; Albany Medical College, Albany, N. Y., 1878; member of the Medical Society of the State of New York; formerly health officer of Center Brunswick; died, October 4, aged 74, at Bellevue Hospital, New York.

Janina Constance Klecan ⊕ Portland, Ore.; Johns Hopkins University Medical Department, Baltimore, 1918; specialized in pathology and bacteriology; aged 40; died, October 9, from an overdose of morphin, which was presumably self-administered.

Lansing Jay Cramer, Castorland, N. Y; Medical Department of the University of the City of New York, 1887; member of the Medical Society of the State of New York; formerly health officer of Denmark; died, October 6, aged 63, from shock.

John W. Cox, Johnson City, Tenn.; College of Physicians and Surgeons, Baltimore, 1884; member of the Tennessee State Medical Association; Spanish-American War veteran; aged 64; died, October 3, following an attack of acute indigestion.

Charles Edward Moore, New York; Medical Department of Columbia College, New York, 1885; formerly professor of mathematics and languages at the Columbia Grammar School; aged 73; died, September 22, at the Presbyterian Hospital.

John M. Barrier, Jackson, Miss.; Louisville Medical College, Louisville, Ky., 1883; member of the Mississippi State Medical Association; aged 62; died, October 3, at the Vicksburg Sanitarium and Crawford Street Hospital, from chronic nephritis.

George R. Neff ⊕ Farmington, Iowa; College of Physicians and Surgeons, Keokuk, Iowa, 1870; formerly president of the Van Buren County Medical Society; practitioner in Van Buren County for more than half a century; died, October 1, aged 76.

Hugh W. McCain ⊕ High Point, N. C.; Jefferson Medical College, Philadelphia, 1909; part owner with Dr. Burrus of he High Point Hospital; died, October 3, aged 40, from epticemia, resulting from a carbuncle on his neck.

Louis Kinchling Mezger ⊕ Rochester, N. Y.; University f Michigan Medical School, Ann Arbor, 1890; Rush Medical College, Chicago, 1891; served as state committeeman; ied, October 11, aged 55, following a long illness.

John Jacob Coffman, Scotland, Pa.; Dartmouth Medical chool, Hanover, N. H., 1882; member, and at one time ecretary, of the New Hampshire Medical Society; aged 70; ied, October 4, from paralysis and heart disease.

Richard J. Neal, Mayfield, Ky.; Medical Department, University of Tennessee, Memphis, 1885; member of the Kentucky State Medical Association; died, October 4, aged 61, rom carcinoma of the intestines.

John Carey Greenleese, Ottawa, Ont., Canada; McGill University Faculty of Medicine, Montreal, Que., Canada, 1909; ged 40; disappeared, August 8; his body was found floating the Rideau Canal, August 12.

Thomas Henry Truro Bray, Chicago; Hahnemann Medical College and Hospital of Chicago, 1902; formerly a minister; uthor of many religious works; died, October 23, aged 75, rom carcinoma of the prostate.

William Jackson Clark ⊕ Maysville, Mo.; Marion-Sims Beaumont Medical College, St. Louis, 1902; served in the C., U. S. Army, during the World War; died, October 8, ed 49, from heart disease.

Halbert Porter Harris ⊕ Major, M. C., U. S. Army, Wake Forest, N. C.; University College of Medicine, Richmond, Va., 1909; retired, Aug. 24, 1917; died, October 7, aged 40, from cerebral hemorrhage.

Marcellus Craig Garner ⊕ Meridian, Miss.; Tulane University of Louisiana School of Medicine, New Orleans, 1915; served in the M. C., U. S. Army, during the World War; died, October 12, aged 33.

William Louis Parr ⊕ Evansville, Ind.; Hospital College of Medicine, Medical Department, Central University of Kentucky, Louisville, 1906; died, October 11, aged 43, from atrophy of the liver.

A. Rusling Rainear ⊕ Philadelphia; Jefferson Medical College, Philadelphia, 1882; member of the Medico-Legal Society and the American Electro-Therapeutic Association; died, October 8, aged 62.

Lewis E. Park, Tracy, Iowa; College of Physicians and Surgeons, Keokuk, Iowa, 1880; member of the Iowa State Medical Society; died, October 4, aged 67, from angina pectoris.

Chester W. Bryant, Redding, Calif.; Hospital College of Medicine, Medical Department Central University of Kentucky, Louisville, 1888; aged 64; died, October 1, at Tepic, Mexico.

George Thomas Wilson, Hoosick Falls, N. Y.; University of Pennsylvania School of Medicine, Philadelphia, 1898; died suddenly, September 22, aged 46, from cerebral hemorrhage.

William F. Hobart, Milwaukee; Chicago Homeopathic Medical College, 1886; died, October 4, aged 62, at the Mayo Brothers Hospital, Rochester, Minn., following an operation.

George Wesley Rice ⊕ Captain, M. C., U. S. Army, Kansas City, Mo.; University Medical College of Kansas City, Mo., 1900; died, September 28, aged 55, from chronic nephritis.

Sylvestus S. Clayberg, Avon, Ill.; Rush Medical College, Chicago, 1872; practitioner in Avon for a half a century; also a druggist; died, October 4, aged 84, from senility.

Charles O. Rice, Denver; Baltimore Medical College, 1890; formerly health commissioner at Pueblo; died, October 2, aged 64, at a hospital in Baltimore, from carcinoma.

George W. Stephenson, Medford, Ore.; College of Physicians and Surgeons, Keokuk, Iowa, 1878; Missouri Medical College, St. Louis, 1887; died, August 23, aged 68.

Gavin Rawls, Carrsville, Va.; Medical College of Virginia, Richmond, 1876; member of the Medical Society of Virginia; died, September 28, aged 66, from angina pectoris.

James Polk Willard, Denver; Homeopathic Medical College of Missouri, St. Louis, 1868; died, October 2, in San Diego, Calif., aged 78, from heart disease.

Charles Alson Gale, Rutland, Vt.; Hahnemann Medical College of Philadelphia, 1880; member of the Vermont State Medical Society; died, October 4, aged 69.

Samuel Augustus Melville Pitt, Elberton, Ga.; Meharry Medical College, Nashville, Tenn., 1915; aged 41; died, July 28, from mitral insufficiency.

Robert P. Waring, Kansas City, Mo.; St. Louis Medical College, St. Louis, 1879; formerly city health commissioner; died, October 8, aged 74.

Edward George McCassy, Cincinnati; Bellevue Hospital Medical College, New York, 1890; died, October 7, aged 53, from chronic nephritis.

D. Oscar Clements, Ordinary, Va.; Baltimore University School of Medicine, 1897; died, September 15, aged 55, from cerebral hemorrhage.

Austin D. Beasley, Columbus, Ohio; Starling Medical College, Columbus, Ohio, 1897; died, October 9, aged 50, at the Protestant Hospital.

Charles M. Hubbard ⊕ Virginia, Ill.; Eclectic Medical College, Cincinnati, 1871; died suddenly, October 7, aged 74, from heart disease.

John Duhig Malone, Newburgh, N. Y.; Dartmouth Medical School, Hanover, N. H., 1868; died, September 30, aged 82, from senility.

J. H. Terrell, San Antonio, Texas (licensed, Texas, 1900); aged 79; died, September 8, at the home of his daughter in Ovid, Mich.

James Millard Maury ⊕ Wheaton, Ill.; Illinois Medical College, Chicago, 1897; died, October 2, aged 63.

Arthur J. O'Keefe, Chicago; Dearborn Medical College, Chicago, 1906; aged 50; died, October 19.

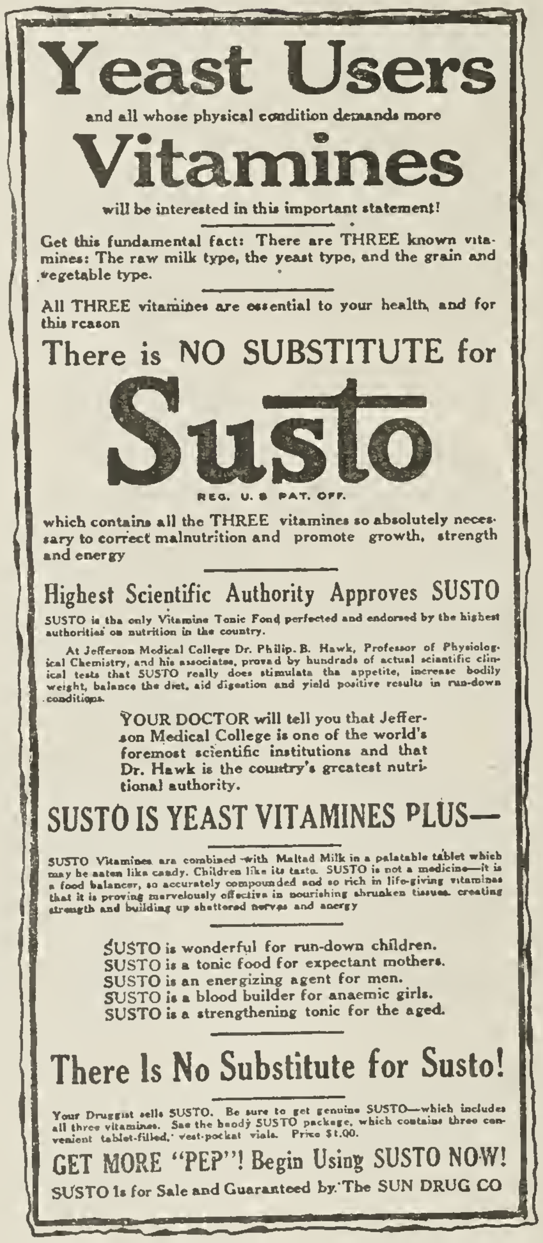
The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other General Material of an Informative Nature

SUSTO—NEE VINOL POWDER

The Conception and Birth of a Nostrum

"Susto" is put on the market by Chester Kent & Co. of Boston, although this concern, apparently, does not make the product. According to the trade package, "Susto" is "A Vitamine Tonic Food in Concentrated Form. Rich in the Vitamines of Rice, Eggs, Milk and Yeast. Notably Rich in Fat Soluble and Water Soluble Vitamines A, B, C, together with Beef Protein, Nuclein and Iron."



Yeast Users

and all whose physical condition demands more

Vitamines

will be interested in this important statement!

Get this fundamental fact: There are THREE known vitamines: The raw milk type, the yeast type, and the grain and vegetable type.

All THREE vitamines are essential to your health, and for this reason

There is NO SUBSTITUTE for

Susto

REG. U. S PAT. OFF.

which contains all the THREE vitamines so absolutely necessary to correct malnutrition and promote growth, strength and energy

Highest Scientific Authority Approves SUSTO

SUSTO is the only Vitamine Tonic Food perfected and endorsed by the highest authorities on nutrition in the country.

At Jefferson Medical College Dr. Philip. B. Hawk, Professor of Physiological Chemistry, and his associates, proved by hundreds of actual scientific clinical tests that SUSTO really does stimulate the appetite, increase bodily weight, balance the diet, aid digestion and yield positive results in run-down conditions.

YOUR DOCTOR will tell you that Jefferson Medical College is one of the world's foremost scientific institutions and that Dr. Hawk is the country's greatest nutritional authority.

SUSTO IS YEAST VITAMINES PLUS—

SUSTO Vitamines are combined with Malted Milk in a palatable tablet which may be eaten like candy. Children like its taste. SUSTO is not a medicine—it is a food balancer, so accurately compounded and so rich in life-giving vitamines that it is proving marvelously effective in nourishing shrunken tissues, creating strength and building up shattered nerves and energy

SUSTO is wonderful for run-down children.
SUSTO is a tonic food for expectant mothers.
SUSTO is an energizing agent for men.
SUSTO is a blood builder for anaemic girls.
SUSTO is a strengthening tonic for the aged.

There Is No Substitute for Susto!

Your Druggist sells SUSTO. Be sure to get genuine SUSTO—which includes all three vitamines. See the handy SUSTO package, which contains three convenient tablet-filled, vest-pocket vials. Price $1.00.

GET MORE "PEP"! Begin Using SUSTO NOW!

SUSTO Is for Sale and Guaranteed by The SUN DRUG CO

The original advertisement of which this is a reduced photographic facsimile measured 6 inches by 15 inches.

Inquiries have come to The Journal, of which the following are typical: This from a Georgia physician:

> "I am enclosing a clipping advertising Susto, a vitamine preparation. In this advertisement a great deal of publicity is given Dr. Philip B. Hawk and the Jefferson Medical School. It seems to me very unusual for a man like Dr. Hawk to allow his name and that of the college in which he teaches to be used in a common quack advertisement. . . . I received also a bulletin from the Susto concern by mail, which I am also enclosing. I cannot understand why the Jefferson Medical College will permit its name to be used to further the sale of this would-be tonic food."

This from a New York physician:

> "Have you any information on a product advertised very extensively at present known as Susto, a so-called vitamine product? If you have, would you kindly publish same in the Propaganda for Reform columns?"

This from the executive secretary of a local tuberculosis committee:

> "Our county papers have been advertising Susto concentrated tablets to give to undernourished children. They are the product of some medical professor from some college in Pennsylvania, I believe. I have not the clipping at this time because I sent it to our National Tuberculosis Association, which suggested that I send it on to you."

FROM VINOL TO SUSTO

The history of Susto is interesting. It illustrates the attitude of the modern "patent medicine" maker, ready to capitalize, at a moment's notice, the passing fads of the public. Chester Kent & Co., the exploiters of Susto, are better known as the sellers of "Vinol." Vinol was essentially an alcoholic "tonic," containing, according to the label, unrecorded amounts of iron and manganese peptonates, iron and ammonium citrate, lime and soda glycerophosphates, beef and cod liver peptones, cascarin and sodium salicylate—and an amount of alcohol that was declared, as the law requires, at 18 per cent. When analyzed by the state chemists of Connecticut, the total extract in 100 c.c. of Vinol was found to be 8.72 grams, of which 3.32 grams were reducing sugars.

A few years back Vinol was featured in all of the advertising, as well as on the trade package, as a cod liver oil product, minus the oil! Both in magazine advertising and on the carton, pictures were given showing the "Chopped Cod Livers," the "Exhausted Liver" and, finally, the "Concentrated Extract of the Liver." The keynote of the advertising was: "The Cod Liver Preparation Without Oil."

Vinol seems to have been made for Chester Kent & Co. by Frederick Stearns & Co., of Detroit, and it is of passing interest to note a similarity between "Vinol" and what used to be called "Stearns' Wine of Cod Liver Extract with Peptonate of Iron." In 1917 and 1918, a quantity of Vinol, shipped by Frederick Stearns & Co. and claimed by Chester Kent & Co., was seized by the federal authorities on the ground that the therapeutic claims made for the product were fraudulent and the claim that Vinol possessed "the medicinal and restorative elements of cod liver oil" was false.

The later Vinol trade-packages have had eliminated the pictures and wording stressing the cod liver oil matter. Still later, the exploiters of Vinol found it desirable to reduce the alcohol percentage of Vinol from 18 per cent. to 10 per cent., the present strength.

ENTER SUSTO

Then came the time when alcoholic tonics were no longer considered good form—at least openly. There came, also, an awakened public interest in those comparatively recently discovered food-factors known as vitamins. Possibly Chester Kent & Co. believed that the "food-tonic" type of medicine was still a therapeutic gold mine and that it should be possible to market a product that would at once capitalize the public's misinformation on the subject of iron therapy together with the public's lack of knowledge of the vitamin-content of everyday foods.

It would seem that the company's first idea was to market Vinol in powder form —as though such a thing were possible when the most powerful drug in Vinol was alcohol. In any event the concern, according to Susto advertisements, "employed" Philip B. Hawk, Professor of Physiological Chemistry at Jefferson Medical College, Philadelphia, to "perfect" a product that it sent him as "Vinol Powder." This Hawk did, making suggestions for additions to, and modifications of, Vinol Powder. He did more; he furnished the company with clinical reports and experimental data—valuable advertising thunder.

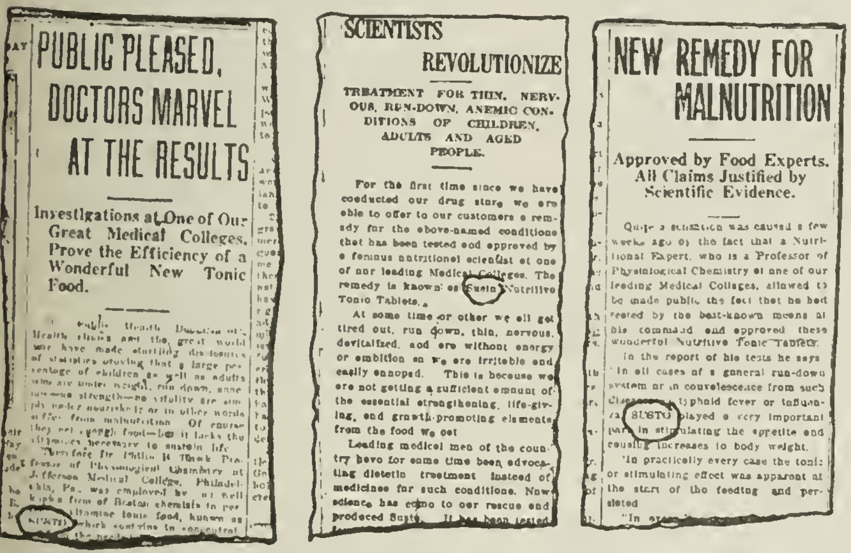
Hawk reported that "after going very carefully into the matter" he reached the conclusion that Vinol Powder could be improved "by the addition of yeast and calcium." Curiously, too, it happened that just before he began his tests on Vinol Powder he had investigated "the well-known Fleischmann's Compressed Yeast" and had found that it was "a most excellent food for man . . . a most efficient growth-promoter," and further that it "was of surprising value as a *medicine.*" In view of this, Hawk reported that it would be a good idea to incorporate "10 per cent. of dried compressed yeast with the other ingredients of the original Vinol Powder." As for the addition of calcium, "1 per cent. of calcium carbonate," said Hawk, would raise the calcium content to a more satisfactory level.

Hawk further reported that "inasmuch as malted milk is the basis" of Vinol Powder "it is most urgent that a satisfactory product be utilized." It happened that the only malted milk that had been examined in the Laboratory of Physiological Chemistry of Jefferson Medical College was "that put out by the Borden Company." Hawk said that from his knowledge of Borden's Malted Milk he could "heartily recommend the use of this malted milk as a basis for Vinol Powder."

Thus was born Susto! Whether Susto contains Borden's Malted Milk as a base, with 10 per cent. of dried Fleischmann's Yeast, we do not know, because the report as finally published contained reference neither to Fleischmann's Yeast nor Borden's Malted Milk!

A DISCOVERY: RATS WILL GROW ON MALTED MILK!

In addition to helping concoct this "patent medicine" Philip B. Hawk in his report also furnishes some data that serve very well for advertising purposes. There is some space devoted to tests alleged to have been made by Hawk to show the "Action of the Improved Formula in the Human Stomach." Also there is descriptive matter and a very scientific looking table detailing "Animal Tests to Demonstrate the Growth-Promoting Properties of the Improved Powder." Under "Therapeutic and Dietetic Tests" are some alleged studies which allowed Hawk to draw the conclusion that Susto (1) "played a very important part in stimulating the appetite and in causing increases in body weight" in all cases of a general rundown system; that (2) in practically every case "the tonic or stimulating effect" of Susto was apparent at the start and persisted; that (3) whenever undernourished infants were given Susto, "improved body weight increases were registered"; that (4) Susto also caused normal adult persons to put on weight; that (5) an old lady of seventy-five who had long weighed under ninety-six pounds, "increased her weight to one hundred pounds by the use of Susto"; that (6) no patients "object to the taste of Susto," in fact, one little girl "now refuses to take any milk unless it contains Susto," while another patient "who had been used to drinking port wine as a tonic used Susto as a substitute, with satisfactory results" [Query: Had the patient ever tried the old time Vinol with its 18 per cent. alcohol?]; that (7) some persons who could not digest straight milk "could handle milk with Susto very nicely."


PUBLIC PLEASED, DOCTORS MARVEL AT THE RESULTS

Investigations at One of Our Great Medical Colleges, Prove the Efficiency of a Wonderful New Tonic Food.

SCIENTISTS REVOLUTIONIZE

TREATMENT FOR THIN, NERVOUS, RUN-DOWN, ANEMIC CONDITIONS OF CHILDREN, ADULTS AND AGED PEOPLE.

For the first time since we have conducted our drug store we are able to offer to our customers a remedy for the above-named conditions that has been tested and approved by a famous nutritional scientist at one of our leading Medical Colleges. The remedy is known as Susto Nutritive Tonic Tablets.

At some time or other we all get tired out, run down, thin, nervous, devitalized, and are without energy or ambition as we are irritable and easily annoyed. This is because we are not getting a sufficient amount of the essential strengthening, life-giving, and growth-promoting elements from the food we eat

Leading medical men of the country have for some time been advocating dietetic treatment instead of medicines for such conditions. Now science has come to our rescue and produced Susto. It has been tested

NEW REMEDY FOR MALNUTRITION

Approved by Food Experts. All Claims Justified by Scientific Evidence.

Quite a sensation was caused a few weeks ago by the fact that a Nutritional Expert, who is a Professor of Physiological Chemistry at one of our leading Medical Colleges, allowed to be made public the fact that he had tested by the best-known means at his command and approved these wonderful Nutritive Tonic Tablets.

In the report of his tests he says "In all cases of a general run-down system or in convalescence from such diseases as typhoid fever or influenza SUSTO played a very important part in stimulating the appetite and causing increases in body weight.

"In practically every case the tonic or stimulating effect was apparent at the start of the feeding and persisted

Some of types of advertising of Susto that appeared in country papers. All feature Philip B. Hawk, Professor of Physiological Chemistry, Jefferson Medical College. One specifies that Hawk was "employed" by Chester Kent & Co. "to perfect" Susto.

Nowhere does this report by Philip B. Hawk show that any scientific control of the experiments was made. That white rats gained in weight when fed a product which, apparently, has for its basis malted milk might have been expected even without experiments and by those less erudite than professors of physiologic chemistry. That such a malted milk preparation should be digestible in the human stomach might also have been inferred. The same is true of the various other claims made for this modern wonder. There is nothing to show, however, that Philip B. Hawk checked his findings by giving to other humans suffering from similar conditions just plain malted milk or that he fed other white rats with plain malted milk, as controls!

Shrewd and forward-looking "patent medicine" exploiters are cognizant of the fact that the public, and especially the more intelligent part of the public, can be more easily humbugged on the "food tonic" scheme than by any other. When, added to this, they can get the active cooperation of men whose scientific training should put them above such things, they have all the elements of a big seller, provided printers' ink is lavishly used. All that is necessary is an intensive and extensive advertising campaign written in a plausible and, apparently, conservative tone. For $1.00 the purchasers of Susto will get a few cents' worth of food material and never realize that most of their dollar has been expended in the efforts of the exploiters to persuade them to buy the product!

Correspondence

ACTINOMYCOSIS—INFORMATION WANTED

To the Editor:—I am endeavoring to make a complete study of the distribution of human actinomycosis in this country. The number of cases reported in the literature is surprisingly small, and I know that the disease is not so rare as is sometimes thought. I shall greatly appreciate hearing directly from any one who has had experience with this disease, and desire to know concerning case histories the following: age, sex, occupation, residence, state in which the disease was contracted, location of lesion, duration of symptoms, and any special points of interest connected with the treatment, outcome of the disease, or necropsy findings.

A. H. SANFORD, M.D., Mayo Clinic,
Rochester, Minn.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

MEDICAL PUBLISHERS

To the Editor:—Will you kindly send me the names of some of the leading medical publishers to whom I can write for catalogues.

CLAUDE WILSON, M.D., Greenville, Ky.

ANSWER.—In the Quarterly Cumulative Index published by the American Medical Association appears a complete list of medical publishers. In each issue of THE JOURNAL appear the announcements of leading publishers concerning recently published books.

BOOKS ON SURGERY IN CHILDREN

To the Editor:—Can you tell me the names of authors and publishers of works on the surgery of children?

R. A. MILLIKEN, M.D., Indianapolis.

ANSWER.—The following may be consulted:

Kirmission and Murphy: Surgery of Children, Oxford University Press, New York.

Willard: Surgery of Childhood, J. B. Lippincott Company, Philadelphia.

Campbell and Ker: Surgical Diseases in Children, D. Appleton & Co., New York.

Mouchet, A., and Roedlier, C.: Surgery for Children and Orthopedics in 1922, Paris Med., July 15, 1922, abstr., J. A. M. A., Sept. 16, 1922, p. 1003.

"Throwing Out the Baby with the Bath Water."—Movements toward reforms, however beneficial they may ultimately prove to be, are nevertheless prone, in the remedying of preexisting conditions, to go to extremes. Those who conduct them are eager to better things, but they are apt, while clearing away rubbish, temporarily to discard some things that are valuable or even indispensable. Thus the amphitheater clinic and the clinical lecture are at the present time looked upon askance, as remnants of a bygone period, scarcely desirable any longer, or not altogether reputable. In view of the excessive didacticism that prevailed formerly to the neglect of direct practical technical training, the attitude of suspicion assumed toward large clinics and the clinical lecturer is easily understandable. But is there not some danger of "throwing out the baby with the bath water"? In securing all that we can of the new that is good, let us make sure also that we retain some of the best of what in method is old.—L. F. Barker: Clinical Medicine, W. B. Saunders Co., 1922

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Arkansas: Little Rock, Nov. 14-15. Sec., Reg. Bd., Dr. J. W. Walker, Fayetteville; Sec., Eclec Bd., Dr. C. E. Laws, 803½ Garrison Ave., Fort Smith; Sec., Homeo. Bd., Dr. George M. Love, Rogers.

Connecticut: Hartford, Nov. 14-15. Sec., Reg. Bd., Dr. Robert L. Rowley, 79 Elm St., Hartford.

Connecticut: New Haven, Nov. 14-15. Sec., Eclec. Bd., Dr. James E. Hair, 730 State St., Bridgeport; Sec., Homeo. Bd., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

Delaware: Wilmington, Dec. 12-14. Sec., Dr. P. S. Downs, Dover.

Iowa: Des Moines, Nov. 1-3. Sec., Dr. Rodney P. Fagen, State House, Des Moines.

Louisiana: New Orleans, Nov. 30-Dec. 1. Sec., Dr. Roy B. Harrison, 1507 Hibernia Bank Bldg., New Orleans.

Maine: Portland, Nov. 14-15. Act. Sec'y., Dr. Adam P. Leighton, Jr., 192 State St., Portland.

Maryland: Baltimore, Dec. 12. Sec., Dr. J. McP. Scott, 141 W. Washington St., Hagerstown.

Massachusetts: Boston, Nov. 14-16. Sec., Dr. Samuel H. Calderwood, 144 State House, Boston.

Missouri: Kansas City, Nov. 20-23. Sec., Dr. Cortez F. Enloe, State House, Jefferson City.

Nebraska: Lincoln, Nov. 6-8. Sec., Mr. H. H. Antles, Capitol Bldg., Lincoln.

Nevada: Carson City, Nov. 6. Sec., Dr. Simeon L. Lee, Carson City.

North Carolina: Durham, Dec. 12. Sec., Dr. Kemp P. B. Bonner, Raleigh.

Ohio: Columbus, Dec. 6-8. Sec., Dr. H. M. Platter, Hartman Hotel Bldg., Columbus.

South Carolina: Columbia, Nov. 14. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

Texas: Waco, Nov. 28-30. Sec., Dr. T. J. Crowe, Dallas County Bank Bldg., Dallas.

Virginia: Richmond, Dec. 5-8. Sec., Dr. J. W. Preston, McBain Bldg., Roanoke.

New Hampshire March Examination

Dr. Charles Duncan, secretary, New Hampshire State Board of Medical Examiners, reports the written examination held at Concord, March 9-10, 1922. The examination covered 12 subjects and included 120 questions. An average of 75 per cent. was required to pass. One candidate, a graduate of Tufts College Medical School in 1921, took the examination and passed with a grade of 82 per cent.

Connecticut July Examination

Dr. Robert L. Rowley, secretary, Connecticut Medical Examining Board, reports the written examination held at Hartford, July 11-12, 1922. The examination covered 7 subjects and included 70 questions. An average of 75 per cent. was required to pass. Of the 33 candidates examined, 28 passed and 5 failed. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
Yale University	(1916) 79.4, (1920) 76.5, (1921)	90.3, (1922) 77.7, 79.8, 82.7, 83.6, 86.7
George Washington University	(1916)	81.5
Tulane University	(1922)	84.5
Johns Hopkins University	(1917),* (1918),* (1919)	*
University of Maryland	(1922)	78.7
Harvard University	(1921) 79.1, (1922)	85.4
Tufts College Medical School	(1900),* (1921) 82.9,	83.7
Columbia University	(1912),* (1920)	87.5
Cornell University	(1918)	89.7
Long Island College Hospital	(1922)	80.7
Jefferson Medical College	(1920) 80, (1922)	83.1
Woman's Medical College of Pennsylvania	(1921)	88.2
University of Vermont	(1921)	81.1
Medical College of Virginia	(1922)	76.6

FAILED		
Yale University	(1904)	*
Johns Hopkins University	(1920)	*
University of Pennsylvania	(1894)	*
University of Vermont	(1921)	73.4
National University, Athens	(1918)†	56.8

* No grade given.
† Graduation not verified.

Pennsylvania July Examination

Mr. C. D. Koch, secretary, Professional Credentials Bureau, Bureau of Medical Education and Licensure of the Department of Public Instruction of Pennsylvania, reports the written and practical examination held at Philadelphia and Pittsburgh, July 11-15, 1922. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 222 candidates examined, 209 passed and 13 failed. Twenty-one candidates were licensed by reciprocity. One candidate was registered on the basis of military service and 4 candidates were licensed by endorsement of credentials. Of the 48 candidates who took the examination to practice chiropody, 36 passed and 12 failed. Of the 8 candidates who took the examination to practice physiotherapy, 3 passed and 5 failed. One candidate was licensed to practice drugless therapy. The following colleges were represented:

College PASSED	Year Grad.	Number Licensed
Georgetown University	(1921)	3
George Washington University	(1920)	1
Howard University	(1920)	1
Hering Medical College	(1910)	1
Loyola University	(1922)	1
Rush Medical College	(1921)	1
Indiana University	(1921)	1
University of Louisville Medical Department	(1921)	1
Johns Hopkins University	(1920) 2, (1921) 2	4
Maryland Medical College	(1912)	1
University of Maryland	(1921)	3
Boston University	(1921)	1
University of Michigan Medical School	(1920)	1
Washington University	(1921)	1
Columbia University	(1906)	1
New York Medical College	(1911)	1
Syracuse University	(1916), (1921)	2
University and Bellevue Hospital Medical College	(1921)	2
University of Buffalo	(1921)	1
Ohio State University College of Medicine	(1920)	1
Hahnemann Medical College and Hospital of Philadelphia	(1920) 1, (1921) 31	32
Jefferson Medical College	(1918), (1920) 8, (1921) 31	40
Temple University	(1919) (1921) 15	16
University of Pennsylvania	(1917) 2, (1920) 10, (1921) 34	46
University of Pittsburgh	(1919), (1920) 3, (1921) 31, (1922) 2	37
Meharry Medical College	(1906)	1
Vanderbilt University	(1919)	1
University of Vermont	(1921)	1
McGill University	(1907), (1918)	2
University of Ontario	(1908)	1
University of Naples	(1920),* (1921)*	2
University of Pavia	(1920)*	1

FAILED		
College of Physicians and Surgeons, Baltimore	(1903)	1
Maryland Medical College	(1913)	1
Hahnemann Medical Coll. and Hosp. of Philadelphia	(1921)	7
Temple University	(1921)	2
University of Pennsylvania	(1921)	1
University of Catania	(1919)*	1

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Colorado	(1912)	Colorado
Howard University	(1904) South Carolina, (1910)	Dist. Colum.
Medical College of Indiana	(1902)	Indiana
Bowdoin Medical School	(1919)	Maine
Baltimore Medical College	(1898)	Maryland
Johns Hopkins University	(1910)	Dist. Colum. (1918), (1919) Maryland, (1919) North Carolina
University of Maryland	(1916)	W. Virginia
University of Michigan Medical School	(1918)	Michigan
Columbia University	(1901)	S. Carolina
Hahnemann Medical College and Hospital of Philadelphia	(1902) New York, (1916)	New Jersey
Jefferson Medical College	(1904) Iowa, (1915, 2)	Virginia
University of Pennsylvania	(1898), (1911)	S. Carolina
Medical College of Virginia	(1916)	Virginia

College ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
Johns Hopkins University	(1919)	N. B. M. Ex.
University of Pennsylvania	(1889) U. S. Navy, (1917)	U. S. Army (1919, 2) N. B. M. Ex.

* Graduation not verified.

South Dakota July Examination

Dr. H. R. Kenaston, director, Division of Medical Licensure, South Dakota State Board of Health and Medical Examiners, reports the oral, written and practical examination held at Waubay, July 18-19, 1922. The examination covered 15 subjects and included 100 questions. An average of 75 per cent. was required to pass. Ten candidates were examined, all of whom passed. Two candidates were licensed by reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
College of Medical Evangelists	(1922)	91
Bennett College of Eclectic Medicine and Surgery	(1907)	75.7
Rush Medical College	(1921) 89.6, (1922) 83.5,	93.9
State University of Iowa College of Medicine	(1922)	84.5
University of Michigan Medical School	(1886)	78.6
University of Nebraska	(1921)	84.9
Starling Medical College	(1893)	86
Queen's University	(1887)	86.3

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Minneapolis College of Physicians and Surgeons	(1900)	Minnesota
University of Minnesota	(1922)	Minnesota

Social Medicine

THE RURAL PHYSICIAN IN OHIO

C. E. LIVELY
Assistant Professor of Rural Sociology, Ohio State University
Columbus, Ohio

For some time it has been generally believed that the rural physician—the country doctor of history and literature—is becoming less and less common. In order to determine the facts in the case with reference to Ohio, this analysis of the statistics of the American Medical Directory for 1921 was made.

It will be noted in Table 1 that Ohio is better supplied with physicians than the United States as a whole, having one physician for every 712 persons. There is a great variation between the different groups within the state, however. The seven largest cities (those having more than 100,000 population) have one physician for every 571 persons, Akron being the only conspicuous variant from the average. In rural Ohio (all places under 2,500 population), there is one physician for every 1,161 persons. Thus, rural Ohio averages more than twice as many persons for every physician as do the seven largest cities, and more than one half as many more persons for every physician as the entire United States.

TABLE 1.—NUMBER OF PHYSICIANS IN RURAL AND URBAN OHIO IN PROPORTION TO THE POPULATION (1921)

	Number of Physicians	Number of Persons per Physician
United States	145,608	726
Ohio	8,092	712
Seven largest cities	3,819	571
Akron	274	1,362
Cincinnati	863	462
Cleveland	1,246	711
Columbus	546	442
Dayton	284	589
Toledo	433	668
Youngstown	173	865
Rural	1,793	1,161

Counties vary widely in the number of rural physicians in proportion to the rural population, ranging from Clermont, with 615, to Fayette, with 2,711 persons for every physician. In Table 2 will be found these data, together with the percentage of urban population in each county. A casual comparison will indicate that there exists some relation between the percentage of urban population in the county and the number of rural persons for every rural physician. In fact, there is a 0.919 correlation. That is, as the proportion of urban population in the county increases, the number of rural physicians in proportion to the rural population decreases.

It will be seen from this that the shortage of rural physicians is not most acute in the strictly rural counties of Ohio. So far as numbers are concerned, two of these counties stand above the state average. The shortage is most acute in the rural regions about the cities. It is probable, however, that there is less difference in the availability of the medical service in these two general sections than the figures indicate. Reasonable proximity to the urban specialist favors the near-city dweller. Better roads and a greater density of population than commonly exist in the more remote rural sections enable the rural physician in the more urbanized counties to serve a somewhat larger clientele. Also the comparative training of these two groups of rural physicians probably favors the near-city man.

Of the 1,793 rural physicians in Ohio, 1,750, or 97.6 per cent., are graduates of a medical college, and 2.4 per cent. are not medical college graduates. Of those who graduated from a medical college, 440, or 24 per cent., are graduates of a Class A school; 153, or 8 per cent., are graduates of a Class B school, and 1,157, or 64 per cent., are graduates of a Class C medical college, or one which is no longer in existence. Seventy-six per cent. of the medical college graduates are graduates of Ohio medical colleges. The others come from colleges in Pennsylvania, Maryland, Illinois, Michigan, Kentucky, New York, etc., in order named.

TABLE 2.—DISTRIBUTION OF RURAL PHYSICIANS IN OHIO BY COUNTIES, ARRANGED ACCORDING TO PERSONS PER PHYSICIAN

County	Number of Physicians	Persons per Physician	Percentage of Urban Population in County
Rural Ohio	1,793	1,161	..
Fayette	5	2,711	37
Lucas	11	2,669	89
Sandusky	8	2,416	48
Meigs	8	2,265	30
Defiance	7	2,239	36
Summit	17	2,114	87
Montgomery	25	2,103	74
Crawford	7	1,991	61
Guernsey	15	1,965	35
Lawrence	13	1,964	35
Athens	18	1,913	31
Jackson	8	1,851	45
Belmont	30	1,819	41
Tuscarawas	17	1,730	53
Gallia	10	1,724	26
Portage	13	1,690	39
Scioto	15	1,668	60
Mahoning	20	1,666	82
Stark	31	1,647	71
Hocking	11	1,598	23
Columbiana	18	1,573	66
Cuyahoga	25	1,572	95
Lorain	19	1,505	68
Noble	12	1,487	0
Hamilton	30	1,483	91
Trumbull	23	1,474	59
Jefferson	29	1,371	48
Ross	19	1,354	38
Perry	22	1,347	17
Auglaize	14	1,325	37
Lake	11	1,320	49
Richland	17	1,281	60
Seneca	17	1,204	52
Ashtabula	26	1,193	52
Pike	12	1,179	0
Pickaway	16	1,171	27
Fairfield	22	1,171	36
Shelby	15	1,155	33
Monroe	18	1,148	0
Carroll	14	1,139	0
Muskingum	25	1,136	51
Wayne	26	1,116	29
Clark	18	1,105	75
Coshocton	17	1,103	36
Huron	16	1,099	45
Hancock	18	1,095	48
Mercer	21	1,078	15
Erie	16	1,055	57
Medina	17	1,052	31
Highland	18	1,050	31
Van Wert	17	1,031	37
Ashland	15	1,025	37
Union	17	1,016	17
Delaware	17	1,015	33
Ottawa	18	1,014	17
Vinton	12	1,006	0
Greene	22	1,005	29
Allen	14	988	65
Franklin	48	977	83
Knox	21	968	31
Williams	18	962	29
Preble	21	953	13
Adams	24	933	0
Miami	28	933	46
Washington	30	930	35
Wyandot	17	928	19
Morrow	17	915	0
Clinton	20	899	21
Holmes	19	892	0
Marion	16	882	66
Henry	22	873	17
Licking	34	873	47
Darke	40	856	20
Harrison	23	853	0
Geauga	18	835	0
Fulton	25	816	13
Champaign	22	793	30
Paulding	24	780	0
Brown	29	780	0
Madison	20	779	20
Warren	25	770	25
Hardin	28	767	26
Butler	31	766	72
Putnam	37	750	0
Wood	54	724	12
Logan	29	716	31
Morgan	21	693	0
Clermont	46	615	0

While the people of the strictly rural counties are better supplied with physicians than are the rural people of the urbanized counties, Table 3 indicates that they probably receive less expert medical service. A smaller percentage of the physicians are graduates of first class medical colleges, and a larger percentage are graduates of no medical college than is the case in the fifteen urban counties.

Table 4 presents comparative data regarding the rural physicians located in villages of from 500 to 2,500 population and those located in places under 500 population. There seem to be only slight differences between these two groups; but these differences favor those physicians located in the larger places.

TABLE 3.—COMPARISON OF RURAL PHYSICIANS IN THE FIFTEEN STRICTLY RURAL COUNTIES AND IN THE FIFTEEN COUNTIES HAVING THE HIGHEST PERCENTAGES OF URBAN POPULATION

	Fifteen Urban Counties		Fifteen Rural Counties	
	Number	Per Cent.	Number	Per Cent.
Number of persons for every physician	1,512	100	887	100
Graduates of Class A medical college	90	28	63	19.8
Graduates of Class B medical college	29	9	18	5.6
Graduates of Class C medical college or college not now extant	223	62.4	200	70.2
Graduates of no medical college	2	0.6	14	4.4
Members American Medical Association	150	46.7	190	59.7
Average age	54.8	....	54.1	....

The average age of the rural physicians in Ohio is 54.2 years. This is exactly 5.5 years more than the average age of the physicians in the city of Columbus. There is little difference between the average ages of the physicians in the fifteen rural counties and those in the fifteen most urbanized counties, although there is considerable variation between individual counties. The average age of the rural physicians in Butler County is 49.2 years; in Vinton, 59.2 years; and in Carroll, 60.1 years. There is practically no difference in the average ages of those practicing in villages under 500 population and those located in places of from 500 to 2,500 population.

TABLE 4.—COMPARISON OF RURAL PHYSICIANS IN PLACES OF FROM FIVE HUNDRED TO TWO THOUSAND FIVE HUNDRED POPULATION AND PLACES UNDER FIVE HUNDRED POPULATION

	Places from 500 to 2,500 Population		Places Under 500 Population	
	Number	Per Cent.	Number	Per Cent.
Total physicians	1,070	100	723	100
Graduates of Class A medical college	279	26	161	22
Graduates of Class B medical college	91	8.5	62	8.5
Graduates of Class C medical college or a college not now extant	682	63.9	475	66.1
Graduates of no college	18	1.6	25	3.4
Members American Medical Association	598	56	383	53
Average age	54.1	..	54.3	..

The marked age differences between city and country indicate that the country places are no longer receiving their proportionate quota of young physicians. It is likely that the long period of time required for adequate medical training habituates them to the medical centers, and they tend to remain to practice in the cities where the opportunities for professional advancement and hospital practice are greatest. And with them, no doubt, remains much that is newest in medical science.

Only 4.5 per cent. of the rural physicians of Ohio have a specialty, and they, almost without exception, are located in places of more than 500 population. Fifty-five per cent. are members of the American Medical Association.

Book Notices

Massage and Medical Gymnastics. By Dr. Emil A. G. Kleen. With contributions by Dr. J. Arvedson, Dr. P. Haglund and Dr. E. Zander. Translated by Mina L. Dobbie, M.D., B.Ch., Medical Officer, Chelsea Physical Training College. Foreword by Reginald Cheyne Elmslie, M.S., F.R.C.S., Orthopædic Surgeon, St. Bartholomew's Hospital. Second edition. Cloth. Price, $7. Pp. 564, with 182 illustrations. New York: William Wood & Company, 1921.

Since the war, physicians have been taking a deep interest in those therapeutic adjuncts embodied under the general term of physical reconstruction—occupational therapy, physical therapy (the latter includes massage), mechanotherapy, hydrotherapy and medical gymnastics. This book makes one realize that we have gone only a short distance in our knowledge of physical reconstruction methods, as concerns massage and medical gymnastics especially. The book opens up a broad field of research and endeavor for our entire profession, and especially for those who have learned the lesson that our end-results will be judged henceforth by the amount of functional restoration secured for our patients. At the outset, the author corrects false impressions spread by some teachers and practitioners, retarding the adoption of physical therapy. Claims and misstatements which have brought the method into disrepute with the scientific minds in the medical profession form a handicap which a true, scientific form of physiotherapy must overcome before physicians, even today, will accept it. The author dwells on the ignorance of some of the best practitioners of massage and of their absurd explanation of its power of cure, for example, the "taking on of the ailments from the patient by the masseur"; yet in spite of this ignorance they are good at the purely mechanical work, and often obtain very good results. The author drives home the fact that masseurs, workers in electrotherapeutics and mechanotherapeutics, gymnasts and other mechanicians must realize the limits of their training; that nothing less than a physician's full training justifies completely independent work as a physical therapeutist. He emphasizes the importance of educating medical students in physical therapeutics as well as in drugs. "A school for physical therapy must live within the medical world; otherwise it is like a separate society, which breaks away and artificially separates itself, becoming hostile to the world to which it belongs." He describes accurately the methods of massage, with scientific explanations of the physiologic effect in chapters that are very enlightening, especially to those who have watched the beneficial effects of massage — the improved circulation, the increased nutrition and the reduction in swellings. In his presentation of the contraindications to massage, one feels that the author not only understands physical therapy thoroughly, but also has a broad knowledge of pathology. One wonders at the lack of temerity of many medically untrained persons who practice massage or some of its branches, without the guidance or advice of a physician. The most valuable portions of the book are those dealing with the physiologic and therapeutic effects of movements and gymnastics—the so-called Swedish gymnastics. In reading this portion of the book, physicians may feel that they were cheated in their medical training and that they have denied many patients valuable and healthful information. In a chapter on methods of medicomechanical gymnastics, Emil Zander describes mechanotherapy. This chapter is devoted almost entirely to the bulky and expensive mechanical outfits included in the Zander apparatus. He does not mention the smaller, less expensive and, we believe, more valuable mechanotherapy apparatus developed by McKenzie and others during the recent war, nor does he mention the valuable mechanotherapy which has been developed by the use of tools and by other forms of occupational therapy. The author, undoubtedly a master of massage and medical gymnastics, is not as much at home in the field of mechanotherapy and occupational therapy. In the remaining chapters he applies the principles set forth in the earlier chapters to definite disease conditions. All surgeons, especially those interested in bone and joint surgery, and internists, especially interested in circulatory conditions and diseases of metabolism, will find excellent material in these chapters. The book is exceedingly interesting and well written, although at times one labors through the material. It will do much to stimulate the already increasing interest of the profession in physical therapy—an interest which has been aroused in this country by the physical reconstruction and rehabilitation methods developed during the war, and now being applied more and more to the disabled in civilian life.

Essentials of Diseases of the Skin Including Syphilis. Arranged in the Form of Questions and Answers. Prepared Especially for Students of Medicine. By Henry W. Stelwagon, M.D., Ph.D. Eighth edition. Cloth. Price, $2.25. Pp. 322, with 101 illustrations. Philadelphia: W. B. Saunders Company, 1921.

If one approves of quiz compends, this little book by the late Professor Stelwagon is certainly one of the best. In the old days of cramming for examinations, it was comprehensible why these compends were used. An outline, or a very much condensed book, known in French as a *précis,* would be preferable, and could be condensed into a much smaller space. The saving in question marks alone would amount apparently to several pages. Taking at random any one disease, for instance, lichen planus, there is a marked waste of words. "What is lichen planus?" could be condensed into one word, "Definition." The next heading, "Describe the symptoms of lichen planus," could be condensed into "Symptoms"; the next, "What is the etiology of lichen planus?" could be condensed into "Etiology"; the next, "Does the disease bear any resemblance to the miliary papular syphilid, psoriasis and papular eczema?" could be condensed into "Differential diagnosis"; the next, "State the prognosis," could be condensed into "Prognosis"; the last, "What treatment would you prescribe in lichen planus?" could be cut down to "Treatment." The book is well written, and is sufficiently comprehensive for such a small volume; but it would be more valuable and more readable if the headings were simplified as suggested above.

Tratado Iberoamericano de Medicina Interna. Publicado Bajo la Direccion del Dr. Fidel Fernandez Martinez. Tomo I.: Enfermedades Infecciosas y Parasitarias Enfermedades Producidas por Agentes Fisicos. Paper. Pp. 928, with 282 illustrations. Madrid. Editorial Plus Ultra, 1922.

This, the first volume of a system of medicine by a group of Spanish-speaking authors, represents, in a way, a reaction against the all too frequent Spanish practice of depending for medical literature on translations from foreign sources. Pains has been taken to secure the cooperation of those authors admittedly most prominent in their respective fields. Thus, the chapter on cholera was written by Ferrán; that on tuberculosis by Verdes Montenegro; that on smallpox, measles and scarlet fever, by Sáinz de los Terreros, and that on syphilis by Sáinz de Aja (probably the best chapter in the whole book). The general editor, Dr. Fernández Martínez, favorably known as a gastro-enterologist and clinician, has contributed, among other chapters, those on typhoid fevers, kala-azar and relapsing fever. The book is well printed on large size, good paper, and is splendidly illustrated. A rather new feature is a brief, practical summary of surgical indications at the end of certain chapters, as if to point out to the internist where his territory ends and the surgeon must take charge. While the volume is undoubtedly a credit to its sponsors, some shortcomings are evident. In a treatise admittedly intended for Latin American as well as Spanish consumption, no good purpose can be served by considering diseases and sanitary problems from a purely Spanish rather than a general point of view. In fact, some of the subjects, such as yellow fever, dengue, relapsing fever, plague and leishmaniasis, could undoubtedly have been handled to advantage by Latin American authors in view of their greater familiarity with the problems in question. It is to be regretted that in many instances the bibliography should be so exclusively national. It seems strange to leave out from a volume on infectious and parasitic diseases such conditions as diphtheria, pneumonia, whooping cough, mumps, infantile paralysis, Rocky mountain spotted fever, foot and mouth disease, amebiasis and bacillary dysentery, while rheumatic fever is included. The editing was apparently done carelessly, the preparation of the notes showing lack of system, and many names in the text being misspelled. Some gross mistakes have been made as, for instance (p. 241), misquoting at second hand former Surgeon-General Wyman to the effect that there are two million lepers in the United States.

Aids to Organotherapy. By Ivo Geikie Cobb, M.D., M.R.C.S., Neurologist, Ministry of Pensions. Cloth. Price, $1.75. Pp. 183. New York: William Wood & Co., 1922.

While this book is classed as belonging to the "Student Aid Series," it would have been more appropriate to classify it in the series "Saleman's Aids for Glandular Products." The first third of the book is a presentation of the physiologic facts relevant to various internal secretions. In the section on the oral administration of such substances as nervous tissue, placenta, lung, spleen, mammary gland, lymphatic gland, secretion, prostate and testes, the author labels himself an uncritical hormone enthusiast. Misleading statements abound, scientific literature has been disregarded or not consulted, and the exploiters of shotgun pluriglandular products are cited to prove certain contentions. Modern work on pancreatic function and on thyroid and thyroid chemistry is not mentioned. If the present book did not contain a bibliography, one might have suspected that the literature coming to the attention of the author was limited to the house organs subsidized by manufacturers of gland extracts.

Histopathologie des Nervensystems. Von Dr. W. Spielmeyer, Professor an der Universität München. Paper. $15.60. Pp. 493, with 316 illustrations. Berlin: Julius Springer, 1922.

To those interested in neuropathology, the appearance of this work will be most welcome. For more than twenty years the reviewer has hoped that an authoritative work on the morbid histology of the nervous system would be written. His hope is now realized in a book written by the only survivor of the great trio of modern German neuropathologists: Nissl, Alzheimer and Spielmeyer. Very properly, the book is dedicated to the memory of Nissl. This volume deals with general pathologic histology, with chapters on changes in the nerve cells, nerve fibers, neuroglia, and the mesodermal tissues. Then follow chapters on degenerative processes, circulatory disturbances, inflammation and regenerations. Illustrations are numerous, and many are splendidly colored.

Le Médecin Devant L'Assistance et L'Enseignement Psychiatriques. Par Henri Damaye, Médecin des Asiles d'Aliénés. Paper. Pp. 123. Paris: A. Malone et Fils, 1922.

This excellent little book presents in clear and forceful language the difficulties under which psychiatry at present labors, conditions which often have counterparts in this country. The reasons for the neglect of this subject, inherently medical though it is, are discussed calmly and without bias, while constructive suggestions are offered for its development in medical education. The wide extent of its application to medical practice is well brought out by the discussions of mental hygiene, forensic medicine and military medicine. There can be no question of the importance of a better understanding of the meaning of psychiatry; and, as the book is written in nontechnical language, it can be recommended to the earnest attention of every physician, no matter in what branch he may specialize.

Practical Zoology for Medical and Junior Students. By J. D. F. Gilchrist, M.A., D.Sc., Ph.D., Professor of Zoology in the University of Cape Town, and C. von Bonde, M.A., Lecturer in Zoology in the University of Cape Town. Cloth. Price, $4 net. Pp. 329, with 105 illustrations. New York: William Wood & Co., 1922.

This is a manual for students' use, the alternate pages being left blank for notes. It provides for the observation and dissection of various species, from the animalcule, through the worm and fishes, to the pigeon and rabbit. It is excellently illustrated and should prove to be an exceedingly practical guide.

Medicolegal

Facts Learned in the Course of Professional Business

(Chicago, L. S. & S. B. Ry. Co. v. Walas (Ind.), 135 N. E. R. 150)

The Supreme Court of Indiana, in affirming a judgment in favor of plaintiff Walas for damages for personal injuries, says that after the injury he was taken to a hospital, where he was given surgical attention by a physician for the defendant company. The physician, according to his recollection, was in the emergency ward working on another case when the plaintiff was brought into the room, and a few minutes later the nurse notified him that he was to take care of the plaintiff; that in the interval the physician saw the plaintiff vomiting, and formed an opinion as to whether he was intoxicated. The defendant offered to prove by the physician that the plaintiff was intoxicated at the time the physician first saw him (before the physician had been notified that he was to take care of him); but the trial court excluded the offered testimony. This was not error. The plaintiff was in the hospital, in charge of nurses and attendants who were under the supervision and control of the witness, and had been prepared by them for a surgical operation to be performed by the witness, and had been brought into the presence of the witness in the operating room for the express purpose of submitting to an operation, which the witness performed a few moments later. The mere fact that the witness had not yet been told that he, instead of some other physician who used the same room, was to operate did not bring the case within that exception to the Indiana statute which permits a physician to testify about what he observed or learned when he was not engaged in the duties of his profession. Whatever facts the physician learned as to the condition of the plaintiff, when he was in the emergency room of the hospital awaiting surgical treatment by the physician, clearly was learned "in the course of their professional business" within the meaning of the statute.

Admissibility in Evidence of Hospital Records

(Wright v. Upson et al. (Ill.), 135 N. E. R. 209)

The Supreme Court of Illinois, in reversing a decree that set aside a will that was executed by the testatrix about six months before her death and to which she executed a codicil about two months before her death, says that the codicil was executed while she was in a hospital on account of having sustained a fracture of the neck of the femur. She was about 77 years old, and the soundness of her mind was questioned. Over objection, the complete record of the hospital, compiled by the registered nurses and pertaining to the testatrix and her physical and mental condition and all foods, treatments, and medicines administered to her during the time she was in the hospital, was admitted in evidence on behalf of the contestant of the will. Assuming, but not deciding, that some portions of this record might have been admissible if the proper proof had been furnished as to the same, there was much in the record that had no sort of bearing on the issues in the case, as was clearly apparent. The admission of the entire record by the trial court was erroneous, for the further reason that the record was the product of two or more registered nurses, each nurse making entries only at the time and for the time during which she nursed the testatrix. One nurse was called to testify as to the correctness of the entries made by her and as to the times they were entered. There was no such proof of the entries made by the other nurse or nurses, and there was no showing in the record that the other registered nurse or nurses were deceased or out of the jurisdiction of the court. If the hospital record was admissible at all, it was for the same reason that books of account are admissible, and the same character of proof was required; and all persons who made entries therein were required to testify to their correctness before they were admitted in evidence.

In a contest like this, evidence as to the physical and mental condition of the testatrix while in the hospital shortly before and after the time of the execution of the codicil was admissible, and there was much reason for allowing the nurses who made this record and who knew the correctness of it to refresh their recollection from their notes and to testify as to the mental and physical condition of the testatrix at that time. But there were many reasons why such notes or entries should not be admitted as original evidence; and this court is clearly of the opinion that the record in this case ought not to have been admitted, or any part of it, not only for the reasons aforesaid, but for the further reason that many of the entries merely amounted to conclusions of the nurses. This court might say, generally, that there are cases in which a hospital chart would be admissible in evidence against a party when there is any showing or reason why one of the parties should be bound thereby, as in case of a suit against a surgeon in which it is alleged that he wrongfully and negligently operated on a patient or negligently treated the case, when the chart or record was kept by the nurses for his information. There was no such reason why the testatrix or any party to this suit should be bound by the record of the hospital in this suit.

Surgeon Not Liable for Gauze Found in Abdomen of Hysterical Patient

(Paro v. Carter (Wis.), 188 N. W. R. 68)

The Supreme Court of Wisconsin, in affirming a judgment in favor of the defendant, says that the only issue was whether the defendant had negligently failed to remove certain gauze packing and bandages which he had used in connection with an operation which he performed on the plaintiff, who had been advised that she was suffering from adhesions resulting from several previous operations performed on her. The court has been somewhat surprised at the number of cases which have reached the courts of last resort in which negligence of the same character in such operations has been alleged. In many of these cases, defendants have been held liable for damages. In some of them, the testimony was clear that the substance had been left in the body of the patient by the surgeon or some assistant; in others, that the defendant relied principally on some custom or system of counting the gauzes or sponges by nurses; in still others, that the foreign substance could not have entered the body of the patient except through the agency of the defendant. In the present case, the defendant's counsel contended that there was no evidence to uphold a finding that the defendant left any gauze or sponges in the abdomen of the patient. It sufficed to state that the evidence showed that the surgical operation was carried on in the most approved manner, unless the evidence established that the gauze was not removed as claimed. The defendant called to his assistance another practitioner of long experience, and he had the aid of trained nurses of the hospital. The defense did not rely merely on a system or custom as to the mode of counting the sponges, but two of the nurses and the defendant testified from their recollection that an accurate count was made of them, and that those left after the operation corresponded to the number used. Besides, the testimony convinced the court that the kind of gauze taken from the patient's body was not used at the hospital at the time of the operation. On this subject, considerable testimony was given, and that of the nurses was positive and uncontradicted.

There was a singular feature of this case which distinguished it from those relied on by the plaintiff's counsel. The testimony was undisputed that the plaintiff was an hysteric. Several physicians testified, from their own experience, without contradiction, that it is a recognized fact that hysterical persons will and do manipulate their wounds and interfere with their recovery, and there was testimony which was not rebutted that such persons sometimes place substances in their own wounds. For a considerable period after the operation in question, there were daily dressings of the wound by the patient's mother, and gauze obtained from the drug stores was used for that purpose. The smallest pieces of gauze used in the operation were 36 by 18 inches; while the five pieces taken from the body of the plaintiff were small, and very tough, and could not easily have been broken off or detached. The court is forced to the conclusion that the plaintiff failed to prove by credible evidence the fact vital to the success of her case.

It was argued by counsel for the defendant that, even if the sponge was left in the patient's abdomen by the defendant, he was not liable in damages if he had followed the requirements of approved practice in his profession in his community, and if he had followed the usual custom as to the count. But this court is not disposed to accept that view. Although testimony of the usual practice and custom among skilled practitioners is competent, and may have an important bearing, it is not conclusive in such a case as this that there has been no negligence. From the time the operation begins until it is closed, and all foreign substances are removed, due care and skill should be exercised by the surgeon.

Physicians' Finding of Insanity Evidence of Probable Cause for Prior Belief

(Bode v. Schmoldt et al. (Wis.), 187 N. W. R. 648)

The Supreme Court of Wisconsin, in reversing a judgment for damages obtained by the plaintiff, and doing it with instructions that the complaint be dismissed, says that the action was for malicious prosecution, on account of the defendants' having made an application to the judge of the county court for a judicial inquiry as to the plaintiff's mental condition. A recovery of damages was precluded, if the defendants established their defense that there was probable cause to believe the plaintiff insane. The physicians appointed in response to the defendants' application found that the plaintiff was insane. Should the ordinary layman be held to respond in damages for instituting an inquiry into one's sanity because there was no reasonable ground to justify the belief of insanity, when two reputable physicians appointed by the court, constituting the agency provided by law for the ascertainment of one's mental condition, determine that the suspect is in fact insane? There would seem to be an incongruity in such a rule. It would make the institution of such proceedings a hazardous undertaking and would tend to restrain the initiation of such proceedings on the part of citizens which the welfare of society often demands should be instituted. If the advice of an attorney in the ordinary civil or criminal prosecution is conclusive evidence of the existence of reasonable cause, why should not the finding of physicians appointed in insanity proceedings to ascertain his mental condition, that the subject is insane, conclusively establish the existence of reasonable cause for the institution of the proceedings? Physicians so appointed are the agency created by law for the ascertainment of the mental condition of the alleged *non compos.* When they have found the subject insane, why should the existence of reasonable cause to believe him insane be longer an open question? The law regards it as a closed question so far as the future course of the proceedings is concerned. If the physicians find the subject sane, that ends the proceedings; if insane, there is a further inquiry. If this finding justifies a further judicial inquiry, why should it not also be held to have justified the filing of the petition, and why should those filing the petition be held responsible for the consequences of the further proceedings? This court holds that, when physicians appointed by the (county) court to inquire into the sanity of a suspected *non compos* find and report him insane, such finding constitutes conclusive evidence of the existence of reasonable grounds justifying the filing of the application and the institution of the inquiry, unless the inquiry can be impeached for fraud or bad faith on the part of the physicians, or for collusion with the petitioners, or for other conduct, which deprives their conclusion of the character of a bona fide professional determination. It was true that in this instance, the physicians interviewed the neighbors, and it was possible that their conclusion was based in part on the result of the interview; but the Wisconsin statute expressly enjoined them to satisfy themselves as to the person's mental condition by personal examination and inquiry; and the court sees no reason for denying to the report the conclusive effect which the court holds should be ascribed to a bona fide professional determination on the question of the suspected person's mental condition.

Society Proceedings

COMING MEETINGS

Hawaii, Medical Society of, Honolulu, Nov. 19-21. Dr. F. J. Pinkerton, 45-46 Young Building, Honolulu, Secretary.

Isthmian Canal Zone, Medical Association of, Ancon, Dec. 15. Dr. L. S. Chapman, Ancon, Secretary.

Philippine Islands Medical Association, Manila, Dec. 20-22, 1922. Dr. I. Concepcion, College of Medicine and Surgery, Manila, Secretary.

Porto Rico, Medical Association of, Ponce, Dec. 15-17. Dr. Augustin R. Laugier, San Juan, Secretary.

Radiological Society of North America, Detroit, Mich., Dec. 4-8. Dr. M. J. Sandborn, Appleton, Wis., Secretary.

Southern Medical Association, Chattanooga, Tennessee, Nov. 13-16. Mr. C. P. Loranz, Empire Building, Birmingham, Alabama, Secretary.

Southern Surgical Association, Memphis, Tenn., Dec. 12-14. Dr. H. A. Royster, Raleigh, N. C., Secretary.

Tri-State District Medical Society, Peoria, Ill., Oct. 30-Nov. 2. Dr. William B. Peck, Freeport, Ill., Managing Director.

Virginia, Medical Society of, Norfolk, Oct. 31-Nov. 3. Mr. G. H. Winfrey, 104½ W. Grace Street, Richmond, Secretary.

Western Surgical Association, Minneapolis, Minn., Dec. 8-9. Dr. Warren A. Dennis, Hamm Building, St. Paul, Secretary.

INDIANA STATE MEDICAL ASSOCIATION

Annual Meeting, held in Muncie, Sept. 28-30, 1922

Dr. William R. Davidson, Evansville, in the Chair

SYMPOSIUM ON ENDOCRINOLOGY

The Medical Phase

Dr. G. W. McCaskey, Fort Wayne: A large group of cases can be differentiated only by utilizing all the facts concerning endocrinology, and by availing ourselves of the special diagnostic methods which have been developed within the last few years, especially basal metabolism and carbohydrate tolerance. In many cases of endocrine disease there is a perfectly normal basal metabolism. An increase or decrease in carbohydrate tolerance of a given case has an important bearing on diagnostic questions. Frequently the presence or absence of one or two symptoms will point toward the existence of hyperfunction, or hypofunction or dysfunction. It has often happened in my experience that the existence of tuberculosis or endocrine disease as the principal factor in the causation of a given syndrome could be decided in that way. Organotherapy is far from being the only therapeutic deduction derived from a positive diagnosis of endocrine disease. In fact, I feel called on to express a warning, if not a protest, against the indiscriminate exploitation of organic products by commercial interests. In therapeutics, as well as in diagnosis, the endocrine glands have come to the front to stay, but the number of these products that have a proved scientific basis is very small, and their use requires the most painstaking discrimination in order that the patient may not suffer from commercial venders, on the one hand, and unscientific medical practice, on the other.

The Neurologic Phase

Dr. C. C. Bitler, New Castle: For practical purposes, the human nervous system may be divided into three levels of activity—the vegetative, the sensorimotor and the psychic. In the region of vegetative neurology a rich variety of disturbances is found, involving the glandular, gastro-intestinal, genito-urinary, vascular, respiratory, muscular, cutaneous and bony systems. In addition, there are certain complex groups involving, for the most part, the glands of internal secretion—the endocrinopathies. Clinical syndromes resulting from disease of the glands of internal secretion are almost always pluriglandular. There is a close relationship between the glands of internal secretion and their products, and the vegetative nervous system.

The Surgical Phase

Dr. W. D. Gatch, Indianapolis: The most important aspect of endocrinology from the standpoint of the surgeon is the uncertain and fragmentary state of our knowledge about it. We must move cautiously. Therefore, in the diagnosis of supposed endocrine disease, or in the operative treatment, we must employ the most rigid criteria of judgment, and not allow theories of endocrine function to influence us, for today the truth of these theories is almost without exception undemonstrated. These conclusions do not dispute the great physiologic importance of the endocrine glands, and should not discourage study of their functions.

SYMPOSIUM ON MENINGITIS

Differential Diagnosis

Dr. C. F. Neu, Indianapolis: The diagnosis of meningitis is determined primarily by: (1) the history of the probable cause; (2) symptoms indicative of the involvement of the surface of the brain; (3) the manner of development of these symptoms; (4) general systemic symptoms resulting from an infectious process or toxins, and (5) changes found in the character and composition of the cerebrospinal fluid. I wish to emphasize the importance of an examination of the cerebrospinal fluid in all cases in which the question of a possible diagnosis of meningitis is in doubt. Every practicing physician should be prepared to make lumbar puncture in these cases if necessary.

Treatment

Dr. Miles F. Porter, Jr., Fort Wayne: The present death rate from meningitis is from two to three times too high because of the delay in diagnosis and, hence, in the administration of the serum; also because of the employment of too small doses of serum at too great intervals, and because of improperly standardized serums. Outside of increased diagnostic acumen, the only remedy for delay in diagnosis and the beginning of treatment lies in the more frequent employment of lumbar puncture and the introduction of serum at the time diagnostic puncture is made in every suspicious case. In suppurative meningitis, particularly pneumococcic, the hope of cure warrants the attempt.

Otitic Meningitis

Dr. Harry Boyd-Snee, South Bend: A variety of pyogenic organisms have been identified as the causative agents of this type of suppurative meningitis. If the meningitis supervenes as a secondary complication in connection with a chronic suppurative middle ear disease, a mixed infection has usually been found in the tympanic exudate, and a monobacterial culture obtained from the spinal fluid and also from the meningeal exudate at operation or at necropsy, and the streptococcus was the organism mostly found. On the other hand, whenever the meningitis developed in the course of an acute otitis the organisms identified in the different exudates, namely, tympanic, spinal fluid, operative meningeal and postmortem meningeal, were nearly always found to be monobacterial and identical in all the specimens. The organisms recovered were identified most frequently as streptococci, less often the pneumococcus. Staphylococcus was found, and exceptionally the *Bacillus influenzae* and *Bacillus pyocyaneus.*

Occiput Posterior Positions: Early Diagnosis and Various Methods of Treatment

Dr. A. B. Mendenhall, Indianapolis: Early diagnosis will greatly extend our ability to get these occiput posterior cases to rotate, and every possible effort should be made to arrive at a diagnosis of the position before there is any attempt to deliver with forceps. The postural treatment and the combined vaginal and suprapubic manipulative treatment are quite safe and often effectual. Operative treatment, such as DeLee now recommends, internal podalic version, Scanzoni's method, or, in fact, any forceps method, require of the obstetrician considerable skill and experience if the welfare of the mother and baby are to be safeguarded properly.

Disturbances of Carbohydrate Metabolism

Dr. J. H. Warvel, Indianapolis: Sugar in the urine calls for medical supervision. A physiologic glycosuria may soon adjust itself. If it is an endocrine condition it is not so likely to be serious in itself, and will disappear if the etiologic factor can be relieved. A persistent glycosuria may be either a "renal" diabetes or a true diabetes. The seriousness of "renal" diabetes is questionable, as these cases have not been studied over a long enough period of time. Diet does not influence the glycosuria in these cases. Blood sugar determinations are of value in establishing the glucose tolerance of the patient and in studying the influence of diet and medication when the urine is free from sugar. Quantitative sugar estimations of the urine are of value when made on twenty-four hour specimens of urine. Any person showing an occasional positive test for sugar in the urine should have a blood sugar examination. In this way lowered glucose tolerance may be detected, and the physician has the opportunity to reduce the patient's carbohydrate ingestion. This may be the one big factor in allowing an overburdened pancreas to establish its balance, thus preventing a future case of diabetes mellitus.

Reconstruction of Perineal Genito-Urinary Cildbirth Injuries

Dr. F. C. Walker, Indianapolis: All pelvic and perineal reconstruction work is based on (1) the principle of support; (2) thorough preoperative preparation; (3) extensive dissection exposure; (4) anchoring of the bladder and rectum high; (5) building of high and wide rectovaginal septum; (6) uniting of the levator ani and fascia, and above all (7) careful, watchful after-care.

Therapy of Syphilis

Dr. J. E. Luzadder, Bloomington: In the treatment of syphilis, no single sign of improvement should be accepted as definite or final, and only the cessation of all symptoms, with the incidence of repeated negative blood and spinal fluid, means a cure. However, neurosyphilis can exist in the absence of spinal fluid findings, and the spinal fluid should be interpreted with the symptoms and physical findings. Neo-arsphenamin therapy is necessary since it controls infectivity and contagion quickly. Mercury is essential, but as a splint to arsenic therapy and as an aid to permanent cure.

Sensitivity to Epidermal and Pollen Proteins: Diagnosis and Treatment

Dr. James A. Wynn, Indianapolis: Hay-fever, certain forms of asthma, and various skin conditions are only different manifestations of the state of sensitivity to some protein or proteins. These types should be differentiated on the basis of clinical history and the evidence of specific skin reaction. Pollen and epidermal protein cases are best treated prophylactically by removal of the cause, but desensitization is possible and practical in case of the pollens. Desensitization is accomplished by giving repeated subcutaneous injections of a specific pollen extract in gradually increasing dose. By skin test the degree of sensitivity is first determined. For example, a given patient is sensitive to ragweed and has a positive skin test with dilutions from 1 : 100 to 1 : 10,000, but none with 1 : 20,000. The first injection in such cases is usually 0.2 c.c. of the next weaker dilution to the weakest one showing a positive skin test. In this case 0.2 c.c. of 1 : 2,000 would be the first dose. In such a case preseasonal treatment from April 25 to August 15, five to seven day treatment intervals, the dosage running from 0.2 c.c. of 1 : 20,000 to 0.3 c.c. of 1 : 100, gives complete relief. Such a general plan of treatment has proved effective in establishing a seasonal immunity in more than 80 per cent. of the cases in the Peter Bent Brigham Hospital hay-fever and asthma clinic. Though at present desensitization must be left to those especially prepared for the work, the general practitioner, with reasonable attention to the subject, should not only recognize cases of sensitivity, but also classify them with considerable accuracy, and accordingly give intelligent advice regarding management.

Diagnosis of Duodenal Ulcer

Dr. F. W. Foxworthy, Indianapolis: The keynote of the diagnosis of duodenal ulcer is cooperation—cooperation of the patient, of the family and of the family physician. The roentgen ray should be the first scientific method used in diagnosing ulcer; then examination of the blood, by mouth or by rectum, followed by fractional analysis for blood and lactic acid. Fecal analysis is most important, as it will disclose the presence or absence of blood on a meat-free diet. The history, combined with all the laboratory findings, is important. Physical examination is relatively unimportant, if the methods mentioned above have been used. I would, however, like to suggest a new method of palpation of the duodenum. The examiner should have the patient lying on the right side, near the left side of the bed or examining table. He should place his right hand under the patient at the level of the umbilicus and, reaching forward and upward, should have the tips of his fingers over the approximate position of the duodenum. The patient should then slowly turn over on his face; by this means the duodenum, unless adherent, should move downward toward the examiner's fingers by force of gravity and thus be palpated more easily.

Epidemic Jaundice

Dr. S. C. Waters, Middletown: Epidemic jaundice is an entity, distinct from catarrhal or infectious jaundice. The cause is unknown, but probably belongs in the class with influenza and epidemic (lethargic) encephalitis. It is essentially a disease of youth, and is capable of grave sequels. Active catharsis is not indicated in the treatment, but rather intestinal antiseptics and symptomatic treatment. I have found chloroform water for vomiting, and camphorated tincture of opium for pain to be satisfactory; then ferruginous tonics during convalescence.

A Safe Method for Drainage of Intra-Abdominal Abscesses

Dr. J. R. Eastman, Indianapolis: This method includes the employment of an extraperitoneal drainage tube for retrocecal abscesses; the use of a large cigaret drain for transabdominal drainage of the pelvic abscess without puncture of the abscess at the time of opening the abdomen, dependence being placed on the pressure of the drain, and suction and chemotaxis to induce rupture of the abscess after a walled-off canal has been formed.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Obstetrics and Gynecology, St. Louis

September, 1922, 4, No. 3

- *Report of an Extremely Early Tubal Pregnancy; Study of Decidual Reaction, Intra-Uterine and Ectopic. W. A. N. Dorland and G. W. Bartelmez, Chicago.—p. 215.
- *What Is Relation of Hypertension to Fibroid Disease of Uterus? J. O. Polak, E. A. Mittell and A. B. McGrath, Brooklyn.—p. 227.
- *Review of One Hundred Cases of Women with Pelvic Tuberculosis with Special Reference to End Results of Operative Treatment. R. Peterson, Ann Arbor, Mich.—p. 234.
- *Study of Adenocarcinoma of Fundus of Uterus. J. V. Meigs, Boston.—p. 241.
- Outlining Superior Strait of Pelvis by Means of Roentgen-Ray. H. Thoms, New Haven, Conn.—p. 257.
- Regarding Recent Efforts to Reduce Mortality in Childbirth. F. W. Rice, New York.—p. 264.
- Case of Malignant Papilloma of Kidney. W. E. Darnall, Atlantic City, N. J., and J. A. Kolmer, Philadelphia.—p. 273.
- Accidental Perforation of Uterus: Report of Three Cases. G. W. Outerbridge, Philadelphia.—p. 276.
- Intermittent Aspiratory Hyperemia in Gynecology. J. V. D. Young, New York.—p. 280.
- Case of Intractable Vulvar Ulcer (Esthiomene) Cured by Proteus Vaccines. W. P. Healy, New York.—p. 286.
- New Suture Holder for Vaginal Plastic Operations. H. Grad, New York.—p. 291.
- Roentgen-Ray and Radium in Conservative Gynecology. A. E. Hertzler, Halstead, Kans.—p. 293.

Twenty-One Days Tubal Pregnancy.—Dorland and Bartelmez assert that theirs is the earliest recorded tubal pregnancy—between 20 and 21 days after fruitful coitus. The embryo, measured 1.55 mm., or, when the dorsal flexure was straightened, 2.8 mm., and showed but fifteen somites. The fallopian tube showed no sign of decidual tissue. Interesting and outstanding features of this case were: (1) A sharp dorsal flexure in the outline of the embryo closely corresponding to that noted in Wilson's embryo, which is not a natural condition, and probably was produced by the contracted position of the ovum in the tube; (2) the unusual relation of the optic vesicles, which were in contact with the overlying ectoderm, and (3) the very early stage in the development of the otic vesicle.

Relation of Hypertension to Fibroid of Uterus.—The histories of 416 patients suffering from fibroids were studied and their blood pressure readings grouped by Polak et al. No effect on blood pressure could be attributed to the presence of fibroids in young women. Patients with myoma who have high pressure are usually more than 40, or near the time of the climacteric, or are the subject of renal or cardiovascular disease. Bleeding in fibroids seems to be salutary and has no direct effect on pressure, but when suddenly checked by operation or radium, the pressure is raised temporarily. Removal of the uterus and ovaries in women aged 40 or more raises the pressure for a varying period, but unless there is some intercurrent disease, the woman rapidly regains her preoperative pressure. Conservation of the ovary or ovaries secures for the woman a less tumultuous operative climacteric. The pressure and nervous phenomena are more pronounced after radium than after operation.

Operation Results in Pelvic Tuberculosis.—Since pelvic tuberculosis in women is usually a secondary infection, Peterson emphasizes that it is of the first importance to find and estimate the extent of the primary focus before deciding for or against operation for the pelvic lesion. Operation should be postponed or avoided altogether when the pulmonary tuberculous lesion is extensive. Otherwise the percentage of primary and secondary deaths will be high, since the operative procedures may augment the pulmonary lesions, as shown in the series of 100 cases analyzed by Peterson in which more than 50 per cent. of the patients who died had demonstrable pulmonary tuberculous lesions. The end results of the operative treatment of pelvic tuberculosis are, on the whole, favorable, since about 75 per cent. of the patients should be alive and in good health after a considerable period of years. Whenever the condition of the patient warrants, radical removal of the pelvic organs is indicated, since more than one portion of the genital tract is usually involved in the tuberculous process and because the best end results follow such radical removal. Unless too extensive, tuberculosis of the peritoneum will be cured if the other pelvic tuberculous lesions be removed.

Adenocarcinoma of Fundus of Uterus.—Sixty-two and five-tenths per cent. of the cases investigated by Meigs were in women who had lived five years or more after operation. Adenocarcinoma of the fundus is said not to be a common tumor in hospital practice, there being only forty-four cases out of 9,536 cases investigated, but in private practice it is undoubtedly much more common, being more frequent than carcinoma of the cervix. Complete hysterectomy (not Wertheim's method), Meigs states, assures most success. Operation rather than radium therapy is the method of choice. Five patients out of forty-four had metastatic growths in the adnexa. Therefore, Meigs believes that bilateral salpingo-oophorectomy should always be performed along with the removal of the uterus.

American Journal of Roentgenology, New York

September, 1922, 9, No. 9

- Roentgenologic Aspects of Achylia Gastrica. A. W. Crane, Kalamazoo, Mich.—p. 527.
- Technical and Clinical Aspects of New Deep Roentgenotherapy. J. T. Case, Battle Creek, Mich.—p. 530.
- *Roentgenography of Intracranial Passages Following Spinal Air Injections. C. L. Martin and C. Uhler, Dallas, Tex.—p. 543.
- Tubercular Epiphysitis of Greater Trochanter. D. Y. Keith, Louisville, Ky.—p. 549.
- *Effect of Radium on Normal Tissues of Brain and Spinal Cord of Dogs, and Its Therapeutic Application. E. P. Pendergrass, J. M. Hayman, Jr., K. M. Houser and V. C. Rambo, Philadelphia.—p. 553.
- Ultraviolet Rays and Roentgen-Rays as Physiologic Complements in Therapeusis. C. M. Sampson, Stapleton, N. Y.—p. 570.
- Treatment by Radium of Nasal Polyps. H. R. Lyons, Rochester, Minn.—p. 584.
- Radium Treatment of Diseased Tonsils. C. F. Robinson, Barre, Vt.—p. 588.
- Carcinoma of Antrum. D. C. Greene, Boston.—p. 591.
- Treatment of Malignant Neoplasms of Larynx. D. Quick and F. M. Johnson, New York.—p. 599.

Roentgenography of Intracranial Passages.—In fourteen cases in which Martin and Uhler attempted to inject the cranial passages with air, the sulci were well filled only four times, whereas the ventricles were filled ten times. In four cases there was some questionable filling of a few of the sulci. Since the ventricles appeared normal in most of the cases in which the sulci did not fill, there probably was no hydrocephalus present. The authors do not feel, therefore, that a failure of the sulci to fill always indicates a blocking of these structures. Injection of the subarachnoid space with air is regarded by the authors as a relatively safe procedure when the cases are properly selected.

Effect of Radium on Brain and Spinal Cord.—Pendergrass and his associates present the results of an experimental study of the effects of radium radiations on the normal tissues of the brain and spinal cord of dogs, both by surface application and implantation. An exposure of the normal brain tissue up to 1,150 mg. hours was found to be compatible with life (surface application). The results on the cord, however, would indicate that exposure of vital areas of the brain as well as exposure of the cord should never be made by surface application or implantation. Microscopic studies indicate that considerable changes are to be found with exposures that give no clinical symptoms. The brain after exposure of 1,000 mg. hours shows a general swelling throughout the entire radiated hemisphere, which is ascribed to the production of an edema which is not limited to the radiated area, but extends throughout the entire hemisphere. Radiation of the brain by radium (surface application and implantation) can produce severe general symptoms which indicate that a powerful toxin has been produced from the radiated tissue. The use of radium as a therapeutic agent in the treatment of brain tumors is recommended, but should be undertaken only after one is thoroughly familiar with the dangers that may come from improper use thereof. Radium is recommended: (1) As a prophylactic against recurrence after removal of brain tumors; (2) as a prophylactic against recurrence after sella decompression; (3) as an active agent in the treatment of cases of recurrent visual disturbances after sella decompression has been performed; (4) as an active agent by direct implantation into inoperable tumors supplemented by crossfire irradiation through the scalp (external application); (5) as an active agent in cases in which brain tumors are only partially removed, by implantation of radium into the center of the cavity, and supplemented by crossfire irradiation externally; (6) as an active agent by crossfire irradiation (external application) in brain tumors which cannot be localized or discovered by operation; (7) treatment of spinal cord tumors should be restricted to crossfire irradiation by the roentgen ray or radium, as in surface application there is a great possibility of causing paralysis.

Archives of Neurology and Psychiatry, Chicago

October. 1922, **8**, No. 4

*Effects of Antisyphilitic Therapy as Indicated by Histologic Study of Cerebral Cortex in Cases of General Paresis. H. C. Solomon, Boston, and A. E. Taft, Philadelphia.—p. 341.
Progressive Funicular Myelopathy (Subacute Combined Degeneration). J. H. Globus and I. Strauss, New York.—p. 366.
*Papilloma of Fourth Ventricle: Report of Case. E. Sachs, St. Louis.—p. 379.
Magnus and De Kleijn Phenomena in Brain Lesions of Man: Consideration of These and Other Forced Attitudes in So-Called Decerebrate Man. I. L. Meyers, Los Angeles.—p. 383.
Diagnostic Value of Blood Sugar Curves in Neurology. S. I. Schwab, St. Louis.—p. 401.
Malignant Tumors of Nasopharynx with Involvement of Nervous System. H. W. Woltman, Rochester, Minn.—p. 412.

Effect of Antisyphilitic Therapy in General Paresis.—In order to determine whether antisyphilitic treatment produces any effect on the paretic process in the cerebrum that can be recognized histologically, a study was made by Solomon and Taft of brains from cases of general paresis. The series studied was made up of two groups: Twenty-seven brains from patients who had received antisyphilitic treatment during the period of the psychosis and fifteen brains from patients who had not received antisyphilitic treatment subsequent to the onset of symptoms of paresis. It was evident that antisyphilitic treatment of patients with general paresis affects the histologic picture. It tends to reduce the plasma cell infiltration of the perivascular spaces, so that in many cases there are fewer plasma cells than are commonly found in untreated cases. This reduction of the plasma cell reaction is probably an evidence of lessened chronicity of the process. Perivascular lymphocytosis and pial inflammation are often reduced in amount by treatment. Intraventricular injections of arsphenamized serum ordinarily produce no injurious effects on the choroid plexus or ependymal lining of the ventricles. The cell count of the spinal fluid does not give a true indication of the amount or extent of cerebral meningitis. The colloidal gold reaction, the Wassermann reaction and the cell count of the spinal fluid in paresis may become negative during treatment.

Papilloma of Fourth Ventricle.—Sachs cites the case of a man 50 years old, who complained of headache, dizziness and falling on walking. His past history was unimportant. Two and a half years previously he began to have headaches and pain in the lower part of the abdomen. He fell to either side, but most frequently forward. The eyegrounds and visual fields were normal. The symptoms suggested a bilateral lesion, growing slowly, superficially located and not near the nuclei of the cerebellum. Under local anesthesia the fourth ventricle and the vermis were exposed and a white glistening tumor was seen filling the fourth ventricle. This tumor was well encapsulated and was enucleated without much difficulty and without pain to the patient. The tumor extended up into the aqueduct of Sylvius, which was greatly dilated. The only discomfort complained of during the operation was pain in the abdomen. The patient made an uneventful recovery and left the hospital on the eighteenth day after operation. A year after the operation, he was entirely free of symptoms with the exception of slight ataxia when he walked rapidly up stairs. The three reasons for presenting the case are: (1) The constant pain in the abdomen, which might be interpreted as evidence that there were afferent fibers in the vagus nucleus. This abdominal pain was present both before operation and when the tumor was lifted from the floor of the fourth ventricle. (2) The tumor had completely obstructed the aqueduct of Sylvius and, therefore, produced an obstructive hydrocephalus, and yet the patient had normal eyegrounds. (3) This case demonstrates the possibility of removing tumors of considerable size in the region of the fourth ventricle through a simple median line incision without freeing the muscles from their attachment to the superior curved line of the occipital bone.

Boston Medical and Surgical Journal

Sept. 28, 1922, **187**, No. 13

*Tuberculosis in Children from Standpoint of Pediatrist. J. L. Morse, Boston.—p. 463.
Tuberculosis in Children from Standpoint of Orthopedist. J. E. Goldthwait, Boston.—p. 466.
Tuberculosis in Children from Standpoint of Internist. H. D. Chadwick, Westfield.—p. 467.
Tuberculosis in Children from Standpoint of Surgeon. L. T. Brown, Boston.—p. 470.
Roentgen-Ray in Diagnosis of Pulmonary Tuberculosis. S. W. Ellsworth, Boston.—p. 472.
Investigation of Reliability of Laboratory Tests and Discussion of Technic of Laboratories in and Near Boston. F. H. Slack, Brookline.—p. 474.

Treatment of Tuberculosis in Children.—In Morse's opinion the preventive treatment of tuberculosis is by far the most important. When tuberculosis has developed, the treatment consists of rest, food, fresh air, both day and night, and all the sunlight that there is. While he has had but little experience with the Rollier treatment, he is convinced that it is very useful in tuberculosis of the bones and of the peritoneum. He has no confidence whatever in any drug treatment of tuberculosis, except for the relief of symptoms. Morse has had no personal experience with the tuberculin treatment. What he has seen of it, however, has been most disappointing, for it has seemed to him that it did more harm than good.

California State Journal of Medicine, San Francisco

September, 1922, **20**, No. 9

Recent Developments in Radiotherapy. R. Duncan, Los Angeles.—p. 291.
Gastro-Intestinal Complications Accompanying Pulmonary Tuberculosis. W. C. Voorsanger, San Francisco.—p. 295.
Case of Amebic Abscess of Liver. H. J. Brown, Goldfield, Nev.—p. 298.
Diagnosis and Treatment of Gallbladder Disease. W. C. Alvarez, San Francisco.—p. 299.
Chronic Suppurative Parotitis with Acute Exacerbations. H. J. Profant, Santa Barbara.—p. 301.

Why Medical Social Service Deserves a Place in Hospital Organization, and Duties of Medical Social Workers Toward Hospital Administration. F. R. Nuzum, Santa Barbara.—p. 303.
Cardiovascular System in Thyroid Disease. W. J. Kerr and G. C. Hensel, San Francisco.—p. 306.
Studies in Ureteral Catheterization. Preliminary Report. H. A. R. Kreutsmann, San Francisco.—p. 310.
Treatment of Hyperemesis Gravidarum. G. C. H. McPheeters, Fresno. —p. 311.

Indiana State Medical Association Journal, Ft. Wayne

September, 1922, **15**, No. 9

Correction of Club Feet. H. R. Allen, Indianapolis.—p. 289.
Septic Infection Following Abortion or Delivery. A. S. Jaeger, Indianapolis.—p. 293.
Nontuberculous Infections of Kidney. P. E. McCown, Indianapolis. —p. 298.
Report of Appendicitis Cases. J. Y. Welborn, Evansville.—p. 303.
*New Histology of Red Blood Corpuscles and Staining Technic. E. L. Dewey, Whiting.—p. 305.

New Histology of Red Blood Corpuscle.—Dewey asserts that the red blood corpuscle is not "a structureless, homogeneous mass," as usually described in textbooks. By means of a special staining method, which is described in full, it is shown that these corpuscles are made up of many segments. It is Dewey's theory that these corpuscle segments carry gases and perhaps fluids of the blood, and that the kind of gases or fluids carried and their reaction determine different staining characteristics. Corpuscle segments are destroyed and disappear with the escape of their gases or fluids in all of the ordinary methods of fixing and staining blood, which eliminates any chance or possibility of showing them in the finished specimen.

Iowa State Medical Society Journal, Des Moines

September, 1922, **12**, No. 9

Our Present Knowledge and Experience Concerning Cesarean Section. E. P. Davis, Philadelphia.—p. 351.
Human Breast, Plea for Well Directed Treatment Based on More Accurate Diagnosis. W. S. Bainbridge, New York.—p. 354.
Suprapubic Prostatectomy: Technic and After Results. G. E. Decker, Davenport.—p. 360.
Ectopic Gestation as Vital Subject to Patient and to Practitioner. C. R. Armentrout, Keokuk.—p. 362.
Observations by Woman Physician in State Hospital for Insane. P. Leader, Clarinda.—p. 366.
Nasal Headaches. O. R. Wolfe and F. L. Wahrer, Marshalltown.—p. 370.
Hyperthyroidism and Hypothyroidism. J. W. Shuman, Sioux City.—p. 374.
Physicians Who Located in Iowa in Period Between 1850-1860. D. S. Fairchild, Clinton.—p. 375.

Journal of Bacteriology, Baltimore

September, 1922, **7**, No. 5

Relation of Vitamins to Growth of Streptococcus. S. H. Ayers and C. S. Mudge.—p. 449.
Salt Effects in Bacterial Growth. II. Growth of Bact. Coli in Relation to H-Ion Concentration. J. M. Sherman and G. E. Holm, Washington, D. C.—p. 465.
Morphology of Bacteria Symphiotic in Tissues of Higher Organisms. I. E. Wallin, Boulder, Colo.—p. 471.
Properties of Bacteriolysants (D'Herelle's Phenomenon, Bacteriophage, Bacteriolytic Agent, etc.). W. C. Davison, Baltimore.—p. 475.
Clostridium Putrificus (B. Putrificus Bienstock), Distinct Species. G. F. Reddish and L. F. Rettger, New Haven, Conn.—p. 505.
Transparent Milk as Bacteriologic Medium. J. H. Brown and P. E. Howe, Princeton, N. J.—p. 511.
Use of Agar Slants in Detecting Ammonia Production and Its Relation to Reduction of Nitrates. G. J. Hucker and W. A. Wall, Geneva, N. Y.—p. 515.

Journal of Infectious Diseases, Chicago

August, 1922, **31**, No. 2

*Bacteriology of Skin Lesions in Smallpox. L. E. Hines, Chicago.—p. 89.
Clostridium Botulinum. F. W. Tanner and G. M. Dack, Urbana.—p. 92.
*Experimental Erysipelas. Studies in Streptococcus Infection and Immunity. F. P. Gay and B. Rhodes, Berkeley, Calif.—p. 101.
Adaptation of Heist-Lacy Method for Determining Bactericidal Activity of Whole Blood for Chemotherapeutic Investigations. Studies in Chemotherapy of Bacterial Infections. J. A. Kolmer and L. Borow, Philadelphia.—p. 116.
Cultural Methods for Gonococcus. J. C. Torrey and G. T. Buckell, New York.—p. 125.
*Comparative Value, from Standpoint of Public Health, of Smears, Cultures and Complement Fixation in Diagnosis of Chronic Gonorrhea in Women. J. C. Torrey, M. A. Wilson and G. T. Buckell, New York.—p. 148.
Pathogenicity of B. Melitensis and B. Abortus for Guinea-Pigs. K. F. Meyer, E. B. Shaw and E. C. Fleischner, San Francisco.—p. 159.
*Serologic Relationships Between Strains of Pfeiffer Bacillus. Influenza Studies. E. O. Jordan and W. B. Sharp, Chicago.—p. 198.

Bacteriology of Skin Lesions in Smallpox.—Twenty cases of smallpox have been studied by Hines. There were three severe confluent cases that terminated fatally, six were of a mild type with only a few discrete lesions, and the remaining eleven might be classed as of a severe discrete type because of the great number of lesions and severity of the symptoms. The contents of the lesions, when in the vesicular and pustular stages, were used for cultures and smears. Blood cultures were available in only a few of the cases. Streptococci were obtained by cultures from the lesions in five of the twenty cases. Hemolytic streptococci were present in two and nonhemolytic streptococci in one of the three fatal cases. *Staphylococcus albus* was found in combination with streptococci in two cases and alone in seven cases. Once a hemolytic staphylococcus was present in combination with a streptococcus. Of the seventeen patients that recovered, streptococci were obtained from the lesions in two instances or in less than 12 per cent. No streptococci were obtained during the vesicular stage. Three of the strains of streptococci were of the hemolytic and two of the viridans type. The agglutinin test indicated that the hemolytic streptococci found in the skin lesions belonged to different groups.

Experimental Erysipelas.—Gay and Rhodes continue their discussion of the results of experimental work with their *Streptococcus pyogenes* ("H") which has acquired new and relatively constant properties. In addition to certain changes in its metabolic functions, it has gained a marked pathogenicity for rabbits, whereas the original stock culture has little. Constant empyema is produced by direct inoculation of very small amounts of the passage strain. In considerably large doses (about 100 times) it will usually produce a fatal septicemia when given intravenously and a recoverable erysipelas when injected intradermally in the back. Somewhat larger doses are necessary to produce erysipelas in the ear. This constant lesion is not produced by the stock culture. Recovery from erysipelas from a period roughly of three weeks after inoculation confers complete protection against intradermal reinoculation, irrespective of its locality. This protection usually lasts for at least three months. Repeated injections of heat or alcohol killed vaccines from the passage strain do not protect against the local lesion. Oil vaccines in the same amount frequently protect. Several injections of the original living stock culture, which produces no lesion, protect against the passage strain. Complete protection against intradermal inoculation by previous intradermal infection or immunization frequently does not protect against intravenous infection. The reverse set of conditions apparently also prevails. These facts point strongly to the existence of a true local tissue immunity following local streptococcus infection or immunization.

Value of Laboratory Diagnosis in Gonorrhea in Women.—By way of a general conclusion it is stated by Torrey, Wilson and Buckell that the smear, cultural and complement fixation methods of diagnosis in chronic gonorrhea in women have all proved useful, and that their relative values correspond to the order in which they are named, the last being the most valuable. Whenever possible, however, each test should be carried out, as it is shown that they tend to supplement each other.

Serologic Relationship of Strains of Pfeiffer Bacillus.—Fifty-seven strains of the Pfeiffer bacillus were studied by Jordan and Sharp. It was evident that the particular strain of Pfeiffer bacillus used to produce an immune serum is usually agglutinated by the homologous serum more rapidly, more constantly and in higher dilution than any heterologous strain. Absorption tests throw little if any more light on the true biologic relationship of the different strains in this group than does direct agglutination. As a rule, each strain of Pfeiffer bacillus possesses a serologic individuality. Occasionally strains from independent sources exhibit a serologic identity. This is not common. As many as three serologic races may be present at the same time in the throat of one patient. There is no correlation between indol producing powers and agglutinative affinities, except possibly in the strains isolated from meningitis. The lack of any definite serologic grouping among the strains of Pfeiffer bacilli, the authors take it, is an indication that a distinct invasive type, or types, has not become fixed, and is an argument against regarding any member of this group as the primary causal agent in epidemic influenza. Possibly a race of "influenza meningitis" bacilli is in process of evolution.

Journal of Laboratory and Clinical Medicine, St. Louis

September, 1922, **7**, No. 12

Elective Localization of Bacteria Following Various Methods of Inoculation and Production of Nephritis by Devitalization and Infection of Teeth in Dogs. E. C. Rosenow and J. G. Meisser, Rochester, Minn.—p. 707.
*Arsphenamin—Some Factors Which Influence Its Colloidal Properties. A. E. Sherndal, Brooklyn.—p. 723.
*III. Value of Refractoviscosimetric Properties of Blood Serum in Cases of Tuberculosis. M. E. Bircher, Rochester, Minn.—p. 733.
Activation of Enzyme Poisoned by Heavy Metal Salts. R. A. Kehoe, Cincinnati.—p. 736.
Effect of Bile Salts in Urine on Routine Tests for Albumin. S. F. Oliver, Cincinnati.—p. 743.
Nature and Treatment of Muscular Atrophy. H. C. Stevens and P. Bailey, Elyria, Ohio.—p. 746.
Convenient Automatic Apparatus for Experiments with Surviving Organs. P. J. Hanzlik and F. De Eds, San Francisco.—p. 751.
Convenient Form of Test Tube Rack. S. Morse, New York.—p. 753.
Wassermann Test Tube and Pipet Washer. C. E. Swanbeck, Cleveland.—p. 754.
Convenient Apparatus for Simultaneous Determination of Total Nonprotein and Urea Nitrogen, and for Prevention of Bumping of Filtrate During Boiling. J. W. Moore and L. Jones, Louisville.—p. 756.
Changes in Nutrient Agar Due to Clarifying with Egg. L. Thompson, Urbana, Ill.—p. 758.
Easy Method of Obtaining Samples of Urine from Male Dog. F. C. Mann, Rochester, Minn.—p. 760.
Box for Handling Small Animals in Laboratory. L. D. Keyser, Rochester, Minn.—p. 761.

Colloidal Variability of Arsphenamin.—A number of different arsphenamins were prepared by Sherndal by varying the process of reduction and precipitation. The method of reduction produces certain differences in the characteristics of the arsenic base, in regard to stability and extraneous impurities. On conversion into the dihydrochlorid, precipitation by means of ionized solutions yields in every case products whose gelatinous characteristics, as evidenced by the viscosity of aqueous solutions and insolubility in methyl alcohol, are much more marked than when the dihydrochlorid is prepared by the use of anhydrous nonelectrolytes. This is explained by the fact that arsphenamin is inherently a colloidal substance, and that electrolytes in certain concentrations produce coagulation of the disperse phase of its emulsoid sols. These macroscopic observations on the colloidal variability of arsphenamin, suggest the occurrence of less obvious, but similar differences in the disperse state of solutions prepared for intravenous injections, and consequently have a direct bearing on biologic and clinical results obtained by their use.

Blood Viscosity in Tuberculosis.—The blood viscosity in arrested cases Bircher asserts is normal. In the progressive stage of the disease the viscosity is greatly increased. In the few cases of this group in which the viscosity was normal, the refractivity was extremely low. The refractivity of tuberculous serum is normal in most cases. It is, therefore, probable that the total amount of protein in the serum of tuberculous patients is not increased, or only slightly. This would indicate that the protein has a greater viscosimetric effect, or that it is not of a normal composition. The change that occurs in the protein is not explained by these tests. The globulin is high, especially in cases of progressive tuberculosis. The refractoviscosimetric quotient gives a very similar picture. It indicates that in tuberculosis the viscosity of the serum is abnormally high in relation to the refractivity. The refractoviscosimetric quotient classifies a number of cases as abnormal which in the first column showed normal viscosity. This is especially true in progressive cases. The lowest values belong to patients in whom the disease is rapidly progressing and fatal. Of 160 patients examined the findings of 153 are discussed. The other seven patients did not have tuberculosis, but it should be noted that a decreased refractoviscosimetric quotient was found in those affected with blastomycosis, severe bronchiectasis with abscess, maxillary and other sinuses, recent catarrhal infection, and lead poisoning. In one case of peritonitis the refractoviscosimetric quotient was normal, in another it was definitely low. In tuberculosis the refractoviscosimetric quotient of the serum has a definite relation to the stage of the disease. The severity of the disease finds its expression in an accordingly low rate.

Journal of Nervous and Mental Diseases, New York

October, 1922, **56**, No. 4

Diffuse Scleroderma with Concurrent Psychosis. C. F. Read, Chicago.—p. 313.
Relation of Axillary Artery to Brachial Plexus. W. M. Kraus, New York.—p. 322.
Syndrome of Lilliputian Hallucinations. R. Leroy, Seine, France.—p. 325.
*Endocrine Imbalance and Mental Deficiency. H. W. Potter, Thiells, N. Y.—p. 334.

Endocrine Imbalance and Mental Deficiency.—Eight hundred and forty-nine cases were examined by Potter from an endocrinologic standpoint. Of this number 314, or 37 per cent., showed evidence of some type of endocrinopathy. The average chronologic age of this 37 per cent. was 15 years, the intellectual age, 6 5/12 years, and the percentage of normal intelligence was 43. It was possible to classify these cases into eleven different groups. Each of these groups showed a uniform appearance of a certain combination of findings which have previously been observed in conjunction with known disorders of the endocrine glands, and hence they were termed accordingly. The cases showed evidence of a pathologic physiology chiefly of three glands; namely, in order of occurrence, the pituitary, the thymus and the thyroid. One hundred and sixty cases showed evidence of a disturbed pituitary function. In two-fifths of these the dysfunction was primary. In the remaining three-fifths there was a hyperactivity of the pituitary, probably as a compensatory reaction to an initial defect in one or more of the other glands of internal secretion. One hundred and thirty-three cases were of status lymphaticus type. One half of these showed no evidence of a defect elsewhere in the endocrine system, two fifths showed signs of a pituitary overactivity and one tenth were accompanied by a condition of hyperthyroidism. Ninety-nine cases had characteristics of a thyroid dysfunction. All but one twelfth of these seemed to have a condition indicating an underactivity of the thyroid, half of which were accompanied by a status lymphaticus or had symptoms pointing to a compensatory pituitary overactivity. In only eleven cases did there seem to be a suprarenal complex present. In all of these the fault seemed to be in a reduction of function, involving the cortex as well as the medulla. It is interesting to note that there was evidence of pituitary overactivity, probably in the nature of a compensation, in each of these cases.

Journal of Radiology, Omaha

September, 1922, **3**, No. 9

Roentgenographic Study of Developmental Anomalies of Spine. C. G. Sutherland, Rochester, Minn.—p. 357.
Positional Anomalies of Gastro-Intestinal Tract. M. J. Hubeny, Chicago.—p. 364.
Recent Experiences in Treatment of Mammary Carcinoma by Means of Heavily Filtered Roentgen Rays. E. A. Merritt, Washington, D. C.—p. 373.
Planning and Equipment of a Modern Roentgen-Ray Laboratory. H. J. Means, Columbus, Ohio.—p. 375.
Ultraviolet Radiation. A. J. Pacini, Chicago.—p. 378.
Apparatus for Purification of Radium Emanation. C. F. Whittemore, Denver.—p. 384.

Kentucky Medical Journal, Bowling Green

July, 1922, **20**, No. 7

Colitis in Children. P. F. Barbour, Louisville.—p. 436.
Rectal Affections Observed in Children. G. S. Hanes, Louisville.—p. 438.
Value of Examination of School Children. A. S. Veech, Louisville.—p. 441
Acute Vincent's Angina Yielding Only to Treatment with Arsphenamin: Case Reports S. Graves, Louisville.—p. 445.
Diverticula of Esophagus. C. G. Lucas, Louisville.—p. 447.
Pregnant Woman. J. S. Lutz, Louisville.—p. 453.
Arterial Hypertension. C. W. Dowden, Louisville.—p 456.
Nasopharyngeal Fibroids Treated with Radium: Case Report. S. G. Dabney, Louisville.—p. 461.
New Intensive Deep Roentgenotherapy and Its Application in Treatment of Cancer. J. H. Schroeder, Cincinnati.—p. 463.
County Health Department Anti-Typhoid Inoculation Activities. W. N. Lipscomb, Georgetown.—p. 466.

Pellagra. W. W. Durham, Hopkinsville.—p. 471.
Cooperative Ownership of Office Space. G. A. Hendon, Louisville.—p. 475.
Food for Thought. J. H. Souther, Oakland.—p. 478.
Dr. E. W. Jackson, President of Southwestern Kentucky Medical Association. R. T. Hocker, Arlington.—p. 479.
Diagnostic Value of Roentgen Ray in Joint Diseases. Case Reports. V. Blythe, Paducah.—p. 480.
Jewish Hospital Surgical Specimens. S. Graves, Louisville.—p. 482.
Discussion of Newer Fads of Obstetrics. E. Speidel, Louisville.—p. 484.
Ready Method for Determining Isolation Periods of Communicable and Reportable Diseases for Release. I. Lindenberger, Louisviiie.—p. 490.
Spinal Injuries. B. A. Washburn, Paducah.—p. 491.
Radiation in Female Pelvis. D. Y. Keith, Louisville.—p. 493.
Folliculosis or Trachoma Among School Children. J. W. Jervey, Greenville, S. C.—p. 496.

Laryngoscope, St. Louis

September, 1922, **32**, No. 9

Adult Lip-Reading Worth While? Detailed Study of One Hundred and Eight Cases. G. Berry, Worcester, Mass.—p. 645.
Phases of Nonsuppurative Otitis Media. J. A. Babbitt, Philadelphia.—p. 663.
Colloidal Silver-Iodid in Therapy of Ear, Nose and Throat. M. F. McCarthy, Cincinnati.—p. 668.
Case of Encephalitis Lethargica Complicated by Double Acute Mastoiditis, with Accompanying Temporary Blindness. R. Almour, New York.—p. 672.
Spontaneous Rupture of Internal Carotid Artery with Hemorrhage from Ear. R. J. Hunter, Philadelphia.—p. 678.
Tonsillectomy Sump—Instrumental Prevention of Inspiratory Postoperative Pulmonary Abscess. W. F. Moore, Philadelphia.—p. 685.
Contribution to Etiology of Septic Sinus Thrombosis. A. A. Schwartz, New York.—p. 690.
Tonsillectomy Sump. W. F. Moore, Philadelphia.—p. 692.
New Paracentesis Knife. H. Dintenfass, Philadelphia.—p. 694.
Pathology and Treatment of Chronic Catarrhal Deafness. P. G. Goldsmith, Toronto, Canada.—p. 696.
New Surgical Procedure for Relief of Depression of Nasal Bridge and Columbella: Further Application for Relief of Hump and Deflected Noses. Plastic Treatment of Syphilitic Nose. J. E. Sheehan, New York.—p. 709.

Maine Medical Association Journal, Portland

September, 1922, **13**, No. 2

Diabetes. E. P. Joslin, Boston.—p. 43.
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Missouri State Medical Association Journal, St. Louis

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Late Effect of War Gas on Lungs and Its Relation to Pulmonary Tuberculosis. R. H. Meade, Kansas City.—p. 385.
Treatment in Tuberculosis. F. I. Ridge, Kansas City.—p. 387.
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Disease of Urethra and Prostate as Cause of Hematuria. J. Frischer, Kansas City.—p. 393.
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Problem of Moderately Hypertrophied Prostate. H. McC. Young, St. Louis.—p. 399.
Medical Treatment of Gastric Ulcer. J. J. Tyree, Joplin.—p. 401.

Northwest Medicine, Seattle

September, 1922, **21**, No. 9

Certain Phases of Chronic Nephritis Problem. H. A. Christian, Boston.—p. 272.
Cancer of Mouth. J. C. Bloodgood, Baltimore.—p. 280.
Present Status of Local and Sacral Anesthesia in Anorectal Diseases. L. J. Hirschman, Detroit.—p. 282.
Nervous Control of Thyroid Gland. W. B. Cannon, Boston.—p. 289.
Arthritis. F. Billings, Chicago.—p. 295.
High Voltage Roentgen-Ray Therapy. R. H. Millwee, Dallas, Tex.—p. 298.
Pernicious Anemia, Alkaptonuria, Hemolytic Jaundice, Orthostatic Albuminuria and Pernicious Anemia. H. A. Christian, Boston.—p. 301.
Tumors of Bone. J. C. Bloodgood, Baltimore.—p. 308.
Surgery as Therapeutic Agent in Treatment of Neurologic Lesions. A. W. Adson, Rochester, Minn.—p. 312.
General Medical Men Can and Must Make Diagnosis of Tuberculosis if Satisfactory Results in Treatment are to be Obtained. F. M. Pottenger, Monrovia, Calif.—p. 315.
Present Day Problems of Medical Practice. F. Billings, Chicago.—p. 320.
Surgical Considerations of Goiter. W. I. Terry, San Francisco.—p. 324.
Experimental Studies in Etiology of Epidemic Encephalitis, Epidemic Hiccup, Spasmodic Torticollis and Allied Conditions. E. C. Rosenow, Rochester, Minn.—p. 329.
Digitalis and Quinidin in Treatment of Certain Types of Chronic Cardiac Disease. H. R. Christian, Cambridge, Mass.—p. 331.
Tumors of Breast. J. C. Bloodgood, Baltimore.—p. 338.
Lyon-Meltzer Method of Biliary Drainage. A. D. Dunn, Omaha.—p. 341.

Diagnosis of Disorders of Ductless Glands. W. Engelbach, St. Louis.—p. 348.
Recent Evidence as to Nature of Wound Shock. W. B. Cannon, Boston.—p. 351.

Oklahoma State Medical Association Journal, Muskogee

September, 1922, **15**, No. 9

Joint Drainage with Restoration of Function. T. J. Lynch, Okmulgee.—p. 263.
Cholecystectomy Without Drainage. F. H. McGregor, Mangum.—p. 266.
Local Anesthesia in General Surgery. W. P. Fite, Muskogee.—p. 267.
Intestinal Obstruction. W. L. Kendall, Enid.—p. 270.
Splenic Anemia (Banti's Disease), and Allied Dyscrasias. Splenectomy. Case Reports. L. Long, Oklahoma City.—p. 274.

Philippine Journal of Science, Manila

May, 1922, **20**, No. 5

Janetosphaera, New Genus, and Two New Species of Volvox. W. R. Shaw.—p. 477.
Extraction of Copra Cake with Solvents. A. P. West and J. M. Feliciano.—p. 509.
Alcyonarien of Philippines. I. Species Alyconium Linnaeus. V. J. Luttschwager.—p. 519.
New Oriental and Australian Ichneumonidae. R. A. Cushman.—p. 543.

June, 1922, **20**, No. 6

Pharmacodynamics of Datura Alba. F. Garcia and R. Guevara.—p. 599.
*Uncommon Intestinal Parasites of Man in the Philippine Islands. Reports of New Cases. B. Schwartz and M. A. Tubangui.—p. 611.
New Parasitic Hymenoptera from Oriental Islands. R. M. Fouts.—p. 619.
Effect of Different Rates of Transpiration on Dry Weight and Ash Content of Tobacco Plant. N. B. Mendiola.—p. 639.
Sapindaceae Novae Philippinenses. A. L. Radlkofer.—p. 657.
Observations on Life History of Ascaris Vitolorum, Parasite of Bovines in Philippine Islands. B. Schwartz.—p. 663.

Uncommon Intestinal Parasites in Philippines.—Three cases of infestation with tenia are recorded by Schwartz and Tubangui. Data with reference to the occurrence of *Cysticercus cellulosae* in native hogs show that from 1 to 1.5 per cent. are infested. A case of infestation with *Hymenolepis diminuta* is also recorded. This is the first case in which this parasite has been reported from a Filipino and the second case that has been recorded from the Philippine Islands. A case of *Clonorchis sinensis* is reported from a Chinese student. This is the third case that has been reported from the Philippines. Two cases of infestation with *Echinostoma ilocanum*, a species apparently confined to Filipinos of northern Luzon, are reported.

South Carolina Medical Association Journal, Greenville

September, 1922, **18**, No 9

Aortic Insufficiency. J. F. Woods.—p. 248.
Breast Feeding. W. M. Rhett, Charleston.—p. 252.
Backache as Related to Gynecologic and Orthopedic Conditions. W. A. Boyd and R. E. Seibels, Columbia.—p. 261.
Interesting Points in Alimentary Tract of Tuberculous Patients. G. R. Wilkinson, Greenville.—p. 265.

Tennessee State Medical Association Journal, Nashville

September, 1922, **15**, No. 5

Cancer of Breast. C. P. Fox, Greenville.—p. 211.
Pathologic Study of Tumors of Mammary Gland. W. G. Carnathan, Nashville.—p. 217.
Chronic Hyperplastic Tuberculosis of Intestine. W. C. Dixon.—p. 220.
Diagnosis and Management of Pyloric Stenosis of Infancy. E. Rosamond, Memphis.—p. 225.
Standardization of Infant Feeding. O. W. Wilson, Nashville.—p. 229.

Texas State Journal of Medicine, Ft. Worth

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Some of Recent Advances in Surgery. H. R. Dudgeon, Waco.—p. 240.
Disappointments After Surgical Treatment of Chronic Peptic Ulcer. W. B. Russ, San Antonio.—p. 243.
End Results of Treatment of Peptic Ulcer. G. B. Brindley, Temple.—p. 246.
Marginal or Gastrojejunal Ulcers. A. O. Singleton, Galveston.—p. 248.
Peptic Ulcer, Medical and Surgical Types. W. B. Thorning, Houston.—p. 252.
Peptic Ulcer. J. E. Dildy, Brownwood.—p. 257.
Use of Scopolamin in Criminology. E. House, Ferris.—p. 259.
Criticism of "Group Medicine." H. L. Hilgartner, Austin.—p. 263.
Free Clinic in Light of Medical Economics. L. A. Suggs, Fort Worth.—p. 264.

Country Practitioner. O. Dowling, New Orleans.—p. 266.
Foreign Bodies Within Eye. W. Ralston and E. L. Goar, Houston.—p. 268.
Trachoma and Our End Results. J. H. Burleson, San Antonio.—p. 270.

U. S. Naval Medical Bulletin, Wahington, D. C.

September, 1922, **17**, No. 3

Wounds of Knee Joint: Their Surgical Importance and Treatment, with Special Reference to Methods Devised as Result of Great War for Treatment of Septic Knee Joints. C. M. Oman and E. J. Cummings.—p. 379.
Some Features of Plague. W. McCoy.—p. 386.
Functions and Organization of Medical Corps Units Serving with Marine Corps in Field. S. N. Raynor.—p. 394.
Transillumination and Electric Vitality Tests. H. E. Harvey.—p. 403.
Gas Warfare—Treatment of Gas Casualties, Early and Late. W. R. Galwey.—p. 408.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

Sept. 23, 1922, **2**, No. 3221

Osteo-Arthritis of Hip. G. Parker.—p. 539.
Recurrence of Symptoms After Removal of Gall Stones from Gall Bladder. R. P. Rowlands.—p. 541.
*Case of Hemochromatosis. S. L. Heald.—p. 542.
Psychotherapeutics and Psychopathology. T. W. Mitchell.—p. 543.
Making of Neurotic. J. A. Hadfield.—p. 546.
Mental Stresses of Adjustment in Women. J. I. Suttie.—p. 549.
Psychic and Endocrine Factors in Functional Disorders. H. C. Miller.—p. 551.
Psychotherapy with Special Reference to Auto-Suggestion. C. F. Harbord.—p. 554.
Therapeutic Value of Static Electricity and High-Frequency Currents. I. Static Currents. F. H. Humphris.—p. 555.
Id. II. High Frequency Currents. W. F. Somerville.—p. 557.
Roentgen Rays in Diseases of Skin. E. W. Reed.—p. 559.
*Differentiation of Active from Quiescent Tuberculosis of Lung. J. Crocket.—p. 560.
Differential Diagnosis of Simple and Malignant Bone Disease. C. W. S. Saberton.—p. 561.
Lead-Glass Shield for Coolidge Tube and Bucky-Potter Diaphragm. H. E. Gamlen.—p. 562.
Roentgen-Ray Treatment of Tinea Tonsurans. J. G. Graham.—p. 563.
Bilateral Colobomata of Macula E. R. Chambers.—p. 564.
Vesicular Mole and Placenta Praevia. W. H. Lowman.—p. 564.

Case of Hemochromatosis of Long Duration.—Heald records the case of a man, aged 42, whose complexion was always sallow (olive), and this color was universally distributed over the whole skin. His health was fairly good, except for occasional attacks of dyspepsia, which were characterized by sleepiness and heaviness in the morning, but not accompanied by abdominal pain or vomiting. At 36, an abscess developed on the dorsum of the right foot. This was followed by other abscesses in various parts of the body, and finally by a prostatic abscess, which burst into the rectum. *Bacillus coli* was found to be the causative organism, and he was treated by vaccines, which did not, however, prevent other abscesses developing. The discoloration of the skin varied in depth according to his general health, becoming much lighter after a month's holiday. He consulted Heald in December, 1921, because he felt tired after exercise, and had insomnia and cramps in the legs. Examination showed nothing abnormal, except that the liver extended 1½ inches below the costal margin, the edge being hard and well defined. The spleen was not palpable. The urine contained 7 per cent. sugar, but no albumin, acetone, or diaceto-acetic acid. After a fast the urine was sugar free. The blood sugar fell to 0.19 per cent. during the fasting; subsequently it varied between 0.24 and 0.40 per cent. There was no appearance of acetone or aceto-acetic acid. His teeth, antra and sinuses were examined, but no septic foci were discovered. Five months later, in April, 1922, the liver was markedly enlarged, to the level of the umbilicus, hard, with signs of lobulation in the epigastric area. The spleen was easily palpable. From this time until his death in June, 1922, the urine was repeatedly examined for acetone and aceto-acetic acid, but the result was always negative, despite the fact that for the last two or three weeks he was in a semicomatose condition. During this time darkish pigmentation appeared, chiefly round the elbows and on the hands. He died from exhaustion, June 8. He was quite conscious just before his death. A complete postmortem examination was out of the question, but a portion of skin from the back of the hand was examined and showed a well marked reaction for iron. The dark pigmentation was most marked over the backs of the hands, the elbows and shins, and on the genital organs.

Value of Roentgen Ray in Diagnosis of Pulmonary Tuberculosis.—Radiography, in Crocket's opinion, should be used simply to amplify. It can never supersede clinical methods in the diagnosis of tuberculosis of the lungs, and in determining its activity or quiescence. Radiography does not show the presence of the earliest stage of active tuberculous disease of the lungs. Radioscopy may reveal it by a diminished translucency and by certain changes, particularly lessened mobility of the chest wall and a stammering diaphragm.

Sept. 30, 1922, **2**, No. 3222

I. Antenatal, Intranatal and Neonatal Death. J. W. Ballantyne.—p. 583.
* II. Intranatal Deaths. E. Holland.—p. 588.
III. Fetal Death Due to Toxemia. A. L. McIlroy.—p. 589.
*IV. Neonatal Death. F. J. Browne.—p. 590.
* V. Syphilis as Cause of Antenatal Death. J. N. Cruickshank.—p. 593.
VI. Placental Changes in Relation to Fetal Death. G. I. Strachan.—p. 594.
*Treatment of Infantile Paralysis in Children. G. R. Girdlestone.—p. 596.
Acute Intestinal Obstruction J. O'Conor.—p. 598.
Cholecystogastrostomy. J. L. Stretton.—p. 600.
Hydroa Aestivale in Identical Twins. A. Eddowes.—p. 601.
Fetal Heart. D. E. Morley.—p. 601.

Intranatal Deaths.—Holland asserts that evidence is to be found at postmortem examination that the complications of labor account for 51 per cent. of fetal deaths. This postmortem evidence consists, as a rule, in the presence of cerebral or visceral hemorrhages. In half the cases it is found that the tentorium cerebelli has been torn. This condition has been found in 88 per cent. of dead fetuses after normal breech delivery. The present teaching is to hurry the delivery of the after-coming head for fear of pressure on the cord. In the light of the evidence brought forward, Holland asserts, this teaching must be revised, as actually the fetus is killed by compression of the head, brought on principally by forcible efforts being made to complete the extraction of the child. The head, therefore, should be allowed time, even as much as ten minutes, if absolutely necessary.

Neonatal Death.—Out of a series of 400 cases of stillbirth and neonatal death examined and classified by Browne there have been 153 cases of neonatal death. The causes of death in these cases may be classified as traumatic, infective, toxemic, developmental, prematurity, other conditions not peculiar to the newly born, and undetermined.

Syphilis as Cause of Antenatal Death.—The value of the Wassermann reaction in the new-born, the incidence of congenital syphilis, and the part played by the disease in the causation of antenatal death was estimated by Cruickshank from more than 3,500 specimens of maternal, placental and infantile blood, and an analysis of the clinical records of 1,000 cases. In a series of nearly 1,900 unselected cases a positive Wassermann reaction was found in a little more than 9 per cent. of mothers. For the placental blood of 1,350 infants, the Wassermann reaction was positive in about 4.5 per cent. In more than 400 cases the blood of both the mother and the child was examined and the reaction was the same in both in nearly 95 per cent. of cases. There were 12.8 per cent. of abortions in a series of 1,000 pregnancies. In the group of cases in which the mother's Wassermann reaction was positive the incidence of abortion was 6.17 per cent., and in the group of cases in which the mother's Wassermann reaction was negative the incidence of abortion was 13.17 per cent. In the 737 cases in the series in which a viable fetus was delivered the percentage of stillbirths was 16.46. The incidence of stillbirth in the positive group was 18.07 per cent., while in the negative group it was 15.15 per cent. The incidence of premature birth among the viable infants of mothers with a negative Wassermann reaction was 19.88 per cent., while the incidence of premature birth among the viable infants of mothers with a positive Wasermann reaction was 32.54 per cent. Of 133 premature children born to mothers with a negative Wassermann reaction, 34.61 per cent. were stillborn, while of twenty-seven premature children born to mothers with a positive Wassermann reaction 68.75 per cent. were stillborn. If abortion and stillbirth are grouped together, the incidence of the combined group shows little difference in syphilitic mothers as compared with nonsyphilitic mothers (22.58 per cent. and 24.94 per cent., respectively).

Treatment of Infantile Paralysis.—The principles Girdlestone works on in the treatment of second stage cases are: (1) posturization of the trunk and limbs; (2) correction of deformities, if any have developed; (3) resumption of function of the ganglion cell and affected part, induced by (*a*) skin stimulation by light massage, (*b*) reeducation and commencement of active movements, and (*c*) locomotion without overstrain. In the third stage, the principles are further to develop the patient's capabilities, whether by stabilization of joint, transplantation of tendons, etc., or suitable appliances; but operations such as arthrodesis are postponed until after the age of 8 or 10, and keep the patients with flail knees walking in callipers until after their school life is finished.

Glasgow Medical Journal

September, 1922, **98**, No. 3

Mortality Rates in Glasgow Families: Analysis of Various Kinds of Wastage of Child Life in Well-to-Do and in Poor Families of Varying Size. J. Agnew.—p. 145.
History of Early Medicine. J. F. Fergus.—p. 172.
Pneumonias in Glasgow and Their Pneumococcal Types. M. H. Grant.—p. 193.

Journal of Laryngology and Otology, Edinburgh

September, 1922, **37**, No. 9

Dental (Periodontal) Cysts from Rhinologic Standpoint. A. B. Kelly.—p. 433.
Analysis of Sound by Resonance. G. Wilkinson.—p. 447.

Lancet, London

Sept. 23, 1922, **2**, No. 5169

Clinical Laboratory in Modern Hospital. H. Rolleston.—p. 647.
*Carbohydrates in Nausea and Vomiting of Pregnancy. V. J. Harding and B. P. Watson.—p. 649.
*Has Cancer Pigmentary Origin? G. T. Beatson.—p. 655.
Fevers of Puerperium. E. Thorp.—p. 660.
Case of Osteogenesis Imperfecta. M. F. L. Keene.—p. 661.
Use of Clamps in Gastro-Enterostomy: Suggested Improvement in Their Design. N. M. Dott.—p. 661.

Carbohydrates in Nausea and Vomiting of Pregnancy.—The therapeutic measures suggested by Harding and Watson to combat nausea and vomiting of pregnancy are: (1) The use of carbohydrates to correct the lack of maternal hepatic glycogen. This would range, depending on the severity of the condition, from an alteration of diet in the direction of increasing cereals, vegetables, and fruit in mild cases, to the use of intravenous and interstitial glucose injections in the very severe forms. (2) Rest in bed with isolation in cases in which the neurotic factor makes itself pronounced, and it usually does so in all but the very mild cases. As a sedative, bromid may be given by rectum in doses varying from 30 grains once in the evening to 40 or 60 grains three times daily; depending on the clinician's recognition of the severity of this factor and the patient's reaction to rest and isolation alone. As a general rule, however, the higher dosages are unnecessary. Their need is most evident when the patient vomits not only any fluid given by mouth, but when the vomitus begins to be in excess of this and the tissue fluids themselves supply the necessary water. (3) The keeping open of the bowel, usually in a gentle manner, by an occasional laxative for the mild cases, and an evening laxative, followed by a cleansing enema in the morning for the hospital cases. (4) The administration of water to correct any dehydration, and by doing so, to ensure the flow of all secretory and excretory fluids as far as the water factor in them is concerned. Fluids to the amount of 60 ounces are urged by mouth in all cases. Additional fluid in the severe cases will be supplied with the glucose, either by rectum or by interstitial or intravenous injection.

Has Cancer a Pigmentary Origin?—Apart from the fact that pigment evidently plays an important part in the "internal secretions," other reasons lead Beatson to think that cancer might have a pigmentary origin. The first one was that he frequently observed at postmortem examinations in some cases of carcinoma a very pigmented condition of the fat, which presented a reddish-yellow vermilion appearance and evidently had in it a coloring matter not usually seen in ordinary fat. A second reason was that in these cases of oophorectomy in which there had been a compete disappearance of the outward manifestations of cancer after the operation, this disappearance of the signs of the disease was accompanied by an increase in the subcutaneous adipose tissue of the body. This latter result indicated an accession of fat-forming power, brought about by the removal of the ovaries, and it also implied an accession of lipoids, those intracellular fatty compounds which include the lipochromes and have been considered of late years to be of great importance both in cellular metabolism and also in connection with immunity. The third reason was that an analysis of the fat of cancer patients showed that chemically it differs materially from the fat of noncancerous persons in that it contains an excess of nonsaturated fatty acids, a difference that points to an abnormal activity of the adipose tissue in cancer patients. A further point of interest and importance is that there are two distinct manifestations of unsaturation activity, one local in the vicinity of a growth, and the other general, the local being in excess of the general and probably the parent of it.

Medical Journal of Australia, Sydney

Aug. 26, 1922, **2**, No. 9

Industrial Hygiene and Medical Profession. A. J. Lanza.—p. 231.
Silicosis, Miners' Phthisis and Medical Inspection. J. S. Purdy.—p. 234.
*Superacute Pulmonary Edema. A. R. Southwood.—p. 236.
Radiography of Appendix. J. G. Edwards.—p. 238.
Cell Growth. W. M. Sinclair.—p. 241.
Division of Posterior Root of Fifth Nerve for Trigeminal Neuralgia. W. J. Close—p. 243.

Venesection in Superacute Pulmonary Edema.—The treatment advocated by Southwood for an attack of superacute pulmonary edema is venesection. The immediate cause of these very acute attacks of edema is the rapid failure of the left side of the heart. The circulation of the blood in both the pulmonary and systemic beds becomes retarded in a degree proportionate to the rapidity of cardiac failure. It is obvious that in such a condition of circulatory stasis any drug, administered orally, subcutaneously or even intravenously, would have the greatest difficulty in entering the systemic capillary bed. In severe cases the problem is a mechanical one—to provide immediate relief to an overtaxed right side of the heart. Venesection would appear to be the only sure and rational method. In the less severe cases drugs are of value; the cardiac tonics and vasodilators—the action of the latter being essentially identical with that of removing a small amount of blood—are commonly used. If these fail, venesection should be performed.

Sept. 2, 1922, **2**, No. 10

Polio-Encephalitis. J. V. Duhig.—p. 261.
Epidemiology of Epidemic Encephalitis. W. A. Sawyer.—p. 263.
Fashionable Midwifery. J. K. Couch.—p. 264.
Application of Recent Discoveries Concerning Vitamins or Accessory Food Factors. J. Dale.—p. 267.
Absorption of Ultraviolet Rays by Living Tissue, Spectacle Glass and Some Physiologic Solutions. L. J. C. Mitchell.—p. 268.
Trachoma. F. A. Newman.—p. 271.
Light Massage in Treating Fractures. E. A. Elliott.—p. 274.

Sept. 9, 1922, **2**, No. 11

*Form of Pelvic Hydatid Cyst and Its Treatment. F. D. Bird.—p. 289.
Pathologic Dentition: Clinical Entity. V. MacDonald.—p. 290.
Energy Consumption of Australian Students. H. S. H. Wardlaw.—p. 294.
Nonobstructive Congenital Jaundice and Splenomegaly. L. W. Dunlop.—p. 300.
Hysterectomy Salpingo-Oophorectomy and Abdominoperineal Excision of Rectum in One Stage. H. Bullock.—p. 301.

Pelvic Hydatid Cyst.—Bird reports three cases of pelvic hydatid cysts in which daughter cysts were extruded through the prostate into the urethra.

Medical Journal of South Africa, Johannesburg

August, 1922, **18**, No. 1

Present Position of Vitamin Theory. A. D. Stammers.—p. 1.
Nelspoort Tuberculosis Farm Sanatorium Scheme and Tuberculosis Clinics. J. A. Mitchell.—p. 8.
Two Cases of Hysterical Pseudotyphoid and Pseudo-Epilepsy. J. Schneider.—p. 10.

Archives des Maladies du Cœur, Etc., Paris

August, 1922, **15**, No. 8

*Paroxysmal Tachycardia. D. Daniélopolu.—p. 537.
Hemolytic Function of Various Organs. Perrin and Hanns.—p. 551.

Paroxysmal Tachycardia Due to Digitalis and Strophanthin.—Daniélopolu reports three observations in which heterotopic tachycardia was due to digitalis or strophanthin. The coupled rhythm as well as the paroxysmal tachycardia are due to the positive bathmotropic action of the digitalis group. The extrasystoles of the bigeminal pulse as well as the paroxysmal tachycardia are due to the action on heterotopic centers. The hyperexcitability phenomena of the heart muscle appear after digitalis only in a heart with advanced myocardium insufficiency. These signs are accompanied, as a rule, by aggravation of all the phenomena of insufficiency of the heart. Daniélopolu mentions that sodium salicylate entailed in his second case the same form of arrhythmia as the digitalis, and that this was due to the bathmotropic action of the sodium salt, that is, influencing the response to stimuli. He remarks in conclusion that the principal phenomenon in myocardium insufficiency is the decrease of contractility, accompanied by an exaggeration of excitability. In habitual asystolia these drugs have the typical action of increasing contractility and bringing back coronary nutrition, thus decreasing excitability. In irreducible asystolia, digitalis reduces contractility. Dissociated and inverse actions are not as frequent with strophanthin as with digitalis. When they appear after administration of strophanthin in the last stages of asystolia, we may consider the patient as beyond all chance of recovery.

Journal d'Urologie, Paris

August, 1922, **14**, No. 2

*Resection of the Vasa Deferentia. E. Retterer and S. Voronoff.—p. 81.
*Calculi After Prostatectomy. Caraven and Lourdel.—p. 111.
*Cure of Posterior Urethritis. J. Janet.—p. 133.

Local and General Results of Resection of the Vasa Deferentia.—Retterer and Voronoff describe the normal evolution of the epithelium of the seminiferous tubules, and the changes they observed after resection of from 6 to 10 cm. of the vas deferens in adult dogs. They compare their findings with those of others in this line. The epithelium of the seminiferous tubules continues its function of spermatozoa production as before the resection of the vas deferens, although the spermatozoa are unable to escape, owing to the impermeability of the vas.

Calculi After Prostatectomy.—Caraven and Lourdel report three cases in which calculi formed in the bladder a few months after suprapubic prostatectomy. They have compiled sixty-eight cases from the records. In about 33 per cent. the calculus was in the bed of the prostate, or this was incrusted or contained a soft mass. If the concretion is loose, and the bladder and urethra in good condition, lithotrity is preferable, as also if the calculus is in the bed of the prostate and can be easily forced out into the bladder. Otherwise a suprapubic incision is required. They refrained from applying a retention catheter in their three cases, and recovery was soon complete after the suprapubic extraction of the calculi.

Cure of Posterior Urethritis.—Janet states that the gonorrheal urethritis usually heals in the posterior urethra before it heals in the anterior portion. By treating the anterior urethra alone for a few days we can ascertain whether the posterior process is healed or still active. If the second glass of urine is as clear as the first glass, then we can assume that the posterior urethra is clinically normal.

Médecine, Paris

August, 1922, **3**, No. 11

*Pediatrics in 1921. P. Lassablière.—p. 805.
The Birth Rate in France. C. Richet.—p. 810.
*The Cough in Infants. A. B. Marfan.—p. 814.
*Craniotabes or Craniomalacia. J. Comby.—p. 821.
*Pharyngospasm in Infants. E. Weill.—p. 826.
*Lactation in Acute Infectious Diseases. P. Balard.—p. 832.
*Diabetes in Children. P. Nobécourt.—p. 834.
*Chorea. L. Baumel.—p. 839.
*Prophylaxis of Arthritism in Children. G. Mouriquand.—p. 844.
Congenital Cardiopathies without Cyanosis. G. Blechmann.—p. 850.
*Arthropathies in Syphilitic Infants. G. L. Hallez.—p. 852.
*Obesity in Children. E. Apert.—p. 856.
Serotherapy in Pneumonia in Children. C. Rocaz.—p. 863.
*Protein Therapy in Children. G. Schreiber.—p. 867.
Treatment of Vincent's Angina. P. Lassablière.—p. 870.

Pediatrics in 1921.—Lassablière quotes from the book of prayers placed by the ancient Egyptians in the tomb with the dead to help them plead their cause at the judgment seat of the gods: . . . "I never defrauded my fellow men. . . . I never took milk away from babies. . . ." He comments that nowadays people seem to be vying with each other in giving infants everything except milk. Among the recent publications of French pediatricians, he refers in particular to Kayser's demonstration that desiccated lactic ferments retain their vitality for years, while they lose their vital properties rapidly in a fluid medium.

The Bitonal Cough of Infants.—Marfan recalls that an ordinary cough is formed of a single sound, but in infants with progressing tuberculous tracheobronchial glands, the cough has two sounds. One sound is deep and the other high with a singing tone. The cough sounds as if it came simultaneously from two separate throats.

Craniotabes.—Comby protests that softness of the bones of the skull has nothing to do with syphilis or rickets, and in a hygienic environment it rights itself spontaneously without complications.

Spasm of the Pharynx.—Weill relates that what seemed to be a total refusal of food in young children has often proved to be a spasm preventing the child's swallowing anything but liquids. The child does not refuse food, as with mental anorexia. It begins to eat normally, but stops at the first mouthfuls. He has witnessed this even in young, breast-fed infants. The child takes less and less milk at a feeding. The treatment is simple, namely a course of dilation of the upper esophagus. One child of 7 months was thus cured by four applications of the dilating catheter.

Lactation During Acute Infectious Diseases. — Balard advises a few simple prophylactic measures for the mother, disinfecting the breasts, wearing a mask, interposing a cloth between herself and her babe, and systematic prophylaxis by the Milne method in eruptive diseases, with preventive serotherapy for the infant in diphtheria. With these precautions, the woman's ability to suckle her child in whole or in part should be the guide, as a rule. During convalescence every effort should be made to stimulate or rearouse the lacteal secretion, having the child nurse early, often and long.

Diabetes in Children.—Nobécourt warns not to mistake for glycosuria the alimentary lactosuria of infants with gastro-intestinal derangement. The mild form of diabetes in children can generally be cured by restricting carbohydrate intake, but sometimes it persists unmodified and without aggravation up to adult life. The child develops apparently normally. Sometimes the mild form changes to the grave form or the diabetes may be grave from the start, with a tendency to denutrition or to hypotrophy or both. The prognosis should always be reserved; the effects of treatment will generally tell the story.

Chorea and Dentition.—Baumel has seen chorea develop under the influence of heredity, of anemia and of fright, and also from the stress of dentition. The latter in particular is frequently an important factor. When this is the case, he gives iron, cinchona, phosphate and bromid, with a predominantly fluid diet. He presents a number of arguments to sustain this causal connection between dentition and chorea.

Prophylaxis of Arthritism in Children.—Mouriquand says that it is impossible to foretell in what form the arthritic tendency will manifest itself in the child when the parents are inclined to gout or lithiasis, diabetes, or other form of what the French call arthritism. It grows more pronounced in each successive generation, unless the parents practice dietetic restrictions and general hygiene before conception, and the mother during pregnancy, and the child is guided into proper habits of eating and living from the very first and onward, with exceptional stress on outdoor life and exercise.

He regards it as especially important to have the child's meals separate from the parents', when the latter are great meat eaters. In families with sluggish livers a preventive course of mineral waters, such as the Vittel waters, is very useful for the children as well as the adults. He adds that many of the newly rich are founding arthritism in themselves and dooming their children to it, as can be seen by the promptness with which they develop obesity. One obese woman who had borne a very large child, actually starved herself at her second pregnancy, but this second child was even larger than the first. He knows of several instances of this, and the women's general health suffered from the inadequate nourishment. However, experiences with animals demonstrate that the diet after conception does have some influence on the nourishment of the fetus as a rule.

Parrot's Disease.—Hallez declares that osteochondritis of the epiphysis in the newly born with inherited syphilis may entail suppuration. He asserts further that it can be cured when recognized in time and specific treatment is pushed.

Obesity in Children.—Apert comments on the light thrown on obesity by endocrinology, especially in children. Except in girls approaching puberty, obesity in children over 6 is abnormal, and requires treatment. But the mechanism varies in each case, and treatment must vary in consequence. As a rule, the obesity is the result of some upset in endocrine balance, and treatment must aim to restore the harmonious concerted action. This requires prudent guidance, as he shows by some typical examples. The big, active obese child should eat less meat and fats and make up with fruits and vegetables. The pale, languid obese child should be given substantial food in small compass; with iron and arsenic and organotherapy. Not the scales but the girth of the abdomen should be the guide here. Thyroid treatment, if needed, should be given very cautiously, only three times a week and in small doses, but it may have to be kept up a long time. He adds that the effect of any measures which cause rapid reduction in weight is only ephemeral, and it is obtained only at the expense of the general health. This is the case in children even more than in adults.

Protein Therapy in Children.—Schreiber's conclusion from his review is that this method of treatment is still in a tentative stage. The reaction is liable to be so intense that it is safer to reserve it for exceptional circumstances.

Nourrisson, Paris

March, 1922, **10**, No. 2

Lesions of the Bones in Rickets. A. B. Marfan.—p. 65.
Desiccated Milk in Infant Feeding. E. C. Aviragnet and H. Dorlencourt.—p. 81.
*Septicemia in Infants. H. Lemaire and Turquety.—p. 106.
Roentgen Ray Diagnosis of Beriberi in Infants. Suzuki.—p. 114.

Septicemia in Infants.—Lemaire and Turquety recall that true septicemia is very rare in infants while bacteriemia is common. That is, the bacilli pass into the blood at times but do not proliferate in the blood. This is observed with meningococcus and pneumococcus infection in infants. On the other hand, bacteria were frequently cultivated from the blood when no symptoms suggested septicemia. This latent terminal type of septicemia was encountered in very young infants with gastro-intestinal derangement. The general condition was so grave that there was no reaction to the bacteria proliferating in the blood.

Paris Médical

July 29, 1922, **12**, No. 30

*Asthma in Children. Veyrières and Jumon.—p. 97.
*Artificial Pneumothorax of Second Lung. Hervé.—p. 103.
Bismuth Poisoning. P. Blum.—p. 105.

Asthma in Children.—This article discusses only the asthma occurring in children with an itching skin disease. The dermatosis plus the asthma develops in the young infant and usually becomes attenuated by the fourth or fifth year and disappears as a rule at 8 or 10 or at puberty at latest. The skin and the bronchi react as a double reaction on a given constitutional soil. The local treatment of the skin lesions varies with the form observed. There may be pruritus with eczema at one point and lichen at another or infectious processes. Cod liver oil internally and externally may give good results. The child should occasionally defecate in a vessel containing a little water. If no droplets of fat float on the water, the dose of cod liver oil can be increased. He regards as illusory the fear of metastasis from too vigorous treatment of the dermatosis. Bed rest, a mild saline purge and hot drinks combat the attack of asthma; if very severe, a wet pack to the trunk or packing the legs to the hips in cotton, leaving it for hours at a time. With severe spasms and evidences of bronchiolitis, he gives iodid and belladonna but never for more than three days at a time. The effect of epinephrin and pituitary treatment has been too variable for them to be relied on. All these children have an inherited taint, nervousness, "lymphatism," arthritism or alcohol or coffee intoxication; syphilis was not manifest in the experiences related. All cases of asthma in children which tend to final recovery at or before puberty belong in the category with this *asthme intriqué de dermatoses prurigineuses.* It is a *maladie d'évolution.*

Artificial Pneumothorax.—Hervé reports a few cases which seem to show that satisfactory results may be realized by an artificial pneumothorax on the second lung after the lung first treated with it has apparently recuperated, and has shown no signs of pathologic activity for months since the final release from pressure.

Aug. 5, 1922, **12**, No. 31

Urology in 1922. E. Papin.—p. 113.
*Functional Tests of the Kidneys. M. Chevassu.—p. 117.
Clinical Types of Acute Nephritis. P. Merklen.—p. 126.
Case of Staphylococcus Epididymitis. Dumont and Tissier.—p. 134.
Case of Pneumobacillus Vaginalitis. Dumont and Tissier.—p. 136.
Roentgen Ray Examination of the Kidney. G. Maingot.—p. 137.

Tests of Kidney Functioning.—Chevassu seeks to persuade the general practitioner of the ease and reliability of some of the newer functional tests. The nonspecialist, he says, is too apt to rely on the presence or absence of albumin in the urine for his diagnosis of kidney disease. He overlooks the fact that this is decisive only when the urine is examined just as it leaves the kidney. Otherwise there is admixture of various kinds of secretions falsifying the deductions. He warns further that if one kidney is normal, the global output of urine is usually normal.

Presse Médicale, Paris

Aug. 9, 1922, **30**, No. 63

Plastic Operation on Knee of Woman of 34. C. Lenormant.—p. 677.
*Magnesium Sulphate in Chorea. Paulian and Dragesco.—p. 680.

Intraspinal Injection of Magnesium Sulphate in Chorea.—In three cases of recurring chorea and a very severe first case in another child, marked benefit followed intraspinal injection of 1 c.c. of a 25 per cent. solution of magnesium sulphate. In three of the cases neo-arsphenamin had been given previously without effect. In a case of daily gastric crises in an old syphilitic, this treatment arrested the attacks for two or three days each time, but then they returned. Each injection caused transient paresis, headache and retention of urine.

Progrès Médical, Paris

Aug. 26, 1922, **37**, No. 34

*Pseudotabes: Mumps Polyneuritis. A. Pitres and L. Marchand.—p. 397.
Deficient and Perverted Ovarian Functioning. Dalché.—p. 398.
The Stokes-Adams Syndrome. H. Roger.—p. 400.

Pseudotabes: Polyneuritis Due to Mumps.—In the case described by Pitres and Marchand the polyneuritis developed during convalescence from mumps in the young soldier of 20. The onset was with violent pains and paralysis of all the limbs. The paralysis disappeared rapidly, but a few months later the gait was impaired by paresis and motor incoordination. He was presented to the exemption board with the diagnosis of "pseudotabes from polyneuritis due to mumps, probably curable, but in a period of time impossible to state." He was given a pension based on a disability of 30 per cent. The incoordination remained as the dominant symptom and the principal cause of the functional weakness. The history was negative otherwise.

Schweizerische medizinische Wochenschrift, Basel

Sept. 7, 1922, **52**, No. 36

Therapeutic Abortion and Sterilization from Legal Standpoint. P. Jung.—p. 877. Idem. M. Muret.—p. 882.
*Roentgen Castration of Men. H. R. Schinz.—p. 886
Adenoma of Organ of Zuckerkandl. Hausmann and Getzowa.—p. 889. Cont'd.
Need for Standardization of Thermometers. O. Voegeli.—p. 892.

Roentgen Castration of Men.—Schinz reports what he says is the fifth case on record of intentional roentgen castration of men. His patient was a man of 34, somewhat feebleminded and unable to support his wife and eight children. He was sent by the authorities to be castrated, and this was accomplished by five roentgen exposures in less than three months. Three weeks after the last one no more spermatozoa could be discovered, and this azoospermia has persisted during the eight months to date.

Archivio Italiano di Chirurgia, Bologna

August, 1922, **5**, No. 6

Bassini's Life and Work. A. Austoni.—p. 591.
*Sarcoma of Clavicle; Two Cases. S. Lussana.—p. 621.
*Regeneration of Peripheral Nerves. A. Romani.—p. 639.
*Solitary Cyst in Kidney; Three Cases. E. Caporali.—p. 663.
Malformation of Sella Turcica. M. Battaglia.—p. 690.

Sarcoma of the Clavicle.—In Lussana's two cases the patients were 64 and 66, with negative tuberculin and Wassermann reactions. Pains and tumefaction of the right clavicle had preceded the spontaneous fracture in the woman, but in the man the fracture was the first sign to attract attention. There has been no sign of metastasis or recurrence during the one and two years since the operation. This brings to 114, he says, the number of known cases of primary sarcoma of the clavicle.

Regeneration of Peripheral Nerves After Trauma.—Romani experimented on rabbits, and reports the attempts at regeneration of the sciatic nerve after cauterization with heat, crushing, or other injury.

Solitary Cysts in Kidneys.—In nineteen cases from the literature the age ranged from 14 to 72, and all recovered after the operation except one girl of 17 whose cyst was larger than a child's head. Nephrectomy was done in six cases, but the outcome seemed fully as good after partial resection.

Pediatria, Naples

Sept. 1, 1922, **30**, No. 17

*Tuberculous Antigens in Infants. A. de Capite.—p. 793.
Ether in Treatment of Whooping Cough. R. Mancinelli.—p. 801.
*Tumors at Site of Injection of Camphorated Oil. G. Genoese.—p. 812.
*Pituitary Extract and Diuresis. M. Misasi.—p. 819.
Syphilis, Tuberculosis and the Teeth. C. D'Alise.—p. 823.

The Antigens in Tuberculous Infants.—De Capite tabulates the findings with various tests applied to 12 new-born infants, 28 infants with some form of tuberculosis, 12 with some other disease, and 13 tuberculous older children. The Wildbolz own urine reaction was invariably positive in the infants with active tuberculous foci while it was invariably negative in all the others. It paralleled all the tuberculin tests, and the more active the tuberculous process, the more intense the response. With a negative reaction, the test can be repeated on an allergic person, and thus further light on the process can be obtained.

Tumors at Sites of Injection of Camphorated Oil. — The girl of 4 had required several injections of camphorated oil during measles pneumonia. Six months later, tender tumors formed at the sites of the injections in the gluteal muscles and thigh, actual fibrous sarcoid tumors. Olive oil had been used for the vehicle. There was nothing to suggest tuberculosis or syphilis in the family. No benefit was derived from massage, the roentgen rays or medication, and the tumors were excised. The child is now, a year later, apparently cured although instances of recurrence of such tumors are known.

Pituitary Extract and Diuresis.—Misasi injected from 0.25 to 1 c.c. of pituitary extract in twenty-eight normal children and in ten with kidney disease. In the normal the urine became most concentrated three hours after the injection and had returned to the previous status by the tenth hour. The concentration occurred more rapidly the younger the child. In nurslings, the maximum concentration was reached in an hour and a half, and conditions had returned to normal by the sixth hour. No symptoms of intolerance were noted, not even in the nephritis cases. In two cases of nephritis with edema, the maximum of concentration was not reached till the fourth hour, and the concentration kept up for longer than ten hours.

Policlinico, Rome

July 15, 1922, **29**. Surgical Section No. **7**

*Multiple Cancers of Different Kinds. A. Bertocchi.—p. 361.
*Posttraumatic Syphilitic Lesions. S. Diez.—p. 375.
*Urea Excretion with Tumors. T. Laurenti.—p. 391.
*Tardy Consequences of Trauma of Skull. G. Romano.—p. 411.

Multiple Dissimilar Cancers.—Bertocchi describes the case of a man of 29 with an angiosarcoma in the thigh and an epithelioma in the eye. He compares this with thirty-four analogous cases of dissimilar malignant tumors on record, besides thirteen in which the cancers were of similar structure at remote points in the digestive or sexual system. He gives also a long list of cancers of similar structure in organs of different systems, or in two symmetrical organs, or in different points in the same organ. He also cites the literature on cancer in the skin following lupus, roentgen rays, senile seborrhea, etc., and discusses the theories as to the etiology.

Syphilitic Disease After Trauma.—Diez admits that the trauma induces an area of lessened resistance. This allows the spirochetes already in the tissues to overcome the defensive forces. The resulting lesion may be several months in developing, but the Italian law does not accept an interval of over two years. If there were pre-existent lesions in the area involved, or if there were syphilitic manifestations elsewhere, the causal importance of the trauma is open to doubt. In a case described, the trauma of the knee occurred twenty-two years after an unrecognized and untreated ulcer on the genitals. A year before the street car accident a suspicious lump in the tongue had retrogressed under a brief course of mercury. The trauma had evidently upset the balance between the spirochetes in the body and the defensive forces, allowing the spirochetes to display their pathogenic properties and offering them a point of lesser resistance.

Excretion of Urea with Tumors and Ulcers. — Laurenti gives the details of twenty-six cases of tumors or ulcers in men and twenty-six in women, in which the urea content of the urine was recorded for three days before and after operative treatment. With cancer, the output of urea was always exceptionally small, but under the other conditions it was normal or varied only with the diet.

Tardy Symptoms from Trauma of the Skull.—Romano discusses whether to operate or not when months elapse before cerebral symptoms develop.

Aug. 21, 1922, **29**, No. 34

*Nonoperative Treatment of Rachitic Genu Valgum. S. Crainz.—p. 1097.
*Hemoclastic Test of the Liver. R. Monteleone.—p. 1101.
*Ether in Whooping Cough. G. Genoese.—p. 1105.
Branching Ethmoidal Polyp. G. Bilancioni.—p. 1111.

Rachitic Genu Valgum. — Crainz advocates prolonged modeling of the knee, slowly and gradually forcing it into the normal shape. It takes six months at least and sometimes up to ten. He holds with plaster the correction gained at each sitting, applying the plaster anew each time. He prefers intervals of two or three weeks, and manipulates the joint so gently that anesthesia is not required. The modeling is carried to the limit of bearability and this is a guide which prevents laceration. The correction thus realized may be perfect and is durable.

The Hemoclastic Crisis as Test of Liver Functioning.—Monteleone's experience amply confirms the diagnostic importance of leukopenia and drop in the blood pressure as a positive response to the test ingestion of 200 gm. of milk in case of insufficiency of the liver.

Treatment of Whooping Cough.—Genoese tabulates the findings in another series of fifty children with whooping cough given intramuscular injections of ether. The results are better than with vaccine therapy, he says. The ether treatment can be given even to the youngest, and improves the condition even when it fails to cure. He gave a total of from 2 to 12 c.c. in the different cases, injecting 0.5 c.c. on alternate days. The benefit was most pronounced the earlier this treatment was begun.

Aug. 28, 1922, **29**, No. 35

Vaccine Therapy of Gonococcus Infection. S. Riva.—p. 1129.
*Treatment of Artificial Anus. G. B. Antongiovanni.—p. 1134.
Improved Technic for Spinal Anesthesia. I. di Pace.—p. 1138.

The Closing of an Opening Into the Intestine.—A case is described here in which stenosis developed at the point where the opening had been closed with a skin flap. The interval before the ileus developed was seventeen years, and the plastic operation had been done to close a large opening resulting from a necrotic process after an abscess in the right flank.

Riforma Medica, Naples

July 17, 1922, **38**, No. 29

Anatomy of Precordial Region. C. Rubino.—p. 673.
*Pyotherapy in Tuberculosis. M. Pavone.—p. 674.
*Treatment of Gangrene of Lung. S. Mazza.—p. 676.
*Salicylic Medication. W. Janowski.—p. 677.
Surgical Lesions in Typhoid. E. Aievoli.—p. 679.

Pyotherapy in Tuberculosis.—Pavone relates that the pus from twenty cases of a cold tuberculous abscess caused tuberculosis in a large proportion of guinea-pigs inoculated with it. After centrifuging, decanting and sterilizing, the pus responded positively to hemolysis and other tests for antibodies. The response was most pronounced in the more recent cases. He applied it as adjuvant in treatment of two children with grave tuberculous joint processes with fistulas, and they slowly healed.

Gangrene of the Lung.—Mazza has recently reported the cure of a gangrenous process in the lung under induced pneumothorax in five cases. In another case the pneumothorax was only partial, and he supplemented it by repeated evacuation of the cavity with a trocar and profuse injections of a solution of colloidal silver. Part of this fluid was withdrawn afterward with a syringe, and part was soon expelled through the mouth. Under this treatment the cure was clinically complete in three months.

Salicylic Medication.—Janowski uses an isotonic solution of salicylic acid: 1 mg. of salicylic acid, and 0.7 gm. sodium chlorid in 100 gm. of distilled water. He injects subcutaneously 1 gm. of this in the region of each joint affected with the rheumatism, and lauds its action as far superior to that of sodium salicylate in his twenty-five years of experience.

Rivista di Clinica Pediatrica, Florence

May, 1922, **20**, No. 5

*Response to Subepidermal Injections. M. Camurati.—p. 257.
*Ether in Treatment of Whooping Cough. Z. L. Magni.—p. 285.

June, 1922, **20**, No. 6

Utilization of Fats in Infant Feeding. G. Frontali.—p. 321.
Energy Quotient in Relation to Infant Feeding. Allaria.—p. 347.

Response to Subepidermal Injections.—Camurati found that the skin response was practically identical in 36 of 39 children given subepidermal injections of physiologic saline or pituitary extract, or of epinephrin. On the other hand, in 2 children with diabetes insipidus the reaction to pituitary extract differed notably from that in the other children although alike in these two. He thinks that this experience justifies further research in this line of intradermal pharmacodynamic tests.

Ether in Treatment of Whooping Cough.—Magni reports experiences with intramuscular injection of 1 or 2 c.c. of ether in 35 children with whooping cough. Benefit was observed in all but 9 cases and the cure was complete in 17. He reiterates that this treatment is entirely harmless.

Anales de la Facultad de Medicina, Montevideo

May, 1922, **7**, No. 3

*Perforated Gastric and Duodenal Ulcers. D. Prat.—p. 101.
The Schick Reaction. Mario Ponce de León.—p. 117.
Wassermann Reaction from Clinical Standpoint. L. M. Otero.—p. 131.
Polycystic Kidney. E. Birabén.—p. 136.
Research in Marine Biology. H. J. Rossello.—p. 139.

Perforated Gastric and Duodenal Ulcer.—Prat remarks that the ulcers that perforate are those that have been given long medical treatment. He has operated in 12 such cases, all duodenal ulcers except 4. The only deaths were in 2 of the duodenal cases. The interval since the perforation had been twelve and twenty-two hours in these 2 fatal cases. In 3 other duodenal cases the interval had been twenty-four or seventy hours. The suture of the duodenal perforation always narrows the lumen and invites stenosis. For this reason, mainly, he prefers to supplement the suture with gastro-enterostomy, and by thus removing the cause of the peritonitis the latter harmlessly subsides unless the bacteria are exceptionally virulent. The suture of the perforation should be done with catgut; the serosa with linen thread. He does not dare to use absorbable suture material for both. He has previously reported a case in which a second ulcer and perforation had been overlooked in operating on the first. In conclusion he emphasizes the cyclic course of gastric and duodenal ulcers. Waves of improvement alternate with waves of aggravation, and conditions tend to grow worse with time. Gastro-enterostomy places the patient in the best condition for spontaneous improvement or cure. It realizes, in short, a permanent medical treatment by alkalinization of the stomach content. It does not insure a radical cure, but it is the nearest approach to this, while it wards off the grave complications liable with an ulcer.

Semana Médica, Buenos Aires

June 29, 1922, **1**, No. 26

Diagnosis of Incipient Tuberculosis. G. Aráoz Alfaro.—p. 1073. Cont'd.
*Bilocular Uterus. E. A. Boero.—p. 1076
Convulsions in Inherited Syphilis. J. M. Mácera.—p. 1079.
*Anthrax. R. F. Vaccarezza et al.—p. 1081. Conc'n.
*Retrogression of Epithelioma. M. Helmann.—p. 1111.
Dystocia from Distention in Twin Pregnancy. L. Goldemberg.—p. 1112.

Bilocular Uterus.—In Boero's cases the two women had repeated pregnancies. The second pregnancy in one of the women was in the other half of the uterus from the first pregnancy, and it had not been interfered with by curetting the other half at the second month. Each conception resulted in a viable child. The partition was visible in this case, but in the other woman it was surmised only from the fact that two or three days after normal delivery, labor pains returned and continued until a mass of decidua was expelled.

Protein Therapy of Anthrax.—This is the concluding instalment of this detailed report of extensive experience with treatment of anthrax by specific antiserum, normal beef serum and peptone. The writers are convinced that serotherapy is merely a form of protein therapy, and hence that any protein would probably answer the same purpose. Peptone is free from the disadvantages of other proteins, and their tabulations show that it is fully as effectual as the specific antiserum.

Subsidence of Cancer in the Nose.—Helmann calls attention to the complete retrogression of an epithelioma in the nose of a woman of 90. A scrap was taken for examination confirming the malignant nature and the inoperable character of the growth, but it began to retrogress at once and the nose is now, two and a half years later, without a trace of the cancer. Helmann is physician to the Hospital Rawson, Buenos Aires.

July 6, 1922, **2**, No. 27

*Blocking the Splanchnic Nerves. A. Gutiérrez.—p. 1.
Present Status of Tuberculosis in Children. Garrahan.—p. 17. Cont'd.
*Arsphenamin in Sympathetic Ophthalmia. P. Satanowsky.—p. 34.
Deep Radiotherapy. C. Heuser.—p. 40.
Blocking the Laryngeal Nerve for Cough. A. A. Cetrángolo.—p. 44.
Sexuality, Sensuality and Sensualism. L. Sirlin.—p. 45.
*Alveolar Pyorrhea. F. L. Burnett.—p. 50.
Pay Patients in Public Hospitals. J. S. Passeron.—p. 51. Cont'd.
Organization of the Profession. R. Becco.—p. 54.

Blocking the Splanchnic Nerve.—Gutiérrez' seventeen illustrations show the anatomy of the region and the technic for introducing the anesthetic. In the thirty cases in which he applied it, he used from 70 to 90 c.c. of the 0.5 per cent. solution of procain on one side, and a total of 120 to 170 c.c. for bilateral blocking. He states that the anesthesia was ideal in 23 cases and good in 3, but in 4 it was not satisfactory. He advocates Roussiel's technic for operations on the stomach, and Kappis' for operations on the right side. If the tip of the needle is kept in touch with the body of the vertebra, and if it is not pushed in for more than 11 cm., there need be no fear of injury to the aorta or cava.

Sympathetic Ophthalmia.—Satanowsky states that only 0.07 per cent. of 21,852 war wounds of the eyes were followed by sympathetic ophthalmia during the World War, while in the Franco-Prussian war of 1870 fully 55 per cent. developed it. The last few years have witnessed many cures under arsenical treatment, and she now has a record of 5 cases cured by this means, and knows of 4 additional Argentine cases. In the 17 cases compiled from the literature elsewhere, 75 per cent. were cured, and in her personal experience the cures totaled 88 per cent. A course of neoarsphenamin to a total of 3 gm., with or without a second course, cured the ophthalmia completely in all but one of her 9 cases.

Alveolar Pyorrhea.—Burnett argues that pyorrhea is not primarily of infectious origin but the result of defective deposit of calcium salts in the alveoli. Abnormal conditions develop which invite suppuration. Tests of the calcium content of the blood will reveal the abnormal tendency. He urges special study from this standpoint of persons between 12 and 25 who have had acute infections recently, anemia, rickets, syphilis, or the calcium supply has been depleted by a pregnancy or lactation. He has treated thirty patients on this basis, and the results have been most satisfactory.

Deutsche medizinische Wochenschrift, Leipzig

Aug. 11, 1922, **48**, No. 32

*Changes in Liver After Splenectomy. Nishikawa and Takagi.—p. 1067.
Staining Experiments on the Degeneration of Gonococcus Cultures and Vaccines. A. Buschke and F. Harry.—p. 1068.
Protein Therapy in Relation to Tuberculosis. v. Ohlen.—p. 1069.
Anaphylaxis in Protein Therapy. K. Büttner.—p. 1070.
Differential Diagnosis of Muscular Rigidity in Parkinson's Disease and Parkinsonism. A. Koepchen.—p. 1071.
Retention Mechanism in Duodenum. Weiss and Kreuzfuchs.—p. 1072.
Stomach Pain in Appendicitis. J. Vorschütz.—p. 1073.
Quantitative Determination of Urobilin. L. Pincussen.—p. 1074.
Accident in Relation to Serous Meningitis. G. Rochow.—p. 1075.
Peritonitis After Tonsillar Inflammation. F. Riedel.—p. 1075.
A Peptone Preparation for Bacteriologic Use. Vieth and Kathe.—p. 1076.
Progress in Topical Diagnosis of Brain Disease. Wallenberg.—p. 1077. Conc'n.
Examination of Anterior Portion of Eyeball. Abelsdorff.—p. 1078.

Changes in the Liver After Splenectomy.—In studying the effect of splenectomy on animals, Nishikawa and Takagi experimented with thirty-two white rats. In the rats that died within three weeks after splenectomy they noted in the liver a marked dilatation of the capillaries of the acini, but in the rats that were killed within three weeks no changes were found. After splenectomy, phagocytosis of the red blood corpuscles was brought about by Kupffer's stellate cells, such as never occurs in the liver of normal rats. In normal rats, Kupffer's cells seldom respond to test for iron, but in splenectomized rats the stellate cells were found to contain hemosiderin. Beginning with the third week after splenectomy, the so-called splenic tissue gradually appeared in the liver, evidently for a vicarious spleen function, a compensating process after the loss of the spleen.

Medizinische Klinik, Berlin

Aug. 6, 1922, **18**, No. 32

*Present Status of Theories on Menstruation. A. Seitz.—p. 1013.
The Mechanism of Volitional Movements. F. Quensel.—p. 1017.
*Protein Therapy. R. Göbell.—p. 1020.
Etiology of Recent Epidemic of Influenza. K. Cafasso and T. Konschegg.—p. 1021.
*Serotherapy of Acute Articular Rheumatism. A. Menzer.—p. 1022.
Arsenical Treatment Rouses Malaria. K. Isaac-Krieger and W. Löwenberg.—p. 1024.
*Gastric Ulcer from Hot and Unchewed Food. A. Heiser.—p. 1025.
Prevention of Complications in Gonorrhea. E. Hesse.—p. 1027.
*Auscultation Sign of Effusion. R. Karplus.—p. 1028.
Comparative Serodiagnosis of Syphilis. H. Bering.—p. 1029.
The Duodenal Tube. L. v. Friedrich.—p. 1033. Conc'n.

Menstruation.—Seitz presents evidence that the cyclic sequence of changes in the ovary and in the uterine mucosa, characteristic of menstruation, occur regularly in the animals examined, cattle, dog and cat. In the cow and in the dog, the menstrual process is accompanied by some admixture of blood with the genital discharge. Wild animals have only one period of rut during the year; the dog, cat and goat have two. In the human female the menstrual process begins anew at once after the close of the last; there is no resting period. Throughout the whole series of mammals, the menstrual process is the preparation of the organism for the embedding and the development of the fertilized ovum. The menstrual hemorrhage is merely an accidental occurrence, a symptom announcing the close of the process.

Protein Therapy from Surgical Standpoint.—Göbell remarks that surgeons have long been applying protein therapy without knowing it. When we feed a patient well after an operation for acute suppuration, we protect the albumin bodies formed during the suppurating process, and these are given the chance to display their protein therapy effect. All surgeons have noticed the exceptionally rapid recuperation after acute suppuration, other things being equal, the heart and kidneys not damaged. Transfusion of blood is one form of protein therapy. With chronic secondary anemia, subcutaneous injection of human blood has proved more successful. Bier says that subcutaneous injection of homogenous blood seems to transform the whole internal composition of the body. In one case of pernicious anemia, blood from the woman's daughter was transfused with excellent results. But the woman developed fever at once and it persisted for four weeks. After this, the previously bedridden patient regained full earning capacity. It is possible that the daughter's venous blood contained protein catabolytes in amounts sufficient to induce this fever in the mother.

Serotherapy of Acute Articular Rheumatism.—Menzer declares that he has obtained better results with antistreptococcus serum or vaccine than with salicylates in treatment of acute and chronic articular rheumatism. In subacute and subchronic cases the antistreptococcus serum induced an acute aggravation, and this frequently seemed to be the turning point, improvement and a cure following at once. His experiences in this line were published in 1902, and he was thus the pioneer in shock treatment, he says. His publication in 1902 also emphasized the share of the streptococcus in acute articular rheumatism. No one seems to have heeded his statements at the time, but he hopes that now as shock treatment or protein therapy has got a good footing, it will be applied to articular rheumatism as he urged in 1902. Instead of an antiserum, he has been using lately a polyvalent streptococcus vaccine which he prepared from tonsillitis cases. He applied this in twenty-one of the severer cases, and the heart seemed to be normal when dismissed in all but two; these presented a systolic murmur without enlargement of the heart.

Hot and Defectively Chewed Foods as Factors in Gastric Ulcer.—Heiser states that in 108 gastric ulcer patients in the last two years he found only 4 that were not notorious for insisting on their food and beverages being served very hot, or they were very rapid eaters, or both. He tested the temperature of the soups and beverages served on his family table for several winter months, and was surprised to find the tea in the cup and the soup in the plate from 75 to 81 C. in the summer. When the soup in the plate is at 85, we can assume the temperature is 70 or 80 when it reaches the stomach. Personally, he found temperatures above 70 distasteful, but others relished the higher temperatures. Fluids at a temperature of 70 to 80 may irritate or even blister the skin, especially in prolonged contact. Decker found typical gastric ulcer in two dogs fed with hot gruel, 62 C. But experiments on animals are not needed to corroborate the injurious influence of the scorching, especially when supplemented by the scraping of unchewed food. The hot food is responsible further for hypersecretion of gastric juice; the hyperacidity is due to the stimulation from the heat. This, long continued, may exhaust the secretion, and achylia result. Hot coffee on an empty stomach, year after year, may explain a number of puzzling features of gastric ulcers. Scorching, plus the peptic action of the gastric juice—this is enough to explain many ulcers.

Phonetic Symptom in Diagnosis of Affections in Lungs and Pleura.—The modification in the sound of the vowels was mentioned in these columns recently, page 691. Karplus was the first to call attention to this phenomenon and its import.

Münchener medizinische Wochenschrift, Munich

July 28, 1922, **69**, No. 30

Roentgen Irradiation of Cancer. C. Steinthal.—p. 1105.
Roentgen Irradiation in Tuberculosis of Glands. Stettner.—p. 1107.
*Birth Traumatism of Brain. P. Schwartz.—p. 1110.
*Effect of Ether on Pyogenic Organisms. E. Philipp.—p. 1112.
Selection of Especially Gifted Pupils for Special Instruction. L. Wolfer.—p. 1113.
*A Malpractice Suit. A. Döderlein.—p. 1116.
Interruption of Pregnancy Owing to Danger of Recurrence of Endemic Encephalitis. H. Stursberg.—p. 1117.
Exophthalmos in New-Born Infant. H. Doerfler.—p. 1117.
Postoperative Paralysis of Recurrent Nerve. P. Wehner.—p. 1118.
Postoperative Tetany with Attack of Epilepsy. W. Graef.—p. 1119.
Intra-Uterine Injection of Alcohol to Arrest Hemorrhage. H. Reh.—p. 1120.
Neo-Arsphenamin and Lactose in Recurrent Fever. H. Zeller.—p. 1121.
Mode of Fixation for Retention Catheter. A. Lenz.—p. 1121.
Danger Element in Bladder Drainage with Trocar. Hayn.—p. 1122.
The General Practitioner in Relation to Dental Needs of Patients. Walkhoff.—p. 1125.

Traumatic Injury, at Birth, of Brain of New-Born.—Schwartz has found typical focal processes in the brain in 130 infant cadavers, less than 5 months old, and diffuse pathologic changes in 100 others. In 65 per cent. of all new-born dying within five months he found effects of birth trauma: hemorrhages and softening that could be discerned with the naked eye. From his observations he is inclined to conclude that the pathology and pathologic anatomy of the earliest period of infancy is determined mainly by birth injuries of the central nervous system.

Bactericidal Effect of Ether on Pyogenic Organisms.—Philipp refers to ether lavage of the peritoneal cavity and statements that ether is the best antiseptic for the peritoneum. The recent announcement of Warnekros' method of introducing ether vapors into the uterine cavity after the evacuation of the fetus in septic abortion was the occasion that caused him to begin a series of investigations on the bactericidal power of ether vapors when brought in contact with pyogenic organisms (streptococcus, staphylococcus, colon bacillus). He discovered that these organisms were killed by ether vapors in about the same time (from ten to twenty minutes) as by 1 and 2 per cent. solutions of phenol. There was a direct parallelism in the degree of resistance displayed toward phenol and ether by the various organisms. Philipp is convinced that the procedure by which ether vapors are introduced into the infected uterine cavity constitutes a form of treatment which will prove a valuable ally in the active treatment of septic abortion. He regards as especially favorable the fact that the ether passes into the uterus under high pressure and at a high temperature, thus reaching the deep-lying bacteria. Warnekros asserts that the procedure is harmless.

A Malpractice Suit.—Döderlein here begins a series of articles relating his experience as medicolegal expert in suits brought against physicians for malpractice. In the one here described the two physicians who had together induced therapeutic abortion in the tuberculous woman were held responsible for her death from sepsis. He proved that there was no malpractice, although personally he is inclined to ascribe the infection to the laminaria tent. It was taken directly from a fused tube, but it may have become infected from bacteria from the vagina during the twenty-four hours it was in place. The "eczema" on the left hand of one of the physicians was a mercuric chlorid injury in disinfection, and could not have been responsible in any way for the patient's infection.

Wiener klinische Wochenschrift, Vienna

July 27, 1922, **35**, No. 30

*Arteriosclerosis and Arteriolosclerosis. J. Pal.—p. 647.
The Theory of Inflammation. F. Röder.—p. 651.
Urologic Significance of Blood Sedimentation Test. Pewny.—p. 655.
Avulsion of Calcaneal Tuberosity. A. Mülleder.—p. 656.
Radioactive Baths and Wassermann Reaction. Mittenzwey.—p. 657.

Arteriosclerosis and Arteriolosclerosis.—Pal states that patients suffering from arteriosclerosis (with and without heart symptoms) must be compelled to watch carefully over the water balance of the organism. In advanced stages they must be put on as low a fluid intake as possible, and, at the same time, the water content of the food must be considered. For the same reason, alcoholic beverages should be used very sparingly or prohibited entirely. It should also be borne in mind that patients with arteriosclerosis are especially sensitive to vascular poisons. Beer is detrimental because of the carbonic acid it contains. All beverages with carbonic acid should be avoided, as far as possible. In order to combat the results of excesses in the fluid intake, he prescribes for patients with arteriosclerosis a diuretic, once or twice a week. The assumption that theobromin and iodin exercise any curative effect on the process is unfounded. The belief that they reduce the blood pressure is not substantiated. Diuretin has a dilating effect on the coronary and renal arteries; also on the bronchi, and, owing to the former action, is likely to lessen high blood pressure when there are no rigid anatomic changes. Iodin cannot be regarded as a remedy in nonsyphilitic arteriosclerosis, even though it may sometimes lower the blood pressure. It should not be overlooked that following the use of iodin occasionally considerable loss of body weight results, which is not such an indifferent matter.

Zeitschrift für urologische Chirurgie, Berlin

July 31, 1922, **9**, No. 4-5, Zuckerkandl Memorial Number

Nephrectomy in Renal Tuberculosis. T. Cohn.—p. 129.
*Diagnosis and Operation for Accessory Kidney. A. Müller.—p. 141.
Unilateral Fused Kidneys. A. Hyman (New York).—p. 157.
*Hydronephrotic Destruction of Kidney. E. Kornitzer.—p. 165.
*Cystoscopic Errors. L. Kielleuthner.—p. 171.
*Drip Evacuation of the Bladder. E. Heinburg.—p. 183.
*Undescended Testicles. R. Lichtenstern.—p. 185.
Anuria with Congenital Single Kidney. A. Heymann.—p. 193.
*Bladder Diverticulum. H. G. Pleschner.—p. 197.
Cystic Dilation of Lower Ureter. I. Richter.—p. 219.
*Incrusted Ulcer of Bladder R. Paschkis.—p. 230.
*Contracted Bladder. Idem.—p. 243.
*Elusive Ulcer of Bladder. H. L. Kretschmer (Chicago).—p. 257.
*Hydronephrosis. K. Frank and R. Glas.—p. 274.
Perineal Prostatectomy E. Felber.—p. 390.
*Unilateral Blood-Borne Infection of Kidney. A. Lieben.—p. 399.
Chronic Perinephritis. F. Necker.—p. 409.
Traumatic Stricture of Female Urethra. D. Teleky.—p. 424.

Accessory Kidney.—Müller diagnosed the condition correctly in the woman of 28, and successfully removed the accessory organ which was attached to the lower pole of the right kidney. Five months later he encountered another case. The supernumerary kidney in this case was the upper one on the left side, and both organs seemed to have been destroyed by hydronephrosis, so that the whole mass of the double organ had to be removed, with the extremely distended ureters down to the bladder. The girl of 18 rapidly recovered after the operation. The literature on supernumerary kidneys is compared with these experiences, and the danger of overlooking such an anomaly is emphasized. Geisinger removed the appendix and then resected the colon without modifying the clinical picture, but then cystoscopy revealed the double kidney with pyelitis in one half. A prompt cure followed systematic rinsing out of the kidney pelvis. Even when there are only two ureter mouths, pyelography will usually reveal the bifurcation above, but even pyelography failed to aid the diagnosis in one of his cases. Catheterization may answer the purpose, without pyelography. The possibility of kidney anomalies should be borne in mind in all vague abdominal disturbances. A mild pyelitis may yield to local measures without harm. It is usually impossible to tell before the kidney is exposed how much of an operation will be required. He cites twenty instances of resection of the diseased half of the double organ.

Destruction of Kidney from Hydronephrosis.—Kornitzer shows how the circulation in a hydronephrotic kidney is inevitably impaired or totally shut off.

Errors in Cystoscopic Diagnosis of Bladder Tumors.—Blood clots in the bladder have been mistaken for a tumor, and led to a useless operation. Cystic dilation of the lower end of the ureter is another misleading finding, as also protrusion of the bladder wall pressed against by some uterine tumor or ovarian cyst. A calculus in the bladder may simulate a tumor, especially when coated thick with fibrin and clots. An incrusted tumor may resemble a calculus. Swelling of the entrance of a diverticulum may be mistaken for a tumor, and this mistake is also liable with the manifestations of the third stage of syphilis. A case is described which is claimed to be the first to be published in which the diagnosis was confirmed by necropsy. The gumma in this case looked like a small wheal such as develops after the sting of a bee, without so much vascularization as is commonly seen with a malignant tumor, and it looked pale in comparison to the congested zone around. The stranguria, bleeding and cystitis increased the resemblance to a malignant tumor. A colored plate reproduces the cystoscopic picture. The patient was a woman of 44 of good family and no history of syphilis, but the Wassermann test was two plus, and three weeks after cholecystectomy for gallstones a course of arsphenamin treatment was begun. Fatal hemorrhagic encephalitis developed after the second injection.

Catheter Dropper.—Heinburg introduces a glass dropper, such as is used for the eye, into the outer end of the catheter. This allows slow, gradual evacuation of the bladder, and thus avoids the dangers from rapid changes in pressure which might entail fatal hemorrhage from some arteriosclerotic vessel.

Cryptorchidism. — Lichtenstern urges the necessity for operative correction of bilateral undescended testicles. The best age for it is between 8 and 10, and he advocates funiculopexy. He applied it in eight cases described, and the boys have developed approximately normally since. In about half the cases only one testicle grew to normal shape and consistency, confirming that the ectopic testicles are often substandard to begin with. The incision reaches from the top of the testicle to the bottom of the scrotal sac, and the bed for the testicle is made amply large. Then the spermatic cord is sutured with the finest silk sutures to the tissues underneath, that is, to the superficial fascia. The connective tissue covering of the spermatic cord is all that is taken up in the suture, carefully avoiding any interference with the blood supply. The sutures are continued only down to the beginning of the vas deferens. Local anesthesia suffices. The interval since the operation has been from one to five years, and the previous tendency to atrophy of the genitals, etc., seems to have been completely overcome.

Diverticulum of the Bladder.—Pleschner was able to correct the anomaly by an extraperitoneal operation, obliterating the diverticulum extravesically, in four of the twelve cases reported. In four others the extirpation was transvesical. The outcome was not entirely satisfactory as there is still residual urine of 50 to 150 c.c. although the patients have been freed of all subjective disturbances. In over 72 per cent. of the cases the prostate was abnormally large or small, although the changes were not enough to call for prostatectomy. He thinks that the diverticulum probably develops with advancing years, like hypertrophy of the prostate. Some case may require operative correction while in others local measures alone may improve conditions enough.

Incrusted Ulcer of the Bladder.—In one of Paschkis' twelve cases the first symptoms appeared after a puerperal pelvic peritonitis. In the few cases of incrusted ulceration on record, quite a large proportion had developed likewise after a childbirth. Eight of his twelve patients were men. He regards incrusted ulcer as a morbid entity of unknown cause, distinct from incrusted cystitis. Aside from the puerperal group, there had been preceding disease of the kidney or ureter in every case.

Contracted Bladder.—Paschkis describes eighteen cases of contracted bladder in which a number of various causes must be incriminated. When local treatment with medicated oil fails to cure, a suprapubic incision is the only recourse, and in many cases the ureter has to be sutured to the skin, excluding the bladder, with or without a plastic operation later. In one of his cases the bladder was smaller than a walnut, but conditions improved under a suprapubic fistula for several months and expulsion of a kidney calculus. The young man's symptoms from the bladder had been first noted during a gonococcus arthritis in 1907, and several courses of treatment were necessary, but for some years conditions have been clinically normal. An exploratory incision had shown in 1908 that both kidneys and ureters were normal.

Elusive Ulcer of the Bladder.—Kretschmer reported in The Journal, April 9, 1921, p. 990, five cases of this type, and he here reports other cases encountered since, bringing the total to fourteen. Local medical measures merely seem to aggravate conditions in these cases.

Hydronephrosis.—Frank and Glas review the experiences with hydronephrosis at Zuckerkandl's clinic, giving the details of 62 cases. They add twenty pages of bibliographic titles, set solid. Their final conclusion is that although nephrectomy is a "rough" method of treatment, yet nothing else will answer in many cases. Operative treatment was required in 52 of the cases reported, but the actual cause responsible for the anomaly was discovered only in 33 cases.

Unilateral Blood-Borne Nephritis. — Lieben applied nephrectomy promptly in three of the four cases of hematogenous suppuration reported, and the results were excellent. In the other case there had been bilateral nephritis for ten years before the suppuration in the kidney followed a carbuncle. Complete recovery of the surgical affection followed decapsulation, incision of the small abscesses and ample drainage. Nephrectomy does not guarantee against infection of the other kidney; in Hessert's case the remaining kidney developed the same affection. This was probable also in one of the cases here, six months after the nephrectomy, but the symptoms subsided in a week of bed rest and hexamethylenamin.

Zeitschrift für Urologie, Leipzig

1922, **16**, No. 8

Transillumination of Urethra. N. E. Aronstam (Detroit.)—p. 345.
*Diagnosis of Kidney Cancer. M. Liebmann.—p. 347.
Mishaps with Pyelography. A. Narath.—p. 365.

Diagnosis of Malignant Tumor of the Kidneys.—Liebmann tabulates the details in ten cases in adults and two in children between 2 and 3. Metastasis proved fatal in the children and also in several of the adults. The outcome is not known in several, but one man of 46 has been entirely well since the removal of the hypernephroma early in 1915. Hematuria had preceded by several months the pains and the discovery of the tumor. The capsule had not been perforated in this case.

Zentralblatt für Chirurgie, Leipzig

June 10, 1922, **49**, No. 23

An Interesting Letter of Langenbeck's. J. Küttner.—p. 826.
Causal Treatment of Gastric Ulcer. V. Orator.—p. 827.
Drainage after Goiter Operations. K. Propping.—p. 829.
The Use of Anesthetics. E. v. der Porten.—p. 830.
*Roentgenography of Cerebral Ventricles. O. Jüngling.—p. 833.
Conduction Anesthesia Applied to the Legs. Wiedhopf.—p. 836.

Injection of Oxygen into Cerebral Ventricles for Roentgenographic Diagnosis.—Jüngling gives his experience with the Dandy method for the localization of brain tumors. He has used the method in many cases and found that it gave excellent results. He punctures ordinarily an anterior cornu at the lowest point, that the gas may rise and the fluid may flow off through the cannula. The anterior cornu is most easily accessible and seems best adapted to receive the injections, because from here the gas can spread in both directions, through the foramen of Monro. He punctures on the side where no tumor is suspected, in order, if possible, to strike a distended ventricle. The patient lies in the prone position. If a table without a proper head rest is used, the head must project beyond the table, the brow supported. The median line is marked with silver nitrate. As the site of puncture, a point five or six finger breadths above the eyebrows and one and a half finger breadths to the right or left of the median line is chosen. In local anesthesia, he makes a semicircular flap incision about 2 cm. across. The bone is trephined with a hand trephine. A flap incision is recommended in order that in case an external hydrocephalus is encountered, in suturing the wound after puncture a tight closure of the bone defect may be secured. Puncture is very easy with internal hydrocephalus, but it may be difficult if the ventricle is only slightly distended. As soon as the needle has penetrated the ventricle, soft dental plaster is applied around the needle, where it hardens in a few minutes. Since using this device he has had no further trouble with the needle slipping out. He draws 10 c.c. of fluid from the ventricle into the two-tubed syringe; injects it into the cylinder containing oxygen, and then injects 10 c.c. of oxygen into the ventricle. In this manner from 60 to 80 c.c., at the most, is injected. If the ventricle is not distended, scarcely more than from 20 to 25 c.c. of oxygen can be injected. After the cannula is removed, the skin flap is restored to its place and tightly sutured. In making the roentgenograms he follows Dandy's procedure, but uses sterile oxygen in preference to air (as used by Dandy), as it is more rapidly absorbed and guarantees against infection.

Zentralblatt für Gynäkologie, Leipzig

June 4, 1922, **46**, No. 22

*Embryotomy Versus Extraperitoneal Cesarean Section. O. Küstner.—p. 882.
*Cesarean Section Before the Onset of Labor Pains. O. Prinzing.—p. 890.
*Prevention of Postoperative Adhesions. F. Rick.—p. 896.
Some Interesting Congenital Malformations. N. Ellerbroek.—p. 898.
Isolated Torsion of Normal Tube. B. Michel.—p. 905.

Perforation of the Living Child in Relation to Extraperitoneal Cesarean Section.—Küstner reports that in his clinic at Breslau 200 extraperitoneal cesarean sections have been carried out, and since the introduction of the extraperitoneal method of cesarean section not a single perforation of a living child has taken place. Of the 200 mothers, all but two survived, the two dying from peritoneal sepsis. In this connection, he discusses von Redwitz' recent report from Döderlein's clinic. While Döderlein is an advocate of extraperitoneal cesarean section, in certain cases he rejects it and does a perforation of the living child. From 1908 to 1918, there were forty-one cases in which perforation of the living child was applied. Küstner discusses von Redwitz' report and endeavors to show that in most of the forty-one cases perforation was unnecessary and unjustifiable.

Cesarean Section Before the Onset of Labor Pains.—Prinzing states that most writers seem to be agreed that cesarean section should not be performed until strong uterine contractions have occurred and the os is dilated. He refers to Bumm's statement that the danger from atony is much less if the patient is well advanced in labor, whereas, in cesarean section during pregnancy or at the beginning of childbirth, the operator has to contend with a relaxed uterus and inadequate contraction. Küstner demands as prerequisite a distention of the lower uterine segment and dilatation of the os to about the size of a silver dollar. Vogt even demands, in case the os is too narrow after extraction of the child, artificial widening of the os with Hegar's dilators, to 22 mm. Out of 255 cases of cesarean section, 18 were on account of placenta praevia. No mortality for mother or child resulted in 8 of the latter performed before the onset of labor. In 3 of these 8 cases a marked hemorrhage occurred, owing to poor contraction of the lower uterine segment, but a pituitary and an ergot preparation or mechanical irritation (in one case, temporary tamponing of the uterus) always promptly checked the blood flow. Prinzing holds therefore that, in case of a previous enucleation of a myoma, a former cesarean section or placenta praevia, the earliest possible intervention is absolutely necessary in the interest of the mother.

Prevention of Postoperative Formation of Adhesions.—Rick relates that, on one occasion, when, at the end of a laparotomy which had taken longer than usual and had resulted in considerable loss of blood, he wished to give an infusion of sodium chlorid, the irrigator for some reason or other was not at once available. In this emergency he hit upon the plan of pouring in from 0.5 to 1 liter of warm, physiologic sodium chlorid solution. The intestine had become chilled and the peritoneum, in part, dry and dull looking. The introduction of the fluid had an astonishingly rapid freshening effect on the peritoneum. It became smooth and glistening. He could also note distinctly that the vessels of the omentum were better filled. Since that time he has used the procedure regularly with these objects in view: prevention of postoperative adhesions by direct irrigation of the peritoneum; rapid warming of the intestine; replacement of the blood loss by intraperitoneal infusion instead of by intramuscular or intravenous injection, and relief of postoperative thirst.

Polska Gazeta Lekarska, Warsaw

June 11, 1922, **1**, No. 24

Influence of Pharmacodynamic Actions on Inflammatory Dermo-Reactions. I. Hescheles and S. Progulski.—p. 485.
*The Importance of Tonsils. A. Laskiewicz.—p. 485.
*Origin of Cancer from the Basal Cells. A. Siedlecka.—p. 489.
Fat Embolism of the Lungs and Its Medicolegal Importance. J. Olbrycht.—p. 489. Cont'd.
Excesses of Salt-Free Diet. S. Sterling.—p. 493.
Treatment with Colloids and Protein Therapy. R. Rencki.—p. 494.

The Importance of Tonsils.—Laskiewicz outlining the different theories on the functions of tonsils from the beginning, comes to the conclusion, that theory as well as the practice of every day of life to which Baurowicz calls special attention, do not in any way support the theory of protecting functions of the tonsils against invasion by micro-organisms, as given by Brieger and Görke and then so strongly supported clinically by Fränkel. Laskiewicz concludes that this protection is afforded not by the tonsils alone, but also by the small superficial lymphatic glands of Schaffer, which are distributed all over the mucosa of the mouth and throat. Discussing functions of the tonsils alone, without taking into consideration these others will always bring us only to speculation on this question.

On the Origin of Cancer from Basal Cells.—Siedlecka submits here a pathologic specimen which illustrates fully all the specific characteristics of so-called "cancer of Krompecher" (*Basalzellenkrebs*), which the latter described in 1900. [Compare with abstract on page 1371.]

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

July 1, 1922, **2**, No. 1

*Mongoloid Idiocy in Twins. T. Halbertsma.—p. 22.
Plastic Operation on Lacrimal Canal. C. E. Benjamins and L. H. van Romunde.—p. 33.
Active Prophylaxis Against Diphtheria. J. T. Terburgh.—p. 36.
Pseudotetanus in Boy of Twelve. J. Burck.—p. 39.
*Present Status of Hemoclastic Crisis J. Goudsmit.—p. 41.
History of Hydrostatic Lung Test. J. P. L. Hulst.—p. 57.
Venesection in Art. G. van Rijnberk.—p. 75.

Mongoloid Idiocy in Twins.—Halbertsma has found records of nine cases in which one of a pair of twins presented mongoloid idiocy. He analyzes them and reports further five similar cases. The twins were of opposite sexes in all but one instance, and a bivitelline pregnancy may be assumed. In two further cases the sexes were the same, and both twins were of the mongolian idiot type. These two cases sustain the assumption of an endogenous origin, either the ovum or the spermatozoon or both being abnormal. He inclines to incriminate the ovum, as the mothers were mostly close to the extreme end of the reproductive period, and exhausted by numerous pregnancies. In his cases, the women were 35, 41, 43 and 44 years old. He adds that he does not include in his list the case described by McLean in The Journal, Jan. 7, 1922, p. 13, as he does not regard it as a case of actual mongolian idiocy.

The Hemoclastic Crisis.—Goudsmit explains that the hemoclastic crisis is a very sensitive reaction to any upset in the balance of the colloids in the blood stream, and hence is a delicate test for abnormal conditions in liver functioning. The upset in the balance from colloids getting into the blood stream can be warded off in animals by injection of atropin, while pilocarpin exaggerates it. This suggests a close connection between "protein shock" and the involuntary nervous system. Santenoise recently confirmed this by the drop from 6,800 leukocytes to 3,500 after one minute's compression of the eyeballs. Leukopenia is also observed under ethyl chlorid freezing of a finger, irritating a nerve, etc. The vegetative nervous system thus participates in the reaction to the colloid upset, and the hemoclastic crisis may thus throw light on the functioning of the vegetative nervous system. On the other hand, when the number of leukocytes is high, it is liable to fluctuate spontaneously.

Acta Chirurgica Scandinavica, Stockholm

July 15, 1922, **55**, No. 1

*Hare-Lip and Cleft Palate. E. Edberg.—p. 1.
*Dangers of Intraspinal Anesthesia. S. Widerøe and S. Dahlström.—p. 27.
*Exstrophy of Bladder. E. Brattström.—p. 33.
Transactions of Orthopedic Congress. S. Johansson.—p. 38.
Treatment of Gastric and Duodenal Ulcer. N. A. Nielsen.—p. 57.

Congenital Malformation of Lip or Palate.—Edberg discusses the manifest familial occurrence of certain malformations, remarking that it may be the physician's duty to warn the family of this liability for other children, born later, to present the same deformity. He knows families with several cases of congenital luxation of the hip joint, with pronounced inheritance from the mother; other families display a tendency to frequent inguinal hernia, talipes, harelip or cleft palate. He estimates that of the 125,000 children born in Sweden each year, about 130 have harelip or cleft palate. In a recent five year period he found records of 775 cases among the new-born, and has encountered 214 cases himself. It seems to occur in boys 14 per cent. oftener than in girls. Talipes is proportionately more frequent in boys than in girls, while the reverse proportions prevail in luxation of the hip joint. With harelip and cleft palate direct heredity of the deformity was evident in 2.3 per cent.; in 3.7 there was coincidence in brothers or sisters, and a combination of deformities was known in 5.1 per cent. He advocates correction of the lip deformity when the child is 3 weeks old; only exceptionally should it be deferred to the third month. The operation on the palate should be postponed till after the correction of the lip anomaly and until the child is 2 or 3 years old.

Dangers of Intraspinal Anesthesia.—The literature on this subject is reviewed and a theoretical explanation offered.

Exstrophy of the Bladder.—Five cases of exstrophy of the bladder have been encountered in Petrén's service at Lund in the last twenty years. In three of them Borelius' modification of Maydl's method was applied. One boy of 14 has been healthy and continent since the operation in 1903. One infant of 14 months died the same day from unknown cause. The condition is satisfactory in the other child who was over 2 at the time of the operation in 1920.

Acta Pediatrica, Stockholm

July 31, 1922, **2**, No. 1

*Metabolism of Prematurely Born Infants. B. Hamilton.—p. 1.
*Erythema Nodosum and Tuberculosis. A. Wallgren.—p. 85.
*The Diazo Reaction in Measles. N. Malmberg.—p. 101.

The Calcium and Phosphorus Metabolism of Prematurely Born Infants.—Hamilton reports (in English) exhaustive research on four prematurely born infants. Everything tends to show that infants at term are born with a surplus of calcium, while this is lacking in the prematurely born. The calcium intake of these four premature studied was evidently inadequate to meet their metabolic demands. If this conclusion is correct, then it would be of the greatest interest to determine whether treatment of this supposed calcium deficit might not ward off the rickets and other pathologic conditions so common in the prematurely born.

Erythema Nodosum and Tuberculosis.—Wallgren argues that erythema nodosum is a pathologic entity. When observed with tuberculosis the coincidence is merely casual. (In German.)

The Diazo Reaction in Measles.—Malmberg found a positive diazo reaction in 73 per cent. of the thirty-three cases of measles investigated. There seemed to be a direct connection between it and the number of leukocytes, the reaction becoming positive as the numbers declined, and dying out as the leukocyte count returned to normal.

Ugeskrift for Læger, Copenhagen

Aug. 3, 1922, **84**, No. 31

Fatal Syphilis of Liver in Young Prostitute. K. Bierring.—p. 969.
*Vegetable Diet in Diabetes. V. Scheel.—p. 980.

Vegetable Diet in Diabetes.—Scheel relates that when his diabetic patients were suffering from the dietetic restrictions of strict antidiabetes diet, an occasional change to other diet was a great advantage at times. The acidosis subsides and although the glycosuria and glycemia may increase, the patients feel better and stronger. He argues that the aim of treatment should be not to prolong life at the expense of what makes life worth living, but to keep the earning capacity and general condition good during the time the patient is living. The ration he orders contains 50 gm. brown beans or 50 gm. nut meats, 50 gm. green vegetables and 1 lemon. The total protein is 50 gm.; the fat 140 to 170 gm., and the carbohydrates 200 gm. Every two or three weeks he allows three meat days, 250 gm. of meat plus 500 gm. of vegetables and 50 gm. of butter, preceding and following the meat days with a strictly vegetable day. The acidosis increases, but the patients feel much better and stronger.

Upsala Läkareförenings Förhandlingar, Upsala

Aug. 5, 1922, **27**, No. 3-4

*Function of the Thymus. J. A. Hammar.—p. 147.
*Traumatic Rupture of Biliary Passages. H. Rudberg.—p. 223.
The Yellow Zone in the Spectrum. G. F. Göthlin.—p. 255.
*Fatal Hemorrhages from the Lungs. A. Kristenson.—p. 279.

Function of the Thymus.—This is Hammar's twenty-seventh publication on the thymus gland. For more than twenty years he has made a special study of this organ, investigating the thymus in nearly 300 normal and nearly 500 pathologic cases. He says that the Hassall corpuscles seem to represent the essential functional changes, and form the morphologic expression of antitoxic activity. None of the evidence as to an internal secretion from the thymus is conclusive. All the changes that have been observed after thymectomy can be explained as the result of injuries of a toxic nature, which are neutralized in the intact animal. His research has apparently demonstrated that the thymus is not a transitory organ but functions up to old age. At puberty, its parenchyma begins to be reduced but this age involution does not check the antitoxic action of the thymus. His microscopic analysis of thirty-seven cases of sudden death of children from internal causes, which might be classed as "thymus deaths," showed that the thymus was of normal size and apparently of normal structure in all but five. The article is in English, and Hammar gives thirteen pages of bibliographic references and urges further research on the factors that stimulate and depress the formation of Hassall's corpuscles and the lymphocytosis in the thymus. For this, he says, we need a more extensive knowledge of other endocrine organs and of the real lymphoid tissue. The thymus is never found normal after death from disease or in extreme inanition. Roentgen irradiation disintegrates the lymphocytes, and the thymus is changed in this way to be a purely epithelial organ for a time.

Traumatic Rupture of the Biliary Passages.—Rudberg compares a case personally observed with 41 he has found on record, and refers to Amante's compilation of 101 cases of rupture from contusion plus 25 cases of stab wound of the gallbladder. The ages ranged from 20 months to 60 years. In the 7 cases in which no operation was attempted, death followed in from half an hour to eight weeks, as also in 5 of the 6 cases in which the abdomen was merely punctured. In the sixth case in this group, the young man recovered after a right pleuritis. The puncture three days after the accident had released ¾ l. of a bile-stained fluid, but in two months recovery seemed complete. In Garré's case the ruptured hepatic duct was sutured, and a year later a new operation was required on account of cicatricial stenosis in the man of 37. In Rudberg's own case, the rupture was in the common bile duct. Although the access was ample for suture, it was not attempted for fear of stenosis later, and spontaneous healing was hoped for. A drainage tube was placed at the point of the rupture and another at an adjacent loop of bowel showing fresh fibrin deposits. The abdomen was then sutured; the tubes were removed the sixth day. The flow of bile gradually declined, and the patient was dismissed in two months, although a third month elapsed before the seeping of bile into the dressing had entirely ceased. The man felt well all the time and has never had any symptoms from the biliary apparatus during the four years since. The diagnosis at first had been rupture of the bowel, and the median laparotomy had to be supplemented by a second incision below the right diaphragm.

Fatal Hemorrhages from the Lungs.—Kristenson reports a case of sudden fatal hemorrhage into a bronchus. A tuberculous gland had arroded the pulmonary artery. There was no cavity. In 1,147 tuberculous patients at the Upsala hospital, 47 per cent. had hemorrhage from the lungs, and 2 per cent. in this group succumbed to suffocation from the blood.

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FAULTY DIET AND ITS RELATION TO THE STRUCTURE OF BONE *

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It is not so many years ago that students of nutrition were told that a perfect diet must include at least sufficient protein to replace that which was consumed by the life processes of the body, and energy-furnishing substances (carbohydrate and fat), as well as sodium, calcium, potassium, magnesium, iron, sulphur, phosphorus and chlorin. The latter substances, except sulphur, could be taken in as inorganic salts.

When, however, it became possible through the advances in physiologicochemical methods to obtain sufficient amounts of purified proteins and amino-acids, feeding experiments were begun to ascertain, if possible, the relative biologic value of various dietary constituents. Analysis of diet by biologic methods (feeding experiments) soon showed that the foregoing food constituents were not in themselves sufficient to maintain life and function in the animal body.

For many years the attention of physicians had been directed toward diet as a factor in the production of scurvy on land and sea, and the work of Takagi in the Japanese navy and of Eijkman had still more recently accented the importance of food in connection with beriberi. Eijkman, who was a Dutch colonial prison physician, noticed that the chickens fed on the polished rice thrown out as refuse from the prison kitchens developed a disease which he called polyneuritis gallinarum, analogous to the human type of beriberi, with which his wards were filled. Further studies of the experimental disease showed that it was curable and preventable if rice polishings (pericarp of the grains) or extracts from them were fed.

From such dietary studies we now know that, besides protein, fat, carbohydrate and salts, the daily food must contain certain substances which have been provisionally termed vitamins.

The nature of these substances is unknown. There are at least three of them: (1) fat-soluble A, (2) water-soluble B and (3) water-soluble C. The first is contained in leafy vegetables, in butter-fat, in the fat of glandular organs, in yolk fat and in actively growing tissues. The second is almost universal in its distribution, but is absent from most fats and is very scantily present in muscle meats. The chief source of the third is from certain citrus fruits, such as oranges, tangerines and lemons, and some vegetables, such as cabbage and scurvy grass. The sweet lime contains almost none of it.

Of these three substances, the second is the least, and the third the most easily destroyed. They are all sensitive to some degree toward heat and oxidation. Thus, while the wide distribution of the vitamins would seem to make their complete absence from any fairly varied diet impossible, the processes which are used in preparing, cooking and preserving foodstuffs today often cause apparently satisfactory regimens to furnish an insufficient supply of these important nutritional factors.

I have intimated that beriberi may result from a deficiency of water-soluble B. In the same way, scurvy follows on the heels of diets deficient in water-soluble C, and an eye disease known as xerophthalmia results from absence of fat-soluble A from the food. Xerophthalmia is not seen in adults in this country, but is occasionally met in certain types of malnutrition in children. On the other hand, it is common in the Orient, and in countries which have suffered severely from war or famine It is characterized by night blindness, photophobia, edema of the eyelids, and dryness of the cornea and conjunctiva. As the disease progresses, infection supervenes and hypopyon develops. The cornea ulcerates and may be lost, and a panophthalmitis may follow, which is finished by destruction of the entire eye. Because of the association of the various vitamins with the production and cure of deficiency diseases, the vitamins have received the names antiophthalmic, antineuritic or antiberiberi, and antiscorbutic substances, respectively.

Custom has sanctioned the use of the term deficiency diseases to describe scurvy, beriberi and xerophthalmia. Many authors would include under this term also rickets, war or famine edema, pellagra and such intestinal conditions as mucous colitis and intestinal ulcerations.

The time has come, however, to sound a warning against attributing every pathologic state which appears during periods of deficient feeding to insufficient intake of vitamins or even to the bad diet alone. We are but just now beginning to be able to analyze diets, and many which were a few years ago considered adequate except for one factor now appear to have a deficit in several factors. It is probably true that vitamin deficiency plays a part in the production of certain states of malnutrition in man, but it is equally true that single deficiencies in the diet of human beings are seldom found. Deficiency diseases in man usually have a complex etiology, and the dietary defects which produce them are often not alone the lack of vitamins. They are almost always complicated by the effects

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of feeding low or incomplete protein and, not infrequently, improper amounts of carbohydrates and salts. Moreover, it is difficult to say in many cases at what point the effects of defective food are complicated by the results of the invasion of the weakened tissue by pathogenic micro-organisms.

It is necessary also to point out the fact that we have indications that the need of the organism for vitamins is in some measure dependent on the amount of, and relation between, other factors in the diet. It is much more difficult, for example, to produce xerophthalmia in an animal when only the fat-soluble A content of the diet is low than if other faults coexist.

We began a study of the bones of animals which had been fed on faulty food in the hope of finding out the factors which operate to produce rickets. We were soon surprised to find, however, that bone, which we usually consider as a tissue with relatively firmly fixed characteristics, is one of the most labile of all the body tissues and the most easily and profoundly influenced by relatively slight changes in the diet. In view of this fact, the production and the study of rickets in our animals was relegated to secondary importance beside the larger biologic aspect of the problem, the study of the growth and physiology of bone.

This study, which has only just begun, reveals that several dietetic principles are concerned in the growth of bone:

(1) An uncharacterized organic substance which is distinct from fat-soluble A. This is to be found in certain oils, notably those of the cod, burbot and shark livers in large amounts. It is present in very small quantities in butter fat and in coconut oil, from the latter of which fat-soluble A is missing. It may belong to the group of vitamins. All we now know of its chemical nature is that it is much more resistant to heat and oxidation than is fat-soluble A.

(2) Calcium and (3) phosphorus, (4) water-soluble B and (5) fat-soluble A. Water-soluble C influences the structure of the bone of the guinea-pig, but the rat either does not need this substance or is able to synthesize it. Although it has been stated that lack of fat-soluble A was responsible for rickets, we were able to show that this was not the case. Bones of animals whose diet is adequate except for fat-soluble A are perfectly calcified, but a high degree of osteoporosis develops. The same result follows the administration of diets having a deficiency only in water-soluble B. When this factor is deficient there is also an aplasia of the marrow, such as follows complete starvation, and, later, hemorrhage into the medullary cavity. If a guinea-pig is deprived of water-soluble C, his bones are identical with those of a rat which has been given an insufficient supply of water-soluble B.

When the organic factor of which I spoke above is absent from the diet or only present in small quantities, all other factors being, so far as we can tell, in optimal concentration, any variation in the ratio between calcium and phosphorus results in a profound disturbance in the structure and functional capacity of the skeleton. A disease of the osseous system, which has the clinical and pathologic characteristics of rickets, may be induced in the rat by diet. It may be induced by diets which are, within certain limits, low either in phosphorus or in calcium, all other dietary factors being maintained at the optimal level for growth and function.

The optimal amount of calcium which the diet can furnish for growth, maintenance and function in the rat has been shown to be 0.641 mg. per hundred grams of ration, when all other factors of the diet are satisfactory. The amount of phosphate has not been so well worked out, but it is about 0.4936 mg. per hundred grams of food. A diet containing 0.832 mg. of calcium and 0.305 mg. of phosphate produces a lesion which corresponds exactly to the most severe form of rickets seen in children.

An animal with such a lesion will have 10 mg. of serum calcium per hundred cubic centimeters. A normal rat will have 10 mg. of serum calcium per hundred cubic centimeters. The blood phosphate for a rachitic animal of this, the low phosphate, type will be 2.5 mg. per hundred cubic centimeters; that of a normal rat will be 8 mg. per hundred cubic centimeters. If an animal is fed on a diet in which the calcium is reduced to 0.052 gm. per hundred grams of ration, the phosphorus remaining at 0.364 gm., a lesion also results which presents all the essential characteristics of rickets. The blood of such an animal will contain from 4 to 5 mg. of calcium and from 8 to 9 mg. of phosphorus.

Howland[1] and Kramer demonstrated identical changes in the salts of the blood of children suffering from rickets as it is commonly seen and, on the other hand, from rickets complicated by latent or manifest tetany.

However, if the organic substance which is so abundantly present in fish oils is supplied freely, rickets will not develop in spite of a faulty ratio of calcium to phosphorus in the food. In other words, cod liver oil will protect an animal against rickets, or cause healing of the lesion, even if the salt content of the diet is such that rickets would invariably develop without the oil. For example, if 2 per cent. of the diet weight of this oil is given to a rat with low phosphorus rickets, in ten days healing will be well advanced and the blood phosphorus will have been raised from the rachitic level to from 4.5 to 5 mg. per hundred cubic centimeters.

Furthermore, animals are enabled to compensate for faulty calcium-phosphorus ratios in the diet if they are exposed to the rays of the sun or the iron-chromium or cadmium arcs or to the light of the mercury vapor quartz lamp. The fact that the beneficial rays from these sources may be screened off by ordinary window glass would seem to indicate that the active rays are in the ultraviolet spectrum. Again, since healing is more rapid under the influence of the cadmium arc than under a chromium-iron or copper arc of equal intensity, the shorter ultraviolet rays (about 2,100 Angström units) probably have the greatest antirachitic effect.

The same changes in the blood salts are induced under the influence of these rays as by cod liver oil. It is interesting to note in this connection that these rays are not protective against, or curative for, xerophthalmia. If a rachitic animal is starved completely except for water, the blood phosphate rises from the rachitic level to 12 mg. of calcium per hundred cubic centimeters, and healing begins at once.

If the phosphate content of the diet is raised above 0.365 gm. per hundred grams of ration, the calcium being at, or below, 0.052 gm., osteosclerosis of varying severity is produced. The tissue, however, remains to a great extent uncalcified.

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[1] Howland, J., and Kramer, B.: Calcium and Phosphorus in Serum in Relation to Rickets, Am. J. Dis. Child. **22**: 105 (Aug.) 1921.

DECALCIFICATION OF TEETH AND BONES, AND REGENERATION OF BONE THROUGH DIET *

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That the teeth and bones are similar in structure has been recognized by nearly all physiologists. Chemically they are very much alike. According to Hoppe-Seyler, the inorganic constituents are the same for bone and for dentin, about 85 per cent. calcium phosphate and from 10 to 12 per cent. calcium carbonate. The density of dentin cartilage is about equal to that of bone.

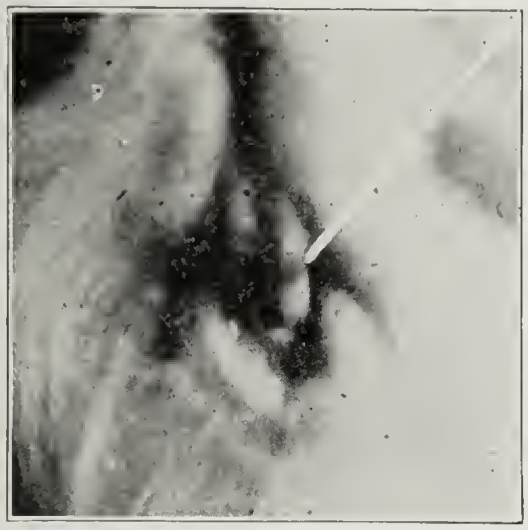
Fig. 1.—A condition similar to dental caries in incisors of guinea-pig.

The processes of calcification are analogous. In the teeth the calcification occurs about the processes of the odontoblasts, just as in bone it occurs about the bone cells and forms lacunae. In both, the inorganic constituents are laid down in a colloidal matrix. It would therefore seem reasonable to infer that a pathologic condition which affected one might affect the other.

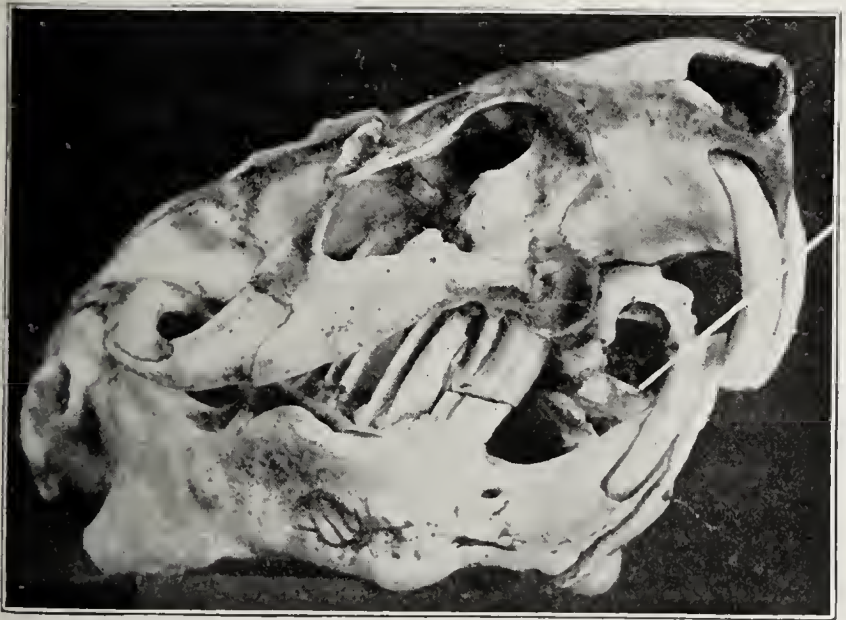
Fig. 2.—Decalcification of molars with masses of enamel attached.

This, however, has not been the opinion of dentists. They believe that dental caries is a purely local affair. The present theory is that carbohydrate material adheres to the teeth and, there fermenting, with the formation of lactic acid, forms the cavity of tooth decay. This idea has not been supported by animal experimentation. Twenty guinea-pigs, fed on a diet to which were added large amounts of sugars, viz., dextrose, levulose, lactose, saccharin, dextrin and white flour, showed no dental effect at the end of a year. The sugars and starches adhered to the teeth constantly, and bacterial examination disclosed a fermentative flora; but no dental effects could be detected.

In pathologic conditions of the bone, such as osteomalacia, Levy showed that "the normal relation of 6 Po_4 : 10 Ca is retained in all parts of the bone, which would not be the case if the bone-earths were removed by an acid. . . . In osteomalacia the exhaustion of the bone takes place by a decalcification in which one molecule of phosphate-carbonate is removed after another."

Gassman noted that in rachitic bone the calcium (Ca), phosphate (PO_4) and carbon dioxid (CO_2) relation was not changed. While different investigators have given different findings, many have shown an increase of magnesium in pathologic decalcification of bone. In an analysis of sections from fifty teeth, twenty-five of which were from sound teeth and twenty-five from teeth which showed decay, there was about twice as much magnesium in the carious teeth as in the sound teeth.

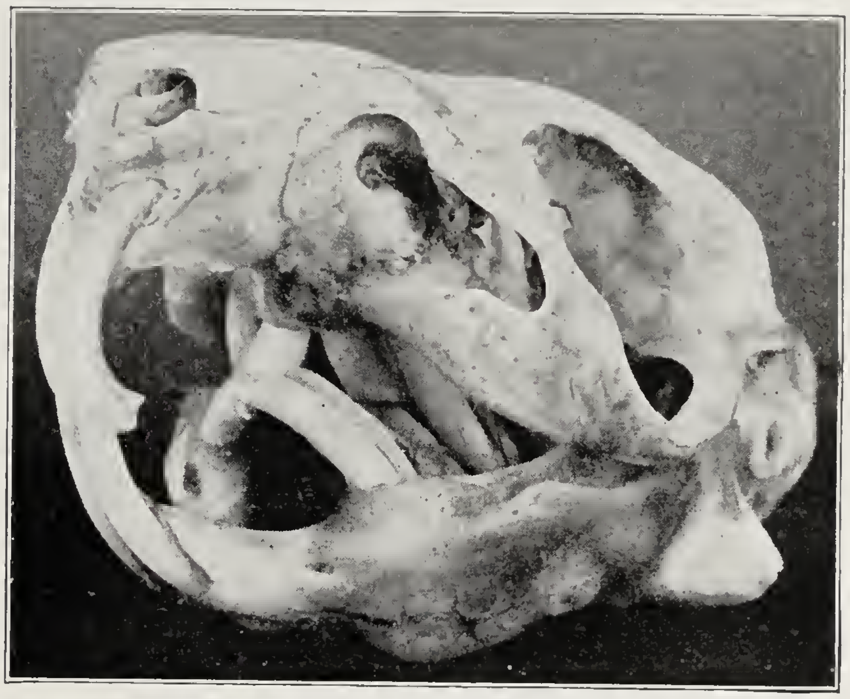
Fig. 3.—Irregularity of teeth, decalcification, and absorption of alveolar process, caused by fourteen weeks of scorbutic diet. Note changes in the enamel.

METHOD

A cross section of about 1 mm. thickness of the root is selected as near as possible to the enamel border. The cementum and the pulp are removed. The whole section is washed thoroughly in water and dried at 100 C. for twenty hours, cooled in a desiccator and weighed, and burned in a platinum crucible for eight hours. The ash is dissolved in about 15 c.c. half-normal hydrochloric acid. Twenty-five cubic centimeters of this solution is taken for the determination, which is carried out by Kramer's titration method.[1]

Duplicate analyses were also carried out by Briggs' colorimetric method.

The magnesium content is estimated in milligrams. The average percentage of magnesium in fourteen teeth from scorbutic guinea-pigs was 2.881. The average

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* Read before the Section on Stomatology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

1. Kramer, B., and Tisdall, F. F.: J. Biol. Chem. **48**: 1 (Sept.) 1921.

percentage of magnesium from control guinea-pigs was 1.085.

Although one cannot say that dental caries is not due in part to an external process, still, according to experiments on guinea-pigs, extensive decalcification of teeth and of some parts of the bones is brought about by a disturbance of metabolism induced by scorbutic feeding.

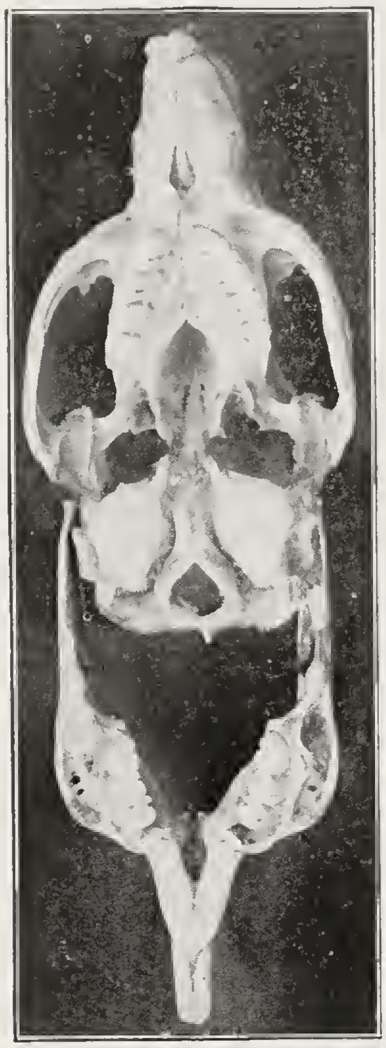

Fig. 4.—Control: regular teeth and normal bone.

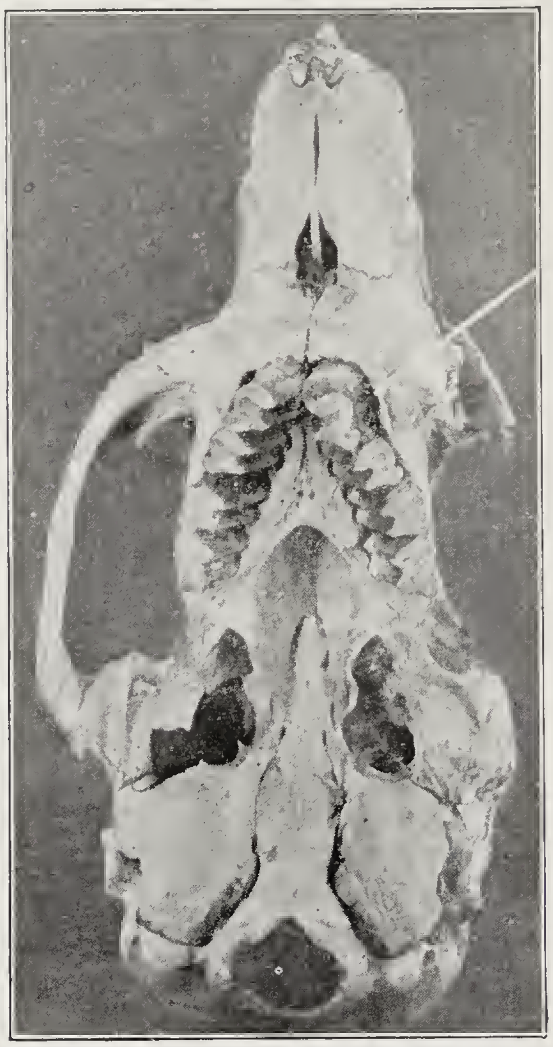

Fig. 5.—A condition similar to pyorrhea: elongation and looseness of the teeth.

The diet that was fed consisted of soy beans, 50 per cent.; rolled oats, to 100 per cent.; dried whole milk, 10 per cent.; butter, 5 per cent.; yeast, 4 per cent.; calcium carbonate, 1.5 per cent.; sodium chlorid, 1 per cent.; agar, 2.5 per cent. The soy beans were ground and placed in the autoclave for thirty-five minutes at a pressure of 15 pounds. The various ingredients were mixed, moistened with distilled water, and rolled into thin sheets, which were dried in the sterilizer. This mixture was broken up and fed. Distilled water was given the animals to drink. Filter paper was fed for additional roughage. Orange juice supplied the antiscorbutic factor, and was administered according to the experiment.

PERCENTAGE OF MAGNESIUM IN TWENTY-FIVE ANALYSES OF SOUND TEETH AND OF DECAYED TEETH

Sound Teeth	Decayed Teeth	Sound Teeth	Decayed Teeth
0.638	1.585	0.745	0.977
0.758	0.854	0.730	1.116
0.671	1.882	0.759	0.918
0.649	1.085	0.742	0.835
0.554	0.825	0.614	1.804
0.566	0.937	0.619	1.259
0.621	1.309	0.588	1.098
0.527	1.256	0.687	0.861
0.627	1.027	0.563	1.337
0.629	1.040	0.586	1.254
0.764	1.221	0.710	1.270
0.651	0.970	0.567	1.013
0.662	1.142	Average 0.649	Average 1.154

In fourteen weeks the teeth were extensively decalcified. The alveolar process was gone. The teeth were elongated and loose. The peridental tissues showed a series of changes which ranged from a hemorrhagic condition to complete disintegration with pus formation. In young animals, on the fifteenth day, the joints were affected so that difficulty in the use of the legs was manifested. The joints were swollen and painful. Under chloroform anesthesia, marked, localized hemorrhagic areas were revealed at the knee-joints of the hind legs and wrist-joints of the front legs. The joints were much enlarged. The animals had eaten well and gained in weight. This condition disappears in a few days if orange juice is administered. In older animals this trouble occurs later. If the animals are kept in a latent scorbutic condition for some time, from seven to nine months, the femur and the tibia decalcify extensively, and during dissection pull apart at the epiphyseal line.

When these animals are fed an ample amount of antiscorbutic food, calcification occurs; large areas of newly forming bone are seen on the jaws and the leg bones show exostosis. Lipping or areas of new bone formation are found along the shaft of the bones. The cartilage may calcify, with ankylosis following.

It is to be doubted whether in all cases the recalcification is due wholly to the diet. It may be that in some cases tissue degeneration proceeds to the point of calcification. The process may be similar to that which takes place when implanted cartilage calcifies, or to that which follows ligation of the renal vessels. However, in the present cases the initial process begins as a vascular and circulatory disturbance induced by the diet, and is rectified by improving the diet.

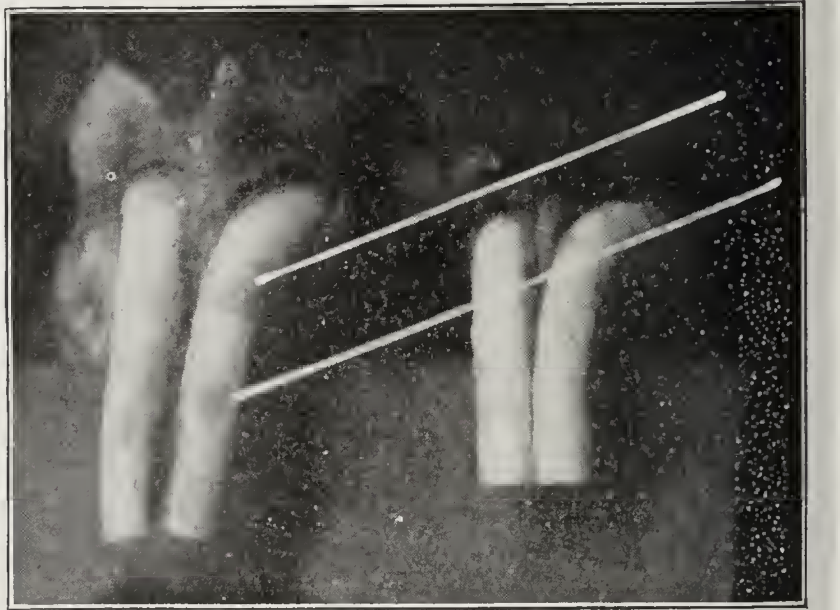

Fig. 6.—Enamel marked by alternating normal and deficient diets.

Many other pathologic or abnormal conditions occur as a result of protracted antiscorbutic deficiency which, although outside the immediate province of this paper, still are significant in the mode of action on tissue. One of these is the effect on the eye. A slight scorbutic effect on pregnant mothers has resulted, in a number of cases, in the absence of eyes in the young. I have had several animals born with only one eye or one good eye, and the other sightless or imperfectly formed. Many are born with spots on the outer coating of the eye, which clear up under proper feeding: In animals on the scorbutic diet, eye trouble follows even to the point of pus welling out over the eye during eating. Feeding orange juice is followed by complete clearing up of the trouble.

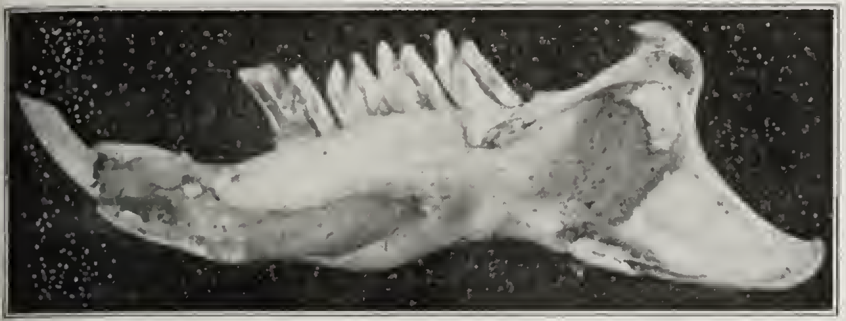

Fig. 7.—Thirty-three weeks: normal feeding about half of the time, with new bone formation.

We have been working on monkeys for only about seven months, but arthritic disturbances are very pronounced; in two out of the four animals a condition resembling arthritis deformans occurs. The knee-joints enlarge to twice the normal size. The spinal column is curved, and the animal remains curled up, holding the head down. The mouth becomes filthy, with excessive tartar formation, and the teeth become loose.

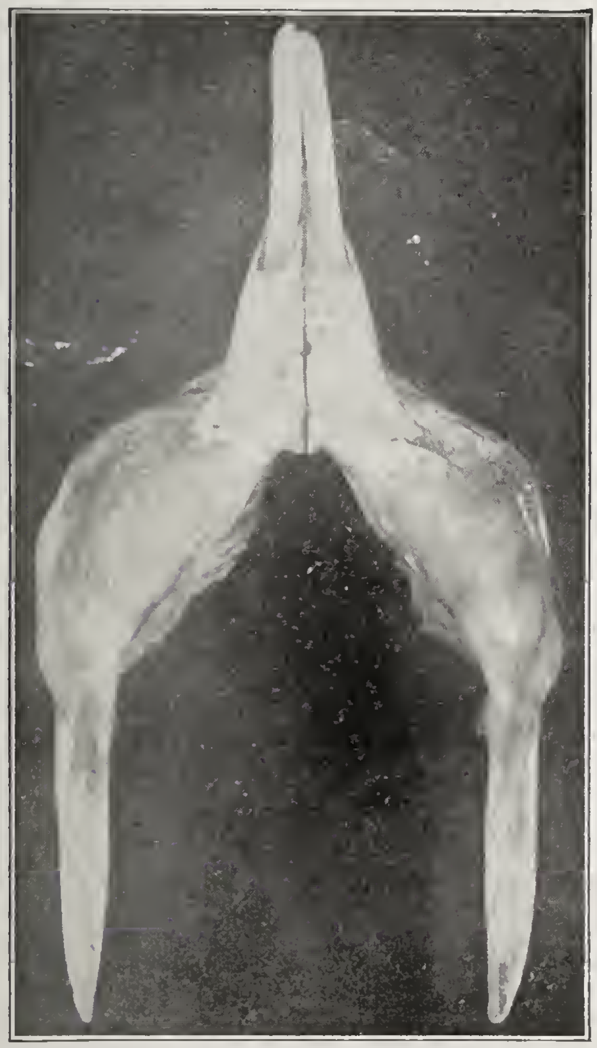

Fig. 8.—Fifty-sixth week: new bone formation complete; same series as in Figure 7.

Exophthalmos occurred in the four experimental animals; large hemorrhagic areas have appeared in the supra-orbital region and under the eye. The eyes were covered with a film in one severe case. Blood trickled from the eye and mouth during an attempt to eat. The animal became temporarily blind. In all cases when orange juice was fed, the entire condition cleared up. If, however, the lens has become affected, it fails to clear, with the production of cataract. Cataract was so produced in one monkey and also in guinea-pigs.

The conditions described appear to be distinct from rickets. Unquestionably a proper supply of calcium and phosphorus is important, but, of the two, calcium seems to be the inorganic constituent that in modern diets is most likely to be deficient. Statistics and research indicate that the requirement, particularly for children, is greater than was formerly believed. It is well understood that calcium serves to regulate the equilibrium in almost any irregularity of the body mineral elements. But with all the proper food factors supplied except the antiscorbutic, the animal organism appears still to withdraw calcium from the teeth and some parts of the bone.

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THE EFFECT OF DEFECTIVE DIETS ON TEETH

THE RELATION OF CALCIUM PHOSPHORUS AND ORGANIC FACTORS TO CARIES-LIKE AND ATTACHING-TISSUE DEFECTS *

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BALTIMORE

From its inception, dental literature has contained many statements associating food habit with oral disease. Dietary errors or excesses are said to be predisposing, if not active, causes of dental caries and gingival lesions. It is also implied that these diseases do not exist in races or individuals with correct food habits, the inference being that a proper dietary regimen will prevent oral pathologic conditions. Tangible evidence of what constitutes a correct diet is not offered by the donors of these hypotheses, which, when applied in daily routine, are not practical in the individual, whatever they may be *en masse*.

We are told that races living under primitive dietary conditions are free from oral disease: the Eskimo is said to be immune for the reason that he is essentially carnivorous, using little carbohydrate food; and the Maori, because he consumes quantities of carbohydrate and little protein food. In the midst of this exigency stands the fact that Anglo-Saxon races of all climes, with the greatest abundance and diversity of food, are being involved by oral disease to an alarming extent.

Function, or the lack of it, is said to be the predetermining factor in the induction of these diseases. The refinement of foods, which are softened by cooking, is cited to explain the prevalence of dental disease with every advance in civilization, in spite of the fact that persons of civilized countries obtain a larger percentage of better food per capita than those of primitive races. It is asserted, for example, that just as the consumption of refined cane sugar and bolted flour increases, so dental caries increases, and today it involves 25 per cent. of the teeth of 85 per cent. of American schoolchildren.

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* Read before the Section on Stomatology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

For the most part, these statements are generalizations with as much foundation in fact as casual observation permits, though they all may contain elements of truth. There are so many qualifying and disturbing factors entering into any investigation of diet in relation to disease that the student is soon lost in a maze as to the relation of the simplest basal dietary elements to digestive and metabolic processes, not to mention the modifying influence the endocrine glands and pathogenesis may have on the resultant equation.

It is well, therefore, to hesitate before drawing conclusions as to the simplest diet fed an experimental animal, for it does not necessarily follow that these elements arrive in the cells of osseous and dental tissues without profound modification, which digestive and metabolic processes are bound to induce. This is well illustrated by the present tendency to associate deficiency diseases with absence of vitamins, neglecting more important basal dietary factors.

It is recognized that too great a simplification of the diet may, in itself, lead to deficiency disease; yet under these conditions the subject can be intelligently approached only by a study of diets which make for well-being in the animal and are as elemental as possible. That such dietetic study is feasible has been proved by E. V. McCollum and his associates in some 8,000 animal dietary experiments. For the sake of clarity in this report, but three basal dietary factors are considered: calcium, phosphorus and the organic substances existing in butter fat and cod liver oil; and these are considered in their relative concentration and percentage.

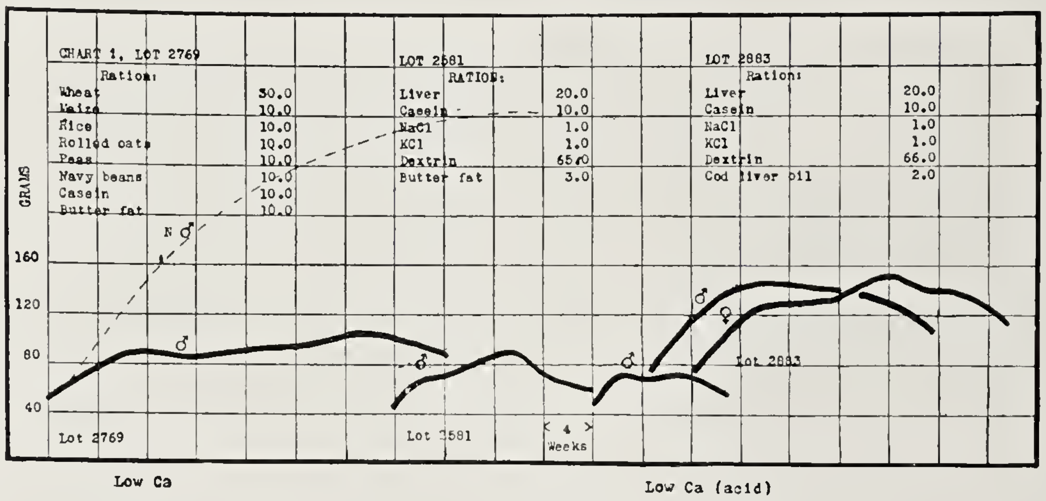

Fig. 1 (Group 1, low calcium diets).—"Lots 2769, 2581 and 2883 are grouped because the only deficiency is a lack of calcium. In 2769, casein improved the vegetable proteins, and in 2581 and 2883, the addition of liver enhanced these factors. Butter fat and cod liver oil furnished fat-soluble A. All factors are satisfactory except calcium: when it is added to these diets, good growth and high fertility occur; without it, there is little growth and no young are produced." [6]

ORAL CONDITIONS IN RATS

It was my good fortune to study oral conditions in the same group of rats which were used in the recent research on rickets and related osseous pathology by McCollum, Simmonds, Shipley and Park, of the chemical hygiene and pediatric departments, Johns Hopkins University. Reports of these researches, which are too voluminous for quotation, are available to those interested.

Osseous and dental tissues are so closely related that the conclusions in these papers are here summarized:

> These reports have shown that the internal structure of the skeleton of the rat could be changed at will by varying the ration which the animals received. In other words, bone is an extremely labile tissue and is readily influenced by nutritional environment.[1]

A study of the effects of these diets on the skeleton would indicate that the growth of the skeleton was dependent on at least three substances: (1) an organic substance present in certain fats which may, or may not, be identical with the antixerophthalmic fat-soluble A; (2) calcium, and (3) phosphorus.[2]

If the organic factor is low in, or missing from, a diet, the structure of the osseous tissue is dependent on the ratio between the above mentioned ions in the diet and circulating blood.

If calcium is present in amounts equal to, or exceeding, those which would be optimal for growth and function and if all other factors are satisfactory but the phosphate ion is low, rickets is produced.[3]

The same disease results when the converse relation exists between the two ions.[4]

Diets which contain optimal or excessive amounts of calcium but are low in phosphorus and the organic factor produce rickets.

Rickets also results from feeding diets low in calcium and the organic factor if phosphorus is present in satisfactory amounts.

Diets which are satisfactory except that they are deficient in the organic substance result in osteoporotic but perfectly calcified bone.

Diets which have a comparative deficiency in calcium but are very high in phosphorus and in the organic substance produce so-called osteosclerosis, with large numbers of small, imperfectly calcified trabeculae.

Diets deficient in calcium alone produce a pseudorachitic condition with overproduction of osteoid.[5]

The studies of diets which contain varying percentages of calcium and calcium phosphate show that the absolute amount of either ion in the diet is of relatively little importance as compared to the ratio which exists between the two. That is, normally calcified bone is produced without regard to the reduction or diminution of either calcium or phosphate in the food, provided the content of the other ions is proportionately augmented or depressed.

RESULTS OF DEFECTIVE DIETS

Good growth, well-being, fertility and normal osseous tissues were induced in the rat when the relation of the total calcium was 0.64 and phosphorus 0.41 to 100 gm. by weight, with butter fat at 2.5 per cent. and cod liver oil at 1.5 per cent. of total diet, representing the organic factors, provided other dietary elements were correct. In this paper,[6] five diets are presented, which were selected from the fifty-seven diets previously reported when oral conditions were studied in relation to osseous disease.

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[1] McCollum, E. V.; Simmonds, Nina; Shipley, P. G., and Park, E. A.: Studies on Experimental Rickets, I, The Production of Rachitis and Similar Diseases in the Rat by Deficient Diets, J. Biol. Chem. **45**: 333 (Jan.) 1921.

[2] Shipley, P. G.; Park, E. A.; McCollum, E. V., and Simmonds, Nina: Studies on Experimental Rickets, III, A Pathological Condition Bearing Fundamental Resemblances to Rickets of the Human Being Resulting from Diets Low in Phosphorus and Fat-Soluble A: The Phosphate Ion in Its Prevention, Bull. Johns Hopkins Hosp. **32**: 160 (May) 1921.

[3] McCollum, E. V.; Simmonds, Nina; Shipley, P. G., and Park, E. A.: Experimental Rickets, VI, The Production of Rickets by Diets Low in Phosphorus and Fat-Soluble A, J. Biol. Chem. **47**: 507 (Aug.) 1921.

[4] Shipley, P. G.; Park, E. A.; McCollum, E. V., and Simmonds, Nina: Studies on Experimental Rickets, XIX, Is There More Than One Kind of Rickets? Am. J. Dis. Child. **23**: 91 (Feb.) 1922.

[5] Shipley, P. G.; Park, E. A.; McCollum, E. V., and Simmonds, Nina: Studies on Experimental Rickets, VII, The Relative Effectiveness of Cod Liver Oil as Contrasted with Butter Fat for Protecting the Body Against Insufficient Calcium in the Presence of a Normal Phosphorus Supply, Am. J. Hyg. **1**: 512 (July) 1921.

That the dietary equation may be further simplified, the percentage of phosphorus in all of these diets is optimal (0.41 to the 100 gm.), while calcium and the organic factors in butter fat and cod liver oil are intentionally varied above or below normal percentages. This was accomplished "without making the deficiencies or concentration any greater than those which occur in the table of the modern American family." [6]

It is emphasized that no sucrose exists in these diets; in one, 10 per cent. of whole milk powder occurs, which contains its small percentage of lactose. If oral fermentation has any part in inducing osseous lesions, the starches in which these diets abound may be active factors. These diets all contained ample water-soluble B; as the rat synthesizes water-soluble C, the gingival lesions to be reported are not scorbutic, such as occur in the guinea-pig.

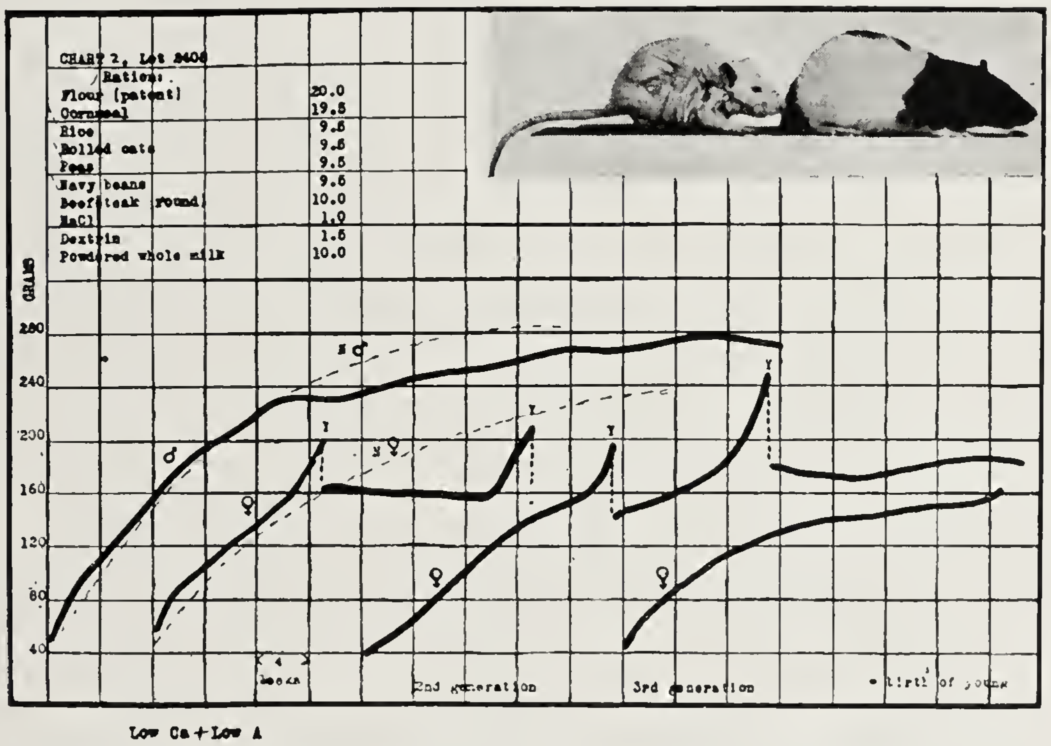

Fig. 2 (Low calcium and low fat-soluble A diets).—"This diet contains milled cereals, milk and meat; it is lacking in calcium and fat-soluble A. Rats confined to this diet do not grow fully, age early, and are not fertile. Families confined to this diet show gradual deterioration. It is only necessary to add calcium and fat-soluble A to change entirely the life history of the individual. This diet has been much studied in our laboratories. It contains all of the deficiencies and errors of the average American menu." [6]

All diets were so finely ground as to prevent selection of food, and all experimental animals were adults and were placed on the diets at the age of about 60 days. They were taken, without selection, from the stock colony which lives on a stock diet under the best possible hygienic laboratory conditions and is free from other disease. It may be stated, as a control, that the stock rats in this colony show no caries-like or attaching-tissue defects.

Eighty-five rats, about equally divided as to sex, were placed on the following diets:

> Group 1, low calcium diets; Group 2, low calcium and low fat-soluble A diets; Group 3, high calcium and high butter fat diets (Figs. 1, 2 and 3).

It is most important, in considering the effect of diet on teeth, that the animal be an omnivorous feeder and that the teeth and attachments be comparable, numerically and histologically, to those of man. Guinea-pigs and rabbits, which ingest herbivorous diets of succulent roots and leaves, and in which the entire denture grows persistently, are not comparable in digestive function or omnivorous dietary to man.

Dogs, pigs and monkeys present ideal oral conditions for experimental study, but they litter infrequently and are prone to infectious diseases. They develop osseous defects, if confined under laboratory conditions and, if allowed freedom, obtain small but definite food factors which might modify the experiment.

The disadvantages of the rat denture, which is small and presents histologic difficulties, are more than offset by assurance of correct experimental conditions. Rats are omnivorous and are prolific breeders, so that many generations can be studied. They do not suffer from confinement or monotonous laboratory diet.

In the denture of the rat, the four incisors grow from persistent pulps, while the twelve molars are coronally and apically completed teeth, all of which are erupted by the fortieth day. The cusps are of the bunodont type, associated with omnivorous diet rather than the lophodont type, associated with the herbivorous diet, as in the guinea-pig.

While the rat's incisors are subject to resorption and repair by persistent pulp function, like incisors and molars of guinea-pigs, the rat's molars are coronally and apically finished teeth and, except for size, numerically and histologically comparable to the human molars. Excellent enamel surfaces in perfect proximate contact; simple dentin of the ortho variety and large pulps with evident high resistance are all excellent indicators of any lesion.

Subgingival attachments are dense and wonderfully adapted to function; the roots present definite cemental laminae with closed and pointed apexes and multiple foramina. Well-defined periodontal membranes are attached by stout alveoli, furnishing excellent support to gingival crests which lie in perfect contact and thus protect embrasures.

In the rat, the relation of masticatory function to diet is ideal; like all rodents, the rats must literally "chew for dear life"; whether the diet be soft or hard, the denture is used until disintegrated, and all teeth are abraded by their own interaction. Any disturbance of this highly vital nutritional function in adult rodents must, indeed, be fundamental. Under such conditions, it is therefore interesting to find caries-like and attaching-tissue lesions involving teeth of adult rats when placed on the foregoing diets, with no such defects in the stock controls.

Percentages of lesions are calculated on the number of teeth involved (twelve molars); the number of rats placed on these diets, and the period on the diet, which averaged 120 days.

Thirty-six per cent. of the males and 44 per cent. of the females showed caries-like and attaching-tissue defects, with increasing percentages in the littering rat, the oral condition of which is most interesting.

In Group 1, the low calcium diets (Fig. 1), phosphorus and fat-soluble A were nearly optimal, while calcium was about one-half the normal: the diets are thus simplified to one defect, with all other factors well balanced. When the ash of a diet is acid, as in some of these, it appears to increase the tendency to lesions. Twenty-two per cent. of the rats on these diets showed caries-like defects, and 3.65 per cent. of their molars were involved. Forty-one per cent. displayed attaching-tissue lesions which involved the molars to the extent of 57.9 per cent.

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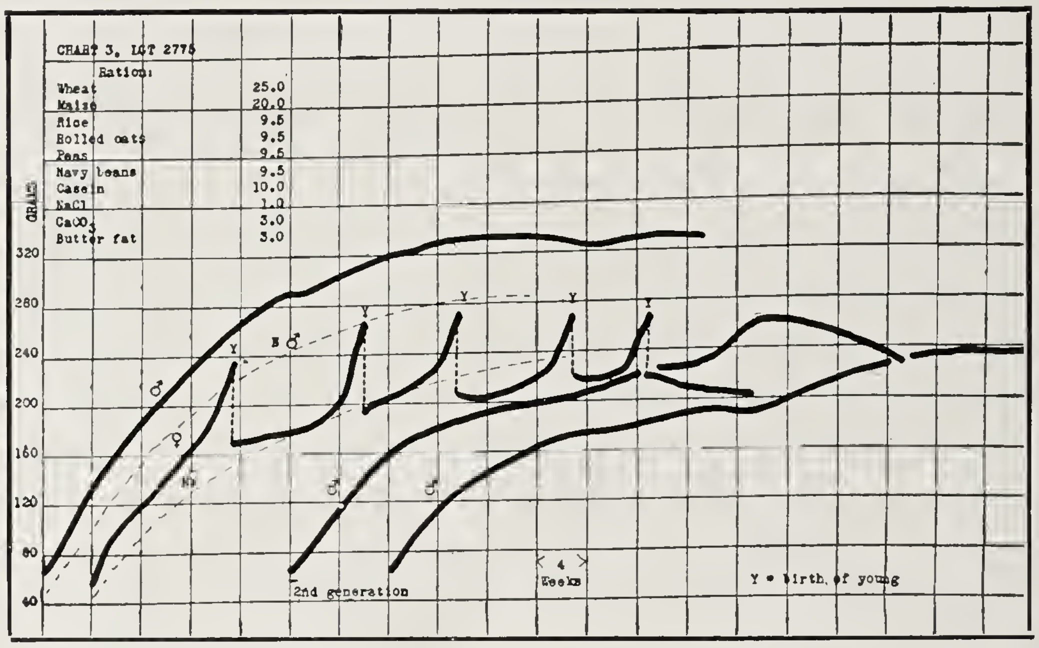
[6] McCollum, E. V.; Simmonds, Nina; Kinney, E. M., and Grieves, C. J.: The Relation of Nutrition to Tooth Development and Tooth Preservation, Bull. Johns Hopkins Hosp. 33: 376 (June) 1922.

It has been noted that "diets deficient in calcium alone produce a pseudorachitic condition with overproduction of osteoid." Skeletal defects were pronounced in this group, and a large percentage of alveolar involvement was anticipated. It cannot be assumed, however, that diets which affect long bones will always affect tooth attachments, for such is not the case.

It is also evident from the contrasting percentages of caries-like lesions, 3.65 per cent., and attaching-tissue defects, 57.9 per cent., that, as far as dietary factors are concerned in the induction of these lesions, they are not similar in either incidence or type.



High Ca + But. F 3%

Fig. 3 (High calcium and high butter fat diets).—"This diet is well constituted except that the calcium is double the optimum. Rats grow well while on it and are fertile, but the young die early. The second generation was stunted, for excessive calcium causes early deterioration."[6]

In Group 2 (Fig. 2), the low calcium and low fat-soluble A diets, phosphorus was optimal, while calcium was one third of the normal, and fat-soluble A was relatively low; this produced two deficiencies, with all other dietary factors well balanced. Thirty-one per cent. of the rats on these diets showed caries-like defects, and 5.21 per cent. of their molars were involved. Twenty per cent. displayed attaching-tissue defects which involved the molars to the extent of 17.7 per cent.

The contrast in this group is remarkable. A twofold deficiency, which in the previous study of fifty-seven diets produced the greatest percentage of caries, 5.21 per cent., in this type of diet produced only 17.7 per cent. of attaching-tissue lesions, which was next to the lowest percentage in the previous series of 220 rats.

It has been noted that "rickets results from diets low in calcium and the organic factor, if phosphorus be present in satisfactory amounts." The fact that these diets, which produced experimental rickets and a large percentage of caries-like lesions in rats, induce such comparatively slight attaching-tissue disturbance cannot for the moment be explained. It appears to confirm the clinical observation that, when human caries involves the adult denture, the incidence of gingival disease is low.

It must not be concluded that diets which produce experimental rickets also induce caries-like lesions. A large group of animals in the previous report were definitely rachitic, yet, macroscopically, suffered few oral defects of any type. This low calcium and low fat-soluble A diet is here reported for the very reason that rachitic and caries-like lesions are rarely coexistent.

As there is a prejudice against comparing deductions from animal experimentation with human experience, it might be well to explain these percentages.

> With the rat's life cycle at 1 to 30 for the human, a rat from 120 to 150 days old is comparable to a child between the tenth and thirteenth years, especially when differences in developmental cycles are considered. At these ages, the child's teeth are said to be 25 per cent. carious; but twelve, or 50 per cent., less teeth are exposed to carious processes in rats, when compared with an average of twenty-four teeth in children, and 12.5 per cent. represents a like reduction of the 25 per cent. of child caries. When the 12.5 per cent. for the child is compared with 5.21 per cent. for the rat, and when the period of exposure, which was much shorter in the rat, is considered, the discrepancy is not so great as might appear.[6]

The incidence of human gingival disease in adults cannot be stated; it is evidently high, but that it so rapidly involves persons, or their teeth, in any such percentages as here presented for the rat is questionable.

In Group 3 (Fig. 3), the high calcium and high butter-fat diets, phosphorus and fat-soluble A were optimal, but calcium was twice the optimum. This produced but one deficiency, with all other dietary factors in balance. Seventeen per cent. of the rats on this diet showed caries-like defects, and 1.73 per cent. of their molars were involved. Twenty-eight per cent. displayed attaching-tissue defects which disturbed 33 per cent. of the molar attachments.

It has been explained that high calcium diets produce good growth but early deterioration, with pseudorachitic changes in bone, particularly in the second and third generations.

The lesions resulting from this diet, 1.73 per cent. caries and 33.3 per cent. attaching-tissue lesions, are in direct contrast to the low calcium and low fat-soluble A diet, in which the caries-like defects were the highest, 5.21 per cent., and the attachment disturbance nearly the lowest, 17.7 per cent., in the entire series.

CARIES-LIKE LESIONS

The essentials of dental caries, according to the modern conception, are environmental. It is believed that caries progressively invades teeth from without inward and that it may result from chemicomicroorganic causes in any retention center. Whatever the bacterial types, they are presupposed to produce sufficient acidity to decalcify enamel and dentin, and to be sufficiently proteolytic to complete dentinal destruction.

In this conception it is not denied that teeth may not be predisposed to caries from developmental structural defects, which may result in early formative periods and may assist in localizing carious lesions. The finest types of enamel and dentin may be invaded in the same mouth, and even the same tooth, while hypoplastic enamel and dentin may escape.

Other than this distinction, it does not admit that completed teeth are weakened from within by resorption of dentin, or interglobular space formation arising from dental pulp function; or that enamel may be softened from within, or that it is permeable or vital.

These facts are reviewed for the reason that there have appeared certain sections of rat's molars which suggest some internal factor in human dental caries, but they do not occur in these groups of diets.

The lesions in these groups always proceed from without inward and do not result from hypoplastic enamel, nor are they absorptions from dental pulp function. Clinically, they are identical with human caries.

The minute and slowly enlarging initial lesion in any deep enamel sulcus; the rapid dentinal invasion, undermining enamel walls; the typical laminated carious dentinal detritus, and the final pulp exposure, followed by subapical bone involvement and alveolar abscess, are classic, macroscopically.[6]

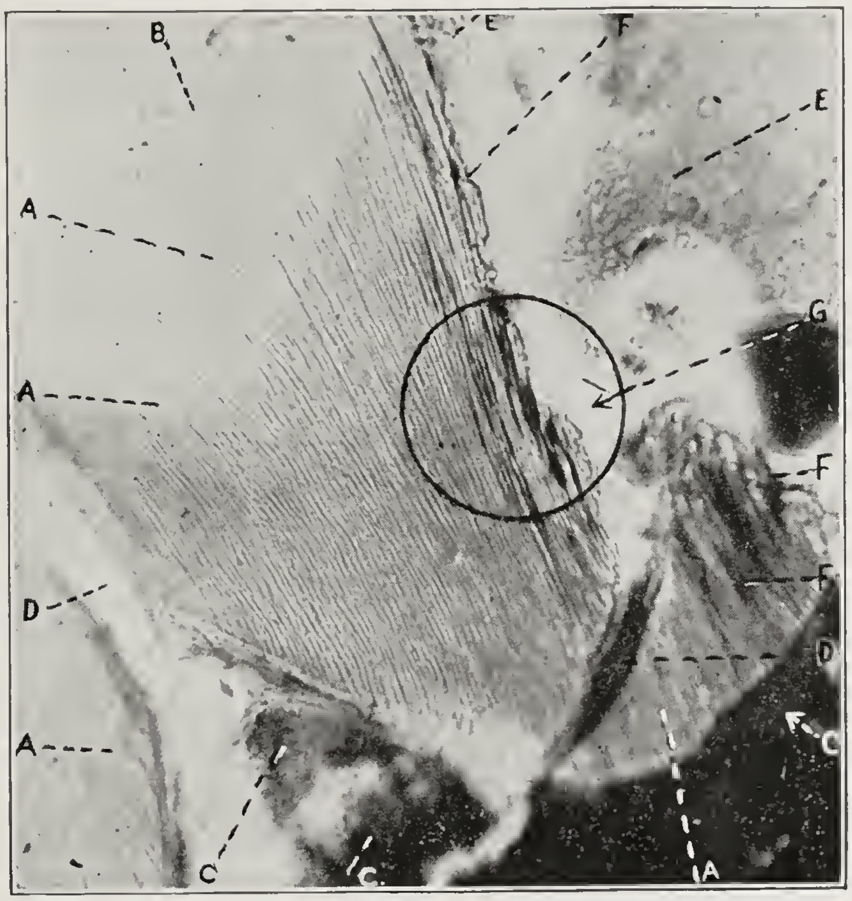


Fig. 4.—Coronal section of macerated molar, decalcified Mueller's fluid, reduced from a photomicrograph, × 90, showing caval walls of caries-like lesion arising in molar sulcus ending in pulp exposure: *a*, sound dentin; *b*, occlusal surface, enamel decalcified; *c*, dental pulp; *d*, fractures in sectioning; *e*, carious detritus; *f*, caval walls with carious tubules and liquefaction foci of Miller; *g*, field enlarged in Figure 5.

The distal sulcus of the first molars and the central sulcus of the second molars are usually seats of initial lesions, which may be due to food retention. Mesial and distal contact facets are occasionally secondarily involved, but they are not primarily attacked as in man. This immunity may arise from the excellent proximate contact and the protection of embrasures by attaching and gingival tissues.

These lesions were studied in ground and decalcified sections. Coriell's lapping machine was used in grinding, and Mueller's fluid was used in decalcification. By the latter method, occasional slides were obtained without complete loss of enamel. Slides were stained with thionin, silver and carmin.

Microscopic sections show slow decalcification of enamel, either by loss of inter-rod substance or complete disintegration of both rods and cement substance. Dentinal invasion spreads typically, undermining enamel along the dento-enamel junction. Tubules are enlarged and invaded irregularly; characteristic areas appear, showing complete loss of matrix and projection of fibrils into masses of proteolyzed dentin containing bacteria. Dentinal destruction seems much slower and more regular than in human caries. Frequently observed tubular calcification and osteodentin formation indicates a pulpal resistance much higher in the rat than in man. Pulp involvement and exposure is not unusual. In old cases, the entire tooth becomes dark and necrotic and apical abscess results, with typical apical denudation and destruction of subapical tissues. In some instances, granulomatous or cystic types of apical disease occur, presenting symmetrical bone areas well walled off by condensing osteitis and lined by fibrous tissue, as the stains indicate. In others, much bone liquefaction results, with fistulas. These are evidently of the purulent type, and occasionally result in large osteomyelitic areas.

THE ATTACHING-TISSUE LESIONS

In reporting these defects, "only such gross osseous lesions as actually exposed cervical aspects of roots or finally caused loss of teeth are presented." The flare of the rat's molar roots is so great and they are so well attached that it may be assumed that such teeth are not lost without the persistence for some time of soft tissue lesions. "Attaching-tissue defects occur in two groups: (*a*) the atrophic types, with progressive horizontal and regular loss of alveolar crests, the cortex remaining hard, rounded and smooth, and (*b*) the infective type, with irregular vertical invasion of alveolar walls and localized root exposure, in which the cortex is rough, porous or missing," as in true pyorrhea. "In short, all phases of the osseous lesions of gingival disease occur as in the human."[6] In both maxilla and mandible, the lingual crests are frequently lost. The disease may localize about one molar or may be general. If complicated by caries and loss of proximate contact, food pack and trauma soon destroy the tooth.

Microscopic slides show much involvement of alveolar walls, which are osteoporotic or cartilaginous, but which still remain intact, supporting the gingival crests.

Occasional peninsulas of bone persist, but trabeculae are indefinite and canalization frequently results. There is much osteoid and round cell infiltration. Deep pockets occur, lined by epithelium, supported by the remaining periodontal fibers, but it cannot be said that they arise by central invasion of the periodontium along lymphatic vessels, as in true gingival disease. Cervical deposits of calculi were noted in some instances: its character together with that of the soft tissue lesions will be reported later.

While only certain rats suffered from caries-like and attaching-tissue lesions, as the percentages indicate, the impression must not obtain that the two lesions did not appear simultaneously in the same rat, for fully one third of the group were so involved.

These experiments had none of the mathematical accuracy of the feeding to guinea-pigs of scorbutic diets, which are said to produce 100 per cent. scurvy.

The varying percentages of damage to tissue present a remarkable resemblance to human disease; they indicate the resistance of the individual rat to these diseases. Its immunity, its superior digestive and metabolic processes, or possibly other factors, evidently protected its teeth and attachments against invasion.

The constancy of the character of caries-like lesions is interesting. From what has been observed, no matter what the dietary defects, they are remarkably alike in microscopic section. Quite the reverse is true of the diseased attachments, the pathologic character of which differs materially, but it is not possible as yet to state the type of lesions induced by any particular diet. Indeed, the entire phenomena run so true to clinical experience as to tempt one to conclusions which might be premature, for, as in man, these lesions appear to result from all types of dietary defects, and it would appear that the animal economy can form and maintain a fine denture, with attachments, on very restricted diets, provided the animal be in proper dietary balance.

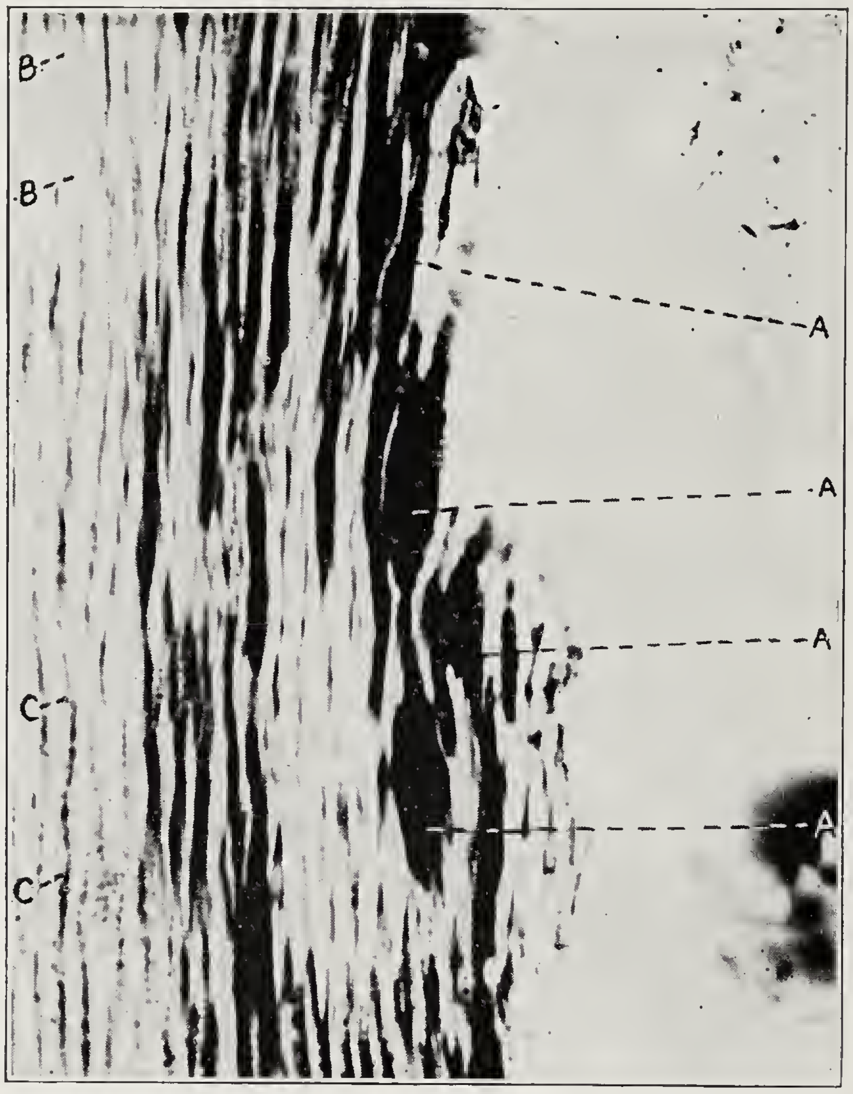


Fig. 5.—Field from Figure 4, reduced from photomicrograph, × 800: *a*, carious tubules, liquefaction foci; *b*, dentin slightly involved; *c*, deeper invasion.

In the absence of sucrose, and with starch as the only oral fermentative medium, it is possible to indulge in many fascinating and plausible hypotheses as to the cause of dental caries, all of which are likely to be wrong. It might be reasoned, since the largest caries-like percentages occurred in Group 2, which contained 10 per cent. whole milk powder, that even this percentage of lactose might have increased the fermentation in the starches in the diet and induced dental caries, were it not for the fact that the stock diet contains a larger percentage of milk and the teeth of stock rats are not carious. From certain evidence, it might be said that disturbances of the calcium-phosphorus balance of the blood, of tetany and rickets, were the main factors in caries; but nearly all children have carious teeth and few children are rachitic or involved by tetany. The reverse is equally true, while very few children, as compared with adults, suffer from gingival disease.

The intricate relation of calcium and phosphorus in the blood to the endocrine secretions, and to tetany and rickets, has been explained by Howland, Tisdall and Kramer.[7]

"Tetany is an expression on the part of the nervous tissues of an insufficiency of the calcium ion; rickets is an expression on the part of the skeleton of disturbed relations between the calcium and phosphate ions. . . . The reason that tetany is so frequently associated with rickets is that rickets is a disease in which the calcium ion in the body tissues and fluids is subject to wide variations."[4] Both of these diseases depend on the calcium-phosphorus balance in the blood, but may occur independently of each other.

Typical rachitic lesions and symptoms are known to result from two types of disturbance as indicated by the blood, i. e., "one in which calcium was normal and phosphorus low (low phosphorus rickets) and the other in which phosphorus was normal and calcium low (low calcium rickets) and there may be others."[4]

Alveolar lesions, which are exposed to oral infection and occlusal trauma, are hardly likely to be more concrete than the internal lesions of rickets. On the contrary, they might be expected to present many more complicated pathologic expressions of simple dietary defects.

This hypothesis cannot as yet be applied to dental caries. It is reasonable to suppose that disturbance of the osseous attachments of teeth might occur from within outward, by the vascular pathway, and that gingival disease might result from the same internal etiologic causes as rickets; but dental caries is an invasion of the tooth, arising externally, and proceeding from without inward. Therefore, one must think of the oral environment as permitting such invasion.

In these specimens, caries-like lesions are so far from being an internal disturbance, or resorption of enamel and dentin by pulp function, that the pulp actually protects its vascularity by tubular calcification and secondary dentin formation.

Malfunction of the endocrine glands has been enthusiastically advocated as the etiologic factor in dental caries; these assertions are based on clinical observations of hypoplastic and dystrophic teeth in cretins and in patients with acromegaly. Similar lesions are said to result from syphilis, exanthems and artificial infant foods. Certain defects in the teeth of dogs, of monkeys and of rats are reported to result experimentally from damage to the endocrine glands, particularly the thyroid and parathyroids.

In a previous paper,[6] it was shown that many of these defects could be duplicated in rat's teeth by the use of defective and deficient diets, with no apparent symptoms of endocrine disturbances. Unless the imal's diet is known and definitely planned, accord- r to modern dietary usage, these conclusions as to : relation of endocrine experimental malfunction and il disease are useless and misleading.

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[7] Howland, J., and Kramer, B.: Calcium and Phosphorus in the Serum in Relation to Rickets, Am. J. Dis. Child. **22**: 105 (Aug.) 1921. Kramer, B.; Tisdall, F. F., and Howland, J.: Observations on Infantile Tetany, ibid. **22**: 431 (Nov.) 1921.

I am aware of the recent work of McCarrison[8] and oderick.[9] It seems highly probable that defective locrine function and disturbed metabolism may be imately associated with the use of defective and ficient diets, and that any, or all, of these factors y play an etiologic rôle in oral disease; but these rrelations are as yet hypothetic.

Until further facts are available, one can think only the necessity for a proper calcium-phosphorus- ganic factor balance in any diet as most important the formation and maintenance of normal bones d teeth and healthy attaching-tissues.

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ABSTRACT OF DISCUSSION

OF PAPERS OF DRS. HOWE, GRIEVES AND SHIPLEY

Dr. Eugene S. Talbot, Chicago: These papers confirm ne research work I did thirty-five years ago. The work of . Howe illustrates better n anything that has ever n published the bone ab- ption that is due to change diet. My researches were ne on animals, such as vs, hogs, horses, etc. Any mal that is changed from normal environment and d will have a certain ount of absorption of bone d this absorption is not due infection or inflammation. rsons who are apparently good health have absorp- n of bone tissue at some ne or another. The only y we can demonstrate that t is by an examination of alveolar process. The al- olar process is a transitory ucture. It is not a stable ucture like other bones of body. When the proper d is not taken into the sys- n the alveolar process will in to absorb. About twenty- years ago I examined mouths of men working mountains in Switzerland, lding railroads, and found t the men working in the fts and tunnels, in dark places, without sunshine and per air and with poor food, had absorption of the alveolar cess. In many cases the teeth became so sore they had be extracted. I examined thousands of men returning m the Philippines and Cuba and found the same thing. ny similar cases are reported occurring among English diers in South Africa at the time of the Boer War. They led it scurvy, but there were no constitutional symptoms. e teeth became sore and loosened. Just what kind of food uld be given to one person and what kind to another der similar condition is a question. We do not know what ds will preserve the alveolar process in different persons.

Dr. Percy R. Howe, Boston: Scientists are beginning to away from the present day theories of dental caries. As . Shipley has said, we know almost nothing about it, but ew facts were brought out that show the importance of dying the problems from a dietiary point of view.

Dr. Paul G. Shipley, Baltimore: The American diet at the present time is perilously near the danger mark. If you go down to the "quick lunch" at noontime, and watch the tired business man lunch you will see him eat a ham sandwich, and a piece of pie of doubtful origin and drink a cup of coffee. His breakfast in the morning consisted of cereal ready done, alleged cream or pasteurized milk, sugar, more coffee, and toast if he is fastidious and has a lot of time. His dinner consists of muscle meat, steak, chops, or something of that sort (only occasionally a bit of liver), pie or some sort of sweet. With these he has some well cooked vegetable and potatoes, sometimes a salad. Whatever vitamins may be contained in this food, he is hovering close to a very pronounced deficiency in them all. Not only is this the case, but he is taking a diet which is probably extraordinarily bad in the way of its salt content. His steak contains almost no calcium, but is high in phosphorus. The salts of milk form quite a perfect mixture, but nobody seems to know just what happens to milk after the dairyman gets through with it. If you ever have the opportunity to inspect the tanks in which milk is pasteurized, or the cylinders on which milk is dried, you will quickly become convinced that a pronounced change has taken place in the salt content of the milk. Where milk is dried, it is necessary every day to take down the apparatus and chisel off from the sides of it a scale which is nothing more or less than the calcium phosphate which is thrown out of the milk during the process of drying. You are all familiar with the skin which appears on the top of milk when it is brought to the boiling point. More of this material sticks to the sides of the utensil in which boiling is done. Besides protein and some fat, that skin contains a large amount of calcium phosphate, which is lost to the consumer. Dietetics is today a little known field and it seems to me that the best we can do at present in prescribing a regimen is a general, varied diet with, as Dr. Howe has suggested, some fresh, uncooked food every day. Dr. Howe spoke of magnesium and its increase in certain pathologic conditions. By substituting magnesium for calcium in the diet of animals we are able to produce lesions which are very closely related to and, under certain conditions, identical with the rickets seen in children. That it is not altogether unimportant as you will understand when you remember that cow's milk contains a much greater quantity of magnesium than does the breast milk of the mother with which nature intended her child should be fed.

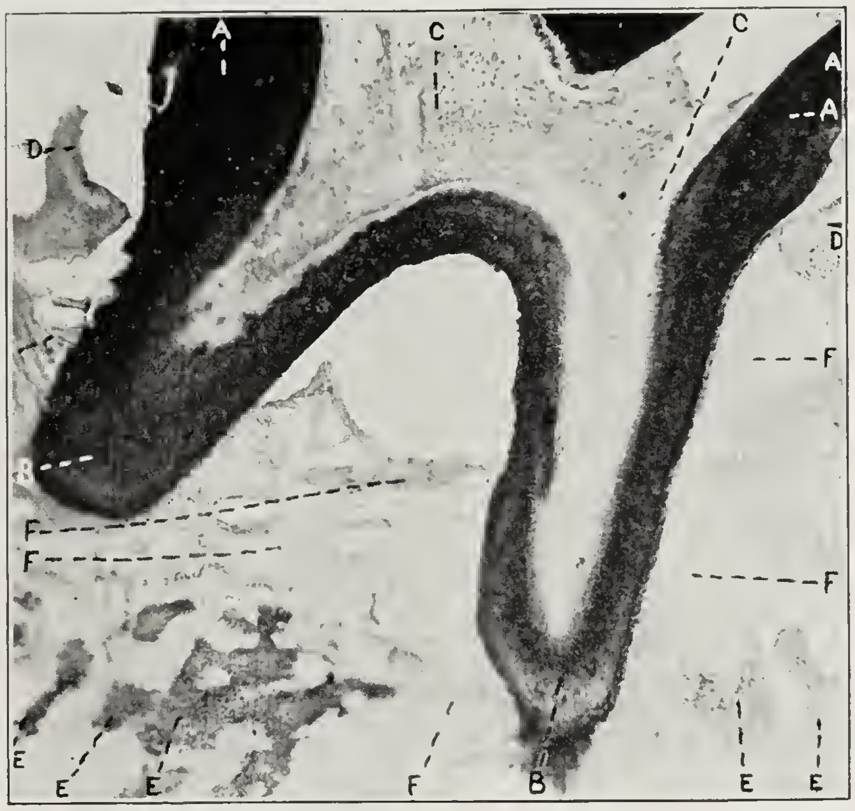

Fig. 6.—Section of macerated molar, alveolus and periodontium involved by gingival disease, decalcified in Mueller's fluid, reduced from photomicrograph, × 40: *a*, coronal dentin; *b*, apexes; *c*, dental pulp; *d*, remaining crests; *e*, osteoporous bone; *f*, fibrous attachments and granulation tissue replacing normal bone and periodontium.

Relative Importance of Fatal Accidents.—The importance of fatal accidents among the industrial policy holders of the Metropolitan Life Insurance Company is brought out strikingly by a comparison with certain diseases of primary interest to public health. There were only twenty-nine death claims for typhoid fever, for example, paid in New York in 1921, as compared with 1,022 death claims paid for accidental deaths. During that year, twenty-eight claims were paid on account of measles, ninety-six on account of scarlet fever, thirty-four on account of whooping cough, and 213 on account of diphtheria. Thus we see there was over two and a half times as much mortality from accidents in the city as from all four of these epidemic diseases of childhood.—*Statistical Bulletin*, September, 1922.

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[8] McCarrison, R.: Studies in Deficiency Disease, Oxford Press, 1921.

[9] Broderick, F. W.: The Effect of Endocrine Derangement on the th, Brit. Dent. J. 41: 955 (Oct. 15) 1920.

TREATMENT OF RECURRENT INOPERABLE CARCINOMA OF BREAST BY RADIUM AND ROENTGEN RAY *

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All cases of carcinoma of the breast may be classified in one of five clinical groups, (1) primary operable; (2) primary inoperable; (3) recurrent operable; (4) recurrent inoperable, and the (5) prophylactic group, the last comprising patients referred to us following radical operation of the breast for prophylactic irradiation, there being no obvious evidence of cancerous disease at the time of their admission.

The present paper is a study of recurrent mammary cancer treated in the breast clinic at the Memorial Hospital during the years 1918, 1919 and 1920, comprising a series of 218 patients, practically all of whom have been completely followed up to the present date.

We have included none from the 1921 group, as sufficient time has not elapsed to warrant reporting the results of treatment. The object of this paper is to determine whether or not radiologic treatment of recurrent carcinoma of the breast is justified by the results obtained in this clinic.

Most of the recurrent cases were inoperable at the time of their admission to the clinic. In the recurrent breast group, only six patients have presented themselves, in the years 1918, 1919 and 1920, who could fairly be classified as having operable cases. A small, nonadherent skin lesion, or a small movable node, low down in the axilla, may properly be considered operable, if no other evidence of disease is to be found. Under these circumstances it is a correct procedure to excise the recurrent nodule, irradiation being given both before and after operation. With the presence of several such lesions, however, one must conclude that the disease is probably widely disseminated, and any thought of any operative relief must be discarded. In this event, irradiation is the type of therapy that must be relied on.

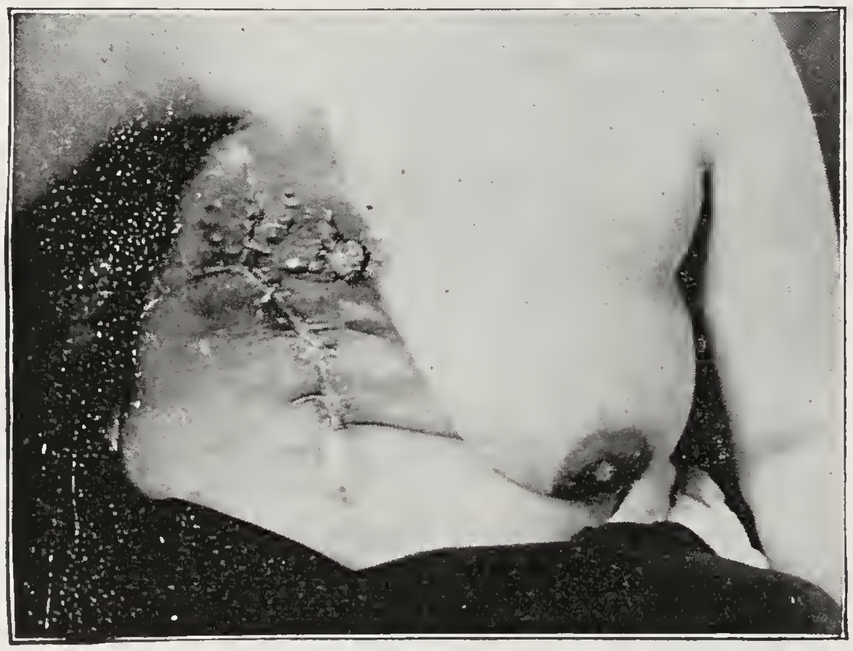
Fig. 1.—Recurrence of inflammatory carcinoma; this type of case always extends rapidly.

A considerable number of cases, namely, ninety-four, were so far advanced at the time of admission that they were obviously hopeless from the outset. The ve advanced breast recurrences must be set apart fro those cases in which a reasonable palliation, if not considerable regression of the disease, may be expecte All that one may hope to accomplish for those patien with a far-advanced lesion is a relief of their sufferi by adequate amounts of codein or morphin; freque dressings when foul ulcers are present, and perhaps times sufficient to satisfy the mind of the patient th treatment is still in progress. If we therefore exclud these patients from the whole number of 218 cases, w have remaining 124 patients in whom irradiation as therapeutic agent could be entertained with a fair hop of some favorable result.

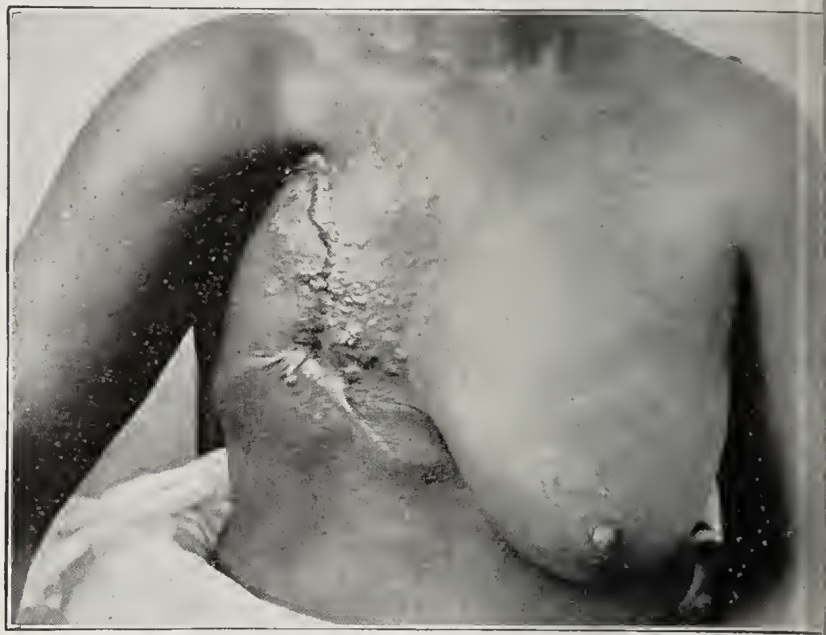
Fig. 2.—Diffuse cutaneous metastases before irradiation.

THE PREVENTION OF RECURRENCE

Proper Selection of Cases.—In the recent rapi development of therapy by roentgen ray and radiur the surgeon has at times seemed unwilling to relinquis anything in the surgical treatment of cancerous disease The presence of a carcinoma in a breast is not necessarily an indication for a radical amputation, for careful physical examination of the patient may revea some factors which would militate against success b operation. The cases treated surgically must therefor be well chosen if the percentage of recurrence is to b kept at a minimum.

Preoperative Irradiation.—It has been the practic at the Memorial Hospital for several years to give preoperative cycle of roentgen ray in every case o carcinoma of the breast before submitting the patien to operation. As a rule, a period of from seven to te days is allowed to elapse, between the time of the las irradiation and the day of operation. We believe tha the preoperative cycle is of great service in forestallin recurrence, but up to the present time a sufficient number of cases has not been accumulated to furnish proper comparison with groups of patients in othe clinics where the preoperative use of the roentgen ra has been omitted; eventually such a study will unquestionably furnish a proper estimate of the real value o preoperative treatment. In the vast majority of case we have seen no evidence which would lead us t believe that the preoperative cycle interferes materiall with wound healing, or adds to the liability of woun infection.

Postoperative Irradiation.—From two to three week following operation, every patient is subjected to stoperative series of roentgen-ray treatments over the ole breast and drainage areas. An interval of from : weeks to two months is then allowed to elapse, en a second similar cycle is administered. Sufficient ta have already been accumulated at the hospital to ke one feel very certain that postoperative treatment events certain recurrences and postpones the appear-ce of practically all recurrences. In addition, it questionably prolongs the life of the patient. We el, therefore, that postoperative irradiation has oved its worth without any reservation.

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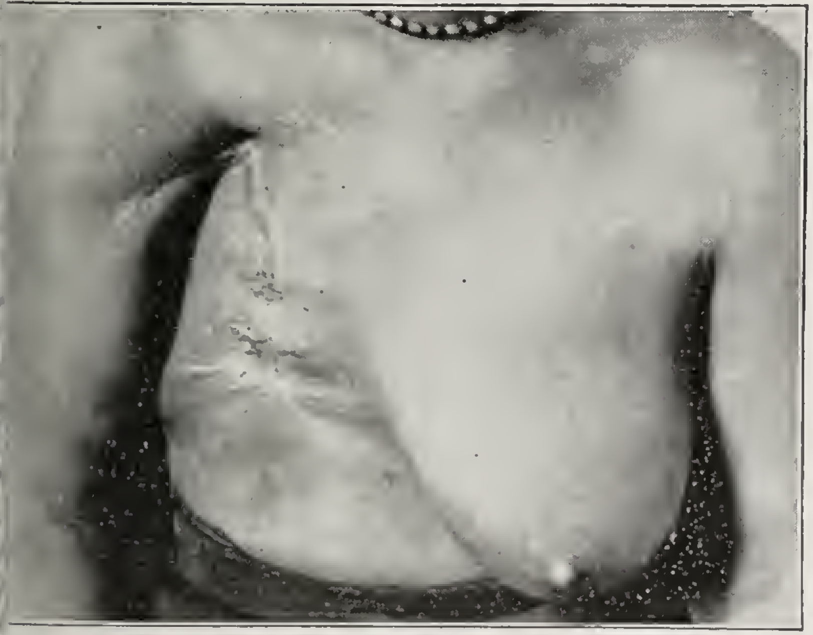
* Read before the Section on Surgery, General and Abdominal, at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

RESULTS OF TREATMENT

One may well ask what the average expectation of e is from the time of the first appearance of a recur-nt breast tumor without any irradiation. Such a estion might imply that all breast cancers are of the ne pathologic type and follow a similar clinical urse. We know that this is not the case. At present, th the cooperation of Dr. James Ewing, pathologist the Memorial Hospital, we are engaged in an effort classify more satisfactorily the various types of rcinoma from a pathologic point of view and to dy their reaction to various forms of irradiation. A pillary adenocarcinoma, a tumor well known to be of v-grade malignancy, will certainly permit a longer riod of life following recurrence than a rapidly owing cellular tumor. Similarly, a fibrocarcinoma in woman of 70 may be expected to grow with much s rapidity following reappearance of the disease than fulminating recurrence complicating pregnancy in a ung woman. Nevertheless a gross clinical judgment to the value of irradiation as a means of treatment r recurrence may be reached if we compare results ing the duration of life from the appearance of currence in nonirradiated and irradiated patients.

At the New York Hospital, in the First Surgical vision, where, through the courtesy of Dr. Charles L. son, I was able to follow the breast cases especially, length of life after recurrence in a series of twenty- patients on whom a radical amputation had been formed, with no subsequent irradiation, was six and alf months. In the patients in the present series, who e been treated by irradiation following the appear-e of recurrence, the length of life after recurrence been two years and four months, a decided advan-e, as one may readily see, in favor of irradiation.



ig. 3.—Disappearance of cutaneous metastases following irradiation ne case as in Fig. 2).

Of the total of the 124 patients in whom some favorable results from irradiation might be expected, thirty-one are alive at the writing of this report, which is 25 per cent. of the total number. Of the thirty-one patients, twenty-two are doing well, while nine are doing badly. A brief table is given, that the data may be more readily available.

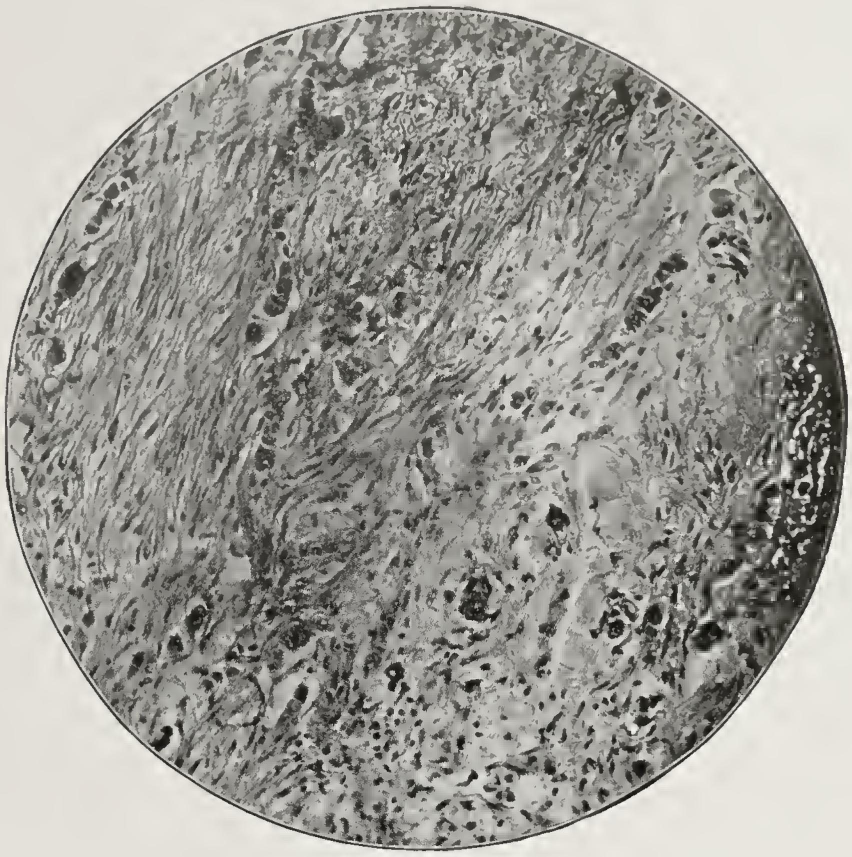


Fig. 4.—Granular degeneration of cell bodies; hyperchromatism of nuclei, and granular degeneration of the stroma.

In general, the more cellular the tumor, the better the response to treatment by irradiation. The younger the woman and the more rapid the recurrence, the poorer is the result to be expected from irradiation.

RESULTS IN THIRTY-ONE CASES

	Operation to Recurrence		Recurrence to Date		Total Duration After Operation	
Case	Years	Months	Years	Months	Years	Months
	Patients Doing Well					
1	..	6	3	8	4	2
2	13	..	6	..	19	..
3	..	7	4	10	5	5
4	..	3	6	4	6	7
5	..	3	4	8	4	11
6	.	2	3	..	5	..
7	2	3	3	5	5	8
8	..	1	2	9	2	10
9	..	.	3	2	3	2
10	2	..	2	10	4	10
11	..	3	1	8	1	11
12	..	..	2	..	2	..
13	..	1	2	2	2	3
14	1	..	1	6	2	6
15	..	9	1	7	2	4
16	7	1	2	4	9	5
17	2	..	1	8	1	10
18	1	1	2	2	3	3
19	1	7	1	11	3	8
20	8	..	1	10	2	6
21	6	4	2	2	8	6
22	10	..	1	10	2	4
	Patients Doing Badly					
23	..	3	5	..	5	3
24	1	1	3	..	4	6
25	1	.	3	8	4	8
26	..	..	2	10	2	10
27	..	11	4	9	5	8
28	1	6	3	6	5	..
29	..	6	2	3	2	9
30	4	..	2	7	6	7
31	3	..	2	3	5	3

TYPES BEST SUITED FOR IRRADIATION BY RADIUM

Small localized lesions in the infraclavicular region, or adherent to or involving the chest wall, small localized skin metastases or small accessible nodes are most amenable to treatment by radium itself.

Some of our best results following the use of radium in the recurrent group have been in the infraclavicular region. In some of these cases, applications of a radium pack have resulted in a complete disappearance of the growth. One of the patients has now gone one and a half years with no further evidence of disease to be made out. The details of radium therapy and the methods employed have been fully described in a recent article,[1] and will not be described here.

TYPES BEST TREATED BY THE ROENTGEN RAY

Recurrences best treated by the roentgen ray include diffuse cutaneous involvement, examples of so-called inflammatory carcinoma, extensive involvement of nodes in the axillary or supraclavicular regions, and mediastinal or pleural metastases, as well as bony metastases, in various parts of the body. The technic employed has been fully described in a recent paper. At present we are still depending mainly on the old type of roentgen-ray machine, and have been reasonably satisfied with the results obtained. Some of the most striking effects have been seen in the treatment of diffuse cutaneous involvement, an area of considerable disease disappearing in a few weeks under appropriate irradiation, leaving an apparently normal skin. In some of these cases, a later examination showed a reappearance of the lesion.

The new 200,000 volt machine now in operation is being used on carefully chosen patients, but sufficient time has not elapsed to make any report on this method of therapy. We are very hopeful that some of the mediastinal and pleural extensions of the disease may yield some encouraging results by this new method of treatment.

The gross and microscopic effects of the treatment of cancerous diseases by radium and the roentgen ray have been described elsewhere.

CONCLUSIONS

1. As a prophylaxis against the recurrence of breast carcinoma, a careful selection of patients for operation must be made.

2. Preoperative and postoperative cycles of roentgen ray are important prophylactic measures against recurrence.

3. A follow-up in every patient with carcinoma of the breast operated on should be adopted as a routine. No surgeon should operate on a patient with breast cancer without appreciating that an integral part of the procedure is following up the patient, with the idea in view of discovering the appearance of metastases at an early date, permitting the application of irradiation as soon as possible.

4. Properly applied irradiation to recurrent breast carcinoma definitely prolongs the life of the patient.

5. I believe that ultimately, with more comple knowledge and better technic, a still further control the recurrent phase of this disease may be expected.

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FOCAL INFECTION IN THE TONSIL CAUSING A TUBERCULOUS OPHTHALMIA *

CECIL M. JACK, M.D.

DECATUR, ILL.

A study of the etiology of chronic inflammatory co ditions of the eye is instructive to both the internist a the ophthalmologist. We are beginning to believe th these conditions are not primary, but secondary diseased foci in other parts of the body. It becom the problem of the internist to search out these pr mary foci. The ophthalmologist has recognized tube culous ophthalmia for some time, but has been conte with such a diagnosis and treatment directed locall or tuberculin given hypodermically. Those who co sidered it a secondary condition considered the lungs a primary source and sought no further. The case am reporting deals with such a condition. The prima focus was suggested by the history, but determined b a pathologic examination of diseased tissue removed.

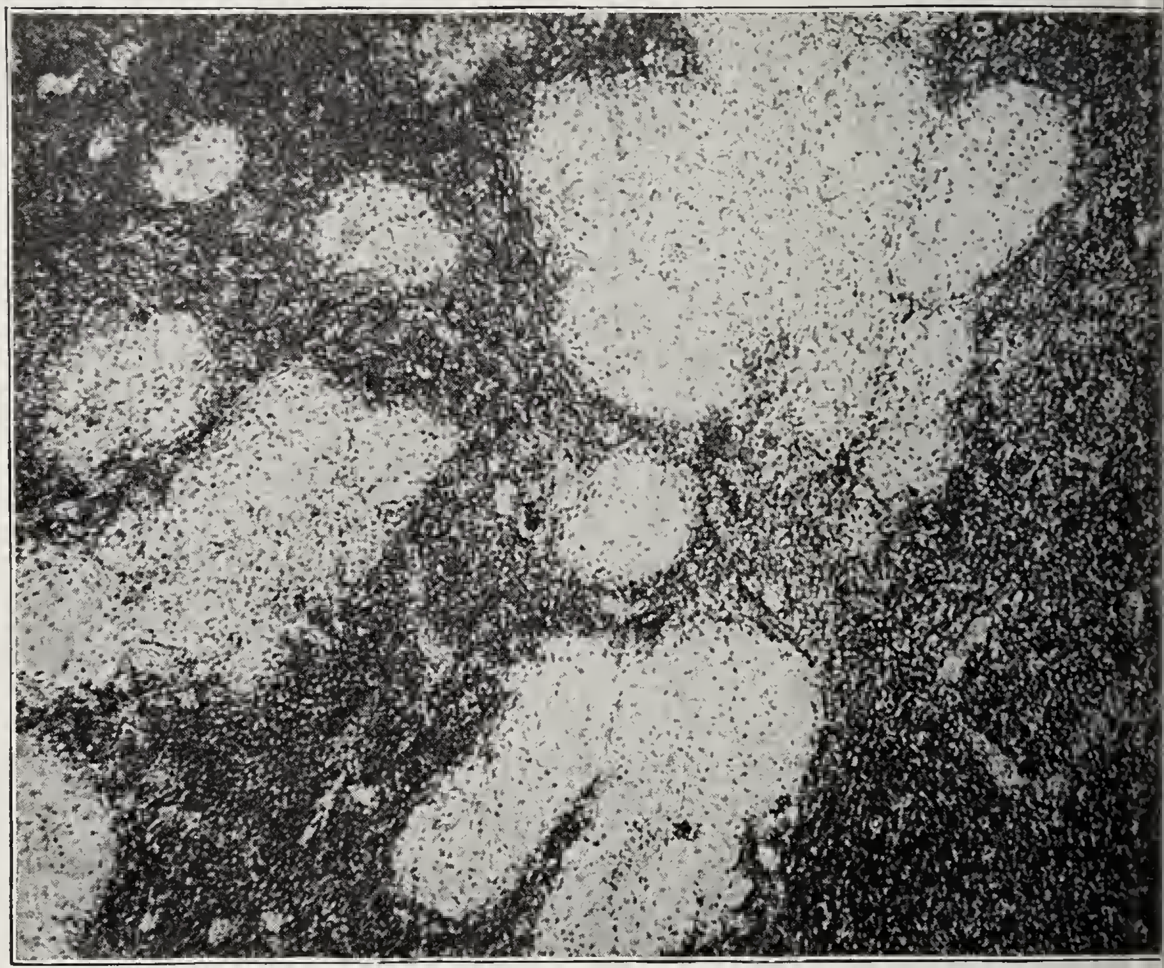

Fig. 1.—Section through tonsil: The smaller light areas are the individual epithelioid tubercl the larger confluent masses are the caseating ones; these are taken from around the infected cry

REPORT OF CASE

History.—Miss B., aged 21, referred by Dr. A. E. Prin of Springfield, Ill., for examination and treatment, a diagnos of tuberculous sclerokeratitis having been made, complain chiefly of an inflamed right eye with failing vision. The fath died of diabetes at 72; the mother was living at 60; o brother was living and well. There had been no tuberculo in the family. The patient had been delicate as a child, had been bottle fed, and at the age of 3 was operated on by Dr. John B. Murphy of Chicago for tuberculous cervical adenitis. She had many attacks of tonsillitis when older, and a tonsil operation was performed at the age of 14, since which time she has been free from sore throat. At 18, March 16, 1916, she began having an inflammation of the right eye. She consulted several physicians, Dr. Prince being the first (June, 1916) to make the diagnosis of tuberculous ophthalmia. The first attack lasted six months, and was treated by Dr. George Palmer of Springfield with tuberculin. She remained well until March, 1920, when the inflammation returned. She was in Chicago at this time, and consulted Dr. William E. Gamble, who agreed in the diagnosis. His notes show that the vision was normal, and that there was a mild ciliary injection and a cloudy iris, which did not react well to light. The patient then moved to Decatur, and at this time came under my observation. Tuberculin was given, and she seemed to improve at first; but the process took a turn for the worse, the vision became impaired, and the other eye became inflamed. Tuberculin was stopped, and the eyes were put at rest with atropin. The condition continued to grow worse. She now consulted Dr. William H. Wilder of Chicago, who agreed that the process was tuberculous, and it was his opinion that there was some question as to whether the opacities of the cornea would allow her to have even useful vision in the right eye. The vision at this time was 1/200.

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[1] Lee, B. J.: Results to Date in the Treatment of Primary Inoperable Carcinoma of the Breast by Radiation, Ann. Surg., September, 1922.

* Read before the Decatur Medical Society, Dec. 20, 1921.

* Read before the Section on Ophthalmology at the Seventy-Th Annual Session of the American Medical Association, St. Louis, M 1922.

Physical Examination.—There was marked conjunctivitis of the right eye, a diffuse opacity of the cornea, greater in the lower part, and a marked scleritis, together with uveitis. The vision of the eye was 1/200.

There was considerable conjunctivitis and ciliary injection of the left eye. The cornea and the interior of the eye showed no evidence of any lesion when viewed with the ophthalmoscope; the vision was 20/30.

Between the tonsillar pillars, stumps of tonsil tissue could be seen, especially on the right side. A scar showed on the neck where the tuberculous glands had been removed at 3 years of age. The rest of the physical examination revealed nothing abnormal. Complete chest and gastro-intestinal examination was made, including the use of the roentgen ray. This examination was made in January, 1921. The outlook was so unfavorable at this time that I had decided to make a complete reexamination. In taking the history, the patient's mother told me with what difficulty the tonsils were removed —that she had to go back a number of times for treatment and the removal of small pieces. This history and the scar on the neck led me to consider the remaining stumps of tonsil tissue as a focus, and I advised their enucleation.

Operation and Result.—At the time of the operation (February, 1921) the vision was so impaired that the patient could not recognize her mother in the same room. The operation was performed under local anesthesia. A piece, the size of a hazelnut, was enucleated from the right side, and from the left three pieces which were completely covered by a slitlike fold were recovered. Dr. A. S. Warthin of Ann Arbor, Mich., made the pathologic report: The tonsil showed a condition of chronic inflammation and hyperkeratosis. It contained great numbers of miliary tubercles clustered around the crypts. The majority of these were epithelioid tubercles, but the larger confluent ones showed caseation and giant cells. No tubercles were found in the germ centers, so that the process was a crypt infection, and not a hematogenous one. One crypt was completely surrounded by a confluent mass of miliary tubercles. From this report one might think that there were two processes at work: an older one as shown by the caseation, the other a more recent one, shown by the miliary tubercles.

Improvement took place rapidly, and now, nine months after the operation, her vision in the right eye has returned to 20/50, and in the left eye to 20/20. The opacities in the right eye have cleared beyond all expectation. The left is a perfect eye.

COMMENT

In searching for similar cases, advantage was taken of the American Institute of Medicine of New York. They made for me a diligent search, but the information obtained was very meager. No case of tuberculous sclerokeratitis could be found in which a pathologic report revealed the presence of tuberculosis in the tonsil.

I record this case, because in searching through the literature no like observation could be found, and I hope that this report will stimulate others to make pathologic examination of the tissue removed when a like condition appears.

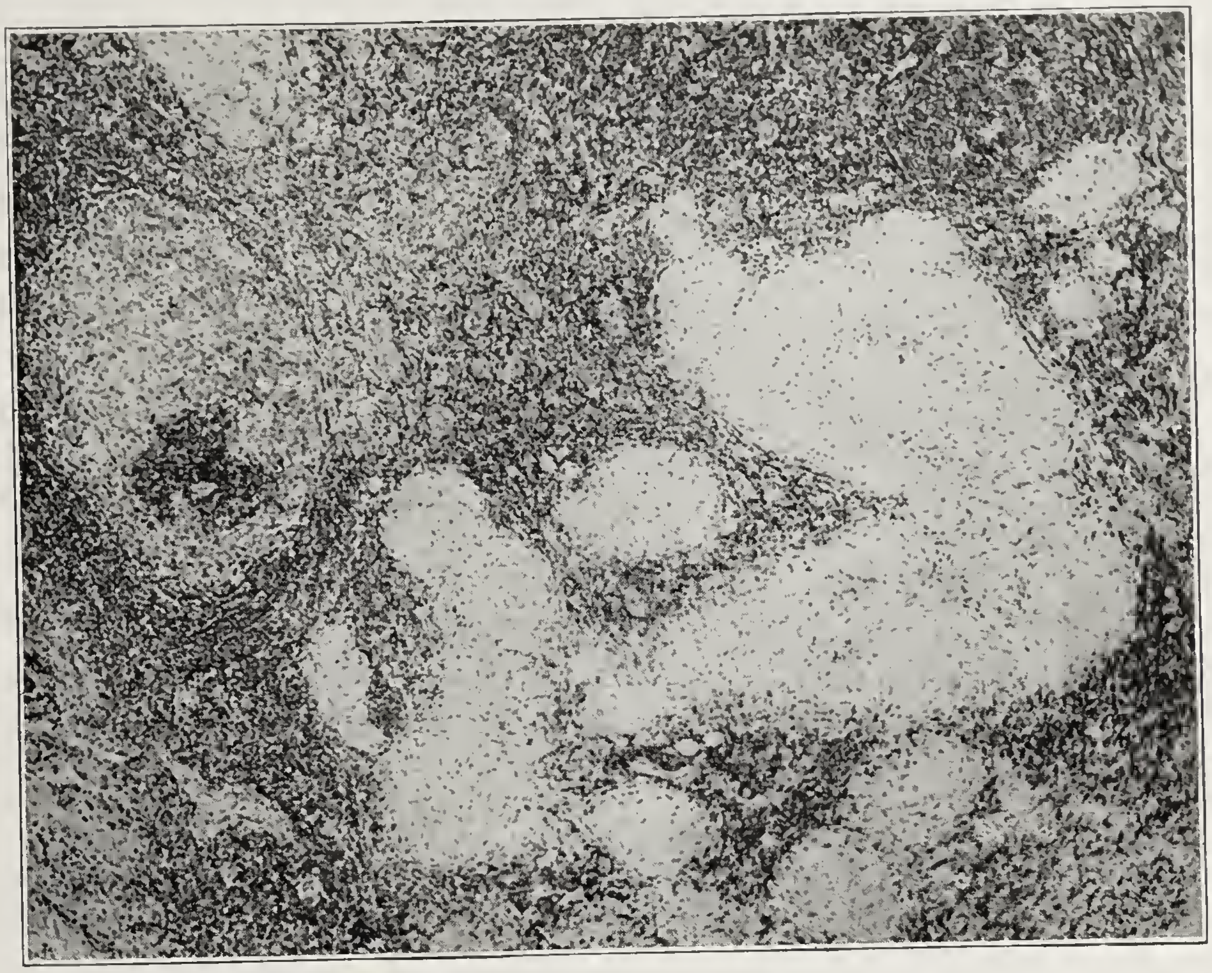


Fig. 2.—Section through tonsil: germ center on left, which is free from tubercle.

134 West Prairie Avenue.

ABSTRACT OF DISCUSSION

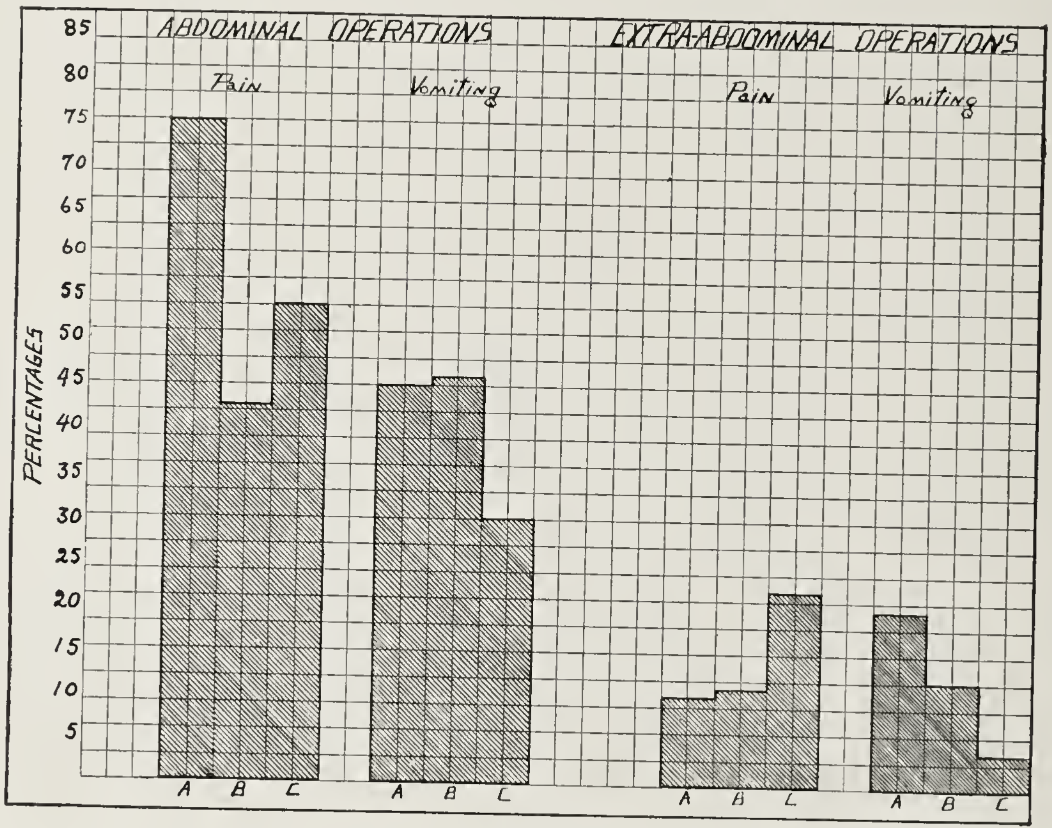
Dr. Oliver Tydings, Chicago: Many years ago a patient consulted me and I sent her to Dr. Baldwin of Columbus, Ohio, for operation. He operated and sent me the pathologic report. It was a uterine disturbance, a tuberculous condition. Fifteen years afterward that patient returned with a tuberculous condition of the retina. She was given tuberculin. She has recovered perfectly normal vision. I have seen her within the last six months and her eyes are normal.

Dr. William C. Finnoff, Denver: I do not recall ever seeing the tonsil referred to as the primary focus, although there is no reason why it should not be. I believe that in many cases of chronic ocular tuberculosis the primary focus is in the lymph glands, and probably in some cases the primary focus is in the tonsil. Some years ago I examined 200 pairs of tonsils, and I found tuberculosis in four of them, or 2 per cent. The first statement in the abstract, that tuberculous ophthalmia is secondary to primary tuberculosis elsewhere, I think is a misstatement, because sclerokeratitis might be a primary condition. Intra-ocular tuberculosis in all instances, unless connected with injury, is secondary. The use of tuberculin in the treatment of a tuberculous eye condition is not specific. Hygienic treatment must be used as well. Tuberculin is just one therapeutic adjunct.

IMPROVEMENTS IN PREOPERATIVE AND POSTOPERATIVE CARE *

F. B. TAYLOR, M.D.
W. I. TERRY, M.D.
AND
W. C. ALVAREZ, M.D.
SAN FRANCISCO

Until 1919, it was customary at the University of California Hospital to give a dose of castor oil the night before operation, and enemas in the morning. At that time, Dr. Terry discontinued the routine purgation, but left the order for enemas. The general impression about the hospital since then has been that the postoperative recoveries are on the average more satisfactory, and that there is less vomiting, abdominal distention and pain. Several of the operators are enthusiastic over the change, and no one has expressed any desire to return to the old routine. In 1918, Alvarez[1] suggested that it would be wise also to abolish the routine purge usually given on the second or third day after operation. Some of the nurses had remarked upon the fact that not infrequently everything went well until that purge was given, and then everything went wrong. It seemed often to give rise to the vomiting, gas pains and tympanites; or, if they had been present before, it seemed to bring them back. Moreover, there does not seem to be any good reason for giving purgatives to these patients so soon after operation. One cannot expect them to produce fecal material when, for several days, they have had little or no food. The main reason for giving this purge is that, ordinarily, the surgeon feels uneasy about his patient until the bowels begin to move. After that, he feels that the worst dangers are over; but, as the purge can do harm and can cause much discomfort, it would undoubtedly be better sometimes if the operator woul restrain himself a bit and wait patiently for Nature.



Incidence of pain and vomiting in patients: *A*, purged before and soon after operation; *B*, not purged before, but purged soon after operation; *C*, not purged before and not purged for four days after operation.

As some of our surgeons felt a certain amount o uneasiness about giving up such a long-established cus tom, it was thought wise to observe the results of th new technic very carefully and to compare them statistically with those obtained in the preceding period whe patients were purged before and after operation.

An effort was made to answer the following tw questions: (1) Has it been advantageous to give u the routine preoperative purgation; and (2) has it been advantageous to give up the routine postoperative purgation?

Sixty-two of the people whose postoperative records have been analyzed in this paper were watched and questioned day by day by one of us (F. B. T.). Unfortunately, our conclusions in regard to the control group operated on before 1919 must be based solely on the nurses' records. Most of these are from the University of California Hospital; some are from Lane Hospital, some from the Children's Hospital and some from Mount Zion Hospital. Unfortunately, nurses are often kept pretty busy, and we cannot be sure that every complaint of pain and every attack of vomiting has been charted. However, on comparing the nurses' records in the last sixty-two cases with the notes made independently by Dr. Taylor, we feel that the nurses can be trusted to give a fair idea of the storminess or mildness of a postoperative period. One point in favor of the hospital records is that they were made without bias, i. e., the nurses had no idea of the use to which their notes were to be put. In analyzing these data, no attention has been paid to the patients' symptoms on the day of operation because we must expect some suffering at that time from the effects of the anesthetic and of the incision.

Our conclusions are based on records from 211 patients. Of these, 146 had abdominal, and sixty-five had extra-abdominal operations. The abdominal series includes appendectomies, hernioplasties, gastro-enterostomies, cholecystectomies and explorations. As it would obviously not be fair to compare the postoperative symptoms after partial gastrectomies with those after simple hernioplasties, an effort has been made to have the different types of operations represented about equally in the control and the experimental groups. Aside from this, the cases were taken serially, without any selection or discrimination. The extra-abdominal group includes most of the common types of operation performed in a large hospital.

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* From the Department of Surgery, University of California Hospital, and the George Williams Hooper Foundation for Medical Research, University of California Medical School.

[1] Alvarez, W. C.: Is the Purgation of Patients Before Operation Justifiable? Surg., Gynec. & Obst. **26**: 651 (June) 1918.

In the analysis, the cases have been divided first into bdominal and extra-abdominal. Naturally, we would xpect the patients who have their abdomens opened o suffer more from gas pains and vomiting than do hose who do not have them opened. Each of these roups is divided again into three: (1) those operated n before 1919, who had been purged before and after peration; (2) those who had not been purged before ut had been purged shortly afterward, and (3) those vho had not been purged before and who were given o enema or cathartic for at least four days after peration. The incidence of pain and vomiting in hese three groups is shown graphically in the accompanying chart.

The first thing of interest to be noted in the chart s the fact that even the patients who did not have heir abdomens opened sometimes had considerable pain nd even some vomiting. It shows the large influence f the anesthetic in the causation of these postoperative isturbances.

The salient points brought out are: (1) The omission of the preoperative purge had no definite influence n the amount of vomiting, but it had a decided effect n the amount of pain in the abdominal cases, reducing ts incidence from 75 to 42 per cent.; (2) the delay in iving the postoperative purge had a decided effect n the amount of vomiting, reducing its incidence from 5 to 30 per cent. in the abdominal group, and from 0 to 4 per cent. in the extra-abdominal group; (3) in oth groups, there was more complaint of pain when he postoperative purges and enemas were withheld. Ve believe that this means that a number of persons vill be more comfortable if given enemas as soon as hey are needed to help in the passage of gas. The ssential thing is to make the treatment individual and ot routine. We still feel it wise, however, in most ases to avoid the use of cathartics for as long a time fter operation as possible.

Unfortunately, in going over the records no account vas kept of the severity or duration of the vomiting nd pain in the various groups. Our clinical impressions lead us to believe that such data might have hown the improved results more graphically than do hose which we present here. When one comes to hink of it, it is really rather remarkable that 55 per ent. of persons who have within a period of a few ays submitted to purgation, to an extensive laparotomy nd then to purgation again should (after the first day, s shown above) escape vomiting, and that 25 per cent. hould escape abdominal pain. Another 20 per cent. re so constituted, however, that they will have gas ains and vomiting after minor extra-abdominal operations, with no purgation and only a short gas-oxygen nesthesia. The importance of this large personal lement is seen in the case of a woman who recently ad the gallbladder removed. She had no purgation, nd the anesthetic was gas-oxygen. She had no gas or omiting, and ate with pleasure on the day after operation. At first sight it would seem to be a triumph for he new technic; but it appears that she did just as well even years ago, when she was well purged and when he had an ether anesthesia for the drainage of the allbladder.

One point is gratefully noted by the nurses, and hat is that they have much less work to do under the resent routine. There is less carrying of bed pans; here is less moving of people in heavy casts, and there s less soiling of patients and beds.

As some surgeons have worried a bit about the dangers of fecal impaction or autointoxication, twenty patients were allowed to go for at least six days after operation without receiving purges or enemas. None of these patients showed any ill effects, and several of them had spontaneous bowel movements within the period of observation. In the others, an enema on the sixth day gave good results. Certainly it would seem that a surgeon need have no fear about neglecting his patients' bowels after operation, particularly when little or no food has been given out of which feces can be formed.

The essential point which we wish to make is that in a large hospital with young and inexperienced house officers, the standing orders should call for as little meddlesome interference as possible. If any patient develops symptoms which require the use of purges or enemas, they can always be prescribed; but they should not be made compulsory for the patient who is convalescing smoothly and rapidly. Furthermore, the standing orders must not be such that the very life of a man coming in with an acute intestinal obstruction, a perforating appendix or a gangrenous Meckel's diverticulum must depend on the intervention of some intelligent intern or resident.

Some may feel that our figures do not show enough improvement with the new technic to warrant spending much thought on it. Our answer is that until a few years ago a man might be satisfied if he escaped from an operation with his life and some improvement in his condition. Today, operations have been made remarkably safe. The next thing is to reduce the amount of discomfort attendant on them. If, by any procedure, surgeons can eliminate postoperative vomiting in fifteen out of a hundred cases, and postoperative pain in thirty-two out of a hundred, they will be doing something worth while, something which will redound to their credit individually and collectively.

PHYSICAL DEFECTS DISCOVERED IN SELECTIVE DRAFT MEN DURING THE WORLD WAR

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An unusual opportunity was afforded during the late war to the medical profession of this country to obtain definite information from the reports of the examinations of the selective service men in regard to the physical condition of the young men of this country between the ages of 21 and 30 years.

During the World War, more than 4,000,000 men were enrolled in the military service in the Army, and slightly more than 600,000 in the Navy and Marine Corps. Of the number in the Army, approximately 2,700,000, or more than 70 per cent., came in in accordance with the provisions of the Selective Service Act. Never before in the history of this country had such a large number of men been examined physically for the military service, for whom accurate records of the examinations were preserved. Prior to this time the largest army assembled in the United States was during the Civil War. From the best information available, apparently about 2,300,000 men were enrolled for the Union Army during that war. As will be recalled, the draft act, which was similar to our recent

Selective Service Act, was not enacted until March 30, 1863, and the first call for men effected by the law was that of July 1, 1863. Previous to that time more than 1,250,000 volunteers had entered the military service of the Northern armies. Even after July 1, 1863, the greater part of the men who were mustered in came in as volunteers or as substitutes. Actually, only 2 per cent. of the total forces which were raised for the Union army were draftees, who were held to personal service.

The physical examinations prior to the passage of the draft act were apparently quite inadequate. After the Office of the Provost Marshall General was established, with a medical adviser, efforts were made subsequent to July, 1863, to preserve the records of the physical examinations of all men entering the military service either as volunteers, substitutes or draftees, to obtain from them some statistical material to show the physical condition of the men of this country between the ages of 18 and 45. Since, however, the population of the North had already been depleted of a very large percentage of its best manhood by the volunteer system, the study of the latter records was necessarily made to study the records of the physical examinations, if any were prepared, of the men in the Confederate army.

It was, then, during the World War that our first opportunity was really presented to obtain accurate information in regard to the physical condition of the young men of the country as a whole. Approximately 400,000 men volunteered for the military service prior to the first call for the selective service men in September, 1917. This number was, however, not sufficient to deplete materially the manhood of the country and, consequently, to modify the findings obtained from the study of the physical examinations of the selective service men.

After Dec. 15, 1917, the basic classification of all registrants was first as to their economic availability for military service. All who were found to be available at once were put in Class 1. The total number of these men of the first and second registrations and including all who went to camp prior to Dec. 15, 1917, was 3,764,000. Of this group, 550,000 were rejected by their local boards as physically unfit for all military service. Of those considered physically fit, amounting to approximately 3,200,000, more than 2,700,000 entrained for the military camps.

The physical examinations of these Class 1 men by the local and camp examining boards showed that 47 per cent. had a physical defect of sufficient importance to note on the reports of the examinations. It may be regarded as surprising that a larger number of defective men were not detected; probably there might have been if the examinations had not been necessarily hurried, owing to the military necessity. The various medical specialties were, however, all represented on the examining boards, and they were probably more carefully conducted than any similar set of examinations for military or life insurance purposes at any previous time in the history of this country.

Some of the defects that were recorded were obviously of greater importance from a military standpoint than from that of the ordinary demands of civil life. Practically all were, however, of some importance even to those who did not expect to engage in arduous physical exercise or labor. For example, a man with a pronounced degree of flatfoot, even though he may be able to carry on and maintain himself and family in civil life, is certainly inconvenienced, if not actually handicapped.

The percentage of the defective men varied materially according to the section of the United States from which they were drawn. As is obvious from a very superficial study of any of the decennial census reports of our country, our population is not a homogeneous one. There are well defined areas where the people still show the physical characteristics of the original settlers.

The number of defective men varies by states from 64 per cent. in Rhode Island to 35 per cent. in Kansas. Rhode Island, the most urban of all states, whose population is largely engaged in manufacturing, stood at the top, largely because of the defective and nonresistant stock which has been drawn to that state. Kansas, on the other hand, is largely agricultural, and such of its population as is of foreign origin is of the more robust type. The percentage of the native born in Kansas is 65 per cent., and in Rhode Island, 29.4 per cent.

The French Canadian group had the highest number of defective men (55 per cent.), while that of the native whites of Scotch origin had the smallest (40 per cent.).

The cities furnished a larger percentage of defective men (51 per cent.) than the rural districts (44 per cent.).

Of all Class 1 men, 21 per cent. were found physically unfit for all military service, or, in other words, more than one young man in five was physically unfit to perform any type of military service either at home or abroad.

Not all of the conditions for which men were rejected were very serious handicaps for them in the economic competition in civil life. The majority of conditions were, however, of some importance even to such as followed occupations which do not require physical exertions. The more important causes of rejection were: organic diseases of the heart, 11.5 per cent. of the total causes of rejections; tuberculosis, 9.3 per cent.; errors of refraction, 8.4 per cent.; underweight, 7.6 per cent.; mental deficiency, 4.5 per cent.; hernia, 4.3 per cent.; flatfoot, 3.6 per cent.; defective and deficient teeth, 3.2 per cent.; defective speech and hearing, 2.6 per cent.

Of the large class of diseases, the defects of the bones and organs of locomotion ranked first, with 17.2 per cent. of the total causes of rejections; diseases of the heart and blood vessels, second, 15 per cent.; diseases of the eye, third, 12.6 per cent., and tuberculosis, fourth, 9.3 per cent.

Similar to the variation in the number of defective men by states, the number of men who were rejected varied materially according to the section of the country from which they were drawn. Thus, Rhode Island, which had the largest number of defectives, also had the largest number of men rejected. Forty-two per cent., or almost one half of all between the ages of 21 and 30 who were examined from that state, were rejected, while from Wyoming only 13 per cent. were found to be physically unfit. Here again it was largely the character of the foreign population which had been drawn to Rhode Island, as a result of the character of the industries carried on in that state, though no doubt partly as the result of the industries themselves, which caused this high percentage of rejections.

More men from the cities were rejected (23 per cent.) than from the rural districts and small towns (20 per cent.), owing not only to the environmental condition in the large cities, but also to the character of the foreign population congregated in them.

In the study of the physical conditions of the selective service men, much space was devoted to the study of the defects or diseases noted, since it was the purpose of the study to determine the relative prevalence of the several kinds of defects and diseases in the various sections of the country. Considering, then, the total number of defects rather than of defective men, we find that for each hundred men there were fifty-six defects noted. The excess of the defects over the defective men per hundred was nine; in other words, nine men out of each hundred had two defects which were of sufficient military importance to note.

A defect of some character was noted in 80 per cent. of all men from Rhode Island, while those from Kansas had only a little over half this number (42 per cent.). The physique of the population of the various states varied even to as great an extent as the number of physical defects did. Rhode Island had the largest relative number of men who were below the required military height, the largest percentage of those below the required military weight for their height, and also the largest percentage of those who were regarded as obese. In other words, the population, which was composed to a considerable extent of South Europeans and French Canadians, ran to the extreme. The men from certain of the other states, and especially from the North Central and Northwestern states, were much better proportioned.

The average height or stature of 1,000,000 men was 67.49 inches (171.4 cm.). The shortest men came from Rhode Island (66.4 inches, or 168.6 cm.), the tallest from Texas (68.4 inches, or 173.7 cm.). Considering the population groups, the tallest men came from the mountain area of North Carolina. These men were of Scotch descent and averaged 68.67 inches (174.4 cm.).

The average weight for the United States was 141.54 pounds (64 kg.). The heaviest men were from South Dakota (146.96 pounds, or 67 kg.), and the lightest from Rhode Island (136.44 pounds, or 61.9 kg.). Considering the sections the lightest men were from the section of Florida which had a large percentage of West Indians and Spanish (136.23 pounds, or 61.8 kg.). Of the total rejections, 7.6 per cent. were because of underweight, while a little less than 1 per cent. were from underheight, the latter being only a military defect and not an economic one. The relation of weight to height is most important. Thus, among the men who were sent to the military camps and were rejected there on account of pulmonary tuberculosis, 82.6 per cent. were under the required weight for their stature. If greater attention could have been directed by the local boards to the relative weight, probably a large percentage of such cases could have been detected.

Among the population groups, the greatest number of defects was noted for the French Canadians (68.4 per cent.) and the least among the Mexicans (47.2 per cent.), closely followed by the native whites of Scotch origin (47.3 per cent.). In each hundred men from the urban districts there were sixty-one defects noted, and from the rural, fifty-three. Chicago (sixty-two) and Boston (sixty-nine) were above the average for the cities, while Philadelphia (sixty) and New York (sixty) were both below the average.

Of the individual defects which were recorded most frequently in the men examined, the principal ones occurred in this order: flatfoot, 11.7 per cent.; venereal diseases, 5.7 per cent.; hernia, 4 per cent.; refractive errors of the eye, 3.3 per cent.; organic disease of the heart, 3.1 per cent.; underweight, 3.1 per cent.; tuberculosis, 2.5 per cent.; hypertrophied tonsils, 2.3 per cent.; defective teeth, 1.4 per cent.; mental deficiencies, 1.2 per cent.

It is not necessary for me to say that a great number of the defects mentioned are easily corrected. The fact that they were not corrected diminishes the man's economic value and, in a very material way, lessens his happiness in life. Nor is it necessary to point out the measures which could be taken for their correction. Suffice it to say that the physical examination of our children in public school and their supervision by health officers while in school; civilian training camps where the young men undergo careful physical survey; encouragement in life extension work, which includes the periodic examination of all people after they have reached the age of 40; and general education of the public with reference to the venereal diseases stand among the important measures.

THE LETHAL AGENT IN ACUTE INTESTINAL OBSTRUCTION

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The continuous appearance in clinical journals of papers which purport to discuss the cause of death in acute intestinal obstruction, but which entirely ignore or misconstrue the important experimental work carried on in the last few years, especially by L. R. Dragstedt and his co-workers, suggests the desirability of a brief review of this field. Particularly vexed have been the questions of the nature of the poison (for all workers agree that a poison taken up from the obstructed intestine is the lethal agent) and its source.

Whipple and his collaborators [1] have shown that the formation of a closed loop of the upper intestine, by double section, infolding the cut ends of the isolated segment after thorough washing, and reestablishing continuity of the remaining intestine by anastomosis, is equivalent to a simple obstruction. An animal on which such an operation has been performed dies in a manner typical of obstruction, and in the loop there accumulates a fluid which, on intravenous injection into a second animal, leads to similar symptoms. The poisons may be developed, then, in the absence of all foods, bile and pancreatic and gastric juices, and in the absence of a secretion peculiar to any one portion of the intestine; the ultimate source must be the mucosa and its products, or the bacteria.

NATURE OF THE OBSTRUCTION POISONS

Consideration of the chemicals present in these indicates that the only known toxic agents which might be formed by their lysis are the protein decomposition products. Oxycholesterol, derivatives of the glucosamins of mucin, and cholin and neurin from lecithin might be formed, and contribute to the general toxicity of loop fluid; but they are not toxic to the same extent or in the same manner as the whole fluid and are, therefore, of secondary importance. The phenols and mercaptans formed from proteins occupy a similar position.

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[1] The literature is reviewed by Gerard, R. W.: J. Biol. Chem. 52: 111 (May) 1922.

More important are the secondary derived products —proteoses, peptones, kyrins, Vaughan's toxic fraction and the vasodilatins—and the amins, which are especially formed by bacterial action, and include many highly poisonous substances. Bacterial exotoxins are not present, and the endotoxins most probably are protein split products. Vaughan's toxin so closely resembles histamin that Vaughan has suggested the identity of the two.

TABLE 1.—EFFECT OF INTRAVENOUS INJECTION OF OBSTRUCTION FLUID, HISTAMIN AND PROTEOSE

Object Affected	Effect of Intravenous Injection in Dog	
	Obstruction Fluid	Histamin
Blood pressure	Fall, rise above normal and prolonged fall	Fall, rise above normal and prolonged fall, in cat
Temperature	Prolonged fall	Prolonged fall
Respiration	Rapid, then slow and labored	Rapid, then slow and fails
Heart	Slowed	Slowed
Pupils	Dilated	Dilated
Secretion	Increased vomiting, salivation, bloody diarrhea pancreatic secretion*	Increased vomiting, salivation, bloody diarrhea pancreatic secretion
Lymph flow	Rapid	Rapid
Coagulability of blood	Decreased	Slightly decreased; proteose gives a decrease
Concentration of blood	Increased	Increased
Skeletal muscle	Tremors and rigidity	Rigidity
Cats	Resistant	Resistant
Guinea-pigs	"Histamin shock" with dyspnea	"Histamin shock" with dyspnea
Immunity	Nonantigenic	Nonantigenic; proteose probably nonantigenic
Intestinal strip	Contracts	Contracts
Necropsy	Great engorgement of intestinal mucosa, especially in the duodenum	Great engorgement of intestinal mucosa, especially in the duodenum

* L. R. Dragstedt, personal communication to the author.

There are other, unknown, compounds present, but these are almost certainly breakdown products. The normal mucosal secretions are innocuous, and the conditions of obstruction causing deficient blood supply and necrosis, bacterial putrefaction, liberation of autolytic enzymes from dead cells, and the like, would severely interfere with, if not entirely prevent, the elaboration of new toxic substances by these cells. Chemically, therefore, the loop poison would seem to be in the amin or proteose groups.

Table 1 shows that obstruction fluid, histamin and proteose are almost identical pharmacologically.

The chemical properties of these three poisons, however, show marked differences, as indicated in Table 2.

Chemical analysis of obstruction fluids has substantiated these conclusions. Nesbitt found neurin and cholin in simple obstruction fluid after feeding a lecithin-rich diet. Kukula isolated a pentamethylene diamin. Roger reported the presence of a proteose in obstruction fluid, and Whipple and his co-workers more completely identified a primary heteroproteose. Sweet, Peet and Hendrix described a proteose and a "cholin-like" substance. Histamin has been isolated from feces, intestinal contents and intestinal mucosa, and from obstruction fluids in the dog and in man.

FORMATION OF OBSTRUCTION POISONS

The presence of histamin and proteose among the obstruction poisons indicates strongly a bacterial agency in their formation; there is evidence that bacteria play an essential rôle in the genesis of these poisons.

Bacteria multiply prodigiously in the obstructed bowel; the putrefactive strains, such as *Bacillus coli*, overgrow all others, and the contents become alkaline, favoring putrefaction. When bacterial growth is checked, obstruction of the intestine is not attended by the usual fulminating symptoms but, if continuity is reestablished, is entirely compatible with health. Dragstedt has pointed out the absence of toxic symptoms in cases of congenital atresia prior to bacterial invasion. Davis and Stone and others, by means of Thiry's fistula, allowed the secretion of an isolated loop of bowel to drain to the surface. The secretion was nontoxic when fresh but, after incubation for eighteen hours, produced typical symptoms on injection into a dog. When bacterial growth was prevented, the secretion remained innocuous. The dogs with such draining loops lived in health, but died if the opening was occluded. Murphy and Vincent found that the jejunum of a dog incubated in vitro with its blood developed the typical obstruction poisons.

Murphy and Brooks [2] distended the gallbladder of a dog with sterile blood, and ligated the duct. The whole became necrotic, but no general symptoms appeared, nor did the contents become toxic to a second dog. When a small amount of jejunal contents was added to the blood distending the gallbladder, the animal died from the usual toxemia, and the bladder contents produced typical shock on intravenous injection into another dog.

Still more significant are the results which Dragstedt [3] has secured. The closed loop of the upper jejunum in dogs is always fatal within three or four days. If the usual operation is performed but the isolated segment, instead of being closed, is washed and left open in the peritoneal cavity, those dogs which survive the peritonitis remain well. In a few weeks the loop is entirely sterilized, and may then be closed as usual. Such a loop becomes distended, and may even rupture, with a nonpoisonous fluid, and causes no toxic symptoms. Partial or entire blocking of the blood supply is attended by no more serious consequence than resorption of the isolated loop, though the same blocking of the normal septic intestine is inevitably fatal.

TABLE 2.—CHEMICAL PROPERTIES OF LOOP POISON, HISTAMIN AND PROTEOSE

Reagent	Loop Poison	Histamin	Proteose
Heat	Stable	Stable	Stable
Acid; refluxing with 20 per cent. hydrochloric acid	Stable	Stable	Hydrolyzed
Alkali	Stable	Stable	Hydrolyzed
Trypsin	Stable	Stable; slow loss	Possibly stable in a heteroproteose form
Erepsin	Stable	Stable	Probably hydrolyzed
Alcohol	Part soluble Part insoluble	Soluble	Insoluble
Half saturated ammonium sulphate	Part soluble Part insoluble	Soluble	Insoluble
Collodion membrane	Diffusable in part	Diffusible	Nondiffusible
Passage through liver	Part destroyed	Part destroyed	Part destroyed

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[2] Murphy, F. T., and Brooks, Barney: Intestinal Obstruction, Arch. Int. Med. **15**: 392 (March) 1915.

[3] Dragstedt, L. R.: Moorhead, J. J., and Burcky, F. W.: J. Exper. Med. **25**: 421 (March) 1917. Dragstedt, L. R.; Dragstedt, C. A.; McClintock, J. T., and Chase, C. S.: J. Exper. Med. **30**: 109 (Aug.) 1919.

ABSORPTION OF OBSTRUCTION POISONS

The contents of an obstructed bowel, then, become poisonous as a result of the formation of histamin and allied proteolytic products by the action of putrefactive bacteria. These poisons produce, on injection, symptoms identical with those of acute ileus. The same toxic fluids introduced into a normal intestine, however, are quite innocuous, and must be, therefore, either rejected by the mucosa or destroyed before reaching the systemic circulation. This has led many workers to postulate the production of an obstruction poison by the mucosa itself, from which the majority passes directly into the blood, while some is fortuitously discharged into the lumen—whence the toxicity of the fluid.[4]

Since the poisons are formed by bacteria, the assumption of their parallel production by metabolic activity of the mucosa is entirely unnecessary, and indeed the absence of any toxemia from distended sterile loops of intestine militates against this conclusion. Extracts of obstructed intestine mucosa are toxic, though less so than the contents, and contain histamin. It may be shown that poisons formed in the lumen are absorbed from the bowel under obstruction conditions.

Closed loops of the duodenum are usually fatal in from one to two days, of the upper jejunum in from two to four days, and of the lower jejunum in three or more days, while loops of the lower ileum and colon are entirely compatible with life. The contents of a closed loop at any level are typically poisonous, so that the differences at these levels lie in the absorption of the poisons. A closed loop of colon opened many months after its production is but slightly, if at all, distended and the mucosa is uninjured. A loop of jejunum examined at necropsy is invariably greatly distended, unless it has ruptured, and the mucosa is gangrenous over large areas. Such an injured mucosa might well lose the very special ability of selective absorption, and permit the influx of poisons normally prevented from reaching the blood. The duodenum in particular is vulnerable, for slight distention at any point suffices to compress the duodenal vessels, which follow the mesenteric margin, against the serosa, and leads to rapid degeneration of the mass of the loop mucosa.[5] The more rapid fatality of the higher obstructions would thus be correlated with the greater secretion of the upper portions of intestine and consequent early distention, anemia and necrosis of the mucosa.[6]

Hartwell and Hoguet[7] early observed that dogs starved for four days previous to a duodenal obstruction survived it for more than two weeks. The secretion was reduced by inanition. More striking results were obtained by Dragstedt in washing the isolated loop, before closing, with astringent solutions, such as ether, alum, and tannic acid, which enabled a large percentage of dogs to survive indefinitely. The contents of these loops were septic and toxic, but the whole loop was only slightly distended, and the mucosa was intact.

Murphy and Brooks,[2] in an acute experiment, introduced obstruction fluid into a loop of normal intestine. The animal showed no symptoms, nor were its body fluids toxic to another dog. When the fluid was introduced into a loop under a pressure of 80 mm. of mercury, the animal died in six hours, and lymph collected from its thoracic duct was lethal to a second dog on intravenous injection. Similar results were obtained by directly blocking the venous return from the loop. Of interest in this connection is an observation by Schloss,[8] who found a histamin-like substance in the blood of infants suffering from acute intestinal intoxications. The intestine of the infant possesses the selective powers of the adult organ in a very minor degree.

The evidence is thus clear that death in acute ileus results from a systemic poisoning by histamin and other putrefaction products formed in the lumen of the obstructed bowel by bacteria, and passed through the mucosa (seemingly into both blood and lymph) when the latter has become asphyxiated and lost its vital powers of selection, subsequent to distention and interference with its normal circulation.

CLINICAL COROLLARIES

A few points of clinical value may be indicated. McQuarrie and Whipple[9] have shown that obstruction is attended by depressed functioning of the kidneys due to direct action of the obstruction poisons. This initiates a vicious cycle—the more the poisons accumulate, the less the possibility of their excretion. This may be relieved by treatment with large amounts of saline, e. g., by hypodermoclysis, which is doubly effective, diluting the poisons and promoting diuresis and, therefore, elimination of the poisons. The striking results of Luckhardt indicate the possibilities of this therapy. These measures are of further value in relieving the body dehydration resulting from the intense vomiting and diarrhea of obstruction.

The value of early operation in acute obstruction is well known. Finney[10] reports only 5 per cent. fatality for operations performed within five hours of the obstruction. Early and continued lavage, possibly with astringent and amin precipitant solutions, or drainage is indicated. The drainage tube must be sufficiently stout to resist compression by the abdominal muscles, a point often neglected, with fatal results.

Following the injection of sufficient quantities of histamin, an animal passes into severe and fatal shock. Dale has shown that a normal cat will resist intravenous injection of more than 10 mg. per kilogram. Etherization for two hours lowers the resistance so that more than half an hour later 1 or 2 mg. of histamin, or even less, proves fatal on injection. Nitrous oxid and oxygen anesthesia does not lower the resistance. Since in acute obstruction the body is continually receiving histamin and allied substances, ether is distinctly to be avoided. The resection should be performed under nitrous oxid or local anesthesia if possible. Otherwise drainage should be established with the patient under one of these forms of anesthesia, and the more elaborate operation delayed until, by these other measures, the toxemia has been reduced.

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[4] As evidence for this view, it has been shown (Whipple, G. H.; Stone, H. B., and Bernheim, B. M.: J. Exper. Med. **17**: 307, 1913. Whipple, G. H.: Contributions to Medical and Biological Research, New York **2**: 1065, 1919) that when the mucosa is killed by sodium fluorid, a closed loop will not prove fatal. This may easily be the result of decreased secretion into, and absorption from, the lumen. The contents of such a loop cause a marked fall in blood pressure on intravenous injection.

[5] Dragstedt, L. R., and Dragstedt, C. A.: Acute Dilatation of the Stomach, J. A. M. A. **79**: 612 (Aug. 19) 1922.

[6] Van Zwalenburg showed that a pressure of 80 mm. of mercury in the lumen of the intestine for one hour led to degenerative changes in the mucosa. There is much evidence to indicate that these poisons may be absorbed in slight amounts even by the normal intestine, especially the small one. In the colon, the contents are not mixed about, and when the contents are solid, little absorption is possible. Also much of the poison is destroyed by further putrefaction (Donaldson, A. N.: Relation of Constipation to Intestinal Intoxication, J. A. M. A. **78**: 884 [March 25] 1922). Dragstedt has noted toxic conditions of a chronic nature (listlessness, sticky coat, epileptiform seizures, and the like) following the production of a closed loop of small intestine 2 or 3 feet long. The putrefaction here is intense, and sufficient absorption of poisons occurs over the large area of mucosa to cause symptoms, even though the distention is slight and the mucosa apparently normal. The well known tetany and death which follow the feeding of meat to dogs with Eck's fistula is significant in this connection; also the recent observations of Luckhardt (Proc. Soc. Exper. Biol. & Med. **19**: 121, 1921) that parathyroidectomized dogs, kept healthy and without tetany for months by intravenous saline injections, pass into tetany at once when fed meat, especially when given putrid meat or when a stasis is induced.

[7] Hartwell, J. A., and Hoguet, J. P.: Am. J. Med. Sc. **143**: 357, 1912; Experimental Intestinal Obstruction in Dogs, J. A. M. A. **59**: 82 (July 13) 1912; Hartwell, J. A.: J. Exper. Med. **18**: 139, 1913.

[8] Schloss, O. M.: Proc. Soc. Exper. Biol. & Med. **18**: 101, 1921.

[9] McQuarrie, I., and Whipple, G. H.: J. Exper. Med. **29**: 397 (April) 1919.

[10] Finney, J. M. T.: Surg., Gynec. & Obst. **32**: 402 (May) 1921.

Hull and Rettger, and others have shown that the growth and action of the putrefactive bacteria is optimal in slightly alkaline mediums. The fermentative flora of the intestine, however, are distinctly favored and will displace the others in an acid medium. Replacing meat in the diet as much as possible by carbohydrates, especially lactose, which is slowly hydrolyzed and absorbed, favors the aciduric organisms, which produce acids by the fermentation of the sugars; and practically eliminates putrefaction. *Bacillus coli* does not disappear, but acts as a fermenter while these conditions are maintained. Cannon and Dragstedt have obtained favorable results with rats in this manner. The administration of lactose, besides the establishment of drainage, may, therefore, prove valuable in reducing the toxemia prior to the actual removal of the obstruction.

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TOXIN-ANTITOXIN IMMUNIZATION AGAINST DIPHTHERIA *

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The development of antitoxin in the bodies of animals injected with diphtheria toxin is one of the best established of facts. Since von Behring and Roux announced the results of their investigations, large numbers of horses have been injected with toxin and have developed abundant antitoxin.

Unaltered diphtheria toxin has been used also as a stimulating injection in man, but it has to be used in very small and repeated doses; otherwise it would produce annoying local reactions and possibly even paralysis. It was early realized that if we ever attempted actively to immunize children, the advantage would be great if we could replace pure toxin with an altered toxin which would be equally effective and without danger.

USE OF TOXIN MODIFIED BY ANTITOXIN FOR ACTIVE IMMUNIZATION IN ANIMALS

The earliest knowledge that injections of toxin almost neutralized by antitoxin are capable of stimulating in animals the production of antitoxin came quite accidentally. As is well known, antitoxin can be detected and measured only by its characteristic of neutralizing toxin. The degree of neutralization of the toxin by the antitoxin is determined by the injection of a definite quantity of the mixture into guinea-pigs. The testing of the potency of the drawings of the serum from the various horses under treatment is likely to leave a certain proportion of the test animals alive because of their having received subcutaneously toxin with an overneutralizing amount of antitoxin. The attempt to use these treated guinea-pigs several months later revealed the fact that many of the animals were immune. Investigation proved that this antitoxin immunity did not appreciably develop until the lapse of from four to six weeks.

Babes, in 1895, was the first to inject experimentally diphtheria toxin-antitoxin mixtures and to appreciate that not only slightly underneutralized diphtheria toxin, but also that which was slightly overneutralized, would bring about the development of antitoxin in animals.

A little later (1896), but independently, I made the same observations. Wernicke, in 1895, noted that guinea-pigs actively immunized by the injection of living bacilli and antitoxin gave birth to immune young, and that antitoxin was present in both the mothers and their offspring for at least eight months. In the winter of 1896, I began to use this knowledge concerning much overneutralized toxin practically, in starting the immunization of the horses which were employed for the production of diphtheria antitoxin.

I noted that the use of large amounts of overneutralized toxin was a safe and rapid method of beginning immunization. In the same year, Dreyer and Madsen made systematic investigations as to the effect of different degrees of overneutralization on the effectiveness of the toxin-antitoxin to stimulate antitoxin.

In 1903 I published results showing that an injection into a horse of 10,000 lethal doses of toxin which has been just neutralized usually causes the development of about 60 units of antitoxin per cubic centimeter of serum, while the same toxin neutralized sixfold usually causes the production of about three units.

In 1905, Theobald Smith studied the duration of immunity in guinea-pigs which had received toxin-antoxin. He corroborated the work of Wernicke, and extended to two years the time during which guinea-pigs retain immunity.

The fact that the antitoxin would take a number of weeks to develop in those not originally possessing it made it not applicable to persons in immediate danger of infection. Therefore, in the presence of diphtheria, immunizing antitoxin injections would still be necessary in families and institutions. In the absence of any simple test for determining which individuals had natural antitoxin and which did not, we had to inject many unnecessarily, if active immunization were to be attempted. The success of the treatment would also be difficult to determine. These considerations delayed its application in man. On the other hand, we had the growing conviction that, wonderful as were the results of antitoxin, diphtheria could never be conquered by it. The combination of the ever present carrier of bacilli, and the slowness of people to recognize diphtheria when it develops, still permits the occurrence of 50 per cent. more diphtheria than we would otherwise have, and perhaps one sixth of the number of deaths. Furthermore, vital statistics revealed that diphtheria mortality and morbidity had not decreased during the last five years; for instance, in the state of New York, the mortality was 12.8 in 1917 and 16.8 in 1921.

Only one means presented itself to our minds which gave any hope of making another distinct advance. This was active immunization by means of toxin injections.

In 1913, the application by Schick of the intracutaneous neutralization test to detect antitoxin immunity gave a simple means of testing for antitoxic immunity before and after the injections.

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* Read before the Section on Preventive and Industrial Medicine and Public Health at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

PRACTICAL APPLICATION OF DIPHTHERIA TOXIN-ANTITOXIN IN MAN

Von Behring, May 8, 1913, reported the injections of neutralized toxin in a small number of persons. Before giving the injections he used no Schick tests or other means of testing whether or not the subjects were already immune. He demonstrated by repeated guinea-pig tests that there was a quick development of antitoxin in many of those treated, but in others no antitoxin was detected at the time the tests were made. It is now known that the retests were made too soon to detect the development of antitoxin in those who had none at the time of the injections. The duration of the immunity was not investigated. Although von Behring referred to the toxin-antitoxin mixture as his discovery, what he used was exactly what several of us had described and used in experimental animal immunization during the last eighteen years. His real contribution was the demonstration in a few human beings of the safety of the injections.

The example of von Behring led Hahn and Summer shortly afterward to offer the toxin-antitoxin to the 4,300 children of six villages in the district of Magdeburg, where diphtheria was endemic. Of the 1,097 children injected, 633 received the full series of three injections; 255 received two injections, and 209 received one. The Schick test was not used before or after treatment, so it is impossible to know how many of the injected children possessed natural antitoxin and how many of the others developed it.

There was no difference in the development of cases of diphtheria among the treated and the untreated portion during the first two weeks following the completion of the injections; but after that time there was a lessening of the number in the treated portion. The immunization had no apparent effect on freeing carriers from infection. Until after the war, no further observations or immunizations were made in Europe.

Oct. 21, 1920, Bieber published his study of the histories of all the children mentioned above. Fortunately, he was able to trace the majority of those who were living in the district at the time of the injections. He reported that during the six years, 15 per cent. of those who had not received injections had had attacks of diphtheria; that only 4.6 per cent. of the total number inoculated, and only 3.3 per cent. of the fully treated had developed it. Because of the war, many of the diagnoses were not confirmed by cultures, and he believed that some of the cases were almost surely not diphtheria. Two of the incompletely treated children had died from diphtheria.

Bieber concluded that although the toxin-antitoxin had not given a lasting immunity to all who had received the injections, the results were satisfactory in that the percentage of persons having diphtheria was very much less in the inoculated portion than in that uninoculated. He believed that the results should stimulate more extensive trials.

PERSONAL OBSERVATIONS

Before and since the period of the war, the practical value of the toxin-antitoxin injections was subjected to continuous investigation by workers in the Bureau of Laboratories of the Department of Health of the City of New York. The results obtained and the conclusions drawn are as follows:

THE ANTITOXIN RESPONSE AND THE PERMANENCE OF THE IMMUNITY ACQUIRED

Late in 1913 we began the practical use of toxin-antitoxin injections for the immunizing of children against diphtheria, and established the facts that the procedure was harmless and that after three injections about 80 per cent. of those individuals possessing no antitoxin or insufficient antitoxin to protect from diphtheria, developed immunity. Those showing positive Schick reactions and receiving two injections, developed negative Schick reactions in about 70 per cent.; those receiving one injection, in about 50 per cent. We soon realized that the most important problem was the duration of the antitoxic immunity in those that had developed antitoxin. A satisfactory answer to this question required that immunizations be carried out in institutions where the children would be under observation for a number of years. A few suitable institutions were immediately sought for and obtained by Dr. Abraham Zingher and, later, additional ones were added by Dr. M. C. Schroder. We have thus been able to keep under supervision for from three to six and one-half years about 10,000 children. From year to year, Drs. Zingher and Schroder have been reapplying the Schick test to these original children. With a few of them we are now in the seventh year of observation. We have had no serious immediate or late after-effects. In these institutions diphtheria has not developed in any child who has received three injections. Eighty per cent. of those who received three inoculations have developed sufficient antitoxin within three months to prevent the positive Schick reaction. Fifty per cent. of the remainder developed antitoxic immunity sufficient to give the negative Schick test before the end of the first year. The remainder received then or later a second series of injections, and all of these concerning whom we have information became immune. In some later investigations, we have encountered occasional children who resisted even two series of injections.

TABLE 1.—RECORD OF PERSONS ORIGINALLY GIVING POSITIVE SCHICK REACTIONS, NOV. 16, 1915; INDIVIDUAL RESULTS FOR FIVE AND SIX YEARS AFTER THREE TOXIN-ANTITOXIN INJECTIONS GIVEN ON NOV. 20 AND 25, AND DEC. 3, 1915

Observation Child No.	Retests					
	Jan. 29, 1916	June 29, 1916	January, 1917	January, 1919	January, 1921	January, 1922
1	—	—	—	—	—	—
2	—	—	—	—	—	—
3	—	—	—	—	—	—
4	$\underline{\pm}$	—	$\underline{\pm}$	—	—	—
5	—	—	—	—	—	—
6	±	—	—	—	—	—
7-12	—	—	—	—	—	—
13*	—	$\underline{\pm}$	—	±*	—	—
14	—	—	—	—	—	—
15	—	—	—	—	—	†
16	—	—	—	—	—	
17	—	—	—	—	—	
18	±	—	—	—	—	
19	$\underline{\pm}$	—	—	—	—	
20*	$\underline{\pm}$	—	$\underline{\pm}$	±*	—	
21	±	—	—	—	—	
22-26	—	—	—	—	—	
27	+	—	$\underline{\pm}$	—	—	
28	—	—	—	—	—	

* Given series of three injections.

† Fourteen of the twenty-eight present in 1921 had left.

± indicates a very faint Schick reaction; $\underline{\pm}$, a very moderate Schick reaction.

As an illustration of the methods used in retesting the children from year to year in the institutions, Table 1 is given. In it are entered the results of frequent Schick tests of twenty-eight children who, having given positive Schick reactions, received immunizing injections and later gave negative reactions; these children remained in the institution and continued negative during five years. Of these, fourteen remained and continued negative for six years and ten continued negative for six and one-half years.

DISCUSSION OF RESULTS OF TESTS

Twenty-two became negative within two months, twenty-seven in seven months; twenty-five of these remained negative during the five years. One of the remaining became finally immune and two, Numbers 13 and 20, required a second series of injections in 1919.

In cases such as 13 and 20 it is impossible with our present knowledge to determine whether the difference in the degree of reaction is wholly due to a fluctuation in the amount of antitoxin present or whether the deviation from the negative is partly due to a variation in the strength of the toxin used in the Schick retest or to error in the placing of the supposedly intracutaneous injection.

The results in the twenty-eight children are representative of those obtained in the other institutions. With one or two exceptions among hundreds of children, all who did not respond to the first series of injections became negative to the Schick test after the second treatment. The 1916 and 1917 tests were made by Dr. Zingher, the latter one by Dr. Schroder.

TABLE 2.—RESULTS OF ATTEMPTED IMMUNIZATION AS SHOWN BY SCHICK TEST THREE OR MORE MONTHS AFTER TREATMENT WITH THREE INJECTIONS OF TOXIN-ANTITOXIN; CHILDREN FROM PUBLIC SCHOOLS OF BROOKLYN; TESTS BY DR. SCHRODER

Number of School	Location	Total Number Children Retested	Positive Cases Which Became Immune	Per Cent.	Length of Period Between Treatment and Retest
158	Belmont Ave. near Warwick St.	370	254	68.7	3 mos.
156	Sutter Ave. near Barrett St.	329	292	88.8	3 mos.
173	Penn. Ave. near Liberty Ave.	163	144	88.9	4 mos.
29	Columbia and Amity Sts.	57	45	79.0	5 mos.
142	Henry and Rapelye Sts.	127	112	88.0	5 mos.
50	S. 3d St. and Driggs Ave.	82	74	90.3	6 mos.
16	Wilson Ave. near Bedford Ave.	241	216	89.7	6 mos.
72	New Lots Road	199	195	98.0	6 mos.
109	Dumont Ave. near Sackman St.	141	99	70.0	6 mos.
4	Berkeley Pl. near 5th Ave.	103	91	88.4	7 mos.
	Total	1,812	1,522	83.9	

As an example of the results following the injections in the schoolchildren, Table 2 is given.

The knowledge that about 80 per cent. of the children who possess no diphtheria antitoxin develop it after three injections of toxin-antitoxin and with very few exceptions retain it for at least six years, and that those who partially fail to respond do respond after a second series of treatments, affords us ground for the belief that we have a practical means of immunizing the child population of the country. Even though the belief that this change in the antitoxin content of these children is a permanent one should prove erroneous, it would merely mean that one would have to repeat the injections not oftener than once in six years.

PERMANENCE OF NEGATIVE SCHICK REACTION IN PERSONS WHO DEVELOP NATURAL IMMUNITY

At the Convent of St. Dominick, ninety-four of the original children who had given Schick negative reactions with Dr. Zingher's tests remained for five years. These children were retested at the two and five year periods by Dr. Schroder. In both retests ninety of these children showed negative reactions, while four showed positive reactions in one or the other retest. It is an interesting point as to whether the children who were negative originally had lost their antitoxin or whether the apparent change in reaction was due to other causes. We know from making the double Schick test (that is, one test on each arm) on several hundreds of children, that routine tests made even by an expert are likely to show occasional errors. In this test series, about 2 per cent. of the children showing positive tests had them only on one arm. There was, therefore, no doubt that in 2 per cent. of these children, one of the two injections had been inserted too deeply so that the toxin did not remain in the skin and therefore could not produce the reaction. We know also that slight differences in the strength of the toxin solution cause a borderland case to give either a negative or a positive reaction. Differences in technic and in toxin solution possibly account, therefore, for the apparent change in one or all of the four cases. On the other hand, we know that the amount of antitoxin in an individual changes somewhat from time to time, so that it is possible that one or all of the four subjects might have reacted at one time and not at another to the standard Schick toxin properly given.

TABLE 3.—DEATHS FROM DIPHTHERIA GROUPED BY SEX AND AGES, CITY OF NEW YORK, YEAR 1917

Age	Males	Females	Total	Per Cent.
Under 1 year	73	60	133	11+
1 to 4 years inclusive	390	319	709	60+
Total under 5 years	463	379	842	72+
5 to 9 years inclusive	119	132	251	21+
10 to 14 years inclusive	9	13	22	2
15 to 19 years inclusive	6	4	10	1
20 to 24 years inclusive	2	8	10	1
25 to 60 years inclusive	9	14	23	2
Total all ages	608	550	1,158	

Whatever the explanation of the apparent change in four cases, we have the remarkable fact that nearly 96 per cent. of the originally negative children remained negative during five years. Practically the same results have been obtained in all the other institutions.

INFLUENCE OF AGE ON SUSCEPTIBILITY AND THE RESPONSE TO IMMUNIZING INJECTIONS

It is common belief that the mortality from diphtheria is greatest at the ages of from one-half year to 4 years, inclusive; that it then drops steadily until at 10 years it is quite low and so remains during the rest of life. The figures in Table 3 give evidence that this belief is founded on fact.

The greater liability to infection during the first years of life is clearly shown in the results from the Schick test. Our findings in New York City are given in Table 4.

All reports show that under similar conditions the highest percentage of persons having antitoxin occurs among infants passively carrying their mothers' antitoxin, and among adults; between these ages there is first a decrease and then an increase. The same reports show that similar age groups of different children reveal surprising differences in the percentages of those possessing antitoxic immunity.

TABLE 4.—AVERAGE SUSCEPTIBILITY OF VARIOUS AGES TO DIPHTHERIA (AS INDICATED BY THE POSITIVE SCHICK DIPHTHERIA-TOXIN SKIN TEST), IN NEW YORK CITY *

Age	Schick + (Susceptible)
Under 3 months	15 per cent.
3 to 6 months	30 per cent.
6 months to 1 year	60 per cent.
1 to 2 years	60 per cent.
2 to 3 years	60 per cent.
3 to 5 years	40 per cent.
5 to 10 years	35 per cent.
10 to 20 years	25 per cent.
20 to 40 years	18 per cent.
Over 40 years	12 per cent.

* The percentage of positive reaction is considerably higher among those living in the country.

Table 5 notes the very small percentage of susceptibles in an institution caring for little children gathered from the poorest and most crowded homes of the city. Table 6 exhibits the surprising difference in the results obtained from tests of pupils in different parts of Brooklyn.

A minimum, an average and a maximum result from among the larger Brooklyn public schools subjected to the Schick est by Dr. Schroder or her assistants is given in Table 6. The ages ranged from 6 to 12 years.

The highest percentage of positive tests obtained by Dr. Schroder in any Brooklyn school was 72, and the lowest 16. These were in small schools. The average percentage of positives among 30,000 children in seventy-three Brooklyn schools was 41.5.

TABLE 5.—RESULTS OF THE SCHICK TEST IN AN INSTITUTION CARING FOR CHILDREN GATHERED FROM DENSELY POPULATED PORTIONS OF NEW YORK CITY

	Schick Reactions				
	Positive		Borderland	Negative	Per Cent. Positive
Age	+	±	±	—	
Under 5 years	6	2	0	35	18.5
5 to 10 years	21	2	8	220	9.0
0 to 15 years	5	2	4	79	7.7
	32	6	12	334	9.9

The sign ± indicates a trace of antitoxin.

In the Manhattan schools at the same time or a little later, Dr. Zingher among 52,000 children found that the percentage of positives was 30. The highest percentage of positives in any school was 67, and the lowest, 13.6.

The results obtained by Dr. Schroder among adults are very interesting as showing a much older age group. Among 1,396 adult inmates in an insane asylum there were 633 positive reactions, a percentage of 16. At all ages between 20 and 50 years, the percentage was about the same, but above 50 years of age the positives dropped to 10. There were a good many persisting pseudoreactions which made it extremely difficult in some instances to decide between a pseudoreaction and a combined reaction. The patients responded to the toxin-antitoxin injections as well as younger people, except that they showed more local reaction.

TABLE 6.—DIFFERENT PERCENTAGES OF CHILDREN GIVING SCHICK-POSITIVE REACTIONS IN FOUR LARGE PUBLIC SCHOOLS

No. of Brooklyn School	Total Number of Tests	Per Cent. Positive
50	1,433	19.60
125	1,064	36.84
149	1,056	41.19
156	1,148	61.84

IMMUNIZING EFFECT OF TOXIN-ANTITOXIN INJECTIONS IN INFANTS AT BIRTH AND DURING THE FIRST TWO YEARS OF LIFE

If it were possible to immunize young infants, this would be most desirable. In order to test this possibility, 2,000 nfants were given full doses by Miss Denny on the third, eighth and eleventh days after birth. Most careful observations revealed absolutely no deleterious effects. At the end of a year, 100 of these infants were retested. Only 52 per ent. gave negative Schick reactions. Since untreated infants of this age give about the same result, it is evident that the ombined effect of immature cells and the overneutralization of the toxin-antitoxin present (because of the passive immunity derived from the mother) prevents any appreciable esponse at birth to the toxin-antitoxin injections. Infants aged 6 months and over gave far better results.

Thus Dr. Blum observed the results of the injections in a number of older infants, in the Home for Hebrew Infants. His figures are given in Tables 7 and 8.

Dr. Byard also reports very favorable results among children in private homes. Many of these were not given the Schick test before receiving the immunizing injections. It s fair to assume that about 50 per cent. would have given egative Schick reactions. Of 286 such children, more than alf of whom were under 1 year of age when injected, he oted that 143 (under 2 years of age when injected) when retested after seven months showed 136 negative, five positive and two very doubtful Schick reactions. Of the whole number, seven, or 2.4 per cent., when retested at the end of eight months were definitely positive. Eighteen months after the injections, 1.8 per cent. were positive. These results are certainly very encouraging.

These results of Blum and Byard among infants aged 4 months and over are of extreme practical importance, because from 6 months to 3 years is the period when immunization is most necessary and when it creates the least disturbance.

CONSTITUTIONAL AND LOCAL REACTIONS FOLLOWING THE TOXIN-ANTITOXIN INJECTIONS

Constitutional and local reactions following the toxin-antitoxin injections are negligible in the infant; slight and infrequent in the young child; moderate or rather severe in perhaps 10 per cent. of older children, and slight, moderate or quite severe in a large percentage of adults. The effects are largely due to the protein contents of the culture fluid and are not due to the toxin as such. This is evident because the same reaction follows the injection of the toxic broth rendered atoxic by heating, or of a solution containing a minute quantity of autolyzed diphtheria bacilli. If the toxin were the cause, there would be little or no reaction in naturally immune persons. As is well known, these show fully as much reaction as those who have no antitoxin, if not more reaction. Those individuals who give the strong pseudoreactions with the heated or unheated toxin of the Schick test are those who give the most severe reactions with the toxin-antitoxin injections. However, some who give no pseudoreaction with the Schick test give moderately severe reactions to the toxin-antitoxin injections. The horse serum is present in such a minute amount as to cause no appreciable reaction except in a few extremely susceptible individuals. It does not seem to sensitize them appreciably to later doses of horse serum.

TABLE 7.—RESULTS OF TOXIN-ANTITOXIN INJECTIONS IN SCHICK-POSITIVE CHILDREN

Number of Infants	Age	Toxin-Antitoxin Injections	Lapsed Period at Time of Retest	Results of Schick Test
6	5 mos.	3	3-5 mos.	—
5	5 mos.	3	9 mos.	—
3	6 mos.	3	4 mos.	—
4	7 mos.	3	4-5 mos.	—
12	8 mos.	3	4-5 mos.	—
Total 30				

In children of school age about 10 per cent. develop fairly sore arms and temperatures of from 99 to 103 F. About 5 per cent. feel miserable enough to stay at home from school for one day, and a very few for two days. We have given about 40,000 inoculations this fall and winter without a single infection. Children that are constipated are advised to take a laxative on the day of the injection and to apply a moist dressing to the arm if swelling and soreness develop.

TABLE 8.—RESULTS OF TOXIN-ANTITOXIN INJECTIONS IN SCHICK-NEGATIVE INFANTS

Number of Infants	Age	Toxin-Antitoxin Injections	Lapsed Period at Time of Retest	Results of Schick Test
1	3 mos.	3	4 mos.	±
2	4 mos.	3	4 mos.	—
2	5 mos.	3	4 mos.	—
3	6 mos.	3	4 mos.	—
6	7 mos.	3	4 mos.	—
1	8 mos.	3	4 mos.	—
1	9 mos.	3	4 mos.	—
3	10 mos.	3	4 mos.	—
1	11 mos.	3	4 mos.	—
Total 20				

In adults, the reactions are not quite as severe as with the typhoid inoculations. The most severe reactions are restricted almost entirely to those who develop the marked pseudoreaction with the heated or overneutralized toxin. The following history gives an account of one of the most severe reactions that we have encountered:

A nurse at the Willard Parker Hospital was given toxin-antitoxin subcutaneously in the right arm, February 8. In the evening the arm in the region of the injection felt sore and looked red. The next day the soreness and tenderness were more marked. The highest temperature was 103 F. February 9, the patient was in bed. The temperature was 99. The right arm showed moderate redness of the lower two thirds, some induration and tenderness, and slight axillary tenderness. February 10, constitutional symptoms were absent. The temperature was normal. Redness and swelling persisted; induration was moderate; tenderness and pain were less marked; axillary tenderness was very slight. A Schick test and control which were made, February 9, both showed a moderate pseudoreaction, the two reactions appearing alike. An area of redness about the size of a 25 cent piece and some induration were present. A small secondary areola around the central area was of marked redness. The probability is great that the test was a pseudoreaction and not a combined reaction.

TABLE 9.—RESULTS OF INJECTION OF DIFFERENT PREPARATIONS OF TOXIN-ANTITOXIN IN GUINEA-PIGS

Preparation										
Number	Amt. in C.c.	Number Doses	Weeks Elapsed	Percentage of Neg. Schick Reactions	Number Doses	Weeks Elapsed	Percentage of Neg. Schick Reactions	Number Doses	Weeks Elapsed	Percentage of Neg. Schick Reactions
24	0.5	1	7	100	2	5	100	3	7	100
18	0.5	1	12	66	2	4	75	3	9	100
22	0.5	1	8	50	2	8	50	3	7	100
20	0.5	1	..	..	2	9	33	3	9	25
24A*	0.5	1	..	..	2	7	50	3	7	50
24	0.1	3	7	75	4	7	100			
18	0.1	3	10	50	4	9	60			
22	0.1	3	8	25	4	8	25			
20	0.1	3	8	0	4	8	40			
24A*	0.1	3	7	0	4	8	0			
10	0.1	3	8	0	4	8	0			

* Preparation 24 with an added 10 per cent. of its original amount of antitoxin.

THE DEGREE OF IMMUNITY TO DIPHTHERIA INSURED BY A NEGATIVE SCHICK TEST

There is overwhelming indirect evidence which supports the view that under ordinary conditions sufficient antitoxin in the body to prevent the development of a positive Schick test will prevent the development of diphtheria. There can be no doubt that the injection of 500 units of antitoxin will give children an immunity for a period of at least twelve days and usually twenty days. (This is the period during which the Schick test remains negative when performed on such children.) The proof has been derived from its use in many outbreaks and in the exposed children of hundreds of thousands of families.

The recent statements by Havens that about 20 per cent. of diphtheria bacilli are of a different type from the one used to produce toxin for the immunization of horses, that the available monovalent antitoxin will not completely neutralize the toxin made by this other type and, therefore, that diphtheria may develop from infection with this other type in children showing negative Schick reactions to the standard toxin, have not been borne out by experience nor confirmed by us (Park and Williams) in experimental work.

The evidence that antitoxin is the only substance in the body that can prevent the toxin from acting is so conclusive that we can assume that a negative Schick test means the presence of sufficient antitoxin to neutralize it. The debatable points are: Is the minimum amount of antitoxin which is required to give a negative Schick reaction sufficient to prevent absolutely the development of diphtheria? if not, is it sufficient to prevent a toxemia? Closely bound up with the answer to these questions is the degree of certainty that the general practitioner can assume that, as ordinarily carried out, a negative Schick test proves the presence of at least this minimum amount of antitoxin.

It is undoubtedly true that a certain number of persons who have given the negative Schick reaction have developed inflammatory conditions of the throat with positive cultures and that these have been diagnosed as moderate cases of diphtheria. In discussing such cases, it is wise at present to let each person make his own deductions. It is unquestionably true that a certain percentage of Schick tests are made in a faulty way. It is essential to have toxin of approximately the right strength for the test. Toxin of the proper strength when it leaves the laboratory may deteriorate quickly. In testing outfits sent from a number of biologic plants, Zingher found marked irregularity in the contents of some of them. In one case, two out of five outfits failed to give any positive Schick reactions, even though the other outfits gave them regularly in the same children. We ourselves received by mistake a shipment of capillary tubes made of unsuitable glass. The toxin deteriorated rapidly when it was placed in these tubes.

Owing to imperfect technic or weak toxin, a certain number of persons are undoubtedly considered to have antitoxin when none is present. Such individuals are, of course, liable to diphtheria. Besides these, there are those in whom the Schick test is truly negative who have tonsillar exudate and positive cultures. These cases are comparatively few, and so far as I know are never characteristic of well developed diphtheria. It is possible, certainly, for a person to have virulent diphtheria bacilli and develop a throat inflammation from other bacteria. In such a case the positive culture shows the person to be merely a carrier. Even with a positive culture, a case can be considered as undoubted diphtheria only when the lesions are characteristic.

THE TOXIN-ANTITOXIN MIXTURE

The best mixture is one that is underneutralized and yet perfectly safe. As the mixture stands, the toxin deteriorates faster than the antitoxin, so that it gradually becomes neutralized and later overneutralized by the antitoxin. Therefore, a safe preparation is at its best when freshly prepared. As it would not be practicable to make new mixtures every day, we keep both the toxin and the antitoxin until they have become stabilized. After this has occurred, the toxin-antitoxin mixture changes very slowly. Even so, it is better not to use mixtures later than three months after their preparation unless animal tests prove them to be still slightly underneutralized.

It is noticeable that Preparation 24 gave much better immunizing than any of the others, except Preparation 18, which was a little inferior. The addition of 10 per cent. of the original amount of antitoxin to Preparation 24 lessened greatly its value. The other preparations had stood for some time, become less toxic and lost in immunizing power.

TABLE 10.—IMMUNIZING EFFICIENCY OF DIFFERENT MIXTURES OF TOXIN-ANTITOXIN IN CHILDREN

School or Institution	Mixture Three Doses 1 C.c. Each	Date Injected	Date Retested	Total Number of Children	Results +	Results —	Percentage of Positive Reactions
Colored Orphan Asylum.........	No. 18	12/ 5/19	3/ 1/20	70	3	67	95.7
Hebrew Sheltering and Guardian Home...........	No. 22	4/24/20	10/23/20	84	27	57	70.2
N. Y. Orphanage.	No. 22	6/ 5/20	10/23/20	63	35	28	44.4
P. S. No. 90.......	No. 24	12/17/20	5/ 3/21	160	20	140	87.5

The comparative results of animal and human inoculations with different preparations show that very considerable differences in immunizing value exist. As yet we find it extremely difficult to determine by animal tests the finer differences which decide just when the ideal degree of neutralization is obtained. Dr. Banzhaf now standardizes our preparation so that 1 c.c. causes paralysis in the majority of guinea-pigs weighing 250 gm.; in all, 5 c.c. causes paralysis which ends in death. The results obtained in children and in animals with five different preparations clearly bring out the different degrees of success which are obtained with unequally neutralized preparations (Tables 9 and 10).

SAFETY OF TOXIN-ANTITOXIN INJECTIONS

In utilizing a substance which is a combination of a poison and an antipoison, it is of extreme importance to be certain that there is no possibility of a properly neutralized mixture becoming at some later period toxic. We have tested out many mixtures and kept them at all possible temperatures, and always found that the mixtures became very slowly more and more overneutralized. The antitoxin portion of the combination is more stable than the toxin. The only objection to using products that have been kept a long time after neutralization is that they are somewhat less effective. The only accident that has occurred in the use of toxin-antitoxin mixtures, so far as is known, was due to an error through which an improperly tested product was sent out. The regulations now adopted by all biologic plants make a repetition of such an accident impossible.

PRACTICAL APPLICATION IN THE PUBLIC SCHOOLS

The health and school authorities determined to put their chief efforts for the first two years into an attempt to immunize as many schoolchildren as possible rather than to endeavor to protect the children of preschool age who needed the protection so much more. The reasons for this were many and important. It was deemed wise to acquaint as many parents and others as possible with the value of the Schick test and the toxin-antitoxin injections. No better way seemed available than to use the schools as the means of doing this. If each pupil presented his parents with a circular picturing the danger from diphtheria, describing the preventive treatment and asking for permission to administer this treatment if the family physician approved, it would mean that nearly a million adults and a million children would have the arguments for the use of the toxin-antitoxin vaccine presented to them in a favorable way. If, as we hoped, about one half of the children brought back the acceptance of the offer to give them the toxin-antitoxin, we should be able not only to immunize those shown by the Schick test to possess no antitoxin but, by preventing those children from contracting diphtheria, we should also prevent their carrying diphtheria home to the younger children in their families.

The testing of the schoolchildren would also give us the chance to determine exactly what effect the immunization had had. We could make an index of 90,000 children who had been tested and, when Schick positive, had been injected with toxin-antitoxin; a similar index of 90,000 children of the same ages who had refused the test and the injections could be used for comparison. The cases of diphtheria occurring among the children of school age could thus be looked up in either index, and observations made as to how many cases of diphtheria occurred in the two groups. We believed that after one or two years of such observations we should have had evidence of convincing value as to the protection guaranteed by a negative Schick test due either to natural antitoxic immunity or to the response to the toxin-antitoxin injections.

Now, at the end of two years, we actually have such an index completed. The 90,000 tested children and the 90,000 control children have been gathered about equally from the schools of the different boroughs; they were collected by the groups of nurses and teachers from the schools which had been tested by Dr. M. C. Schroder and Dr. Abraham Zingher. Among an equal number of untreated and treated children, there were four times as many cases among the untreated children. The majority of the cases in both groups were of slight or moderate severity. Some of them were possibly cases of nondiphtheritic tonsillitis in children who happened to be carriers of diphtheria bacilli. The methods which we have adopted in the diphtheria prevention work in the schools have already been published by Dr. Zingher (No. 6 of the Reprint Series, Department of Health, City of New York). I will describe them briefly.

A very important point is the enlistment of the interest of the principal of a school. As a rule Dr. I. H. Goldberger, of the bureau of educational hygiene of the department of education, first prepares the way by obtaining permission for us to do the work in the school. According to the borough in which the school is situated, Dr. Zingher, Dr. Schroder or one of their representatives sees the principal and explains fully the objects we have in view. Literature is left for the teachers. Either the principal or the physician meets the teachers in a conference, gives them the necessary information, and tries to arouse their enthusiasm. The success or failure in getting a favorable response from the children or their parents depends largely on the interest which the principal, the assistant principal and the teachers take in the matter. When they give us their enthusiastic cooperation, we expect to obtain consents from three fourths of the parents; when we fail to arouse the teachers' interest, we are fortunate if this is obtained from one fourth of them.

The preparatory work being furnished and the date for the test being determined, we send to the school the circulars and consent slips to be taken by the children to their homes.

Table 11 shows the results among the 180,000 schoolchildren whom we have listed.

TABLE 11.—NUMBER OF CASES OF SUSPECTED DIPHTHERIA DEVELOPING IN 90,000 UNTREATED SCHOOLCHILDREN AND IN 90,000 TESTED BY SCHICK METHOD AND WHEN POSITIVE GIVEN TWO OR THREE INJECTIONS OF TOXIN-ANTITOXIN

	Cases Reported as Clinical Diphtheria
In Brooklyn:	
26,000 originally Schick-negative children (observation from October 1 to February 15)	2
15,000 Schick-positive children, 3, 2 or 1 toxin-antitoxin injections	4*
40,000 control children of same ages	27
In Manhattan:	
31,000 Schick-negative children (observation from October 1 to February 15)	3
19,000 Schick-positive children, 3, 2 or 1 injections	5
50,000 control children	29
Summary:	
57,000 Schick-negative children (observation from October 1 to February 15)	5
33,000 Schick-positive children injected with toxin-antitoxin	9 9
Among a total of 90,000 Schick-negative or injected children	14
Among a total of 90,000 control children untreated	56

* Two of these children received but one injection and had no Schick retest. The third showed a Schick + and the fourth a Schick ± reaction on the retest and refused further injections.

As may be seen, there were among the 90,000 untreated schoolchildren four times as many cases of probable diphtheria as developed in the 90,000 tested children.

SUMMARY AND CONCLUSIONS

The results of twenty-five years of experimental and practical investigation of the immunizing effect of toxin-antitoxin injections and the value of the Schick test are as follows:

Three injections, 1 c.c. each, of a suitable toxin-antitoxin mixture spaced one or two weeks apart, will cause about 85 per cent. of susceptible children or older persons to develop sufficient antitoxin to give the negative Schick reaction and produce marked, if not absolute, protection against diphtheria.

The development of the immunity is slow. An amount of antitoxin sufficient to prevent the positive Schick reaction develops in the different children in from one to six months after the receiving of the injections. Antitoxin as heretofore must continue to be used to produce immediate immunity.

The duration of the immunity in at least 90 per cent. of the children is for more than six years and probably for the remainder of life. There seems to be no difference in this respect between these, and those who develop antitoxin naturally.

Toxin-antitoxin injections should not be given within two weeks after an injection of antitoxin; otherwise the toxin is slightly overneutralized and the resulting development of antitoxin is lessened.

Mixtures made from old toxin and antitoxin are fairly stable and may be used for a period of one year. Even such preparations are at their best when first sent out, as the mixtures slowly tend to become at first neutralized and then slightly antitoxic. This change gradually lessens the immunizing power of the toxin. The toxin-antitoxin should be kept cool and in a dark place; it is best to use the mixtures within three months after their final preparation.

A toxin-antitoxin mixture of stabilized materials which is safe when it leaves the laboratory cannot become more toxic on being kept. No serious effects have ever resulted from the injections given to the tens of thousands of the New York children since we began our work, seven years ago.

The Schick test is an extremely reliable means of separating those individuals who have antitoxic immunity from those that have none. Although a simple test, it must be carried out with extreme care. The toxin must be retained intracutaneously, and the toxin must be neither 25 per cent. more nor less than the desired amount. It is extremely important to choose glass of suitable chemical composition for the containers in which the toxin is to be placed, as otherwise rapid deterioration may take place.

The preliminary Schick test is usually omitted in children under 3 years of age. This is for two reasons: 1. Two thirds of these children require the toxin-antitoxin injections anyway. 2. We are not certain whether those that do give the negative reaction are immune because of an unusual persistence of the antitoxin given them by their mothers, or because of the active development of antitoxin in their own bodies. After this age the test is desirable, but it is often omitted.

Thus, in practical school work, the first Schick test is frequently omitted in children up to the age of 6 because it is easier to inject the children at once rather than to delay for the test. At this age the percentage of children requiring immunization is still high, and the annoyance from the injections is slight. The omission of the preliminary Schick test facilitates the introduction of the immunizing injections in the schools. Above the age of 6 years, the preliminary Schick test should be made whenever practicable.

No child should be pronounced immune from diphtheria because of having received three immunizing injections of toxin-antitoxin. A negative Schick test is absolutely necessary before one can properly make such a statement or issue a certificate.

The use of the control protein test made with the heated toxin is advisable at all ages when a careful separation of the pseudonegative reaction from the combined positive reaction is important. As with the Schick test, it is frequently omitted because of local conditions. The older the child the more likely it is to be immune and to give a confusing protein reaction. In children under 5 years of age, the protein reaction seldom confuses the picture if the Schick tests are read as late as on the fourth day; between 5 and 7 years, the control does not help greatly in more than 5 per cent. In older children and adults, not only does the control protein test help us to decide more correctly in about 10 per cent. of doubtful reactions; but when it is marked it also indicates with some probability those persons who are likely to have the marked local and constitutional reactions from the toxin-antitoxin injections.

The toxin-antitoxin injections are inadvisable before the age of 6 months. During this time most of the infants retain the antitoxin received from their mothers. Up to the age of 3 months, immunizing injections are usually ineffective, as the infant tissues do not respond sufficiently during this period to the toxin-antitoxin to produce antitoxin. Under usual conditions, it is probably safe to wait until the infant is 9 months old and then to give the injections at the first suitable occasion. During the first three years there is almost no annoyance from the injections. As the child grows older, the danger from diphtheria gradually lessens, and the percentage of those developing annoying local and constitutional reactions slowly increases.

The immunization of schoolchildren in acting to prevent their contracting diphtheria also lessens the exposure to infection of the younger children of preschool age in their families.

There appears to be no difference in the degree of immunity between those individuals who have developed antitoxin from natural causes and those who did so because of the stimulus of the toxin-antitoxin injections.

Institutions in which the children have been given the immunizing injections have been remarkably free from diphtheria.

The schoolchildren who have been injected have had one-fourth as many cases as the untreated children, and these cases have been of less severity.

ABSTRACT OF DISCUSSION

Dr. Abraham Zingher, New York: I should like to mention one or two points in connection with the work that we are planning for this summer among children of preschool age. We have practically finished all the public schools in New York City. A great educational campaign has been conducted through these schools in teaching the people the great value of these newer preventive measures against diphtheria. More than 800,000 homes have been reached. We intend to utilize this valuable propaganda. We shall offer the people the opportunity of having their children who are from 6 months to 6 years of age protected against diphtheria. This work will be carried out in the baby health stations, in the day nurseries and in the various mothers and babies' playgrounds in the public schools. We are emphasizing the fact that every child in this age group should be inoculated against diphtheria just as it is vaccinated against smallpox. We shall give these young children the three injections of toxin-antitoxin without a preliminary Schick test; reserving, however, the issuing of a diphtheria protection certificate for the time when the children show a negative Schick reaction. These Schick tests will be made when the children are admitted to school. We feel quite strongly that no child should be pronounced immune to diphtheria until it shows a negative Schick reaction. Another point worth emphasizing is that we found great variations in the immunity response to the same mixture of toxin-antitoxin in retesting several thousand schoolchildren who had been injected with two doses, each 1.5 c.c., of toxin-antitoxin. The number of children who showed a negative Schick retest varied in different schools from 25 to 75 per cent. One of the interesting facts in connection with these results is that the percentage of successfully immunized children in a school was in inverse ratio to the percentage of children who had given a positive Schick reaction at the original test. We noticed no symptoms of anaphylactic shock in giving more than 100,000 injections of toxin-antitoxin. This was also true when repeated series of injections of toxin-antitoxin were given. We shall be glad to send the literature that we use in our work in the schools and in the baby health stations to any physician who is interested in this subject. He should write for it to the Research Laboratory of the New York City Department of Health.

Dr. John F. Hogan, Baltimore: From studies made recently in Baltimore we know that more than 80 per cent. of the deaths in that city from diphtheria were from the laryngeal type. We have no reasons for thinking the rest of the country is different. It is well known by those who have worked in ıfectious diseases, especially dipththeria, that a great many f the deaths between the ages of 2 and 5 are from laryngeal iphtheria. Therefore, if we are going to do any good with xin-antitoxin we must start before the child reaches the ge of 2 years. In Baltimore we are going to make a drive r toxin-antitoxin, and we are using the schoolchild as an pening wedge. We are having the schoolchild bring the nother with the baby at the time the second dose is given. n that way we shall reach the young children before they ach the most susceptible age. With the amount of knowldge that we have of the pathologic, etiologic and epidemiogic peculiarities of diphtheria, its death rate should be praccally nil and, if we succeed in immunizing practically all hildren, then this will be accomplished.

Dr. William H. Thaler, St. Louis: The School Hygiene ivision in the St. Louis public schools has followed out this ork by sending a letter to the home of every schoolchild in ne city of St. Louis, recommending the Schick test, and the esponses were very gratifying. It may be a mere coincidence, ut this year we have had the lowest death rate in diphtheria nat I think was ever heard of in St. Louis. We also noted peculiar situation. There was one child in one block in ne of the school districts who received toxin-antitoxin and e was the only child in the block who contracted diphtheria. his incident was reported by the district nurse and later uthenticated by investigation.

Dr. C. A. Earle, Des Plaines, Ill.: Diphtheria is the most angerous infectious disease, and more children die from it nan from any other infectious disease. We have reached ne end of our rope with antitoxin. Diphtheria may be more revalent now than it was before the days of antitoxin. There abundant evidence for believing that these mixtures do ne work for which they are designed. To Theobald Smith elongs the greatest credit for the experimental work, and to r. Park for the practical application. In a series of more nan 400 susceptible children, 85 per cent. were immune six onths after the injection of three doses of toxin-antitoxin. Vhen we study Smith's experiments it becomes evident that e cannot expect to immunize all children. He shows that ome guinea-pigs may be immunized by even neutral or alanced mixtures of toxin and antitoxin, while others require nixtures of varying degrees of toxicity. It is likely that there an unknown optimum proportion of the ingredients of the xin-antitoxin mixture required for each individual. ecause of the reliability of the Schick test, no child should e given the toxin-antitoxin mixture whose susceptibility has ot been demonstrated by this test. I feel certain that if the hole proposition is explained to the parents, the vast najority would prefer to have the test made first.

Dr. W. S. Rankin, Raleigh, N. C.: Last year in North arolina the state epidemiologist went into twenty-five ounties, called together the practitioners and said, "Gentleıen, your people should be inoculated against typhoid, and our children against diphtheria. I should like to propose a lan by which you can do it and be paid for it." The physians decided they would do it. They go to the county comissioner and say, "We want to organize with the help of the ate board of health a number of public dispensaries to be eld for five weeks in this county at ten or fifteen different oints." The state board of health sets the time and place for ne dispensary, and notifies the public to come in and be noculated. There is just enough added about the value of oculation to educate the public. The profession itself divides the work. Last year we inoculated 70,000 persons against phoid fever, and 1,000 children between 6 and 12 years of ge against diphtheria. The county commissioner paid the cal practitioners 25 cents for each complete inoculation and nat was $20,000 which went to the profession last year which herwise would not have been received. The work of the edical profession with the state board of health does not stop hen that $20,000 is paid. It goes on. In the dispensaries hich were conducted in Union County, N. C., with 35,000 eople, the physicians vaccinated 10,000 people in a camaign of five weeks. That was $2,500 paid to twenty physians—only $125 each, but think of the effect on the business the profession in keeping up that work. It goes on. The nysicians are assuming the leadership in public health work, nd they come into complete harmony with the public health ficers of the state.

Dr. Abraham Zingher, New York: Dr. Rankin's remarks are very suggestive. I believe that in the rural sections the only practical way to carry out this work is to immunize with toxin-antitoxin every child of school age as well as of preschool age. The reason is that we have found that more than 85 per cent. of schoolchildren in rural sections give a positive Schick reaction. These children, however, should always be given a final Schick test, after toxin-antitoxin injection, before they are pronounced immune to diphtheria. It is important that every health officer and school physician should be acquainted with the method of diluting bulk toxin. He will then be able to test at a cost of $1 an entire school of 2,000 or 3,000 children. Uniformity of the dilution of toxin he uses and great accuracy in the reactions he obtains will soon give the health officer confidence in the results of the Schick test. This confidence, I am sorry to say, is lacking at the present time wherever physicians use outfits supplied by many of the commercial laboratories.

THE ETIOLOGY OF EOSINOPHILIC PLEURAL EFFUSION *

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In consideration of the frequency of pleural effusion in general, it is surprising that so few cases of pleural effusion with a large number of eosinophils have been reported in the literature. It is surprising also that the tubercle bacillus as the etiologic agent in these cases has never been isolated from the exudate. Bayne-Jones [1] states that this condition occurs in about 1 to 5 per cent. of all pleural effusions, as determined by investigators applying constant methods to cases in series. Schwartz [2] compiled sixty-eight cases from the literature in his monograph on the subject of eosinophilia. Klein [3] has reported two cases. One was a right-sided pleural effusion following an operation for hemorrhoids, the necropsy revealing septic, thrombosed hemorrhoidal veins, which were believed by the prosector to have been the source of the pleural infection. A second case followed stab wounds in the chest, which resulted in a right-sided hemorrhagic pleural effusion. In the same paper, Klein refers to two cases reported by Harman,[4] in both of which were bloody pleural effusions. One case differed in that the pleural effusion eosinophilia, after rising to 39 per cent. suddenly changed to 95 per cent. mononuclears, which, however, still presented indistinct, though recognizable, eosinophilic granules. No etiologic, parasitic or bacteriologic agency was isolated in any of these cases.

Widal and Ravaut [5] have reported three cases. One had followed typhoid fever. A second occurred in a man, recently returned from the tropics, who presented an enlarged liver and large glands in the axillae and the groin, but in whom no etiologic factor was found. The third case was a hemorrhagic pleural effusion occurring in a case diagnosed by them clinically as tuberculous. This case is identical with one reported by Auché and Carrière,[6] but in neither case were the tubercle bacilli demonstrated. Widal and Ravaut found the fluid in their cases highly toxic to experimental animals, but most observers have not found this. In no animal were

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* From the Department of Internal Medicine, University of Michigan Medical School.

1. Bayne-Jones, S.: Bull. Johns Hopkins Hosp. **27**: 299-312, 1916.
2. Schwartz, E.: Ergebn. d. allg. Path. u. path. Anat. **17**: 138-790, 1914.
3. Klein, S.: Centralbl. f. Med. **20**: 97, 1899.
4. Harman, William: Inaug. Diss., Dorpat., 1894.
5. Widal, F., and Ravaut, C.: Compt. rend. Soc. de biol. **61**: 654, 1900.
6. Auché et Carrière: Tr. Congrès de Nancy, 1896, p. 537.

they able to demonstrate any of the organisms of tuberculosis, and the one animal which recovered from a smaller dosage of the fluid failed also to develop any lesion of tuberculosis. Barjon and Cade [7] have reported a case in which animal inoculation was negative. Bayne-Jones has reported a case, occurring during pneumonia, in which the pleural fluid injected into an experimental animal gave negative results.

In Jacob's [8] case the gonococcus was considered to be the causal agent, while in the two cases of Bine,[9] atypical lung infections were present. Bine states that although the Pirquet test was negative in one, the other showed a fairly positive tuberculin reaction to both human and bovine tests. He gives no results from animal inoculations with the pleural fluid, but reports that inoculation with washed sputum into the peritoneal cavity of a white mouse showed only gram-positive lanceolate diplococci. He also calls attention to the apparently small number of cases associated with tuberculosis.

More recently, Grabfield [10] has reported two cases in which no definite etiology was determined. After partially reviewing the literature, he did not deem it justifiable to speculate about the possible etiology of such an exudate, but seemed to believe that this condition should be differentiated from other types of pleural effusions.

Donzello,[11] from six cases observed by him in one year, to which he gave especial study, reached the conclusions that: (1) cytologic examinations have established a special type of pleuritis, eosinophilic pleuritis, which cannot be tuberculous in nature since it is encountered in pleuritic conditions of the most diverse nature, and (2) the fluid is always highly toxic to guinea-pigs. Donzello's statement that the eosinophilia is intermediate between the polymorphonuclear and lymphocytic phases has been confirmed by my case as well as by several others.

Eosinophilic pleural effusions have been reported in association with trauma, tuberculosis, sepsis, typhoid fever, syphilis, pulmonary gangrene, pleuropericarditis, pneumonia, polyarthritis, nephritis, hemorrhagic infarct of lung, endothelioma, septic endocarditis, gonococcal sepsis, myocarditis, cardiac insufficiency, puerperal sepsis, neoplasms and influenza. However, in no case has it been possible to prove that the primary disease was the sole etiologic agent in the atypical type of effusion.

Since no case of eosinophilic pleural effusion from which the tubercle bacillus has been isolated has as yet been reported, and since there seems to be a tendency to consider the condition as being etiologically distinct, I consider it worth while to report a case.

REPORT OF CASE

History.—An unmarried woman, aged 22, entered the hospital, June 1, 1922, complaining of a dry cough, a marked feeling of weakness, and sharp pains in the left side of her chest, which were increased in intensity on breathing. There was no ascertainable history of any familial disease. The patient had had measles, mumps, whooping cough and scarlet fever as a child, with good recovery from all. She had had occasional attacks of tonsillitis up to one year previously, when her tonsils had been removed. The patient had never been associated with any one with open tuberculosis. She was born in Nebraska, and had lived there practically all her life, but for the previous year had been in constant residence in Michigan. Her admission weight, which was her best weight, was 137 pounds (62 kg.). The patient had been feeling well until two months previous to her entrance to the hospital, when she was suddenly seized during the night with a severe frontal headache, dizziness and, she believed, a slight rise in temperature. The following morning she felt much improved, and returned to her usual work, although she still felt slightly ill. Six weeks before admission she had had a second attack, likewise occurring during the night and with the same symptoms as before, but she had the added symptom of very sharp, knifelike pains occurring in the left chest. These sharp pains lasted only a few hours and were followed by a dull pain which persisted in her left chest for several days, and had occurred off and on until the time of admission. The attack which brought her to the hospital started during the night preceding the day of her admission, and appeared to be a recurrence of the sharp pains in the left chest accompanied by a marked feeling of weakness and a dry nonproductive cough and transient periods of dizziness. During the previous two months she had had frequent night sweats, occasional headaches and diminished appetite. There had been no loss of weight, or menstrual or urinary disturbances. She had had a slight afternoon rise of temperature for the previous month, and was unaccountably tired in the afternoon during the same period.

Physical Examination.—The patient was slender and well-nourished. She lay comfortably on the examining table, with no marked pain or discomfort. The hair was red and abundant. There was a small, painless enlargement of the anterior cervical lymph glands on both sides. The chest was symmetrical, with a slight limitation of expansion at the left base; it was long and narrow; respirations were slightly increased in rate and decreased in depth. The area of cardiac dulness was shifted to the right. Examination of the lungs revealed marked dulness at the left base, where tactile fremitus was also decreased, and the breath sounds, in whispered and spoken voice, were much diminished, the spoken voice having a slightly tubular quality. There was no retraction of interspaces, and no persistent crackling râles were heard in any area. The remainder of the physical examination was negative.

The hemoglobin was 95 per cent. by the Sahli hemoglobinometer; the red blood cells 3,600,000 and leukocytes 11,000, of which 69 per cent. were polymorphonuclear neutrophils, 18 per cent. large lymphocytes, 8 per cent. small lymphocytes, and 5 per cent. transitionals. No polymorphonuclear eosinophils were found on the initial or following examinations of the blood. The blood pressure was 104 systolic and 54 diastolic. The urine was straw-colored, had a specific gravity of 1.018, and was negative for albumin and sugar. The sediment was also negative.

Examination of the patient's chest on admission and again one week later revealed no pleural line on the right, but on the left there was a rather heavy, dense, mossy pleural line, extending from beneath the second rib down the axillary line to the pleural angle. The right pleural angle was free, but the left was hazy and obscure, and the left base was rather dense to the level of the seventh rib in the axillary line, with a suggestion of a curvilinear line, which was thought to denote fluid. The roentgenogram revealed numerous opacities in the hilum, and slight enlargement of the hilum shadow to the left. There was no change at the right base. Comparison of the earlier and later plates indicated that the left-sided effusion had progressed from the level of the seventh rib to the level of the third rib in one week's time. A third roentgenogram of the chest, taken three weeks after admission and after three thoracenteses had been performed, showed the density at the upper border of the sixth rib.

Clinical Course.—During the patient's stay in the hospital she showed a daily afternoon rise of temperature averaging 102 F., with a minimum temperature averaging 100. On the thirteenth day her minimum temperature dropped to normal, and the afternoon rise was averaging 101. She became afebrile on the seventeenth day after admission. Her pulse was very irregular, ranging between 75 and 125, and her respiration between 20 and 35. A thoracentesis was performed the day following admission, and 10 c.c. of fluid was removed for examination. One week later a second thoracentesis was performed, and 500 c.c. of a slightly greenish tinged effusion was removed. Four days after the second thoracentesis, a third was performed, and 1,000 c.c. of a similar fluid was removed. Shortly after the last operation the patient was suddenly seized with a severe coughing spell and had sharp pains in her lower left chest. During her stay in the hospital her weight fell gradually from 137 to 125 pounds (from 62 to 57 kg.). The patient complained of only slight pain in her chest except after the last thoracentesis. Repeated examinations of her chest revealed that the fluid was being slowly absorbed.

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[7] Barjon et Cade: Arch. gén de méd. **192**: 1859, 1903.
[8] Jacob, F. H.: Brit. M. J. **2**: 203, 1907.
[9] Bine, R.: Am. J. M. Sc. **155**: 579-585 (April) 1918.
[10] Grabfield, G. P.: Internat. Clin. **4**: 143-149, 1921.
[11] Donzello, G.: Policlinico **16**: 462, 1920.

Pleural Fluid.—The fluid from the first thoracentesis showed 33 gm. of albumin per liter by the Esbach albuminometer. The leukocytes numbered 550 per cubic millimeter, 70 per cent. of which were polymorphonuclear eosinophils, and 30 per cent. small lymphocytes. The fluid obtained one week later showed 2,200 leukocytes per cubic millimeter and a shift in the differential count to 100 per cent. small lymphocytes. The fluid obtained at the third thoracentesis, taken four days later, showed the same characteristics as the fluid obtained at the second one. A culture was made from the first fluid obtained, and two guinea-pigs received intraperitoneal injections of the fluid. The culture was negative. One animal was also negative. The other animal presented, one month after inoculation, a spleen from which typical acid-fast staining organisms were obtained.

COMMENT

It has been pointed out that the reported cases of eosinophilic pleural effusion have been associated with a great variety of conditions, such as trauma, infection and neoplasm.

The presence of the tubercle bacillus has been demonstrated but once in these seventy-nine or more cases.

Not only did our patient with eosinophilic pleural effusion present the usual clinical signs and symptoms of pulmonary tuberculosis, but, in addition to this, the tubercle bacillus was demonstrated in the fluid obtained from her chest, by means of animal inoculation.

Even though most cases in which this type of pleural effusion is present have not been proved to be tuberculous, nevertheless it does not seem necessary to accept this condition as a distinct etiologic type of pleural exudate, for it is well known that the etiologic factor of most primary pleural effusions is the tubercle bacillus. Latent tuberculous lesions are present in most adults, even the apparently healthy, and the tendency of such lesions to flare up under conditions which lower the resistance has been repeatedly emphasized. Stevens,[12] for example, states that the failure to demonstrate the bacteria in the exudate by microscopic or cultural tests does not exclude tuberculosis, but on the contrary is strong presumptive evidence that a pleurisy has this origin. According to Fishberg,[13] even negative findings after the injection of the fluid, properly controlled, into the peritoneum of a guinea-pig are not conclusive evidence of the nonexistence of tuberculosis. For these reasons it seems probable that a larger percentage of these cases than the literature would lead one to suspect are tuberculous in origin.

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[12] Stevens, A. A.: The Practice of Medicine, Philadelphia, W. B. Saunders Company, 1922.

[13] Fishberg, M.: Pulmonary Tuberculosis, Philadelphia, Lea and Febiger, 1919.

Dependence of New-Born on Parents.—If we take a survey of evolution in the animal kingdom, we are impressed with the observation that the higher the stage attained the more dependent are the newborn on their parents.—Heineman: *Milk,* W. B. Saunders Co., 1919.

THE PATHOGENESIS OF PARATHYROID TETANY *

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The anatomic and functional independence of the thyroid and the parathyroid glands may be regarded as definitely established. It is also certain that the acute nervous manifestations which follow the removal of both organs in carnivorous animals are due to the absence of the parathyroid glands. However, the function of these glands is still an open question, and the pathogenesis of the usually fatal tetany which follows their complete removal is not satisfactorily explained. A number of theories have been advanced from time to time, but since these have been carefully summarized in several recent reviews,[1] reference will be made only to those that have become of interest in my own experiments.

In conformance with the prevailing ideas regarding the possible functions of ductless glands, it is possible that the parathyroids contribute some substance to the blood which is necessary for life, and in the absence of which the animal quickly dies with either symptoms of tetany or severe depression, or that the parathyroid removes some toxic substance from the blood, whose accumulation after parathyroidectomy causes the characteristic symptoms. There is little or no clear-cut evidence that the parathyroids have an internal secreting function, and were it not for the thyroid when the evidence for this kind of function is definite, it is probable that this theory would have received little attention. On the other hand, many, if not all, of the symptoms and other phenomena can be explained on the basis of an intoxication following parathyroid removal. This early theory has received the experimental support of several recent investigators.

Nervous manifestations which in many particulars are identical with those of parathyroid tetany have been observed in animals following various experimental procedures, and in man in a number of pathologic conditions not clearly related to anatomic disturbances of the parathyroid glands. Thus, I have occasionally noted tetany in dogs following the production of an acute obstruction in the duodenum, an occlusion of the pylorus, or the production of closed isolated intestinal loops. The feeding of excessive quantities of meat to dogs having Eck's fistula, or to animals with extensive liver injuries following phosphorus or chloroform poisoning often causes convulsions similar to those seen in parathyroid tetany. Tetany is not infrequently seen in gastro-intestinal disorders of man, particularly accompanying acute dilatation of the stomach and duodenum, dilatation of the colon in children, and various forms of intestinal toxemia. It is a common observation that the feeding of meat to parathyroidectomized dogs accelerates the onset and increases the severity of the tetany, while, conversely, starvation or carbohydrate feeding delays the tetany and fatal issue. Many of these observations are in harmony with the theory of intoxication, which, indeed, is strongly indicated by the discovery of various toxic bases, such as guanidin, methylguanidin, histamin, cholin, trimethylamin, in the urine[2] and in the blood[3] of parathyroidectomized animals.

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* From the Hull Physiological Laboratories of the University of Chicago.

* Read before the Association for the Study of Internal Secretions, St. Louis, May 22, 1922.

[1] Paton, D. N., and Findlay, L.: The Parathyroids: Tetania Parathyropriva: Its Nature, Cause and Relations to Idiopathic Tetany, Part I, Introduction, General Methods and Symptoms, Quart. J. Exper. Physiol. **10**: 203, 1916. Boothby, W. M.: The Parathyroid Glands, Endocrinology **5**: 403 (July) 1921.

While it is possible that the toxic substances in parathyroid tetany arise in the body tissues through a defect in protein metabolism, many of the observations point strongly to an exogenous origin, and particularly to the gastro-intestinal tract. In a previous study of the nature of the toxemia in intestinal obstruction, it was found that the responsible toxic materials belong also to this group of bases and are produced in the intestine by the activity of the proteolytic group of intestinal bacteria. These toxic amins are also found in the normal intestinal tract, and their production may be controlled to a large extent by factors which control the intestinal organisms. A diet rich in protein of animal origin leads to the development of a bacterial flora almost exclusively proteolytic in character, and the consequent production of large amounts of toxic amins. On the other hand, a carbohydrate diet, more particularly one containing definite amounts of either lactose or dextrin, produces a change in bacterial types so that the intestinal flora becomes practically entirely fermentative or aciduric. Of perhaps greater importance is the fact, pointed out by Kendall,[5] that the presence of utilizable carbohydrate produces a change in the metabolism of intestinal organisms so that proteins in the medium are spared, and the production of poisons is prevented. The toxemia incident to intestinal obstruction may be delayed according to the degree to which this aciduric type of flora can be maintained in the intestine.

In the following series of experiments, the intestinal flora of dogs was kept aciduric by diets containing adequate amounts of lactose. The stools were liquid and odorless, and smears showed a predominance of gram-positive bacteria.

The first group, consisting of six puppies, about 3 months old, was fed a diet of white bread and milk ad libitum, and lactose, 50 gm. each twenty-four hours. After a preliminary feeding of from four to six days, the thyroid and parathyroid glands were removed. The animals quickly recovered from the operation, and were continued on the special diet. Two died on the fourth day, and the remaining four on the tenth day after the operation. None of them showed any symptoms of tetany or depression, and death occurred suddenly.

The second group, consisting of eleven adult dogs, was fed a diet of boiled rice, beef heart and lactose, from 50 to 100 gm. each twenty-four hours. After a preliminary feeding of five days, the thyroid and parathyroid glands were removed, and the feeding was continued as before. Eight of the dogs showed transient symptoms of tetany on the third to fifth day. Two of the animals died in tetany on the third day, five died of either tetany or depression on the eight or ninth day, and four of the animals recovered from all tetany symptoms and are still alive (from five to seven months).

The third group, of fifteen adult dogs, was fed a diet of white bread, milk and lactose, from 50 to 75 gm. each twenty-four hours, and after a preliminary feeding of from ten to fourteen days the thyroid and parathyroid glands were removed. Ten of the animals showed transient symptoms of tetany on the third or fourth day. One animal died from pneumonia on the tenth day. One died on the sixteenth and one on the seventeenth day in tetany. One died on the thirty-first day from the severe enteritis produced by the diet. Eleven recovered from all tetany symptoms and are still living (from two to six months).

The four animals of the second group and the eleven of the third group that survived the thyroparathyroidectomy are in an excellent state of nutrition and are gaining in weight. There are no symptoms referable to thyroid deficiency. In both groups the special carbohydrate diets were continued for five or six weeks after the operation. Attempts to substitute the usual stock diet or one of meat for the special diet previous to this time resulted in more or less severe tetany. However, after six weeks all of the animals could take the usual laboratory diet of meat and vegetables without the production of any adverse symptoms. The feeding of unusually large amounts of meat, particularly if partly spoiled, or the occurrence of constipation, would often precipitate an attack of tetany in an otherwise normal appearing dog. The mechanism of this readjustment of the body to the loss of the parathyroid glands after five or six weeks' dietary treatment has not yet been definitely determined.

CONCLUSIONS

1. Parathyroid tetany or depression is due to an intoxication.

2. The responsible toxic substances come chiefly from the gastro-intestinal tract. They arise through the activity of the proteolytic group of intestinal bacteria, and are probably for the most part protein split products of the nature of amins.

3. The function of the parathyroid glands is to prevent intoxication by these poisons.

4. The parathyroid glands do not furnish a hormone necessary for life, and dogs may be kept alive indefinitely after their removal, if treatment directed to the prevention of this toxemia of intestinal origin is carried out.

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[2] Koch, W. F.: On the Occurrence of Methyl Guanidine in the Urine of Parathyroidectomized Animals, J. Biol. Chem. **12**: 313, 1912; Toxic Bases in the Urine of Parathyroidectomized Dogs, J. Biol. Chem. **15**: 43, 1913.

[3] Paton and Findlay (Footnote 1).

[4] Dragstedt, L. R.; Moorhead, J. J., and Burcky, F. W.: An Experimental Study of the Intoxication in Closed Intestinal Loops, J. Exper. Med. **25**: 421 (March) 1917. Dragstedt, L. R.; Dragstedt, C. A.; McClintock, J. J., and Chase, C. S.: A Study of the Factors Involved in the Production and Absorption of Toxic Materials from the Intestine, J. Exper. Med. **30**: 109 (Aug.) 1919.

[5] Kendall, A. I.: Am. J. M. Sc. **156**: 157 (Aug.) 1918.

THE EFFECT OF MAGNESIUM SULPHATE ON THE SECRETION OF BILE

EXPERIMENTAL STUDY *

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During the last few years, much has been written on drainage of the biliary tract by means of lavage of the duodenum with magnesium sulphate solution. It is my purpose to report here the results of experiments undertaken to determine the effect, if any, of magnesium sulphate on the secretion of bile.

METHOD OF EXPERIMENTATION

Dogs were used in all experiments, and ether anesthesia and rigid sterile technic were employed. Permanent biliary fistulas were made according to the method worked out in this laboratory.[1] In certain experiments the gallbladder was removed; in others it was not.

The fistulas were made in two stage operations. If the gallbladder was to be removed, it was done during the first stage, which consists of transplanting the duodenum just beneath the skin and fascia. About two weeks later, when the wound had healed, the second stage operation was performed. At this time, only the skin was cut through; the common duct was easily located at the point at which it entered the duodenum. The duct was cut in two at its distal extremity, a small rubber catheter was introduced into its lumen, and the end of the duct was fastened in the suture line. Two or three days later, the rubber tube was removed, and a well draining biliary fistula resulted. Ascending infection rarely occurred, and the dogs usually did well and sometimes lived for many months.

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* From the Division of Experimental Surgery and Pathology, Mayo Clinic.

[1] Mann, F. C.: A Technic for Making a Biliary Fistula, J. Lab. & Clin. Med. **7**: 84-86 (Nov.) 1921.

After the fistulas were draining properly, the animals were fastened on a frame and made as comfortable as possible. The room was kept quiet during observation, thus reducing to a minimum any psychic stimulation. After a little training the animals lay quietly for many hours at a time. A small catheter or metal cannula was introduced into the fistula, and bile was collected continuously in fifteen minute fractions.

RESULTS

The normal rate of flow of bile was first determined. Observations were made on animals recently fed and on those from which food had been withheld for twelve hours. No great difference in the rate of flow of bile was noted; however, the rate was somewhat more uniform under fasting.

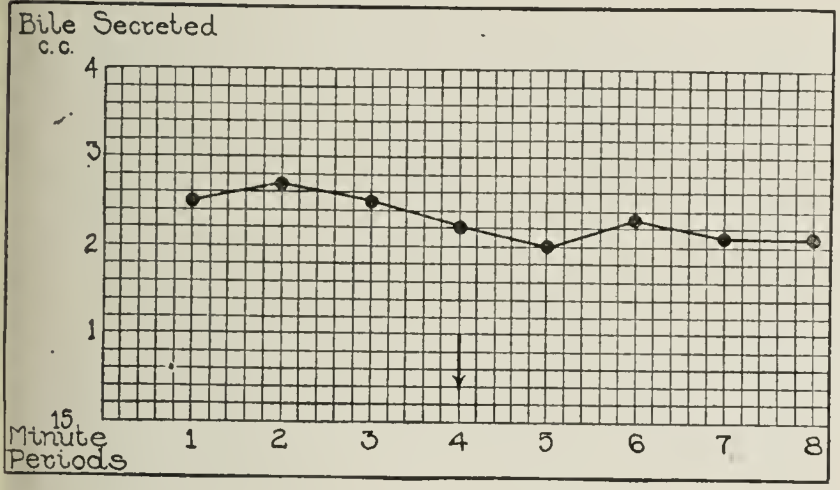

Chart 1.—Normal flow of bile; control experiment. In this and the following charts, arrow indicates injection.

TABLE 1.—NORMAL RATE OF FLOW OF BILE IN DOGS

Cubic Centimeters of Bile Every Fifteen Minutes	Gallbladder Removed	Gallbladder Not Removed
First	1.4	3.4
Second	1.6	1.8
Third	0.8	1.0
Fourth	1.1	3.0
Fifth	1.1	2.5
Sixth	1.2	2.6
Seventh	1.2	2.0
Eighth	1.1	1.8

In one series of experiments, magnesium sulphate was injected into the lumen of the duodenum by means of a hypodermic syringe. This was very easy and caused the animal little or no inconvenience, as the duodenum had been transplanted just beneath the skin and was well fixed in its new position. The method offers an excellent means of studying the pharmacologic action of other drugs introduced under physiologic conditions without first being passed through the stomach.

In another series of animals the magnesium sulphate was introduced intravenously. The salt was dissolved in distilled water, boiled, and left to cool to body temperature. Injections were made into superficial veins of the leg.

Only those experiments in which the animals were quiet and the experimental conditions ideal were considered. The effect of the intraduodenal and intravenous injections on the flow of the bile was carefully noted. Each experiment was controlled by determination of the normal flow of bile in cholecystectomized and noncholecystectomized animals, and by determination of the normal flow of bile for each animal (Table 1 and Chart 1).

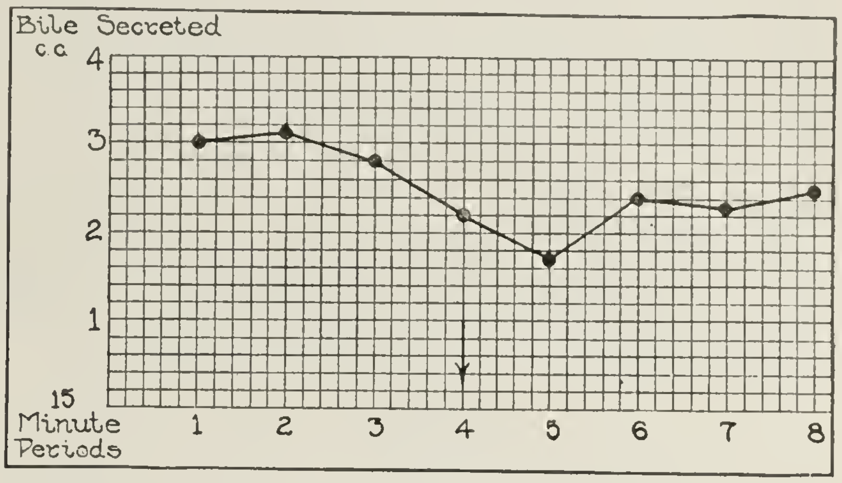

Chart 2.—Flow of bile before and after intraduodenal administration of magnesium sulphate.

TABLE 2.—EFFECT ON THE FLOW OF BILE OF MAGNESIUM SULPHATE INJECTED INTO THE DUODENUM IN DOGS

Cubic Centimeters of Bile Every Fifteen Minutes	Gallbladder Removed	Gallbladder Not Removed
First	4.8	2.6
Second	4.2	1.2
Third	3.5	1.4
Fourth	2.7	1.7
Cubic centimeters of bile secreted following injection at fifteen minute intervals	5 gm. of magnesium sulphate in 20 c.c. of water injected into duodenum	10 gm. of magnesium sulphate in 30 c.c. of water injected into duodenum
First	2.0	0.8
Second	2.5	1.4
Third	2.6	0.1
Fourth	2.8	0.8

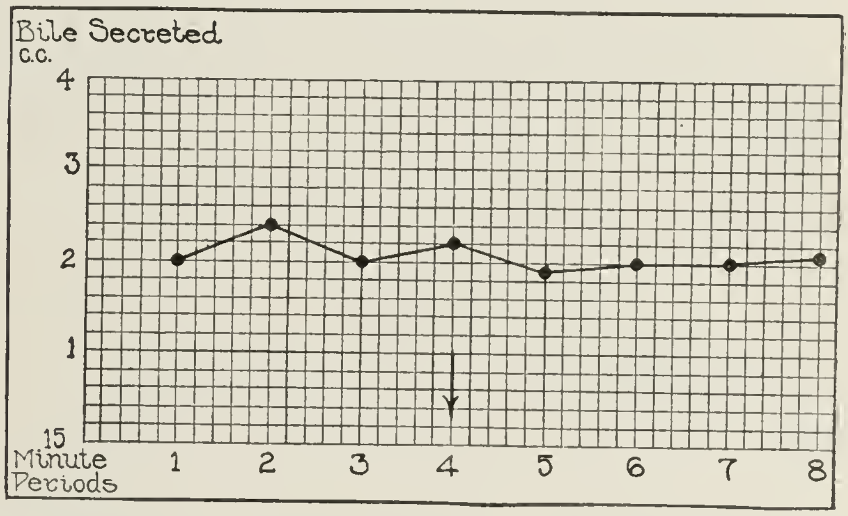

Chart 3.—Flow of bile before and after intravenous injection of magnesium sulphate.

TABLE 3.—EFFECT ON THE FLOW OF BILE OF MAGNESIUM SULPHATE INJECTED INTRAVENOUSLY IN DOGS

Cubic Centimeters of Bile Every Fifteen Minutes	Gallbladder Removed	Gallbladder Not Removed
First	1.9	2.0
Second	2.0	2.2
Third	2.0	1.2
Fourth	2.1	1.6
Cubic centimeters of bile secreted following injection at fifteen minute intervals	1.2 gm. of magnesium sulphate in 10 c.c. of water intravenously	2 gm. of magnesium sulphate in 15 c.c. of water intravenously
First	1.9	1.2
Second	2.0	1.2
Third	2.0	1.2
Fourth	2.1	1.4

Bile was collected in fifteen minute fractions for one hour in order to determine the normal flow. The solution of magnesium sulphate was then injected into the duodenum, and observations on the flow of the bile were made for one hour in fifteen minute fractions (Table 2 and Chart 2). Similar observations were made before and after intravenous injection of magnesium sulphate (Table 3 and Chart 3).

In order to test the validity of the procedure of the intraduodenal injection of magnesium sulphate, experiments were carried out in which fresh bile was injected into the duodenum in the same manner (Table 4 and Chart 4). The experiment was controlled by another in which physiologic sodium chlorid solution was used instead of bile.

COMMENT

The experiments outlined were undertaken in order to determine whether magnesium sulphate introduced directly into the duodenum or into the circulation would cause any change in the volume or in the character of the bile. The data tabulated are representative of observations on many dogs.

The technic employed was simple and easily executed. When the common duct was cut at its entrance into the duodenum, any nerve path which might have passed by this route was also severed. If a nerve reflex was dependent on such a route it would have been abolished.

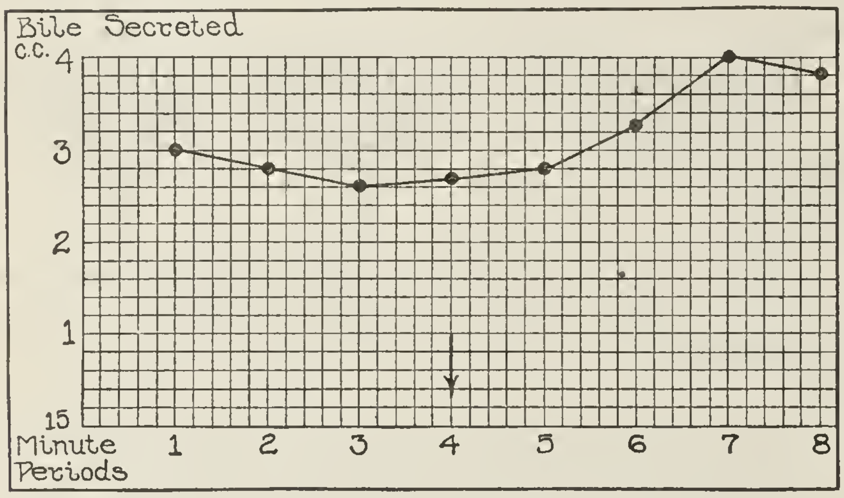

Chart 4.—Flow of bile before and after bile had been injected into the duodenum.

TABLE 4.—EFFECT OF INTRADUODENAL INJECTION OF BILE IN DOGS

Cubic Centimeters of Bile Every Fifteen Minutes	Gallbladder Not Removed	
First	2.1	3.0
Second	2.0	2.8
Third	1.6	2.5
Fourth	1.7	2.7

Cubic centimeters of bile secreted following injection at fifteen minute intervals	15 c.c. of physiologic sodium chlorid solution injected intraduodenally	15 c.c. of fresh bile injected intraduodenally
First	1.2	3.0
Second	1.0	3.5
Third	1.5	4.0
Fourth	1.7	3.8

It was found that the rate of flow of bile in the control experiments was more uniform when the animals were fasting; therefore, any fluctuation in the rate of flow after the injection of magnesium sulphate could best be determined in the fasting state.

After intraduodenal injection of magnesium sulphate, the duodenum, which was clearly visible through the skin, at first contracted and then remained markedly relaxed for from thirty minutes to one hour. This initial contraction was probably due to mechanical stimulation by introduction of the needle and the solution.

CONCLUSIONS

The results of our experiments were entirely negative. When magnesium sulphate solution was injected directly into the duodenum of dogs or injected into the circulation, there was neither acceleration of the rate of flow of bile, nor change in the color. In many instances the rate was even somewhat retarded.

When bile was injected into the duodenum, there was a definite, prompt increase in the flow of bile.

BILATERAL ABDUCTOR PARALYSIS OF THE LARYNX CAUSED BY "MOONSHINE" WHISKY

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Alcoholism seems to be one of the rarest of etiologic factors in paralysis of the bilateral abductors (the crico-arytenoidei postici) of the larynx, an extremely serious and often fatal condition. A thorough search of the literature, including a study of Semon's[1] masterful treatise on motor disturbances of the larynx, disclosed but one fully reported case of this kind. In fact, alcohol is not even mentioned by Semon nor is reference made to it in any of the hundreds of reports he had accumulated. Only in Oppenheim's textbook is it mentioned among the possible etiologic factors of multiple neuritis affecting the vagi, among other nerves. The only recorded case is that reported by Uffenorde.

REPORT OF UFFENORDE'S CASE

A man, aged 59, as a result of heavy drinking, developed first a partial brachial paralysis and then symptoms of laryngeal obstruction, dyspnea, cough and cyanosis. The vocal cords were completely adducted and failed to move from the median position on inspiration. With the exception of some pachydermic masses on the cords, there was no other local pathologic condition, neither were there symptoms of any other nerves being involved. Three days after he had been denied the use of alcohol, the stridor and dyspnea disappeared and both cords began to abduct slightly on inspiration, and, within six days, function was completely restored. The patient, however, resumed drinking and returned to the hospital a year later with a recurrence of the dyspnea and other symptoms. The vocal cords were again absolutely immobile in the midline. The dyspnea and cyanosis were so marked that a tracheotomy was performed. Again recovery took place within a very few days, and the patient was dismissed. He returned several times later on account of dyspneic attacks which followed heavy drinking; but at no time was the paralysis evident, as in the original attacks. It was rather a spastic closure of the glottis, of short duration, in which the psychic impress of the previous experiences was the dominant factor. The later attacks rapidly disappeared under palliative treatment.

REPORT OF AUTHORS' CASE

In the case which we had the opportunity to observe, the attack presented a group of symptoms suggestive of the Avellis-Schmidt syndrome, which is generally due to bulbar lesions or tumors in the region of the jugular

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1. Semon, in Handbuch der Laryngologie und Rhinologie, Vienna, Paul Heymann, **1**, 1889.
2. Oppenheim: Lehrbuch der Neurologie, 1907.
3. Uffenorde: Ztschr. f. Ohrenh. **72**: 53, 1915.

fossa. The lesions involved the facial, vagus and hypoglossal nerves, on one side, together with some of the upper cervical motor nerves and some fibers of the opposite vagus. The spinal accessory nerve apparently escaped.

The provocative agent was a home-distilled "moonshine." Since the advent of prohibition and the consequent increase in the consumption and manufacture of improperly distilled liquors and synthetic concoctions, a new form of alcoholism has come to light, differing considerably from the classic type of days past. Its predilection for the ocular apparatus and its tendency toward strange psychoses are among the more recently observed manifestations. Our case demonstrated the extremely toxic effects of these beverages on nerve cells, as manifested by the multiple neuritis as well as the mental derangement.

History.—C. W., man, aged 43, a woodworker, was brought in suffering with difficult respiration of about eight hours' duration. He stated that the attack began the night before, with a choking sensation, and that he had never suffered an attack of this kind before; nor could he state what brought in on. The dyspnea was chiefly inspiratory.

Examination.—The preliminary examination revealed an emphysema and piping râles throughout the chest. A provisional diagnosis of asthma was made. A little later a laryngeal examination was made. It was found that the vocal cords were in complete adduction, and, except for a slight wavering of the right cord, failed to abduct on inspiration. There was a slight amount of edema of the arytenoids and the aryepiglottic folds.

The cyanosis and stridor, though marked, were not sufficient to necessitate immediate tracheotomy. The following day, the dyspnea was still pronounced, and the patient complained of headache, cough, and nausea, which were later followed by vomiting. These symptoms persisted, and, in addition, the patient became irrational and boisterous, and tried to get through a locked door leading to the fire escape. Restraints were applied. He continued to be very restless and noisy, talking loudly and irrationally. The pulse was weak and thready, ranging from 130 to 156, and the respirations were correspondingly rapid (48 to 54). His expression was anxious, and he perspired freely. Cyanosis, though present, was not threatening. In addition, the examination disclosed: (1) paresis of the right side of the face; (2) paresis of the right half of the tongue; (3) inability to elevate the chest (paresis of the accessory muscles of respiration; the pectoralis minor, serrati and scaleni); (4) increased knee jerks; (5) doubtful Babinski on the left side; (6) normal pupils and fundi.

The multiplicity of symptoms suggested cerebrospinal syphilis, which diagnosis, however, was later ruled out through the subsequent course of the case and the negative Wassermann reactions on both blood and spinal fluid.

The leukocytes numbered 9,800; the urine was negative for albumin, sugar and casts. The following day the patient was improved. Breathing was easier; he was more rational, quieter and the pulse was slower (pulse, 118; respiration, 24). Examination of the larynx revealed the left cord immobile in adduction; the right cord abducting slightly on inspiration; the epiglottis and arytenoids somewhat edematous.

At this time, by close questioning, we obtained the information that the patient had for some time past been imbibing freely of a home-made alcoholic distillate which was being manufactured in the neighborhood, and that just previous to the onset of the attack he had obtained several bottles that had recently been made. Nothing definite could be ascertained as to the exact nature of the concoction, except that it was almost white and was "very strong."

A roentgenogram of the chest at this time proved negative.

Course.—The paresis of the face, tongue and chest muscles disappeared within forty-eight hours, and the laryngeal condition showed progressive improvement. Examination on the nineteenth day, under direct laryngoscopy (local anesthesia), revealed the right cord moving freely, both in abduction and adduction; the left cord was still in adduction and moved but slightly on deep inspiration. There were slight pachydermic masses on both cords and the interarytenoid space, but no edema, tumor or ulcer.

The patient returned to the hospital for observation at weekly intervals for two months and showed a general improvement, gaining 20 pounds (9 kg.) in weight.

Examination, three months after the attack, demonstrated the right cord completely recovered and the left one almost in the cadaver position, although showing some slight motion on phonation. It appears that the paralysis of the recurrent nerve was almost complete on this side, having gone through the cycle in accordance with Semon's law, beginning with the abductors and ending with the adductors.

The voice is, nevertheless, very good, as the right vocal cord during phonation overrides the median line and opposes the left cord in the oblique position.

RELATIVE VALUE OF SACHS-GEORGI AND WASSERMANN REACTIONS IN DIAGNOSIS OF SYPHILIS

AN ANALYSIS OF ONE THOUSAND SEVEN HUNDRED AND FORTY-EIGHT PARALLEL TESTS *

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An enormous literature has accumulated regarding the relative merits of the Sachs-Georgi and the Wassermann tests in the diagnosis of syphilis, a literature that is so filled with contradictions that an unprejudiced reader is utterly at a loss in evaluating the relative accuracy of the two tests. Some observers claim for the Sachs-Georgi reaction a greater specific value in the diagnosis of the disease than is possessed by the Wassermann reaction, while others conclude that the Sachs-Georgi test is less accurate or absolutely unreliable.

In view of the discordant results recorded in the literature with the Sachs-Georgi test, we believed that it would be of some value to compare the results obtained with the two tests on routine specimens of blood sent to the laboratories of the Army Medical School for the Wassermann test. This work has covered a period of nearly one year and has been very carefully conducted, the Wassermann tests being made and read by one of us (W. C. W.), while the Sachs-Georgi tests were made and read by the other (C. F. C.). In this way all leaning toward forcing an agreement between the results of the tests, which might unconsciously be brought about when a single person makes and reads both tests, was avoided and an absolutely unprejudiced reading of both was possible, as neither of us knew at the time of reading his tests what result had been obtained with the comparative test.

From our experience we are positive that a greater agreement between the two tests would have been obtained had one observer made all of the readings for both, but we are also positive that the data so obtained would have been very unreliable, as many of the weak Sachs-Georgi reactions would have been read as positive in order that the result might agree with the result of the Wassermann test, despite the fact that just as strong Sachs-Georgi reactions were frequently noted in nonsyphilitic cases. The very high percentage of agreements between the results of the Sachs-Georgi and the Wassermann tests recorded in the literature by some observers were perhaps due to the fact that readings of the two tests were made by a single observer who had a knowledge of the results of both and who, in comparing the results, unconsciously strove for an agreement in the doubtful cases. At any rate, we feel sure that in comparative research of this character it is most important that the results of the tests under comparison be read by independent observers, as otherwise it is practically impossible to avoid errors due to a desire to force agreements where none really exist. For this reason we believe that our results are more truly representative of the real relative value of the two tests than many that have been published in the literature.

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TECHNIC

The technic employed in making the Sachs-Georgi tests was that recommended by Sachs and Georgi,[1] with slight variations in the mixing of the antigen and salt solution, which will be referred to later. The antigen employed consisted of a 20 per cent. alcoholic extract of beef heart muscle fortified by the addition of cholesterin. The amount of cholesterin to be added in order to secure the best results was determined by carefully weighing out different amounts and adding them to 10 c.c. of the extract in such a manner as to make the different portions of the antigenic extract contain 0.2, 0.3, 0.4, 0.5 and 0.6 per cent. of cholesterin. These portions of cholesterinized extract were then titrated with known positive and negative serums and the portion of extract giving the best results was selected for use in the test. The percentage of cholesterin to be added to the alcoholic extract of beef heart was found to vary slightly with different extracts, but was generally either 0.4 or 0.5 per cent.

The cholesterinized extract before use in the test was diluted with 5 parts of physiologic sodium chlorid solution. The method by which this dilution is made is of immense importance as regards the results of the test, as will be shown later.

The serums to be tested were inactivated at 55 C. for one-half hour in the water bath and diluted with 9 parts of physiologic sodium chlorid solution, after which 5 parts of the diluted antigen were added and the whole mixture incubated at 37 C. for from eighteen to twenty-four hours. In our tests each test tube contained 0.9 c.c. of physiologic sodium chlorid solution, 0.1 c.c. of the serum to be tested and 0.5 c.c. of the antigenic suspension.

The technic used in the Wassermann tests was the modification devised by one of us (C. F. C.), which is used in the routine work of this character at the Army Medical School. In this modification a human hemolytic system and a cholesterinized antigen are employed. The exact technic has been described in detail elsewhere.[2]

Terms Employed in Reading the Tests.—In reading and recording the results of both the Sachs-Georgi and the Wassermann tests the following terms were employed: Double plus (+ +), plus (+), plus-minus (+ —), and negative (—). The term double plus indicates complete flocculation with the Sachs-Georgi test and complete inhibition of hemolysis with the Wassermann test. The term plus indicates marked flocculation with the Sachs-Georgi test and anything between complete inhibition of hemolysis and 50 per cent. of hemolysis with the Wassermann test. The term plus-minus indicates very slight flocculation with the Sachs-Georgi test and anything between 50 per cent. of hemolysis and complete hemolysis; while the term negative indicates no flocculation with the Sachs-Georgi test and complete hemolysis with the Wassermann test.

The Sachs-Georgi test owes its origin to the observation that when a suitable amount of a cholesterinized alcoholic extract of a human or beef heart is added to the diluted blood serum of a patient suffering with syphilis, a characteristic flocculation occurs in the mixture, either immediately or after incubation, and the value of the test depends entirely on the degree of flocculation noted in the serum tested. In our work the utmost care was exercised to determine the presence or absence of this phenomenon in the serums tested and it early became evident that if we depended on reading the tests with the naked eye we would miss many positive reactions. For this reason we have read the end reactions of the Sachs-Georgi test with a low power hand lens against a dark background. We found that considerable practice was necessary before some of the positive reactions with this test could be differentiated from the appearance caused in some serums by the formation of certain precipitates and that even with the greatest care it was sometimes impossible to be sure of the presence or absence of flocculation. From our experience in this respect, we believe that the use of this test should be restricted to those well trained in its technic and interpretation, for otherwise serious errors in its diagnostic use will certainly occur very frequently.

The difficulty of reading the partial reactions and of interpreting their meaning is great with the Sachs-Georgi test, and we soon found that any reaction with this test below a plus reaction was absolutely valueless in diagnosis. Thus all plus-minus reactions were worthless, as a slight amount of flocculation occurred just as frequently in nonsyphilitic serums as in those known to have been taken from syphilitic patients. In this report, it should be understood that when the Sachs-Georgi reaction is called positive, it means that at least a plus reaction was obtained in the serum examined. All plus and double plus reactions with the Sachs-Georgi test were considered as positive reactions in our work, and all plus-minus and negative reactions were considered negative. With the Wassermann test, only double plus reactions were considered as positive reactions, but the plus reactions with this test were included with the positive reactions in estimating the total agreements with the two tests.

In all, 1,748 serums were tested with both tests, and at the same time. The tests may be divided into two groups, as regards the results obtained: Group 1, in which the antigenic suspension was used within from ten to fifteen minutes after adding the saline solution to the antigenic extract, and Group 2, in which the salt solution was added to the antigenic extract and the mixture allowed to stand for two hours before use. As will be noted from a study of the results obtained, very much better results were secured when the antigen was diluted and allowed to stand for two hours before use. In Group 1, 748 serums were tested with both tests, while in Group 2, 1,000 serums were tested.

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[1] Sachs, H., and Georgi, W.: Med. Klin. **14**: 805, 1918.

[2] Craig, C. F.: The Wassermann Test, Ed. 2, St. Louis, 1921, pp. 99-116.

The fact that allowing the antigenic mixture to stand for two hours after adding the salt solution greatly increases the diagnostic value of the Sachs-Georgi test is well shown in our results and illustrates only one of the many factors that either increase or decrease its delicacy and thus render this test one that is unstable and liable to great variations in results in different laboratories. Thus the mere method of adding the salt solution to the antigenic extract is most important, for, if it is added rapidly, less accurate results and a smaller number of positive reactions are obtained than when it is added slowly, even drop by drop. The exact mechanism of this reaction is yet unknown, but it undoubtedly depends in large measure on the surface tension of the mixtures and this is markedly influenced by causes that are often beyond the control of the investigator.

We believe that the results that we obtained in the serums included in Group 2, taking into consideration the fact that the readings were absolutely uninfluenced by a foreknowledge of the results obtained with the comparative test, represent what may be expected of the Sachs-Georgi test when it is carefully made under the best possible conditions, and that the results in Group 1 represent what may be expected of it when some little understood factor, as the time that the antigenic extract and the salt solution should remain in contact, is active. In this way, the greatly divergent results of this test as reported in the literature may be partially explained.

RESULTS OF PARALLEL TESTS IN GROUP 1

In Group 1 are included the serums tested with the Sachs-Georgi test in which the antigen was diluted with 5 parts of physiologic sodium chlorid solution (0.85 per cent.) and the mixture used within fifteen minutes after the salt solution had been added. In this group, 748 serums were tested with both the Sachs-Georgi and the Wassermann tests with the following results: total number of parallel tests made, 748; total number of positive (+ +) Wassermann reactions, eighty-eight, or 11.7 per cent.; and total number of positive Sachs-Georgi reactions, fifty-three, or 7.0 per cent.

In addition to the positive or double-plus Wassermann reactions mentioned, there were sixty-two plus Wassermann reactions, or 8.2 per cent. of the total number of serums tested, which should, without doubt, be included in the positive Wassermann tests, as they were obtained in very early or treated syphilitic infections. If these are added to the double-plus Wassermann reactions, we have a total of 150 positive Wassermann tests, or nearly 20 per cent. of the total number of serums tested, as compared with only 52 positive Sachs-Georgi reactions, or 7 per cent. of the total number of serums tested.

However, the chief interest in these parallel tests with the two reactions is concerned with the number of agreements in results. Taking into consideration only the double plus Wassermann reactions and the double plus and plus Sachs-Georgi reactions, there was an agreement in results in 596 serums, or 79.6 per cent. of the total serums tested. If to these figures are added those serums in which a single plus Wassermann reaction was obtained and a positive Sachs-Georgi test, the number of agreements are increased to 602, or 80.4 per cent. of the total serums tested.

This is a fair average percentage of total agreements between the two tests as shown in the literature; but, when one examines the total number of agreements in the positive and negative reactions, our results are very disappointing as regards the value of the Sachs-Georgi test in the diagnosis of syphilis. Thus, in only twenty-five of the eighty-eight double plus Wassermann serums did the Sachs-Georgi test give a positive reaction or a total agreement of only 28.4 per cent. In other words, sixty-three serums, or 71.5 per cent. of the double plus Wassermann cases, were absolutely missed by the Sachs-Georgi test.

On the other hand, there were twenty-two serums in which the Sachs-Georgi test gave a positive result and in which the Wassermann test was doubtful or negative. These serums constituted 41.4 per cent. of the total positive Sachs-Georgi reactions so that it may be stated that 41.4 per cent. of the total positive Sachs-Georgi reactions were not confirmed by the Wassermann test. If this fact indicated that this number of syphilitic cases were missed by the Wassermann test, it would speak very favorably for the superior delicacy of the Sachs-Georgi reaction; but, as will be later observed, such an interpretation cannot justly be placed on these disagreements in results.

As regards the negative reactions obtained with both tests, there was a very close agreement, no less than 571 of the serums giving a negative reaction with both tests. Thus, of the 593 serums that gave a negative reaction with the Wassermann test no less than 571 also gave a negative reaction with the Sachs-Georgi test or an agreement percentage of 96.3.

From the results given it is evident that in this group of parallel tests, the Sachs-Georgi reaction proved to be of very much less value in the diagnosis of syphilis than the Wassermann reaction and that it was untrustworthy in that no less than 41.4 per cent. of the comparatively few positive reactions obtained with it were not confirmed by the Wassermann reaction, or, as will be shown later, by the clinical symptoms or history of the patients from whom the blood serum was obtained.

RESULTS OF THE PARALLEL TESTS IN GROUP 2

While the work on the tests in Group 1 was being conducted, it was noted that an antigenic extract to which the physiologic sodium chlorid solution had been added two hours before use gave a much higher percentage of positive results with the Sachs-Georgi test than the same antigenic extract to which the saline solution had been added from ten to fifteen minutes before use. This phenomenon was investigated by adding the saline solution to the antigenic extract and waiting for varying periods of time before using the mixture in the test, and it was found that the maximum of positive results was obtained when an interval of two hours was allowed to elapse after the addition of the salt solution before using the mixture as an antigen.

All of the serums included in Group 2 were tested simultaneously by both the Sachs-Georgi and the Wassermann tests. The antigen in the Sachs-Georgi test was mixed in the manner above described, and, if the results obtained with this test are compared with those obtained in Group 1, it is at once obvious that they are better than those obtained with the freshly mixed antigen.

In Group 2, 1,000 serums were tested, with the following results: total number of parallel tests made, 1,000; total number of positive (+ +) Wassermann reactions, 156, or 15.6 per cent.; and total number of positive Sachs-Georgi reactions, 181, or 18.1 per cent.

In addition to the positive, or double plus, Wassermann reactions, there were fifty-three plus Wassermann reactions, or 5.3 per cent. of the total number of serums tested which should be included in the positive Wassermann reactions, as most of them were in known treated syphilitic infections. If these are added to the double plus Wassermann reactions, the total positive Wassermann reactions equal 209, or 20.9 per cent., as compared with 181 positive Sachs-Georgi reactions, or 18.1 per cent. of the total serums tested.

As regards the number of agreements between the tests in this group of cases, taking into consideration only the double plus Wassermann reactions and the plus and double plus Sachs-Georgi reactions, there was an agreement in results in 832 cases, or 83.2 per cent. of the total serums tested, while if to these figures are added the plus Wassermann reactions in which the Sachs-Georgi test was positive, twenty-six in number, the two tests agreed in their results in 858 cases, or 85.8 per cent.

TABLE 1.—COMPARATIVE RESULTS OF THE SACHS-GEORGI AND THE WASSERMANN TESTS IN 1,748 CASES

	Group 1		Group 2	
	Number	Per Cent.	Number	Per Cent.
Total number of parallel tests made	748		1,000	
Total number of positive (++) Wassermann reactions	88	11.7	156	15.6
Total number of plus (+) Wassermann reactions	62	8.2	53	5.3
Number of doubtful (±) and negative (—) Wassermann reactions	593	79.2	777	77.7
Number of positive Sachs-Georgi reactions	53	7.2	181	18.1
Number of negative Sachs-Georgi reactions	695	92.8	819	81.9
Agreements				
Agreements in positive reactions	25	23.4	104	66.6
Agreements in negative reactions	571	96.3	728	93.7
Total absolute agreements	596	79.6	834	83.4
Additional probable agreements	6	9.6	26	49.0
Total agreements	602	80.4	860	86.0
Disagreements				
In this portion of the table the percentage given shows the positive (++) Wassermann reactions missed by the Sachs-Georgi test				
Wassermann positive (++); Sachs-Georgi negative or doubtful	63	71.5	52	33.0
Wassermann negative or doubtful; Sachs-Georgi positive	22	41.4	48	26.5

This percentage of total agreements between the two tests is about that reported by most observers; but here, as in Group 1, a careful examination of the number of agreements between the positive and negative reactions with the two tests proves very disappointing so far as the practical value of the Sachs-Georgi test in the diagnosis of syphilis is concerned. Thus, in only 104 of the double plus Wassermann reactions, 156 in number, did the Sachs-Georgi test give a positive reaction, more than 33 per cent. of the cases giving a positive Wassermann reaction being missed by the Sachs-Georgi test. There were forty-eight serums in which the Wassermann test was negative or doubtful and which gave a positive reaction with the Sachs-Georgi test. These serums comprised 26.5 per cent. of the total number of serums giving a positive Sachs-Georgi reaction, so that it may be stated that 26.5 per cent. of the positive Sachs-Georgi tests could not be confirmed by the Wassermann test, and an inquiry into the history of the patients from whom these serums were obtained demonstrated that neither the history nor the symptoms present at the time of the blood examination indicated syphilitic infection.

In this group of serums, the number of agreements between the negative tests was high, no less than 728 of the total 777 serums giving a negative result with the Wassermann test, or a total negative agreement of 93.7 per cent.

The accompanying table gives the results that we obtained with the Wassermann and Sachs-Georgi tests in both Group 1 and Group 2 and well illustrates the marked differences in the results with the Sachs-Georgi test, produced by the delay of two hours in using the antigenic mixture after the salt solution was added.

ANALYSIS OF DISAGREEMENTS BETWEEN THE TWO TESTS

In view of the importance of ascertaining the real, practical relative value of the Sachs-Georgi and the Wassermann tests in the diagnosis of syphilis, a careful study was made of the cases in which the two tests gave divergent results. These cases may be divided into those giving a double plus or positive Wassermann reaction and a negative Sachs-Georgi reaction and those giving a positive Sachs-Georgi reaction and a negative Wassermann reaction. Only the disagreements observed in Group 2 were considered, as it was in this group that the best results were obtained with the Sachs-Georgi test and it was our desire to give the latter test the fairest trial possible before reaching a conclusion as to its value in diagnosis, as compared with the Wassermann test.

Cases with a Double Plus Wassermann Reaction and a Negative Sachs-Georgi Reaction.—There were fifty-two specimens of blood serum from as many patients that gave a positive Wassermann reaction and a negative Sachs-Georgi reaction. A very careful inquiry was made into the antecedents, history and symptoms of these patients, with the following results:

Of the fifty-two cases, forty-five, or 86.9 per cent., were either known or probable cases of syphilis presenting suspicious histories or symptoms of the disease. In four cases, or 7.6 per cent., no history of syphilis could be obtained, and, save for an optic atrophy in one case, these patients presented no evidences of syphilis. However, in three of these cases, the positive Wassermann reaction was again obtained at a later date, and it is probable that these patients were really suffering from a latent syphilitic infection. These cases are not included in the forty-five known infections just mentioned. In three cases, no information could be obtained.

The investigation of the cases in which the Wassermann test was positive and the Sachs-Georgi negative demonstrated that forty-five of a total of 156 patients with a positive Wassermann reaction and known to be syphilitic gave a negative reaction with the Sachs-Georgi test. In other words, 28.8 per cent. of the known syphilitic patients would have remained undiagnosed, so far as a test of their blood serum is concerned, had we depended on the Sachs-Georgi reaction in diagnosis.

Cases with a Negative Wassermann Reaction and a Positive Sachs-Georgi Reaction.—There were forty-eight specimens of blood serum from as many individuals that gave a negative or doubtful Wassermann reaction and a positive Sachs-Georgi reaction. These specimens constituted 26.5 per cent. of the total number of serums giving a positive Sachs-Georgi reaction.

The great importance of ascertaining whether the individuals from whom the blood serum was obtained were syphilitic is obvious, and a very careful and searching inquiry was made into the history and symptoms of each case, with the following results:

Of the forty-eight individuals giving a positive Sachs-Georgi and a negative Wassermann reaction, no less than forty, or 83.3 per cent., gave no history of syphilitic infection and presented no signs or symptoms of the disease. Five of the individuals were known syphilitic patients and in three of the cases no information could be obtained.

Our investigation, therefore, demonstrated that forty of a total of 181 positive Sachs-Georgi reactions, or 22.1 per cent., were undoubtedly false reactions and were not confirmed by the Wassermann test or the history or symptoms of the patients from whom the blood was obtained, and that five of the total 181 positive Sachs-Georgi reactions, or 2.7 per cent., were in known cases of syphilis in which the Wassermann test was doubtful or negative. In three of these cases, the Wassermann test gave a plus-minus reaction and their history showed them to be old latent infections.

VARIATIONS IN THE RESULTS OF THE SACHS-GEORGI TEST

In our experience, a very noticeable characteristic of the Sachs-Georgi reaction was its variation in results on specimens of blood serum obtained from the same patient but examined at different times. A few examples of this variability are given in the subjoined case reports.

REPORT OF CASES

CASE 1.—P. S., a man, was in the hospital for a mild respiratory infection. His blood serum gave a negative Wassermann reaction and a very strongly positive Sachs-Georgi reaction when first examined. There was a negative history as to syphilis, and no clinical symptoms. Three weeks later, after discharge from hospital, his blood serum still gave a negative Wassermann reaction, but this time a negative Sachs-Georgi reaction was obtained.

CASE 2.—Mrs. W. had no history or evidence of syphilis. The blood serum gave a double plus Wassermann reaction and a negative Sachs-Georgi reaction. The second Wassermann test, ten days later, gave a double plus Wassermann reaction and a negative Sachs-Georgi reaction. The third Wassermann test, three weeks later, gave a strong plus Wassermann reaction and a strongly positive Sachs-Georgi reaction.

CASE 3.—R. E. L. had a known case of syphilitic infection. The blood serum of this patient gave, at different times, two double plus Wassermann reactions and two negative Sachs-Georgi reactions. A third test resulted in a very strong plus Wassermann reaction and a strongly positive Sachs-Georgi reaction.

CASE 4.—The first test on the blood serum in this patient gave a double plus Wassermann reaction and a plus Sachs-Georgi reaction. There was a history of an abortion and a stillbirth, probably syphilitic in origin. A second test made, twelve days later, resulted in a double plus Wassermann reaction and a clean cut negative Sachs-Georgi reaction.

The cases just cited are only a few examples of the many variations that were obtained with the Sachs-Georgi reaction when several tests were made on the blood serum of the same individual at different times, variations so marked that they could not be explained by any normal variation in the reacting substances in the serum examined. Indeed, if repeated tests had been made on the entire number of individuals examined, it is quite possible that the percentage of variations in the results obtained with this test would have been so pronounced and so confusing as to cause very grave doubt as to the real diagnostic value of the test in any one case. This is a phase of the subject that should receive further investigation.

SUMMARY AND CONCLUSIONS

1. The results of parallel Sachs-Georgi and Wassermann reactions on 1,748 specimens of blood serum from as many individuals gave a total agreement in results of 85.5 per cent.

2. The disagreements, however, were most serious, no less than 33.3 per cent. of the positive Wassermann reactions being missed by the Sachs-Georgi test in known infections with syphilis, while 26.5 per cent. of the positive Sachs-Georgi reactions were not confirmed by the Wassermann test nor by clinical findings.

3. These disagreements in tests performed under ideal conditions for comparison, by two separate investigators, were so radical in character and so important from a diagnostic standpoint, that we do not believe that the Sachs-Georgi reaction *alone* should be relied on as a diagnostic method for syphilis under any conditions.

4. The difficulty of reading slight Sachs-Georgi reactions and differentiating them from precipitation due to other causes in the serum tested is so great, in many instances, that no reliable conclusion can be reached, thus leaving the test open to so much individual interpretation that it destroys the scientific value of the results. The widely divergent results with the test reported in the literature are conclusive proof of this statement.

5. The Sachs-Georgi test, using the technic recommended by the originators, or slight modifications of this technic, is an interesting reaction from a theoretical and speculative standpoint; but it is greatly inferior, in its practical application to the diagnosis of syphilis, to the Wassermann test or any of its accepted modifications.

6. The Sachs-Georgi test should never be used to the exclusion of the Wassermann test in the diagnosis of syphilis, and a positive result with the Sachs-Georgi test should always be checked up by a Wassermann test.

Effect of Altitude on Human Life.—The eight investigators, five of them Harvard Medical School graduates and the other three British, who sailed for Peru last November to make their headquarters at Cerro de Pasco (altitude 14,200 feet, in the Andes) for the purpose of studying the changes in the heart, circulation, respiration, and chemical composition of the blood which enable the residents to live in comfort at an altitude at which most people could hardly exist on account of rarity of the air, have made a report. An improvised laboratory was taken in the baggage car, and blood tests of the inhabitants were taken, by which it was shown that these people live under conditions in which blood does not contain the usual quantity of oxygen. They are able to carry heavy burdens up sharp inclines at this altitude without exhaustion. The blood tests taken gave some insight into the chemical changes which take place in the blood to make this possible. The members of the expedition were: Dr. Alfred C. Redfield, Arlie B. Bock, Henry S. Forbes, Boston; Carl A. L. Binger, George Harrop, New York; Prof. Joseph Barcroft, Cambridge University, England, who organized the expedition; Prof. J. G. Meakins, Edinburgh University, Scotland, and Dr. Doggart of Kings College, Cambridge. The expedition was financed by Kings College, Cambridge, Royal Society of London, Carnegie Foundation, Rockefeller Institute, the Presbyterian Hospital, New York, University of Toronto, Harvard Medical School, and certain private individuals.

CARCINOMA OF THE LARYNX TREATED LOCALLY WITH RADIUM EMANATION

A CLINICAL REPORT

OTTO T. FREER, M.D.
CHICAGO

Radium and its salts continually give off a gas, created by the disintegration of the radium atoms, called emanation, which sends forth the same rays that radium does. The amount of emanation issuing from a gram of radium is called a curie, that coming from a milligram of radium, a millicurie. A millicurie is the exact equivalent in irradiating power of a milligram of radium. Radium emanation is collected from a gram, or more, of radium chlorid by means of a mercury vacuum pump which forces it into sealed glass capillary tubes, the thickness of a horsehair and ⅓ inch (8.5 mm.) long. Up to 400 millicuries of emanation, the equal of 400 mg. of raduim, may thus be condensed in one emanation tube, from 50 to 100 millicuries being, however, the usual amount. The glass emanation tubes are enclosed in little silver enameled tubes, ⅝ inch (15.8 mm.) long and 1/32 inch (0.8 mm.) thick, placed for use in small silver containers called screens (Fig. 1), which are made to hold from one to six enameled tubes. Thus, a four tube screen may contain even 1,600 millicuries of emanation (from 250 to 300 being the standard amount), giving the utmost irradiating power in the least possible space. This is of the greatest importance in intralaryngeal work. In contrast to the compactness of emanation, the container for only 30 mg. of radium is already too large for the larynx, filling it up, yet giving an ineffectively feeble irradiation. Radium itself is, therefore, unfit for intralaryngeal irradiation.[1]

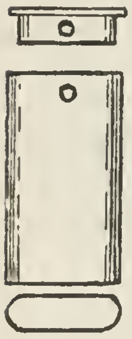

Fig. 1.—A four tube Simpson radium emanation screen, natural size.

APPARATUS FOR INTRALARYNGEAL EMANATION IRRADIATION

In order to irradiate the cancer strongly enough, and yet avoid undue reaction in the throat, the screen must be placed in contact with the cancer, or as close to it as possible. This demand is fulfilled by my apparatus for placing emanation in the larynx, which I have perfected during the last three years. The instruments consist of a forehead clamp (Figs. 2 *A* and 3), a screen holder called the laryngeal applicator (Fig. 2 *B*) and the screens mentioned. The applicator consists of a stem to be held in the clamp, a horizontal body and a distal portion, with laryngeal bend called the screen tube, ending in a socket to hold the screen. The applicator stem has a hinge (Fig. 2 *B*), giving it a forward and backward movement to permit moving the screen in those directions in the larynx without opening the clamp. The hinge is fixed by a set-screw. Another set-screw locks a pivot joint (Fig. 2 *C*) at the base of the applicator stem that permits rotation of the body of the applicator to the right or left. The body of the applicator has a thumbpiece (Fig. 2 *D*) for holding the applicator during its introduction. This ends in a socket (Fig. 2 *G*) into which screen tubes, of varying lengths enabling them to reach into varying depths of the larynx and upper trachea, are fastened by means of a set-screw. A flat steel spring (Fig. 2 *E*) extends between the thumb-piece and socket portion of the applicator body, thus forming the horizontal portion of the applicator. Above the spring, projecting face to face from thumb-piece and socket portion of the applicator, are two short lengths of metal tube. They are joined by a length of rubber tubing slipped over each of them (Fig. 2 *F*), thus forming a continuous tube extending from the screen holder through the screen tube, rubber tube and thumbpiece to a pump attachment (Fig. 2 *K*). This permits the pumping away of saliva or mucus from the larynx. As the applicator must be made rigid for introduction a tubular rod is slipped through the rubber tube and its attachments for the purpose of fixing the spring. When the screen is in place, this rod may be withdrawn, thereby releasing the spring and making the applicator elastic so that it may yield to possible motions of the larynx, thus avoiding friction in unquiet throats.

The screen holders are of two types: socket screen holders (Fig. 2 *L*), into which the screen fits exactly, and notch screen holders, seldom used, which will hold any size screen, but with slight motion. The screens are wired in the holders and cannot come off. The clamp (Figs. 2 *A* and 3) holds the applicator in the larynx by its long stem. It is fastened to the head by a broad leather head-band, held by a heavy clamp, and has rubber lined jaws to keep the stem of the applicator from slipping. The jaws are long to permit free motion of the stem, and hence of the screen, forward and backward in the larynx. A cog-wheel track allows the whole clamp to travel sidewise to meet the applicator stem with open jaws, when the screen is placed where wanted in the larynx. It was found that moving the clamp to meet the applicator stem displaced the screen in the larynx, causing retching. An assistant manages the clamp.

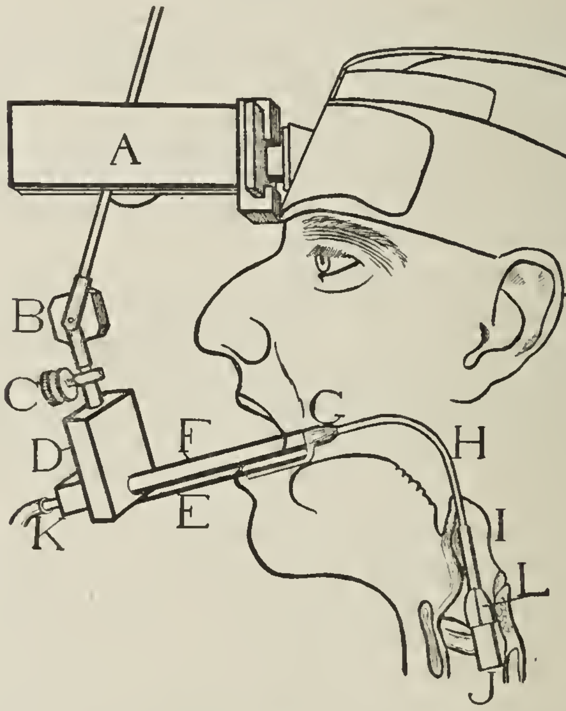

Fig. 2.—Head clamp and laryngeal radium applicator, on which is overlaid an outline of the head, neck and sagittally divided larynx to show how the screen is held in the larynx; *A*, head clamp; *B*, stem of applicator with hinge and set-screw; *C*, pivot joint with set-screw; *D*, thumb piece for hold applicator during introduction; *E*, spring, forming horizontal part or body of applicator when tubular stiffening rod is withdrawn; *F*, rubber tube connecting thumbpiece and socket for screen tube; *G*, socket for screen tube; *H*, screen tube; *I*, epiglottis; *J*, emanation screen lying against vocal cord; *K*, suction pump connection inserted in tubular stiffening rod, and *L*, screen holder with screen wired in.

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[1] Those wishing more than this brief reference to the qualities of radium may find their full description in the recent book of Dr. Frank Edward Simpson, entitled "Radium Therapy."

TECHNIC OF TREATMENT

Local Anesthesia.—Anesthesin powder is blown upon the oropharynx and base of the tongue, after which 5 per cent. cocain solution is sprayed into the larynx. Pure flake cocain is then swabbed upon the cords, or, if the irradiation takes place from there, into the fossa piriformis. If local anesthesia does not quiet the throat sufficiently, a hypodermic injection of morphin, from ⅛ to ⅓ grain (0.0081 to 0.0216 gm.), will subdue the reflexes.

Introduction of Screen.—This is done with the laryngeal mirror, the screen being placed in the position indicated by the site of the cancer, either in the glottis, below the glottis or in the fossa piriformis. If, as happens in rare cases, in spite of local anesthesia or morphin, the screen is not tolerated in the glottis, irradiation may be carried on from the fossa piriformis. It will be effective, even in the case of a cancer of a cord, since the inner edge of the nearest cord is only from ¼ to ⅜ inch (6.3 to 9.5 mm.) distant from the fossa piriformis, and the rays from a 200 millicurie screen easily pass through the entire larynx.

Dosage.— Two factors enter into the calculation of dosage: the duration of irradiation and the number of millicuries used. To indicate the proportion of time and dose, the convenient term "millicurie hours" is often employed. This term means rradiation by a certain number of millicuries for one hour or a proportionately greater number of millicuries for a fraction of an hour. For example, 100 millicuries used for one hour are designated as 100 millicurie hours, or 400 millicuries for a quarter of an hour are also designated as 100 millicurie hours. Since these two procedures are not the same, however, because a concentrated dose of emanation for a fraction of an hour gives a more intense irradiation with more reaction than an equivalent dose in millicurie hours for longer time, the term millicurie hour is inaccurate, and, to be very exact, the dose should be expressed as so many millicuries in so many minutes or hours. The dose have found best in the average laryngeal cancer is from 200 to 300 millicuries for one hour, repeated from every three to seven days until from 600 to 750 millicuries have been used. The reaction is usually moderate, and there is rapid vanishing of the cancer.

Early carcinomas or soft medullary ones may disappear after only one treatment of 250 millicuries for one hour. However, this result must not be trusted, and irradiation up to the full dose should be given, even though it causes a sharp reaction.

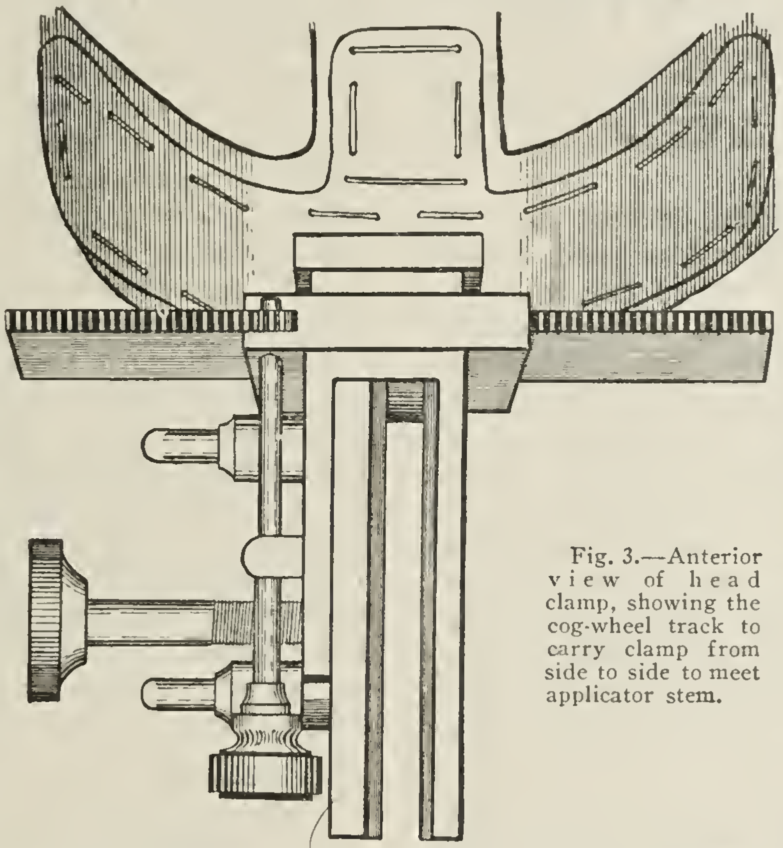

Fig. 3.—Anterior view of head clamp, showing the cog-wheel track to carry clamp from side to side to meet applicator stem.

RESULTS OF TREATMENT

Intralaryngeal Tumors and External Irradiation.—Strong irradiation through the walls of the larynx from without will, in my experience, temporarily remove innocent growths, but a return is to be expected in a month or two. For laryngeal cancer, external irradiation is much too feeble.

Selective Action of the Rays.—Unlike the knife, caustics and diathermy, which sacrifice a wide zone of normal tissues with the cancer, the radium rays in suitable dose kill only the cancer cells, leaving the normal tissues transiently inflamed but unhurt. Cancer cells of low vitality, as those of medullary cancers, are quickly killed by irradiation. The more vigorous cells of some squamous-cell cancers offer greater resistance, and strong irradiation with much consequent reaction may be needed to remove them, while in a few cases the cancer cells have nearly the vitality of the normal cells, so that the irradiation merely checks the growth, which renews its advance when the cancer cells have recovered their power to multiply. Thus, the proportionate vitality of the tissue cells and the cancer cells largely determines the patient's outlook for relief. Fortunately, the tissue cells are nearly always the strongest; emanation irradiation then results in some marvelous triumphs. Hidden, immobile cords emerge from their concealment in the melting carcinoma, white, intact and with restored motion; the voice returns, and breathing becomes free. A proof that the cancer cells destroy mostly by pressure is this astonishing reappearance, unhurt, of the normal parts, even in advanced growths. If the pressure lasts too long, however, the cords become destroyed by atrophy or become permanently fixed.

Radium Reaction. — No effect of the radium rays on the normal tissues is seen until from five to ten days after the irradiation, when the radium reaction starts, with reddening of the cords, slight cough and sore throat. It gradually increases until about the twelfth or fourteenth day, remains on a level for a week longer and disappears in two weeks more. If the cancer lies deep in the tissues, some edema may occur during the height of the reaction. While most reactions are mild, exceptional patients are highly sensitive to radium rays and have prolonged intense reaction with severe dysphagia, the production of a tough, clinging, white false membrane on the mucous membrane, and pain shooting to the ears. This may follow even mild doses of from only 150 to 200 millicuries for an hour, in the larynx. Superficial erosions and a good deal of edema may occur. These unpleasant results always disappear in time. Obstinate ulcers, so-called burns, did not occur in my cases. The death of the cells of many scattered cancerous foci deep in the substance of the larynx may also create intense reaction with much edema.

When deep-seated unilateral arytenoid swelling, with pain radiating to the ears and on swallowing, develops some time after apparent cure of the cancer by irradiation, the condition may resemble a renewed, so-called secondary reaction. While such reactions do occur, in my experience the renewed symptoms have always been due to a resumption of growth of the cancer, and the indication is for immediate and strong reirradiation.

Influence of a Preceding Course of Irradiation on the Reaction from a Subsequent Course.—In my experience, two weeks after the reaction from a course of irradiation has completely subsided, a second one will cause no more reaction than if the tissues had not been irradiated. This is of great value, as it permits vigorous irradiation of possible relapses, as is shown by the complete removal of recurrences in my list of cases.

PROGNOSIS

Early superficial cancers on the cords or in the arytenoid region, with unimpaired cord motion, give the best outlook after irradiation, except in very resistant cancers. The prognosis is less good when a cord is fixed and when deep edema of the arytenoid and ventricular band region reveals entrance of the cancer into the laryngeal muscles or perichondrium.

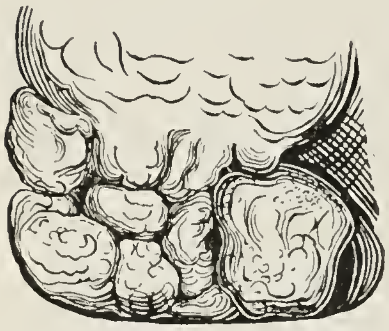

Fig. 4.—Very large medullary cancer arising from the left aryepiglottic fold and epiglottis, in a man, aged 56.

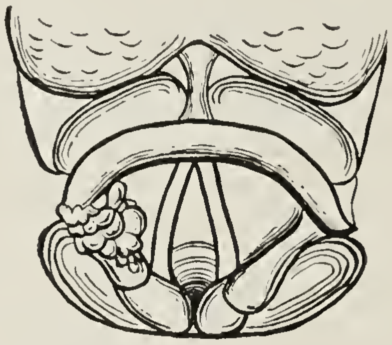

Fig. 5.—The same patient, five weeks after intralaryngeal radium emanation irradiation. All of the growth except a remnant on the left aryepiglottic fold is gone.

Scirrhous cancer, with retracting distortion of the laryngeal interior but no edema and with little visible neoplasm, was found favorable for irradiation, as also were soft cancers of rapid growth, with little penetration and large tumor formation. Squamous-cell carcinomas, with a white, fuzzy surface, may be obstinate, especially when they cause pain and deep swelling. An unfavorable symptom is intense, prolonged reaction, with edema and false membrane formation, as it shows either weak resistance to radium by the tissues or multiple, deep cancer foci.

While an early stage of a laryngeal cancer is essential to its successful surgical removal, it is, while desirable, of less moment in the removal of the growth by emanation irradiation, for here the greater or less resistance of the cancer and tissue cells to the radium rays is the important factor. For this reason, a number of old and advanced cancers in my list vanished readily under irradiation, while some, apparently favorable ones, were resistant.

Carcinomatous Invasion of Submaxillary and Cervical Lymph Glands.—Early glandular carcinosis usually yields readily to external irradiation from a distance, with from 500 to 1,000 millicuries for seventeen hours, as employed by Dr. Frank E. Simpson and Dr. Roy Flesher. The outlook is bad when all of one side of the neck, including the inferior triangles, is filled with gland cancers and when paralysis of the recurrent laryngeal and hypoglossal nerves reveals deep neck invasion.

Laryngofissure, Implantation of Emanation Seeds, Radium Needles.—By those who do not use the apparatus here described, laryngofissure is still being performed to place emanation in the larynx. Three patients were referred to me for irradiation after this operation. Its effect on all of them was unfavorable, the growth soon making enormous progress after being checked, in spite of irradiation.

Permanent implantation into the larynx of so-called emanation seeds, that is the introduction, with a hollow needle of minute glass bulbs holding about 1 millicurie of emanation, into the tissues, is not suitable for laryngeal cancer. The seeds, being unscreened, cause slough where they touch the tissues, but irradiate no farther because of their feeble charge of emanation, so that the mass of the cancer and its microscopically invaded surroundings go untreated.

Hollow needles charged with radium or emanation also cause sloughs, but large, dangerous ones liable to lead to erosion of arteries and uncontrollable bleeding.

CLINICAL REPORT

There were thirty-two cancers of the larynx in the patients treated by intralaryngeal irradiation. Three of these patients were moribund when received, and soon died. In thirteen patients, including those that were moribund, the disease was far advanced when the treatment was begun. In twelve cases, it was also advanced, so that in twenty-five of the patients treated the cancer was in an advanced stage. In only seven was it in an early stage. Four of the cancers were very resistant to irradiation. In two of these, early hopeful progress was followed by no further response to the rays; in a third, there was an excessively prolonged reaction which had not ceased when the patient died of pneumonia. In the fourth case, after temporary improvement, the cancer progressed irresistably, with only temporary checks until the patient died.

In eleven patients, speedy, complete disappearance of the cancer and its symptoms was followed by a return of the growth, the average time between the last irradiation and the return being four and one-half months. In seven of these patients, the advanced state of the cancers predisposed to a relapse, all being of the type called inoperable, with large tumors and deep invasion of the tissues. In four of these recurrences, the cancer was again removed by renewed irradiation, with no second relapse so far, and a fifth was being successfully treated when the patient died of heart failure. These four cases, with ten in which the cancer disappeared without return after the first irradiation, make fourteen patients from whom the cancer was completely eliminated, or fourteen patients among thirty-two who became clinically well. Deducting the three moribund patients from this list leaves fourteen patients of twenty-nine, or close to 50 per cent., who recovered clinically, a good percentage considering that in twenty-five of the thirty-two patients the cancer was in an advanced stage of development, and that thirteen of the patients had extrinsic cancers, that is, cancers that were inoperable by laryngectomy

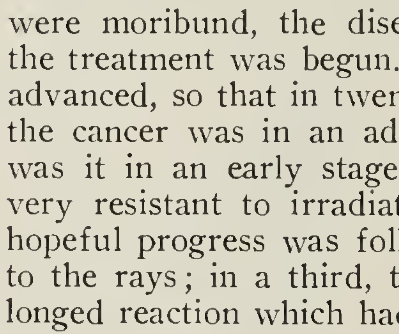

Fig. 6.—Deep-seated cancer at the seat of the right vocal cord, causing cord to be fixed, in a woman, aged 42.

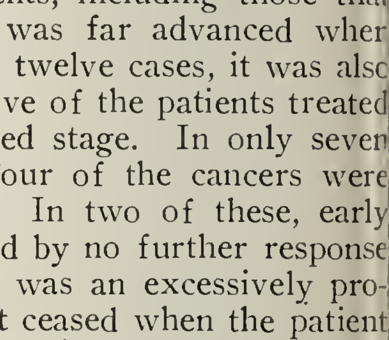

Fig. 7.—Larynx shown in Figure 6. All trace of carcinoma gone; both cords movable; voice returned, clear and strong.

There were twelve patients who died: seven as a rect result of the cancer, five from general causes. x patients abandoned treatment before its completion, eir further histories being unknown. Deep invasion the neck and metastases proved fatal in four cases; hile in three, external irradiation of the lymph glands the neck removed cancerous tumors formed in em.

The intralaryngeal irradiation here described was gun, Nov. 1, 1919. Ever since, the apparatus has en improved from crude beginnings to its present ficiency, which gives an exactness of application and aryngeal tolerance not ob- e treatment. The radium inable in the first year of ipply has also increased that the utmost usable ›se is always obtainable, a ndition not existing in the st year. It is reason- ›le, therefore, to expect a tter average of results an shown here.

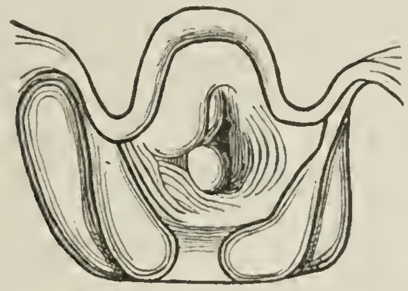
Fig. 8.—Very advanced cancer of the larynx in a man, aged 70; tracheotomy.

My experience has con- med my opinion that emanation irradiation used as scribed is the best existing treatment for carcinoma the larynx; in spite of possible recurrences. The ccessful re-irradiation of recurrent growths has made e outlook in regard to them unexpectedly favorable. General surgeons of note, seemingly unaware of hat may be done with emanation in laryngeal cancer, ll urge laryngectomy as the only treatment. Laryn- ctomy offers the patient, but only in the early stage laryngeal cancer, fair security against a return. It prives him of speech, voice, nasal breathing and the nse of smell. It compels him to breathe through a ›le in his neck. In contrast, emanation causes the ncer to vanish by its selective destruction, leaving e normal tissues intact. It often restores speech and e normal structure of the larynx. The penetration the rays clears away not only the cancer but also e hidden cancer foci that may nest in its surround- gs, which the knife cannot reach. It offers the tient, as far as my present experience shows, about per cent. chance of being freed of the cancer, either once or by the irradiation of recurrences. There- re, emanation should be the first, and laryngectomy e last, resort in laryngeal cancer.

REPORT OF FOUR TYPICAL CASES[2]

Case 1.—*Large medullary cancer of the larynx, removed irradiation; no return.* A man, aged 56, referred by Dr. W. Boot, Aug. 27, 1921, six months previously had devel- ed cancerous glands on the left side of the neck. They re excised by Dr. Boot. The microscope revealed cancer. ie patient swallowed and breathed with difficulty. He had nstant pain in the right upper arm and shoulder. Exam- ıtion revealed a huge cancerous mass filling the pharynx, ›m the base of the tongue to the posterior pharyngeal wall ig. 4). From August 30 to September 6, he was treated th a dosage of 473 millicurie hours (time, three hours and enty minutes) by a screen thrust into the soft growth. tober 8, all of the growth had gone but a small remnant the left aryepiglottic fold (Fig. 5). Swallowing and eathing were now perfect. November 8, a remnant was owing. From November 11 to November 18, he was treated with a dosage of 375½ millicurie hours (time, two hours and thirteen minutes) applied in the larynx. December 3, the tumor was entirely gone; the throat looked normal. February 10, the patient died of cerebral metastasis. Pain in the arm was due to metastasis in the medullary canal of the humerus.

Case 2.—*Cancer of the right fossa piriformis removed by irradiation; no return.* A man, aged 59, was seen Aug. 23, 1921. The right fossa piriformis was filled by cancer. There were edema of the right arytenoid region and an enlarged gland behind the point of the jaw. From August 23 to September 10, he was treated with a dosage of 442 millicurie hours (time, three hours ten minutes), with a screen in the fossa piriformis. September 10, all trace of growth was gone. Preventive treatment of 179 millicurie hours was given. Aug. 12, 1922, the throat was normal.

Case 3.—*Scirrhous cancer of the right half of the larynx; recovery; no return.* A woman, aged 46, was seen, Nov. 12, 1921. She had been hoarse from the spring of 1920 until August, 1921, when she became voiceless, with pain shooting to the right ear. Examination revealed the right cord hidden by the ventricular band which was lifted by an underlying growth. The right half of the larynx was immobile (Fig. 6). A hard gland was felt in the right carotid region. The diagnosis was deep invasion of the larynx by the retracting type of scirrhous cancer. From November 16 to December 20, a dosage of 471 millicurie hours (time, two hours and fifty-three minutes) was given. Jan. 5, 1922, the right cord had come to view. Both cords looked normal and moved normally (Fig. 7). Voice had returned. July 25, the voice was loud and clear. There had been no recurrence. A general surgeon had intended to perform a hemilaryngectomy on this patient just before she came for intralaryngeal irradiation.

Case 4.—*Large intrinsic cancer of the larynx; tracheotomy; relapse; final recovery.* A man, aged 70, was examined, June 27, 1921. The left side of the larynx was motionless, the right side showed some motion. All features of the laryngeal interior were merged into a diffuse, convoluted mass. Stenosis and dyspnea were present. No trace of the cords could be found (Fig. 8). There were enlarged glands in the left carotid region and an ulcer on the site of the right cord. The diagnosis was advanced scirrhous cancer. Two external treatments were given in an attempt to open the larynx for intralaryngeal irradiation. July 2, a small screen, 63 millicuries, was placed in the stenotic glottic opening. July 12, reaction had narrowed the laryngeal lumen. There was urgent dyspnea and a low tracheotomy was performed. From July 26 to August 8, 443 millicurie hours of intralaryngeal irradiation was given. The time was three hours. August 9, the carcinoma had disappeared. There was a clear view down the trachea. Nov. 4, 1921, the larynx was wide open. The cords appeared as white, immobile, cicatricially fixed bands. There was no tumor (Fig. 9). The tracheotomy tube had been removed since August. December 6, there was a recurrence, with marked laryngeal stenosis. From the level of the glottis, down for three tracheal rings, was seen a mound of white, tough, foul-smelling exudate, firmly attached to the tracheal and laryngeal posterior walls, filling all but the anterior third of the laryngeal and tracheal lumen. It had to be cut away with the laryngeal punch to give breathing space. The arytenoids were enormously swollen; there was great pain. The prognosis seemed hopeless in this return of the carcinoma. From December 8 to January 13, 1922, a dosage of 628 millicurie hours was given, the screen lying on the exudate from its lowest point in the trachea. There were several weeks of constant, severe pain, with slow disappearance of the exudate and swelling. January 31, the

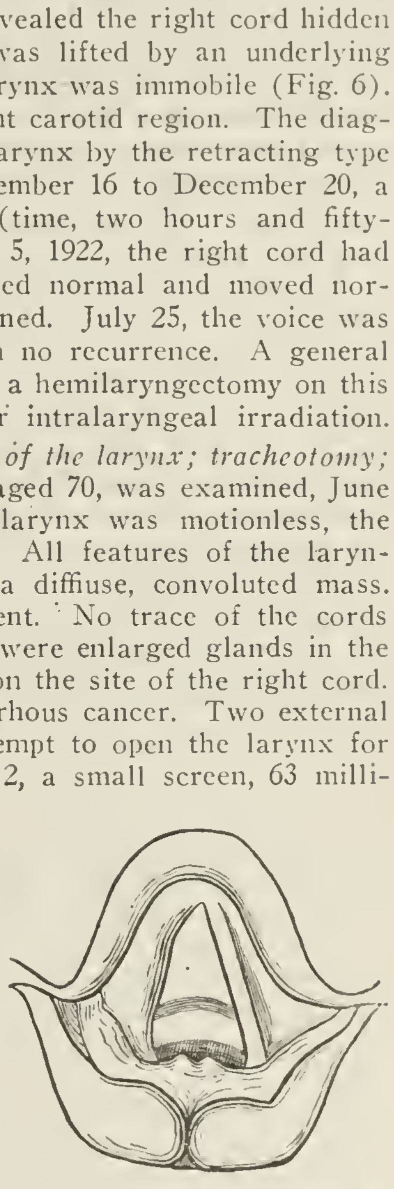
Fig. 9.—The same larynx as in Figure 7; one relapse, in January, 1922, which vanished after second irradiation; larynx has remained free from cancer ever since; cords cicatricially fixed.

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[2] Lack of space has compelled the omission from this article of the ›orts of all but four typical cases. The rest, except the last four, will ear in the Transactions of the American Laryngological Association 1922. Illustrations of only three cases are reproduced here, but illustrations of fourteen other cases may be found in the transactions ntioned and in the reprints of this articles.

pain, swelling and exudate were gone. The larynx was again free from cancer (Fig. 9). April 1, the laryngeal interior remained healthy; the patient was in robust health. No report of return has been received so far, July 30.

NOTE ON THE USE OF EPINEPHRIN IN HEART BLOCK *

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AND
C. D. CHRISTIE, M.D.
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Phear and Parkinson[1] recently reported a case of complete heart block in which the sudden ventricular standstill responsible for syncopal attacks was entirely prevented by the subcutaneous injection of epinephrin. The heart block and the auricular and ventricular rates remained unchanged. Their review of the continental literature discloses only two cases, one of partial (2:1) block, the other of complete block, in which heart block was reduced or abated by epinephrin. In no case was partial heart block increased in degree, but in nearly all instances the auricular and ventricular rates were accelerated. Experimentally, however, it was shown by Kahn that complete auriculoventricular block may be produced in dogs by the intravenous injection of epinephrin. The paradoxical results reported by Routier, who describes a deblocking effect of epinephrin in dogs in which complete block had been produced by crushing the auriculoventricular bundle, failed of confirmation in the hands of Hardoy and Houssay and Clerc and Pezzi. Experimentally, also, the auricular and ventricular rates are usually accelerated by the drug.

The experience of Parkinson led one of us (C. D. C.) to suggest a trial of epinephrin in the case of heart block here described, although at the time the patient was free from syncopal attacks.

REPORT OF CASE

A woman, aged 56, had suffered for several years from a choking sensation while eating, often accompanied by nausea and vomiting, sometimes followed by faintness and complete loss of consciousness. The slightest exertion was sufficient to bring on severe air hunger. She was aware of the fact that her pulse was always very slow. Nothing to account for heart block could be discovered in the history.

On examination there was no enlargement of any of the chambers of the heart, nor any valvular defect. The ventricular rate was unusually slow. The beat of the auricles was not audible over the precordia, and the auricular component of the jugular pulse was lacking. The peripheral pulse was regular, rhythmic, monocrotic and "celer" in character. The systolic blood pressure varied between 140 and 175, and the diastolic between 65 and 80. There were no other physical findings of importance.

The blood Wassermann reaction was negative on three separate occasions. The patient received a total of 0.532 gm. of red mercuric iodid by intramuscular injection, during a period of thirty-four days, without effect on the heart block. Atropin, given to full physiologic effect, produced no change in the block or the ventricular rate.

Electrocardiograms substantiated the clinical diagnosis of heart block. From time to time the block varied in degree from partial (always 2:1) to complete. When complete heart block was present, the ventricular rate varied between 25 and 35 a minute. The highest rate recorded was 60 a minute, occurring during a period of incomplete block.

The effect of epinephrin is summarized in the accompanyi table. In addition, epinephrin was twice tried without electr cardiographic control. On these occasions the highest ve tricular rate recorded, including premature beats, was 56 minute. The original rate had returned within four hou after the injection. Death from inhibition of the ventric occurred three days after the last experiment with epinephri before opportunity had been afforded to try the effect of th drug on the atropinized heart. Permission for necropsy wa not given.

COMMENT

Interest in this case centers about three points (1) increase in degree of auriculoventricular block (2) increase in auricular and ventricular rates, an (3) production of auricular arrhythmia.

It is clear that the vagus was in no way responsibl for the patient's heart block, as full atropinization wa without effect. The immediate change from partia to complete block under epinephrin, however, was central vagus effect. Although circumstances did no permit us to prove this directly by testing the epine phrin effect on the atropinized heart, it is full substantiated by the experimental observation[2] tha auriculoventricular block is not produced by epinephrin if the vagi have been cut. The vagi, therefore, retained a certain amount of tone, irrespective of the preexisting partial heart block. Production of auriculoventricular block in a patient by the action of epinephrin has not been previously described, so far as we are aware; but it cannot be considered an anomalous occurrence in view of the fact that epinephrin is known to stimulate the vagus strongly. In fact, from the available experimental data, it is much easier to explain the production of heart block by epinephrin than it is to understand how the reverse effect may be obtained. It becomes necessary, therefore, to accord this fact important consideration in dealing with cases of heart block.

It has been shown by Meek and Eyster,[3] and Hoskins and Lovelette,[4] that the mechanism of epinephrin action on the heart rate is probably twofold: it accelerates by direct stimulation and inhibits reflexly through the vagus. If the vagi possess good tone the resultant of these opposing actions is a slowing, but

EFFECT OF EPINEPHRIN

No.	Time	Degree of Block	Rate *		Premature Ventricular Beats	Blood Pressure	
			Auricle	Ventricle		Systolic	Dias tolic
Control	3:20	Partial 2:1	70	35	None	140	78
	3:30	Ten minims of 1:1,000 solution of epinephrin injected intramuscularly					
1	3:33	Complete	100	40	None	154	80
2	....	Complete	Extremely arrhythmic	41.6	Occasional	158	82
3	....	Complete	Extremely arrhythmic	40	Prominent	154	78
4	....	Partial 2:1	Extremely arrhythmic	45	Prominent	152	74
5 A	....	Complete	Extremely arrhythmic	40	Prominent	...	..
5 B	....	Partial 2:1	94	47	Prominent	...	..
6	....	Partial 2:1	102	51	Prominent	142	68
7	....	Partial 2:1	96	48	Prominent	...	..
8	3:45	Partial 2:1	Extremely arrhythmic	..	Prominent	...	..

* Exclusive of premature beats.

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* From the Medical Clinic of Lakeside Hospital and Western Reserve University.

[1] Phear, A. G., and Parkinson, J.: Lancet 1:933 (May 13) 1922.

[2] Lewis: Mechanism and Graphic Registration of the Heart Beat, Shaw and Sons, 1920, p. 164.

[3] Meek and Eyster: Am. J. Physiol. 38:62, 1915.

[4] Hoskins and Lovelette: The Adrenals and the Pulse Rate, J. A. M. A. 63:316 (July 25) 1914.

the vagus tone is low the heart is usually accelerated. agal slowing is conditioned chiefly on rise of intra- ortic pressure. In our patient, although the blood ressure was somewhat raised, a striking increase in ricular and ventricular rates took place. This result ints clearly to a considerable lowering of vagal tone. The extreme auricular arrhythmia manifested under inephrin is due primarily to disturbance in vagal me referable to the central epinephrin effect and to riations which take place with each arterial pulse. dditional factors may be the raised ventricular rate id disturbance in ventricular rhythm caused by merous premature beats. Systole of the ventricle known to influence impulse formation in the auricle, id this influence is most apparent in auriculoventricu- r block.[5]

SUMMARY

1. There are on record a few instances in which inephrin reduced or abolished auriculoventricular ock. The report of our case illustrates the fact that inephrin may also increase a preexisting partial riculoventricular block. The increase is probably a ntral vagus effect. The mechanism by which epineph- n reduces auriculoventricular block is not clear.

2. Increase in auricular and ventricular rates, excita- on of premature ventricular beats and production of treme auricular arrhythmia may be brought about the action of epinephrin on a heart which is the at of auriculoventricular block.

Clinical Notes, Suggestions, and New Instruments

NTRA-ABDOMINAL HEMORRHAGE FROM STOMACH DUE TO OSTEOPATHIC TREATMENT: REPORT OF CASE

B. J. O'Neill, B.S., M.D., and W. W. Crawford, M.D.,
San Diego, Calif.

This case is reported because it illustrates one of the ssible dangers of indiscriminate mechanotherapy.

History.—A woman, aged 22, single, eleven hours before lmission, had been seized with severe abdominal pain and ight vomiting shortly after eating radishes, which had ways disagreed with her. A person calling himself an teologist, and claiming to be an improvement over the teopath, was called in and subjected her to vigorous abdom- al massage, followed by manipulation of the neck. To complish this, he threw her face downward over his knee, riking her abdomen against his knee. This caused an mediate increase in the abdominal pain, of such a degree at the osteologist was ordered out of the house. Pain ntinued, became colicky in character, and vomiting creased. The patient was taken to the hospital for treat- ent. The past history was negative, except for some indi- stion and some slight pain on menstruation.

Examination.—The patient was well developed and well urished. She was lying on her back with the knees drawn . She was extremely pale, presenting a picture of collapse, th short and gasping respiration. She complained of pain er the entire abdomen, which increased on deep respiration. e abdomen was rigid and tender, the condition being ther more marked below the umbilicus. There was mov- le fluid in the flanks. The heart and lungs were normal; ere was no vaginal flow; the hymen was intact. The white ood corpuscles numbered 12,500; polymorphonuclears, 92 r cent.; red blood corpuscles, 3,136,000; hemoglobin, 80 per nt. (Tallqvist).

Treatment and Result.—Diagnosis of probable ruptured pendix was made and immediate laparotomy undertaken. When the abdomen was opened, slightly to the right of the median line, there was a gush of bright red blood and about 3 pints (1.5 liters) of fluid and clotted blood was removed with the fingers, swabs and pump, the clots being of varying consistency, none more than a few hours old. Careful exploration of the abdomen and pelvis revealed no abnormalities except a bleeding point on the greater curvature of the stomach; some adhesions about the gallbladder and appendix, which was small, fibrous and kinked in the middle, and a small cyst of the right ovary. The fallopian tubes were normal. The stomach extended below the umbilicus, and there was bleeding from a ruptured branch of the gastro-epiploic vein on the anterior surface of the stomach, about half an inch from the border of the stomach, at the point at which the stomach crossed the spinal column. This was tied with fine catgut. Toilet of the peritoneum was completed, and the abdomen was closed with a small rubber drainage tube in the pelvis. Recovery was uneventful.

At present, one year after operation, the patient is in good condition, except for some indigestion, probably due to chronic appendicitis.

A damage suit against the osteologist was decided in his favor by a jury, who apparently adopted the view that the bleeding was caused by vomiting.

824 First National Bank Building.

ARTIFICIAL PNEUMOTHORAX COMPLICATED BY HYDRO-PNEUMOTHORAX AND PLEURISY WITH EFFUSION ON THE UNTREATED SIDE: REPORT OF TWO CASES

LeRoy S. Peters, M.D., Albuquerque, N. M.

There are few reports in the literature of the coexistence of bilateral pleurisy with effusion. In fact, it is one of the rarest complications in pulmonary tuberculosis. Stivelman[1] reported a close search of the literature, and could find but two cases, one reported by Als[2] and one by Fishberg,[3] the latter being the first one in the English language. Zemmin[4] reported one in 1921, which, with Stivelman's case, brings the number up to four. Two have occurred in my practice during the administration of artificial pneumothorax:

Case 1.—One of these came under my observation while I was associated with the late Dr. A. G. Shortle at the Albuquerque Sanatorium, six years ago. The records of this case were accidentally destroyed by fire, but I remember the essential details. The patient was started on pneumothorax treatment at Colorado Springs, fluid developing on the treated side before he came to Albuquerque. While he was on the train, marked dyspnea developed, and when seen by us his discomfort was extreme. Examination revealed a well compressed left lung, with dulness over the right lung from the fourth rib to the base. Aspiration of 2 quarts (liters) of serous fluid gave him immediate relief, and there was no further accumulation. This patient died later of complications not referable to the pneumothorax.

Case 2.—The other patient, admitted four years ago, was under my care at St. Joseph Sanatorium, Albuquerque. At that time she gave a history of active tuberculosis, extending back two years. A few months prior to consulting me she had gone through a normal pregnancy, but the disease had become more active after delivery. The left lung was completely involved, with cavity formation in the upper lobe, and there was a moderate infiltration in the right upper lobe. The daily average maximum temperature was 100 F. During the entire period of her history she had had repeated hemorrhages, and a pneumothorax was advised. This was easily produced and continued for nearly a year, when fluid formed on the compressed side. This later became purulent, but at no time could we demonstrate a mixed infection, and as far as symptoms were concerned there was no evidence of the change from a serous to a purulent exudate. This gradually became organized. In a short time, fluid formed on the treated side, the patient complained of dyspnea, and examination revealed fluid on the untreated side, the level being at the nipple line. One quart of a serous exudate was removed, with relief of symptoms and no return of the fluid formation. This patient has been under observation four years, under pneumothorax treatment two years of that time, and today the case is well arrested, no pneumothorax treatment having been given for two years.

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[5] Lewis (Footnote 2) p. 177.

[1] Stivelman, B. P.: Am. J. M. Sc. **162**: 270 (Aug.) 1921.

[2] Als, E. (Ztschr. f. Tuberk. **31**: 333 [Feb.] 1920), cited by Stivelman.

[3] Fishberg, M. (Am. Rev. Tuberc. **4**: 649 [Nov.] 1920), cited by Stivelman.

[4] Zemmin: Beitr. z. Klin. d. Tuberk. **47**: 169 (April 11) 1921.

COMMENT

It is interesting to note that in each case the one aspiration was sufficient, and that there was no further accumulation of fluid on the untreated side. The cases differ from Fishberg's, however, in that there was no absorption of the fluid on the treated side.

Another interesting feature in each of our cases is the fact that, with the available breathing space very much restricted, the patients showed no signs of cyanosis. It is true that the first patient was extremely dyspneic at all times until relieved by aspiration, but the second was fairly comfortable, except on exertion.

We can see no reason for discontinuing the pneumothorax treatment as noted by Fishberg. In both patients the refills were kept up, in one for only a few months, owing to his death from other complications, and in the other for nearly a year after the formation of fluid on the untreated side.

A NEW APPROACH TO THE SEMILUNAR CARTILAGES

Percy Willard Roberts, M.D., New York

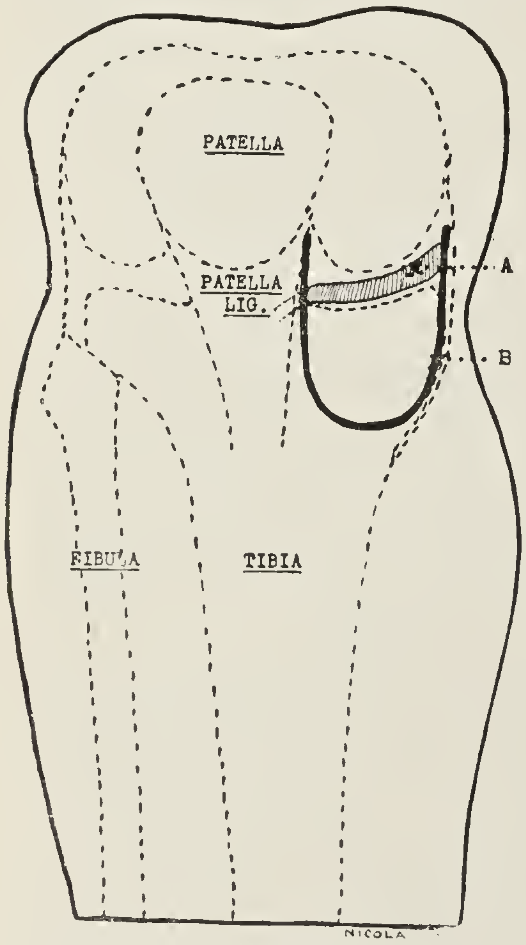

Fig. 1.—Line of incision for excision of internal semilunar cartilage; *A*, internal semilunar cartilage; *B*, line of incision.

Believing that the period of convalescence following operation for excision of the semilunar cartilages of the knee could be shortened by early mobilization of the joint, I have, during the last two years, been using an approach which eliminates strain on the wound when the knee is flexed and obviates the necessity of suturing the synovial membrane. All but one of the eight patients thus far operated on at the Hospital for Ruptured and Crippled have been able to walk without crutches and to sit with the knee flexed to a right angle on the sixth day, and to resume their usual activities, with practically full joint function, at the end of two weeks.

In all joint cases in which the part is immobilized for a considerable time after operation, psychology is a factor in retarding recovery. There is always present the fear of injuring the joint when it is moved; and especially is this true if motion is at all painful. To prevent this, it has been my custom to explain to the patient before operation what the after-treatment will be. He is told that motion within the limit of pain will stimulate the circulation and prevent swelling, thus shortening his stay in the hospital, and that he will be expected to move the joint as soon as he comes out of the anesthesia and to repeat this every two hours. Passive motion is prohibited. Strange to say, there is practically no discomfort accompanying this early mobilization and m
less swelling than when the knee is splinted. It is, theref
easy to maintain the patients' cooperation, and occasion
it is necessary to restrain them in their ambition to incr
the arc of flexion too rapidly.

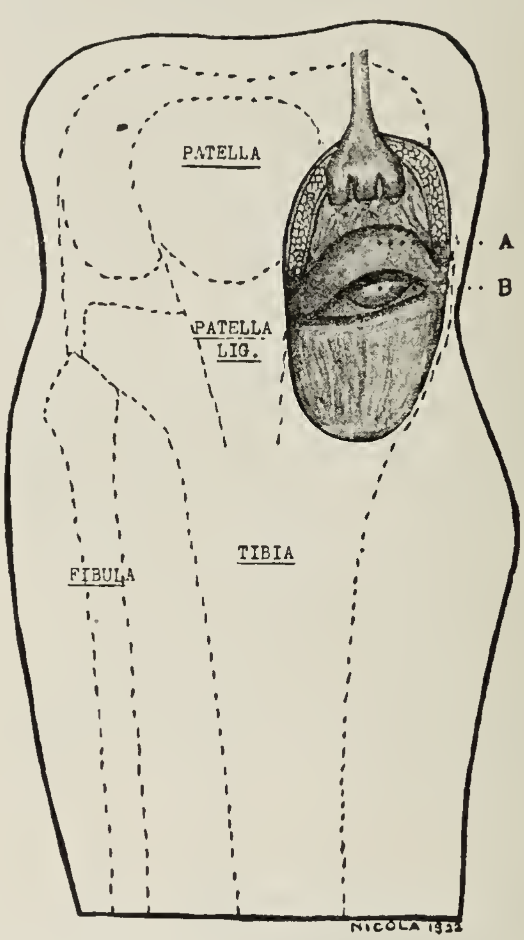

Fig. 2.—Flap retracted upward, showing exposure of meniscus on its under surface; *A*, internal semilunar cartilage; *B*, medial condyle of femur.

The purpose of this approach is to so place the wound
no strain will come on it when the knee is bent. Thi
accomplished by using a blunt V-shaped incision, one
of which starts a
three eighths of
inch above the u
border of the ti
condyle, and foll
down the border of
patellar ligament
an inch and a h
The knife is then c
ried transversely
a short distance,
then upward, inside
the lateral ligam
to the level of
upper end of the
posite arm, as sho
in Figure 1. All
sues overlying
tibia, including
periosteum, are cut
the same time.
sharp periosteal ele
tor is used to raise
V-shaped flap, wh
is retracted upw
until the coronary l
ament is exposed. T
is incised transvers
at its attachment
the tibia. As retr
tion is continued,
lower surface of
meniscus will app
on the under s
face of the flap, as shown in Figure 2. The cartilage is n
grasped by forceps and, with a narrow-bladed knife,
dissected out. The wound is closed by several interrupt
chromic gut sutures approximating the margins of the pe
osteum and other fibrous structures. Pulling down the f
closes the transverse opening in the synovial membrane, a
no sutures are required. The skin is closed with silk. T
firm suturing of the periosteum and adjacent structu
prevents any strain on the skin wound even when the knee
flexed to 90 degrees, and there is, therefore, no interfere
with repair. Should stitch infection occur, as happened
one of my cases, the wound is so far removed from the jo
that there is no occasion for anxiety. In this particular ca
the patient was discharged with practically normal functi
at the end of two weeks.

Removal of a meniscus by this method requires a lit
more time than by more direct incisions, but the differen
is so slight it is not worth consideration in view of the ra
convalescence which ensues.

576 Fifth Avenue.

HEMORRHAGIC DISEASE OF THE NEW-BORN WITH DIRE TRANSFUSION INTO LONGITUDINAL SINUS THROUGH ANTERIOR FONTANEL

John A. Shoemaker, M.D., Berea, Ohio

Mrs. L. S., aged 32, a normal secundipara, was deliver
normally of an 8 pound girl, Aug. 21, 1922, after three hou
labor in the hospital. The baby's life was entirely uneven
ful until August 24, when, at 3:30 p. m., the attending phys
cian was called to the hospital with the urgent message th
the baby had vomited an immense quantity of blood, whi
had soaked through the mother's gown and into the beddin
The baby had nursed a few minutes previously, and w
about to be returned to the nursery. From 3:30 to 4:

m., it had three more hemorrhages from the stomach, ight red and rather profuse. Between 4:30 and 5:30, ree large bowel movements almost entirely of blood were ssed. This, however, was dark and in the form of large ots.

The following measures were taken in sequence: 20 grains .3 gm.) of calcium lactate, given by mouth; a subcutaneous jection, 10 c.c. of a thromboplastic serum, into the left oulder; physiologic sodium chlorid solution by rectal drip, d hypodermoclysis of 250 c.c. of physiologic sodium chlorid lution under the breasts. At 5:30 p. m., Dr. Hull of yria, with my assistance, gave 30 c.c. of whole blood from e father by direct transfusion, from the median basilic in into the longitudinal sinus of the infant through the terior fontanel. These measures checked the hemorrhage; lor was restored to the skin, and the pulse became of eater volume, although it remained at 130. At 8 p. m., the ild had another large bowel movement of dark blood, but ere were no more hemorrhages from the stomach after 30 p. m. Two hundred cubic centimeters of 5 per cent. ucose was given by bowel at six-hour intervals after ansfusion. August 25, at 6 a. m., the child was resting ll and had taken 2 ounces (60 c.c.) of water every two urs. There had been no hematemesis during the night. ie rectum was packed full of dark clotted blood, which evented the use of the glucose solution. The child's skin is yellow and translucent; the pulse was 100, but of small lume. There was some cyanosis of the nails, and the spirations were shallow, almost imperceptible. The baby is allowed to nurse at 6:30 a. m. Rectal irrigations were dered to clean out the clotted blood in the rectum. At noon, e baby had nursed normally, its pulse had improved, and it d slept quietly all the morning. There was a pinkish tinge the skin. At 6:30 p. m., there was a passage by bowel a large quantity of red-brown blood, indicating a possible zing from the site of the hemorrhage in the gastric ucosa; and, as a matter of safety, 10 c.c. of thromboplastic rum was given under the skin of the back. There had en no emesis during the day, and the child's condition is slightly better.

August 26, the baby nursed well all day and seemed to better. After nursing time, 6 p. m., there was evacuated immense quantity of old and fresh blood by rectum. The fant became cyanotic and cold, with breathing shallow and in translucent. The pulse was 140 and small. Ten cubic ntimeters of thromboplastic serum was again given, and, tween 9:30 and 11 p. m., 35 c.c. of the father's blood was ain transfused by direct method into the longitudinal sinus. ree punctures of the fontanel were required because, though the transfusing was done quickly, rapid clotting of e father's blood prevented a free flow through the small men of the transfusing needle. The baby reacted well ter 11:30 p. m., and began to suck its thumb. From August until its discharge from the hospital, August 31, the baby pidly grew better, nursed normally, and from a loss of ore than 1 pound (453 gm.) in weight, began to gain an nce (28 gm.) a day. The first normal yellow stool, free om old blood, was passed, August 29. The recovery was ry rapid and apparently complete. In all, 30 c.c. of throm- plastic serum and 65 c.c. of whole blood had been given. ie hemorrhage was in each instance checked by the serum d the blood content restored by the transfusion. It was timated that the infant lost not less than 8 ounces (236 c.c.) blood.

CONCLUSIONS

In the treatment of these hemorrhages occurring in the w-born, which may quickly destroy life, prompt and effi- ent measures are necessary. It has been found that cal- um lactate is of practically no value in the emergency. iromboplastic serum, in any of the commercial forms cepted by the Council on Pharmacy and Chemistry, acts omptly as a hemostatic agent if used in sufficiently large ses. It should be followed, whenever possible, by whole ood transfusion, without loss of time. The whole blood t only supplies the fibrin ferments, but also stimulates ne marrow and, at least partially, restores the normal ood content.

It is our opinion that the gastric hemorrhage in this case was checked by the thromboplastic serum, and fully controlled, and a recurrence prevented by the whole blood transfusion. The use of the physiologic sodium chlorid solution to restore the volume of the circulating medium and of glucose solution to counteract shock is valuable, but not indispensable.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

TETANUS ANTITOXIN, CONCENTRATED (See New and Nonofficial Remedies, 1922, p. 281).

E. R. Squibb and Sons, New York.

Tetanus Antitoxin, Purified.—(See New and Nonofficial Remedies, 1922; p. 282). Also marketed in syringe containers of 10,000 units.

STAPHYLOCOCCUS VACCINE (See New and Nonofficial Remedies, 1922, p. 306).

E. R. Squibb and Sons, New York.

Staphylococcus Vaccine.—Marketed in packages of four syringes containing, respectively, 100, 250, 500 and 1,000 million killed *Staphylococcus aureus* and *Staphylococcus albus* in equal proportion; in packages of four ampules containing, respectively, 100, 250, 500 and 1,000 million killed *Staphylococcus aureus* and *albus* in equal proportion (with a syringe); and in vials of 5 Cc., 10 Cc. and 20 Cc., each cubic centimeter containing 5,000 million killed *Staphylococcus aureus* and *Staphylococcus albus* in equal proportion.

STREPTOCOCCUS VACCINE (See New and Nonofficial Remedies, 1922, p. 308).

E. R. Squibb and Sons, New York.

Streptococcus Vaccine.—Marketed in packages of four syringes containing, respectively, 100, 250, 500 and 1,000 million killed streptococci; in packages of four ampules containing, respectively, 100, 250, 500 and 1,000 million killed streptococci (with a syringe); and in vials of 5 Cc., 10 Cc. and 20 Cc., each cubic centimeter containing 1,000 million killed streptococci.

TYPHOID VACCINE (See New and Nonofficial Remedies, 1922, p. 310).

E. R. Squibb and Sons, New York.

Typhoid Vaccine.—Marketed in packages of four syringes containing, respectively, 100, 250, 500 and 1,000 million killed typhoid bacilli; in packages of four ampules containing, respectively, 100, 250, 500 and 1,000 million killed typhoid bacilli (with a syringe); and in vials of 5 Cc., 10 Cc. and 20 Cc., each cubic centimeter containing 1,000 million killed typhoid bacilli.

Typhoid Vaccine Combined, Immunizing.—Marketed in packages of three syringes, one containing 500 million killed typhoid bacilli and 375 million each of killed paratyphoid A and paratyphoid B bacilli, and each of the other two syringes containing 1,000 million killed typhoid bacilli and 750 million each of killed paratyphoid A and paratyphoid B bacilli; in packages of three ampules containing, respectively, the same dosages as the three-syringe package (with a syringe); in packages of 30 ampules, hospital size; and in vials of 5 Cc., 10 Cc., and 20 Cc., each cubic centimeter containing 2,500 million killed bacilli.

MIXED BACTERIAL VACCINES (See New and Nonofficial Remedies, 1922, p. 314).

E. R. Squibb and Sons, New York.

Staphylo-Acne Vaccine.—Marketed in packages of four syringes, the first containing a mixture of 50 million each of killed *Staphylococcus albus,* of killed *Staphylococcus aureus* and of killed *acne bacilli,* the second containing a mixture of 125 million each of killed *Staphylococcus albus,* of killed *Staphylococcus aureus* and of killed *acne bacilli,* the third containing a mixture of 250 million each of killed *Staphylococcus albus,* of killed *Staphylococcus aureus* and killed *acne bacilli,* the fourth containing 500 million each of killed *Staphylococcus albus,* of killed *Staphylococcus aureus* and of killed *acne bacilli;* in packages of four ampules containing the same dosages as the four-syringe package (with a syringe); and in vials of 5 Cc., 10 Cc. and 20 Cc., each cubic centimeter containing 1,500 million killed bacteria.

COLON BACILLUS VACCINE (See New and Nonofficial Remedies, 1922, p. 299).

E. R. Squibb and Sons, New York.

Colon Vaccine.—Marketed in packages of four syringes containing, respectively, 100, 250, 500 and 1,000 million killed bacilli; in packages of four ampules containing, respectively, 100, 250, 500 and 1,000 million killed bacilli (with a syringe); and in vials of 5 Cc., 10 Cc. and 20 Cc., each cubic centimeter containing 5,000 million killed bacilli.

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SATURDAY, NOVEMBER 4, 1922

RACIAL FACTORS IN BLOOD PRESSURE

Determination of blood pressure has become a procedure of importance in the practice of medicine. One may not agree entirely with Cabot's[1] dictum that "though one of the simplest, it is the most important of all medical tests." The variability in the findings of physicians attests the crudeness of many of the current measurements of blood pressure in man, so that it almost appears at times as if simplicity and speed had been substituted for calculated accuracy. Furthermore, it seems rash to overlook the readings of the clinical thermometer, and the counting of the pulse rate, not to mention other indispensable helps in the every-day routine of medical practice. Nevertheless, the estimation of blood pressure has truly gained a prominent place in diagnostic technic; and the information which it has furnished has helped to awaken a tremendous interest in the large problem of arterial hypertension and related factors.

As is true in the study of most newly discovered functions or newly perfected devices, many of the earlier investigations of blood pressure in man were directed to ascertain the norms. Out of the thousands upon thousands of manometric readings have arisen the statistics which form the present basis for judging the possible meaning of data secured in the individual case. Age, size, sex, season, activity—these and numerous other factors likely to alter the circulatory apparatus of man have been taken into consideration. It is not so generally known that racial variations appear to exist. Among the Orientals, the measurements made by McCay[2] on Hindus from Lower Bengal, and the data secured at various times for the Filipinos,[3] for example, point uniformly to comparatively low systolic pressure in natives living in the Eastern tropics. Cadbury[4] has more recently compiled the facts for Cantonese and other Chinese young men from the south of China. Their systolic blood pressure averages from 20 to 30 mm. of mercury less than the normal for people in Europe and North America. The diastolic pressure of the Chinese is also lower than the generally accepted normal, but by only 10 to 20 mm. The Filipinos' diastolic pressure seems to be higher. The average pulse pressure shows little variation from the generally accepted normal, and is, therefore, relatively high.

It is said that hypertension as a pathologic condition in the Chinese is very unusual.[4] This challenges attention to the low normal arterial blood pressure of the race, and leads one to inquire into the possible factors that may account for it. Are they applicable to our own conditions of climate, race and civilization? Cadbury has excluded the widely used opium, and likewise physical or muscular inferiority, as an explanation, because his best statistics were gathered from active, healthy students beyond the reproach of these implications of drug addiction or poor physique. Small stature and lighter body weight may play a part. The relatively simple diet, largely vegetable in character and including little meat, cannot be overlooked as a possible contributory influence. "Simplicity of life" and "absence of nervous strain" are claims which it is difficult to evaluate in terms of etiologic significance. Several writers have suggested that the secretory function of the skin is increased, and probably the normal surface resistance and vasomotor tension necessary to produce the required surface heat of temperate climates is greatly diminished in the tropics the year round. To detect the fundamental factor responsible for the vascular conditions in the Chinese might mean the discovery of the best way to avert hypertension among our people.

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[1] Cabot, R. C.: A Layman's Handbook of Medicine, Boston, Houghton, Mifflin Company, 1916, p. 172.

[2] McCay, D.: Lancet **1**: 1483, 1907. Scientific Memoirs, Govt. of India, No. 34, p. 23, 1908.

[3] Musgrave, W. E., and Sison, A. G.: Philippine J. Sc. B. **5**: 325, 1910. Chamberlain, W. P.: Philippine J. Sc. B. **6**: 467, 1911. Concepcion, I., and Bulatao, E.: Philippine J. Sc. B. **11**: 135, 1916.

[4] Cadbury, W. W.: The Blood Pressure of Normal Cantonese Students, Arch. Int. Med. **30**: 362 (Sept.) 1922.

BERIBERI TODAY

The problem of neuritis in the tropics is not a new one. Beriberi was first described, from East Indian cases, by the Dutch physicians Jacob Bontius[1] and Nicholas Tulp[2] centuries ago. And it was again a Dutch scientist, Dr. C. Eijkman, now professor of hygiene at the University of Utrecht, who first produced experimentally through dietary measures a disease of polyneuritic character which resembles the tropical malady beriberi. Those who gather their information and impressions about tropical diseases from the printed page, and have become educated in the seeming simplicity of the modern vitamin hypotheses in relation to malnutrition and disease, might assume that beriberi should be well nigh eradicated by this time, or at any rate that it need no longer be a matter of very serious medical concern in those places where intelligent forces can be brought into operation. Consequently, it may come as somewhat of a surprise to learn from those expert in this field of study that, among the problems of tropical pathology, that of neuritis is one of the most interesting, baffling and important and, furthermore, that it is far from being solved.[3] In referring o the enormous literature of the subject, they even venture the assertion that perhaps in no other field s so much uncontrolled, incomplete or unreliable work used as a basis for so many varied and often unwarranted conclusions. As if to afford added emphasis to the alleged situation comes the report hat the first indigenous cases of beriberi in the hisory of Porto Rico, our own recently acquired insular possession, seem to have proceeded from United States draft troops recruited from that island as late as 1918.[4] In fact, scarcely a year has elapsed since an nvestigation was ordered of the alarming disability on account of polyneuritis.

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[1] Bontius: De Medicina Indorum, Leyden, 1642, pp. 115-120.

[2] Tulp: Observationes Medicae. Amsterdam, 1652, pp. 300-305.

Certain possible aspects of the etiology of beriberi remain to challenge the clinical investigator. Ashford has concluded that the Porto Rican outbreak of polyneuritis among our soldiers is some form of beriberi, probably, as he believes, a "combination of the beriberi syndrome plus a physiologic deficiency in the glandular system due to chronic protein starvation from relative deficiency in food containing the complete protein molecule." The theory of infectious origin, so popular a few years ago in the Far East, has received careful consideration at San Juan, and has been ruled out. Similarly, other environmental facors involving general conditions of sanitation, climate and less well defined hygienic influences lack the proof of serious importance in the unexpected genesis of beriberi in Porto Rico; and the same is true of intoxications with alcohol or other poisons known to affect he peripheral nervous system adversely. Ashford has concluded that the disease has been self-induced in certain men who, with a ration containing a sufficiency of protective substances, have elected to satisfy their appetites by eating inordinate quantities of highly milled rice at the expense of foods richer in the missing essential food factors. Economic and sociological circumstances have contributed to this outcome. The recruits for the army, coming from disricts where of late years the growing of vegetables has greatly decreased, have become accustomed to somewhat one-sided diets, in the choice of which they persist despite the greater variety of diet offered by he army ration. The treatment has been the enforcement of a regimen richer in "protective" foods.

Musgrave and Crowell also are inclined to abandon he theories of a bacteriologic or an intoxicant origin of beriberi. They insist that the treatment of the disease should be both symptomatic and specific, a dictum that applies to almost every malady. Without pronounced enthusiasm for the dietary management of beriberi as dictated by the modern study of vitamins, Musgrave and Crowell nevertheless assert that for beriberi patients a glass of milk is a better "tonic" than all the drugs in the pharmacopeia. The hypothesis of dietary deficiency is truly being tried in these days. Who shall say that it has been found wanting?

THE CULTIVATION OF TISSUE CELLS

The extravital cultivation of tissue cells is a comparatively new accomplishment of the biologic sciences. Scarcely a dozen years have elapsed since Harrison[1] published the outcome of his pioneer experiments on the ameboid outgrowth of fibers from isolated nerve cells in vitro. This has not remained an isolated accomplishment. Connective tissue cells and epithelium also have shown a capacity for uninterrupted reproduction in isolated masses, notably in the hands of Carrel and his associates at the Rockefeller Institute, provided the environmental conditions are made favorable for the microscopic structures under investigation. The technic of such studies involves experimentation of a high degree of refinement, in which asepsis is an added requisite. Heretofore, one essential of the method of obtaining a pure strain of any type of tissue cell has consisted in the isolation of tissues for cultivation from portions of the organism where they may be obtained free from any other organized tissue elements.

Only recently, Fischer[2] has succeeded on this principle in cultivating in vitro a strain of cartilage cells, obtained from the pars cartilago sclerae of the eye of chick embryos. The hyaline substance characteristic of cartilage disappeared during the cultivation in vitro, the cells growing independently without forming any hyaline material under these conditions. Even more striking, however, is the recent accomplishment of Carrel and Ebeling[3] in securing pure cultures of leukocytes, which has just been announced.

It has been said that pure strains of cells are as necessary in the study of physiologic problems as pure cultures of micro-organisms are in bacteriology. The possibility of making rigorous tests of such assertions seems to be near at hand. The cells grown by Carrel and Ebeling were large mononuclear leukocytes isolated from the blood and kept in various mediums. The smaller cells, so-called lymphocytes, disappeared from the cultures, possibly being transformed into the larger forms. This point is still uncertain. But there seems to be no doubt that the large mononuclears may be changed into cells having all the appearances of fibroblasts. They exhibited a tendency to tissue formation which lymphocytes do not show. Such differentiation is an additional indication of the interrelation of the blood and connective tissue, a topic lately subjected to critical review by Sabin.[4] What the experimental in vitro transformation of one kind of cell into another may ultimately mean for science and for medicine can scarcely even be conjectured at the present moment.

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[3] Musgrave, W. E., and Crowell, B. C.: A Clinical and Pathological Study of Neuritis in the Tropics, with Special Reference to Beriberi, Am. J. M. Sc. **164**: 227 (Aug.) 1922.

[4] Ashford, B. K.: Beriberi in the Garrison at San Juan, Porto Rico, Am. J. Trop. Dis. **2**: 305 (July) 1922.

[1] Harrison, R. G.: J. Exper. Zool. **9**: 784, 1910.

[2] Fischer, A.: A Pure Strain of Cartilage Cells in vitro, J. Exper. Med. **36**: 379 (Oct.) 1922.

[3] Carrel, Alexis, and Ebeling, A. H.: Pure Cultures of Large Mononuclear Leukocytes, J. Exper. Med. **36**: 362 (Oct.) 1922.

Almost equally fascinating is the demonstration of how the growth of isolated cells in cultures can be facilitated or retarded. Thus, the activity of the large mononuclears was increased in Carrel and Ebeling's recent experiments by embryonic tissue juice, and inhibited by homologous serum. Perhaps it is the latter which normally prevents the organism from being overrun with leukocytes continually proliferating. Carrel[5] has long since shown that embryonic cells yield substances which stimulate cell proliferation. Quite recently, he[6] has made the interesting discovery that leukocytes secrete substances in vitro which promote cell multiplication. Peritoneal exudate or connective tissue invaded by leukocytes acquires the power of increasing the rate of multiplication of fibroblasts. Leukocytes are thus capable of bringing growth-activating substances to tissue cells. Perhaps, as Carrel believes, they have the important function of promoting cell multiplication in the parts of the organism in which they accumulate under certain conditions. Considerations like the foregoing emphasize the potent possibilities, dictated by the outcome of studies of cells in pure culture, of restraining the growth of neoplasms, of accelerating tissue repair, or altering the metabolism of special cells, among other things, in the human organism.

EXPERIMENTAL EPIDEMIOLOGY

Sydenham defined disease as "an effort of Nature, striving with all her might to restore the patient by the elimination of morbific matter," an implication of the modern idea of disease as a struggle for existence between invading micro-organisms and those factors residing in the body which make for immunity. The development of bacteriology emphasized the desirability of keeping the harmful germs away from the individual—of preventing disease by eliminating or restraining its causative agents. The accomplishments of public hygiene in this direction have undoubtedly been most significant; yet the hopes of many health officials have been somewhat disappointed because infectious ailments have not been eliminated in civilized communities. They have failed, however, to reckon with the innumerable unknown modes of invasion. Thus, the menace of the healthy carrier of infectious micro-organisms was scarcely recognized a generation ago; and, year by year, new sources of bacterial danger are being brought to notice. The great epidemics of meningitis or cerebrospinal fever, poliomyelitis, influenza and epidemic encephalitis, ravaging even the countries in which the medical sciences and protective arts have been most assiduously cultivated, have brought discouragement to many.

One outcome of the modern development of epidemiology has been to direct greater attention to the individual himself. It has become clearer that if his microbial enemies cannot be kept away successfully, he himself must be better prepared to cope with them. Thus, the study of artificial, acquired immunity is being fostered in increasing measure. Garrison[1] has remarked that opinion is divided between those who maintain that the prevention of disease and mortality rests mainly with the individual, and those who believe that causation and prevention are multiplex and largely external to the individual; so, in the infantile science of epidemiology, just emerging from the descriptive stage, he adds, there are already two schools, one relying on the bacterial theory of infection for its data, and one, headed by Crookshank, harking back to the Sydenham doctrine of epidemic constitutions, family relationships between diseases, and external (cosmic and telluric) phenomena as contributory causes of epidemics.

Flexner[2] likewise has discovered a reaction in certain quarters against the teachings of modern bacteriologic epidemiology. That this return to older, and as it must seem, more mystical doctrines is widespread cannot be affirmed, he concludes, but it has even happened that in the effort to elucidate the epidemic prevalences of the last two decades already enumerated and eventuating in the colossal outbreak of influenza, the notions of epidemic constitutions as defined by Hippocrates, and especially by Sydenham, have been more or less sported with, if not actually invoked. Flexner contends that the way to the understanding of the enormous complexity of interrelation between microbe and host and their reaction on each other is not through a return to the "indefinite concepts of epidemic constitutions" but through further investigation of the phenomena out of which a real science of epidemiology can finally be built.

Accordingly, he has fostered an elaborate experimental study of epidemic outbursts of disease among colonies of animals under conditions of control not attainable with man. The earliest of these novel researches relate to a gastro-intestinal infection in mice. They have already shown that not only do specific differences exist among so-called mouse typhoid bacilli, but all the pathogenic varieties appear extremely labile. Strains of the bacilli artificially enhanced as they pass from mice to mice quickly fall to an average of infectivity and are, as it seems, at low pathogenic ebb at the time of the death of the infected animals. But this lability of the bacilli is determined, in part, by the hosts; that is, the mice through which they pass. In this respect, mice may be viewed as consisting of different biologic classes according as they respond to ingestion of the bacilli with infection and death, with mere carriage of the bacilli, or with nonreactability. The distinctions of classes are not, however, absolute, but are determined, partly at least, by the quantity of dosage of the bacilli. It is the latter factor which plays so conspicuous a part in the phenomenon of recurrent epidemic waves superinduced by the introduction of new mice in the replacement experiments described. While it is the "carrier" among the old mice which provides the "seed" for the next following epidemic outbursts, it is the highly susceptible individuals among the new which furnish the living "culture" medium enabling rapid increase and wide dissemination of the bacilli to be effected, just as it is the succumbing and nonreactable mice which check the growth and multiplication that tend to arrest the epidemic spread. The outcome of these studies, in which Amoss [3] has collaborated, will be awaited with interest. The demonstration, already accomplished, of the rôle of the influx of new uninfected population in maintaining epidemic waves is itself of the foremost significance.

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[4] Sabin, Florence: On the Origin of the Cells of the Blood, Physiol. Rev. **2**: 38 (Jan.) 1922.

[5] Carrel, Alexis: J. Exper. Med. **18**: 287, 1913; **17**: 14, 1913. Carrel, Alexis, and Ebeling, A. H.: Ibid. **34**: 317 (Oct.) 1921.

[6] Carrel, Alexis: Growth-Promoting Function of Leukocytes, J. Exper. Med. **36**: 385 (Oct.) 1922.

[1] Garrison, F. H.: The History of Medicine, Philadelphia, 1922, p. 748.

[2] Flexner, Simon: Experimental Epidemiology, J. Exper. Med. **36** 9 (July) 1922.

Current Comment

THE ORIGIN OF VITAMIN A

One of the interesting and physiologically important features with respect to vitamins is the apparently well substantiated fact that they are not synthesized in the organism of the higher animals or man. Consequently, the latter are dependent in ultimate analysis on extraneous sources for these dietary essentials. It is obviously of great importance to know the origin of any product that is indispensable to human or animal welfare. In the case of vitamin A it has become evident that the green plant plays a significant part in the production of the food factor, just as the vegetable kingdom has long been known to synthesize other essentials of diet which the animal organism cannot construct *de novo*. According to the observations of Coward and Drummond [4] in England, dry seeds and etiolated shoots grown away from the sunlight may be inactive as sources of vitamin A, whereas the green shoots are often very potent, suggesting that the formation of large amounts of this vitamin requires the influence of light. Studies with *Tradescantia* have indicated, further, that vitamin A can actually be produced by the green plant from inorganic sources. We need not necessarily include sunlight in the requirement, since the recent demonstration by Harvey [5] at the University of Minnesota, where a great variety of plants, including several varieties of wheat, oats, barley, rye and potatoes, buckwheat, lettuce, beans, peas, clovers, radishes, flax and a number of common weeds, were grown from seed to seed entirely in artificial light. It thus becomes clear how the higher land animals and man draw their supplies of vitamin A directly or otherwise from green plants, since their own tissues seem to lack the power to manufacture it. But how about the marine animals, which appear in many cases to be particularly rich in vitamin A? Investigation has demonstrated that among their sources of foods the marine algae share with land plants the power to synthesize it. And most recently the production of large amounts of vitamin A by pure cultures of diatoms in sterilized sea water has been discovered.[6] Diatoms are an important source of nutriment for many marine forms, which in turn serve to supply food sources for man. An instructive parallel may be drawn between the dependence of land animals on fresh green leaves and that of marine animals on the synthetic activity of the marine flora for their supplies of vitamin A. Cod liver oil and many other comparable products of marine origin are notably rich in vitamin A. The fishes which furnish these tissue oils live on a great variety of food. Drummond and Zilva [7] have recently remarked that although it would be an almost insuperable task to demonstrate an actual transference of vitamin A right through from a diatom such as *Nitzschia* to its final location in the liver of the cod, it would appear that we are justified in assuming that such transference does indeed take place by relying on the fact that as yet synthesis of this dietary factor by an animal organism has not been demonstrated, whereas such synthesis is readily carried out by certain plants, both marine and terrestrial. Furthermore, the marine algae represent the fundamental food supply of all marine animals.

PUERPERAL THROMBOSIS AND EMBOLISM

Häggström [8] in a valuable study of puerperal thrombosis and embolism, as observed in the Upsala obstetric clinic during the years 1901 to 1920, says that of 11,475 women in childbed, 149 developed thrombosis, that is, 1.3 per cent.; furthermore, that of the 149 women with thrombosis, thirteen presented symptoms of pulmonary embolism, and six died of pulmonary embolism. In only fifteen of these 149 cases did the thrombosis follow established infection—sepsis, metritis, salpingitis, mastitis, angina; in a still smaller number, other diseases, such as anemia and chronic heart disease, acted as possible predisposing causes; and in a somewhat larger number the thrombosis followed various more or less severe obstetric manipulations or operations; in the majority of cases, however, there was no apparent cause for the thrombosis. Relatively more cases occurred in older women and in multiparae. The veins of the left leg were affected fifty-four times, of the right, fifty-five times, and of both sides, twenty-four times; in the remaining cases the thrombosis was located in the pelvic or vulvar veins or the location was not given. In four of the six fatal cases of pulmonary embolism, the primary thrombosis was situated in the pelvic veins. The local symptoms of puerperal thrombosis depend on its location. In pelvic thrombosis there may be no local symptoms noted, while in thrombosis of the larger veins of the lower extremities the symptoms and signs may be more or less obvious and it is unnecessary to go into details at this time. According to Häggström, the most important premonitory symptom is a moderate rise in temperature, with a relatively rapid pulse, and whenever this occurs in the puerperium, it is wise to look carefully for thrombosis and to guard the patient against sudden movements or exertion of the body. Obviously, the maintenance of good venous circulation and the avoidance of varicose veins, with a smooth and uncomplicated delivery and puerperium and gradual elevation of the bed toward the foot end are measures that will tend to prevent puerperal thrombosis. When thrombosis occurs, rest in bed, with practically absolute quiet of the affected limb, and no massage, for about two to three weeks after the temperature becomes normal, is essential. The great danger of puerperal thrombosis is pulmonary embolism, which may ensue any time after the thrombus has formed and until connective tissue substitution is well under way. Sometimes the embolism develops without any obvious cause, usually on sudden change of position, on coughing, defecation or urination. Depending on the size of the occluded vessels in the lungs, the symptoms may vary from anxiety, dyspnea, pain in the side, usually the right, with friction rubs, increase in pulse rate and temperature, and bloody sputum, to rapid, sometimes almost instantaneous, death, with violent and stormy symptoms, when the larger branches or main stem of the pulmonary artery is occluded. As shown in Häggström's series, a little less than one half of the patients with definite symptoms of pulmonary embolism died. It is probable that small emboli may lodge in the lungs without causing recognizable symptoms and also that instances of pulmonary embolism are not recognized but are diagnosed as bronchitis or pleuritis. Häggström gives a table of 140,752 births, made up from reports in the literature, principally German, and his own cases, which shows that one case of thrombosis occurred in about 162 births and that approximately one tenth of the cases of thrombosis resulted in pulmonary embolism and the imminent risk of the grave danger to life connected therewith. The full significance of these figures stands forth when they are applied to the population at large. The figures mean that in a country like Sweden, for instance, in which from 125,000 to 135,000 births take place annually, upward of 850 women become bedridden for several weeks each year on account of puerperal thrombosis, and that about sixty women die in childbed each year from pulmonary embolism. Applying the figures to our own country, with approximately 2,450,000 births annually, we reach a total of about 15,000 cases of thrombosis and at least 1,500 cases of pulmonary embolism in childbearing women each year—a danger to and loss of valuable lives calling for the best efforts at prevention that the medical profession can put forth.

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[3] Amoss, H. L.: Experimental Epidemiology, I, An Artificially Induced Epidemic of Mouse Typhoid, J. Exper. Med. **36**: 25 (July) 1922; II, Effect of the Addition of Healthy Mice to a Population Suffering from Mouse Typhoid, ibid., p. 45.

[4] Coward, K. H., and Drummond, J. C.: The Formation of Vitamin A in Living Plant Tissue, Biochem. J. **15**: 530, 1921.

[5] Harvey, R. B.: Growth of Plants in Artificial Light from Seed to Seed, Science **56**: 366 (Sept. 29) 1922.

[6] Jameson, H. L.; Drummond, J. C., and Coward, K. H.: Synthesis of Vitamin A by a Marine Diatom (Nitzschia Closterium W. Sm.) Growing in Pure Culture, Biochem. J. **16**: 482, 1922.

[7] Drummond, J. C., and Zilva, S. S.: The Origin of the Vitamin A in Fish Oils and Fish Liver Oils, Biochem. J. **16**: 518, 1922.

[8] Häggström, Paul: Uber puerperale Thrombosen und Embolism, Upsala Läkareförenings Handlingar **27**: 305-351 (Sept.) 1922.

CANCER WEEK

The week of November 12-18 has been selected by the American Society for the Control of Cancer as a period during which special efforts will be made to acquaint the public with the early symptoms of cancer. This education is intended to lead the patient to seek a physician as early as possible, since it is well known that in early eradication lies the only remedy. In various states, special committees have been formed to present every phase of the work. Newspapers, lantern slides, motion pictures, and messages delivered through the churches are being or will be utilized to arouse the public. Physicians are, of course, either leading or lending their aid in the movement. As we have stated before, this attempt to educate the public to the fact that cancer in its early stages is remediable should be continuous and not the forced effort of a week. "Cancer Week" is a splendid means for working enthusiasm to its highest pitch; but this enthusiasm should not be permitted to relapse. There is no health problem more vital than that of arousing the public to the importance of early recognition of cancer.

THE "WILL TO BELIEVE"—IN 1817

The case of Willetta Huggins, the 17-year-old inmate of the Wisconsin School for the Blind, who is said to be able, although blind, to tell colors, has recently been dealt with at some length, pro and con, in The Journal. In this connection, the following quotation from the "Memorials of Liverpool" published many years ago by Picton, takes on an added interest:

> A singular physiological problem kept the Liverpool public on the *qui vive* during the autumn of 1817. A Miss M'Avoy, a young lady residing in St. Paul's-square, about seventeen years of age, was attacked by hydrocephalus and partial paralysis. Her eyes were affected by gutta serena, [an old term for amaurosis.—Ed.] and she was pronounced by her medical attendants to be entirely blind. Shortly afterwards she was reported to possess the faculty of reading print and distinguishing colours by the touch, her eyes being so completely bandaged as to prevent the possibility of deception. The story got wind, and the house in St. Paul's-square became a centre of attraction to the wonder-loving public. There could be no mercenary object to gain by imposture, as the family were respectable and no money was ever received. Many wonderful accounts were published of her capacity of deciphering the smallest print and the most delicate colours in utter darkness as well as with the eyes covered. Dr. Renwick, a physician of eminence, published a pamphlet, in which he gave explicit credence to the new and supernatural faculty. Encouraged in this way, her pretensions assumed a higher flight. She now claimed the faculty of discerning objects at a distance by placing her fingers behind her upon the glass of the windows and was said in this way to have described the figures of persons in the churchyard opposite and the colour of their clothes. This naturally excited some suspicion, which was strengthened by other circumstances. The interposition of any substance between her face and hands deprived her of the faculty of seeing as it were by touch. This she attributed to the neces-

sity for her breath having free and uninterrupted communication with her hands. To obviate this difficulty an ingenious gentleman (Mr. Egerton Smith) contrived a mask which, whilst entirely covering the eyes and face, left the breathing free and uninterrupted, and offered to pay twenty guineas, which another gentleman doubled, if Miss M'Avoy, with this mask on, could read a single line of moderately sized print. After some equivocation the test was declined, and Miss M'Avoy's pretensions fell to zero and were soon forgotten.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Tuberculosis Association Formed.—The annual meeting of the Baldwin County Medical Association was held at Fairhope, October 3, under the presidency of Dr. V. McReynolds Schowalter. A committee of Baldwin citizens also met and organized the Baldwin County Antituberculosis Association, with Drs. George C. Marlette, county health officer, and Gaines C. McCrary, Foley, as members.

CALIFORNIA

Hospital News.—The second unit of the new St. Francis Hospital building, Santa Barbara, is nearing completion. It will be finished the latter part of November. Building will consume the $140,000 the committee has in hand, and additional funds will be necessary to complete and equip the institution.——The new hospital at Groveland, erected for the Hetch Hetchy Water Supply Company, was opened, October 4. This building was erected to replace the one recently destroyed by fire.——The new Salinas Valley Hospital, Salinas, was formally opened, September 27. Dr. Rollin Reeves is owner of the property.——The Inglewood Hospital, Inglewood, has been purchased by Mrs. Willsie and Mrs. Rogers. The institution will be remodeled and refitted with modern equipment.——The Lincoln Hospital, Los Angeles, will erect a nurses' home in the near future.

CONNECTICUT

Yale University News.—The new Sterling Chemical Laboratory of Yale University will be dedicated, April 4, 1923, during the spring meeting of the American Chemical Society at New Haven. It is a three-story building constructed on three sides of a square. Enclosed in the square is a one-story, saw-tooth roof factory building with movable partitions. This structure can be varied to suit the needs of the teaching staff.——The second oldest professional school of Yale University, the Divinity school, celebrated the one hundredth anniversary of its founding, October 23-25.

Incidence of Smallpox.—The largest number of cases of smallpox ever reported in Connecticut during any year have occurred since December, 1921. Up to October 14, of this year, 441 cases had been reported, with six deaths. The epidemic has been exceedingly costly to the state, health officers having to devote their time to this disease, thereby lessening the time that they could give to their routine work. Additional help and police protection were necessary in order to carry out measures to prevent the spread of the disease. Incidentally, the health department states, all the deaths from smallpox which occurred this year were of unvaccinated persons.

DISTRICT OF COLUMBIA

Personal.—Major A. Parker Hitchens, M. C., U. S. Army, delivered an address before the Wapita at Washington, October 4, on the subject of "Vaccination." Dr. Noble P. Barnes presided, and announced that the scheduled election of officers would be deferred until the next meeting.

American Dietetic Association.—At the fifth annual meeting of the association, held in Washington, October 16-19, Miss Octavia Hall, Peter Bent Brigham Hospital, Boston, was elected president; Miss Breta Luther, Children's Hospital, Boston, secretary, and Miss Anne Bolder of the Infant Welfare Society, Chicago, treasurer. Drs. Elliott Joslin, Boston, Louis H. Newburgh, Ann Arbor, Mich., and Walter B. Cannon, Harvard University Medical School, were among the speakers.

FLORIDA

New Hospital Opened.—The new Baltzell Hospital at Marianna was recently opened for patients. Dr. Nicholas A. Baltzell is the owner of the institution.

Woman Physician Elected Mayor.—Dr. Mary Josie Rogers was recently elected mayor of Daytona. She is the first woman to be elected mayor in Florida, it is stated.

Joint Medical Meeting.—A joint meeting of the Florida Midland Medical Society and the Polk County Medical Society was held in Lakeland, October 11, under the presidency of Dr. Gaston H. Edwards, Orlando. The annual election of officers for the midland society resulted in Dr. Burdette Smith, Tampa, being elected president and Dr. Harold M. Beardall, Orlando, secretary-treasurer. The next annual meeting will be held at Sanford.

GEORGIA

Physicians Sentenced.—Dr. Donarell R. Green, Atlanta (colored), was recently sentenced to serve six months in the federal penitentiary, or be fined $500, it is reported, for violation of the Harrison Narcotic Law. Green was alleged to have furnished cocain and other opiates illegally to patients.——Dr. Leighton Brown, Macon, was sentenced to nine months imprisonment, recently, for violation of the Harrison Narcotic Law, it is reported.

IDAHO

South Idaho Medical Society.—The fall meeting of the society was held in Boise, October 28, under the presidency of Dr. Edward E. Maxey, Boise. Dr. Joseph Aspray, Spokane, was the principal speaker. Dr. Stowell B. Dudley, Caldwell, recently returned from the Near East, spoke on his work as director of medical relief in Europe.

ILLINOIS

Public Welfare Conference.—The annual Illinois Public Welfare Conference will be held in East St. Louis, November 12-14. Sections on public health and mental hygiene will offer programs especially interesting to physicians. The director, assistant director and other members of the state department of public health will participate in the conference.

Smallpox Incidence Low.—Smallpox incidence in Illinois since Aug. 1, 1922, has been the lowest in several years. During this period seventy cases were reported to the state department of public health, as compared with ninety-one for last year and 736 for the year before. Of twenty-four cases reported for the first half of October of this year, sixteen occurred in Rock Falls, Whiteside County.

Correspondence School of Instruction.—Arrangements have been completed by the state department of public health to conduct a correspondence course of instruction for district health superintendents and local medical health officers. As a supplement to this course, a weekly health index will be placed in the hands of those on the mailing list. The index will consist of a summary of the prevalence of communicable diseases by counties, and a sheet of editorial matter.

Hospital News.—An addition is to be erected at the Soldiers' Orphans' Home in Norwood. The institution is conducted by the department of public works.——The Livingston County Tuberculosis Hospital, recently completed at Pontiac, was dedicated, September 24. Dr. F. Herbert Bartlett, formerly of the Healthwin Hospital, South Bend, Ind., is superintendent of the institution.——Trustees and the medical staff of Passavant Memorial Hospital, Jacksonville, held a meeting, recently, to consider the proposed annex to the institution. The new addition will be used exclusively for contagious diseases. It will be erected at the northeast corner of the main structure.——Sister Marie, superintendent of the Huber Memorial Hospital, Pana, has been transferred to New York. Sister Vincent will succeed her.

Personal.—Dr. Groves B. Smith, psychiatrist of Gregory, has accepted an assignment offered him by the Commonwealth Fund of New York. He will make a survey of all prisons in New York state before drawing up recommendations to the governor for changes in the penal system regarding abnormal mental states of prisoners. A similar survey was recently conducted in St. Louis, and about 70 per cent. of the prisoners were found to be suffering from some abnormal mental condition.——Dr. John H. Gordon, Pocahontas, entertained the members of the Bond County Medical Society, October 31, when he celebrated the anniversary of his eightieth birthday.——Dr. John C. McMillan, New Berlin, recently underwent an operation for goiter at Rochester, Minn.——Dr. Eugene Naylor's right index finger was so badly injured in an automobile accident recently that amputation was necessary.——Dr. Elam R. McBroom, Camp Grove, has given up the practice of medicine and has been ordained to the ministry.

Chicago

Personal.—Dr. Frederick A. Besley, Chicago, has been appointed chairman for Illinois to represent the American Society for the Control of Cancer, to aid in the universal celebration of "Cancer Week," November 12-18. Dr. Besley has distributed a circular letter for the instruction and guidance of the county chairmen of the state, pointing out the advisability of appointing local chairmen in each community to acquaint the general public in regard to the early investigation and treatment of cancer.——Dr. Gustav A. Futterer is seriously ill at the Columbus Memorial Hospital. ——A dinner was given for Dr. Bertha Van Hoosen in Chicago, November 7, when she outlined her plans for the work in the Orient that she is undertaking.

Hospital News.—The South Shore Hospital has purchased a site at Eightieth Street and Crandon Avenue for a new nurses' home which will be erected in three years.——A new $200,000 building will be erected by the Oak Haven Old People's Home at Western Avenue, it has been announced. ——The cornerstone of the new German Evangelical Hospital at Morgan Street was laid, October 22, with appropriate exercises. The institution will have accommodations for 125 patients and will be erected at a cost of $350,000.—— If the Children's Memorial Hospital can raise the sum of $1,000,000 within two years for an endowment fund, $333,333 will be donated to it, under the will of John P. Wilson, Sr. If the endowment is not subscribed the institution will only receive the sum of $50,000.

INDIANA

Banquet for State Society President.—The Huntington County Medical Society gave a banquet in honor of Dr. Charles H. Good, president of the Indiana State Medical Society, at Huntington, October 12. Invitations were extended to every association in the eleventh district. Dr. Reuben F. Frost acted as toastmaster. Dr. Albert E. Bulson, editor of the *Journal of the Indiana State Medical Association*, and Dr. Warren D. Calvin, president of the Twelfth District Medical Association, gave addresses on this occasion.

IOWA

Personal.—Arthur Holmes, Ph.D., president of Drake University, Des Moines, has been appointed professor of psychology in the University of Pennsylvania, Philadelphia. ——Dr. Albert H. Byfield, professor of pediatrics at Iowa State University, held a children's clinic at St. Joseph's Hospital, Centerville, October 20. He was the guest of the Appanoose County Medical Society.

Hospital News.—A petition asking for the erection of a county memorial hospital was recently filed with the board of supervisors of Audubon. A special ballot has been prepared by that body for the general election, when the voters of the county will vote on the issuance of $75,000 in bonds for the erection and equipment of the institution. It will be known as the Liberty Memorial Hospital and will be a community institution, with accommodations for about forty patients. It is to be a memorial to the veterans of the World War.——A campaign to raise $500,000 for the construction of a new Methodist hospital in Sioux City will be conducted in northwest Iowa, it was announced at the Methodist conference, at Fort Dodge, October 6.——Plans are being prepared by Dr. William H. Jenks for the erection of a new hospital on his lots at the north end of Cedar Street, Tipton. ——Plans have been completed for the erection of the new $300,000 Protestant Hospital in Sioux City.

KANSAS

Santa Fe Railway Medical and Surgical Society.—At the twenty-fifth annual meeting of the society held at the Santa Fe Hospital, Topeka, October 14, Dr. Charles Dunning, Arkansas City, was elected president; Drs. H. Clay Manning, Cushing, Okla., Ola Putman, Marceline, and Oliver W. Spicer, Colorado Springs, Colo., vice presidents, and Dr. Mark L. Bishoff, Topeka, secretary-treasurer.

KENTUCKY

State Medical Meeting.—At the seventy-second annual convention of the Kentucky State Medical Association, held at Paducah, October 16-19, under the presidency of Dr. Joseph A. Stucky, Lexington, the following officers were elected for the ensuing year: president, Dr. Frank Boyd, Paducah; vice presidents, Drs. William Barnett Owen, Louisville, Willis R. Moss, Clinton, and Charles R. Tanner, Henderson, and secretary, Dr. Arthur T. McCormack, Louisville. The society went on record as favoring a plan to limit specialization in the practice of medicine to physicians who have had as much as five years' experience in general practice. A resolution was adopted recommending that the University of Kentucky establish a medical school for the accommodation of students unable to obtain admission to the University of Louisville owing to inadequate facilities. Organization of an independent insurance agency to carry protection for accidents to their automobiles was indorsed. Crab Orchard was selected as the next meeting place.

MARYLAND

Baltimore County Health Work Planned.—Physicians and residents of Baltimore County met recently at the Towson courthouse to consider organizing a county health association, to take over the work formerly conducted by the Red Cross. Dr. William E. Bridges, superintendent of Eudowood Sanatorium, was chairman. A committee of five was appointed to confer with officials of the Baltimore County Children's Aid Society and other organizations on forming a health association. The new organization will furnish nursing service throughout the county as did the Red Cross. The committee is composed of Dr. Bridges, Dr. Frank W. Keating, superintendent of Rosewood State Training School, A. D. Stebbins, Dr. W. P. E. Wyse and S. Duncan Black.

MASSACHUSETTS

Social Service Work.—The annual meeting of the Massachusetts Conference of Social Work will be held in Greenfield, November 13-15, under the presidency of Herbert C. Parsons.——The division of social work of the state department of mental disease and the Massachusetts Association for Occupational Therapy have made arrangements whereby convalescent patients may find a market for articles made in occupational therapy work. The state hospital social workers will guide and direct patients in the manufacture of articles suitable for sale, while the bureau of occupational therapy will assist in the sale of such articles.

Boylston Medical Prizes.—These prizes, which are offered by Harvard Medical School, are open to public competition for the best dissertation on questions in medical science proposed by the Boylston Medical Committee. For 1922, there is a prize of $500 and the Boylston prize medal, offered for the best dissertation on the results of original research in medicine, the subject to be chosen by the writer. Papers must be in the hands of the secretary, Dr. Reid Hunt, Harvard Medical School, Boston, not later than Dec. 31, 1922. The Boylston prize medal will be added to the money prize only in case the winning essay shows special originality in the investigations detailed.

Personal.—Dr. Herman Robbins and Dr. Harry Goldman, both of Boston, have been appointed medical inspectors to carry out the increased demands for aid in the administration of the Schick test.——Dr. Frederick A. Mead, Willimansett, has been elected president of the Holyoke Medical Society. ——Samuel Wesley Stratton, D.Sc., for twenty-one years director of the Bureau of Standards, Washington, D. C., has been elected president of the Massachusetts Institute of Technology, to succeed the late Richard C. MacLaurin.—— Dr. Ayers P. Merrill, Pittsfield, was recently elected president of the four district medical societies of the Massachusetts Medical Society, including Berkshire, Franklin, Hampshire and Hampden counties.

Mental Hygiene Bureau.—The new division of mental hygiene, the first government bureau of its kind, it is said, was recently opened in Boston, under the direction of Dr. Douglas A. Thom. Plans have been outlined which will include state-wide research and the establishment of clinics on mental hygiene in eight or ten of the largest cities, where a survey will be made previously to ascertain the needs, the facilities available and prospects for cooperation. This division was established in the department of mental disease by the legislature of 1922. Dr. Thom has already associated with him, Dr. Harry C. Solomon, research investigator; Dr. Stanley Cobb, professor of neuropathology, Harvard Medical School; Dr. A. Warren Stearns, assistant professor of psychiatry, Tufts Medical School; Dr. Abraham Myerson, professor of neurology, Tufts Medical School, and Dr. George K. Pratt, Boston.

MINNESOTA

Minnesota Academy of Ophthalmology and Oto-Laryngology.—At the meeting of the academy in Minneapolis, October 20, the following officers were installed for the ensuing year: president, Dr. William R. Murray; vice presidents, Drs. Archibald D. McCannel, Minot, N. D., and Henry E. Binger, St. Paul, and secretary-treasurer, Dr. John H. Morse, Minneapolis.

Mississippi Valley Medical Association.—At the forty-seventh annual meeting of the association held in Rochester, October 10-12, Dr. Henry Enos Tuley, for twenty-five years secretary of the association, was elected president. Dr. Tuley was unable to attend the sessions, being seriously ill at his home in Louisville, Ky. Dr. John de J. Pemberton of the Mayo Clinic was elected vice president; Dr. John L. Tierney, St. Louis, secretary, and Dr. E. H. Hatton, Chicago, was elected treasurer. The next meeting will be held in Hot Springs, Ark.

Thirteen Organizations Convene in Twin Cities.—Every field in health endeavor in Minnesota was represented at the meeting, October 25-27, in St. Paul, of members of all the principal health organizations in the state. New methods of health education and health supervision in the public schools was one of the major subjects discussed. Governor Brumbaugh of Pennsylvania gave three lectures on health subjects during the convention. Among the organizations participating in the conference were: U. S. Public Health Association, the Minnesota Education Association, the American Red Cross, the state sanitary conference, the state public health association, the state board of health, the state board of control, the state advisory committee for tuberculosis, the state dairy and food department, the state livestock sanitary board, the state sanatorium association, the American Waterworks Association, and the department of preventive medicine and public health of the University of Minnesota.

MISSOURI

Personal.—Dr. John I. Tucker, St. Joseph, has been appointed a member of the city council.——Dr. Nathaniel Allison, St. Louis, sailed from Europe, October 3, on the *Majestic* for New York.——Miss Geraldine Lermit has been appointed director of the Missouri Association of Occupational Therapy.——Dr. David H. Dolley, formerly pathologist at the University of Missouri, Columbia, has been appointed head of the department of pathology at St. Louis University School of Medicine.

Annual Clinic Week.—Under the auspices of the Kansas City Academy of Medicine, of which Dr. George E. Bellows s president, clinics for visiting physicians were held at all Class A hospitals in Kansas City, during the Priests of Pallas week, October 4-7. These clinics will now be held every Priests of Pallas week, it is announced, and also during he American Legion Convention. Dr. Dean Lewis of Rush Medical School, Chicago, spoke on "Diagnosis of Bone Lesions."

Swedish Otologist Gives Lecture Courses.—Dr. Robert Bárány, professor of otology of the University of Upsala, Sweden, and winner of the Nobel prize in medicine in 1914, gave a two weeks' lecture course and several clinics for eye pecialists and neurologists in St. Louis, October 9-21. Dr. Bárány was the guest of honor of the American Academy of Ophthalmology and Otology, which held its annual meeting n Minneapolis, last month. Dr. Bárány will give a similar course of lectures in Chicago, Denver, Los Angeles, Houston, Cincinnati, Cleveland, Boston and New York.

Get-Together Dinner.—The members of the St. Louis Medcal Society will gather at the Elks' Club on the evening of Armistice Day for a get-together dinner. The principal object of the occasion is the celebration of the purchase of plot of ground on which to erect a new fireproof building or the society and its library, and to discuss methods for raising $200,000 for the construction of the new home. The ground cost $22,500, and this sum was donated by forty-five members, each of whom contributed $500. Dr. John A. Witherspoon of Nashville, Tenn., a former president of the American Medical Association, will be the guest of honor and will use his well known oratorical and anecdotal talents for the success of the project.

MONTANA

Montana State Hospital.—Dr. Robert E. Hathaway, Glendive, a veteran of the World War, has been appointed by the governor to succeed Dr. Scanland as superintendent of the Montana State Hospital for the Insane, Warm Springs. He was formerly president of the Medical Association of Montana.——Dr. Harris A. Bolton, assistant superintendent to Dr. Scanland, has resigned. Both Dr. Bolton and Dr. Scanland went to Montana from the Mercy Hospital, Baltimore.

New School for Ex-Service Men.—The U. S. Veterans' Bureau, District No. 10, has opened an exclusive trade school at Helena for the rehabilitation of World War veterans. It is a four-story building with modern equipment and is purposed to supplant placement training of trades to a large extent by this more desirable type of practical institutional training. A curriculum of trades, such as auto mechanics, electricity and machine shop work, will be taught by twelve high grade instructors. The Helena office of the bureau has moved into the building and will occupy one floor.

NEW JERSEY

Hospital Items.—Dr. Carl E. Sutphen, Newark, has resigned as superintendent of the Newark City Hospital.——Dr. Martin I. Marshak, superintendent of the Sanatorium of the Jewish Consumptives' Relief Society, Edgewater, Colo., has resumed private practice in Bayonne.——An addition will be erected at the Paterson General Hospital at a cost of $400,000.——A new children's ward is under construction at the Cooper Hospital, Camden, which will increase the capacity of the hospital to 200 beds.——Plans have been completed for the $300,000 addition to the Newark City Hospital.——Bids were let, November 1, for the new hospital building to be erected for the Irvington General Hospital.

NEW MEXICO

Personal.—Dr. Frank E. Mera, Sunmount Sanatorium, Santa Fe, has been appointed a member of the board of public welfare to succeed Dr. LeRoy S. Peters, who resigned recently to devote his time to St. Joseph's Sanatorium.

Health Department Organized.—It is announced by the New Mexico State Bureau of Public Health that, after Jan. 1, 1923, Dona Ana County will have a full-time health department with a full-time health officer in charge.

NEW YORK

Physicians Decorated.—Dr. John B. Walker, colonel, M.R.C., New York, was the recipient, October 19, at the office of Major-General Bullard, Governors Island, of the Distinguished Service Medal, for exceptionally meritorious and distinguished service as commanding officer of Base Hospital No. 116, A. E. F., in France, and for his work in rehabilitation of the disabled.——Dr. Francis E. Fronczak, health commissioner of Buffalo, was recently presented with the order of "Polonia Restituta," by the consul for the Republic of Poland in that city. The medal was conferred on Dr. Fronczak by special decree of General Pilsudski, president of the Republic of Poland, for services rendered by him to the Polish army in France and Poland.

New York City

A Metabolic Clinic.—The Post-Graduate Hospital has established a metabolic clinic with a full force of specialists. It will deal with nephritis, hypertension and glycosuria, and their sequels. Evening as well as day service is included.

Smallpox Halts Liner.—The liner *Maracaibo*, which arrived in this port, October 24, was detained at quarantine indefinitely because of the illness with smallpox of a negro dining room steward. All the nonimmune passengers were compelled to remain on board and to be vaccinated.

New Physicians' Building.—The new building, exclusively for physicians and surgeons, on East Fifty-Third Street, is now ready for occupancy. The building is seven stories high, with four complete suites on each floor. There will be a trained staff of attendants on each floor at the service of the physicians.

Public Health Lectures.—A course of lectures on health education and prevention of disease is announced, under the auspices of the Public Health Education Committee of the Medical Society of the County of New York, in cooperation with the New York Academy of Medicine. These lectures will be presented at the New York Academy of Medicine, as follows: November 8, "The Care of the New-Born Child," by Dr. Frederic W. Rice; November 13, "Care of the Health of New York City Children by the Department of Health," by Dr. J. L. Blumenthal; November 22, "Mental Hygiene Problems of Childhood and Adolescence," by Dr. Frankwood E. Williams; December 6, "Health Education for Children," by Dr. Frances Cohen; December 11, "Exercise in Normal and Abnormal Children," by William St. Lawrence, and "Good Posture, a Health Asset for Children," by Harriet Wilde.

Personal.—Dr. Robert Rosenberg and Dr. Julius Ferber, New York, sailed, October 3, for Hamburg.——Dr. Frederick E. Sondern, president of the New York Post-Graduate Medical School and Hospital, arrived on the *Cedric,* October 2, from Liverpool.——Dr. Esther Lovejoy, president of the American Women's Hospital Association, was recently attacked by a Turk while aiding refugees in Smyrna. She was struck on the head with the butt of his rifle, but was rescued finally by an American officer.——Dr. Richard Derby, New York and Oyster Bay, sailed for Europe on the *President Roosevelt,* October 14.——Dr. Francis B. Jennings and Dr. Herman Baruch, New York City, sailed on the *Chicago* for Havre, October 5.——Dr. Anthony Bassler has been appointed consulting gastro-enterologist to St. Vincent's and the Jewish Memorial hospitals, New York City, and gastro-enterologist to the Fifth Avenue Hospital.——Dr. H. J. Hamburger, professor of physiology at the University of Groningen, Holland, will deliver the first Harvey Society Lecture at the New York Academy of Medicine, November 3. His subject will be "The Increasing Significance of Chemistry in Medical Thought and Practice."——A complimentary dinner was given to Dr. Charles Gordon Heyd, October 21, by members of the surgical staff of the New York Post-Graduate Medical School and Hospital.——The Austrian government has conferred the honor decoration of the Red Cross, with laurel wreath, on Dr. Emanuel DeMarnay Baruch, New York City, in recognition of his services in connection with Austrian relief work.——Drs. Frederick H. Albee, John A. Fordyce and John E. Stillwell, recently returned from Europe.——Dr. Arley Munson has been decorated by the French government in recognition of her services in establishing a laboratory and directing a hospital in France, under the auspices of the Rockefeller Foundation.

NORTH CAROLINA

Tuberculosis Conference.—The second annual conference of the North Carolina Tuberculosis Association was held in Goldsboro, October 3-4. Dr. Allen K. Krause, Baltimore, represented the national association. Dr. J. Howell Way, president of the state board of health, and Dr. Watson S. Rankin, secretary of the board, presided at the afternoon and morning sessions, respectively.

OHIO

Health Commissioners Convene.—The Northwestern Ohio Health Commissioners' conference was held in Lima, November 2. Twenty-six counties in the northwest section of the state are included in the district and all sent representatives to the meeting.

Hospital News.—The Union Hospital, Dover, has recently opened a thirty-bed addition and twelve beds have been added to the old section.——The Union Hospital Association have sold the old Eddy Road Hospital and grounds, Cleveland. The institution will be remodeled and again used as a hospital, it is stated.——The state board of control has granted the request of the state welfare department for $175,000 for a new building for the accommodation of incurable patients of the Cleveland State Hospital.

OREGON

Hospital News.—A proposal from governmental officials to buy the Hahnemann Hospital, Portland, for conversion into a hospital for the care of tuberculous ex-service men, has met with approval from the city council, it is announced. Revocation of the ordinance prohibiting the retention of tuberculous patients within the city limits will be agreed to by the council, provided the government agrees to care for ex-service men only. This will eliminate the necessity of sending patients to Walla Walla, Wash., the nearest government hospital.——The new four-story wing at St. Anthony's Hospital, Pendleton, will be opened to the public this month. The new addition will care for fifty more patients and was erected at a cost of $250,000, including equipment.

PENNSYLVANIA

Society News.—The members of the Mercer County Medical Society held their annual banquet, October 26, at Sharon. Dr. Carl A. Hamann, dean of the Western Reserve University, School of Medicine, Cleveland, gave an address on "Surgery of the Rectum." Dr. Walter F. Donaldson, secretary of the Medical Society of the State of Pennsylvania, and Dr. Thomas E. Jones of the Cleveland Clinic, also gave addresses.——The New England Pediatric Society, the Pediatric Section of the New York Academy of Medicine and the Philadelphia Pediatric Society held a joint meeting in Philadelphia, November 4. A banquet was given in the evening.——The nineteenth annual meeting of the Eighteenth Censorial District, including Snyder, Northumberland, Montour and Columbia counties, was held, September 8. The meeting was called to order in the court house at Bloomsburg. The address of welcome was delivered by Dr. Frank R. Clark, president of the Columbia County Medical Society. The following officers were elected for the ensuing year: president, Dr. Percival Herman, Selinsgrove, and secretary, Dr. Luther B. Kline, Catawissa.——More than 200 surgeons met in Philadelphia, October 20-21, for a convention of the Association of Surgeons of the Pennsylvania Railroad System, held under the presidency of Dr. Joseph D. McCann, Monticello, Ind. Dr. John B. Deaver, Philadelphia, gave an address on "Pitfalls in the Diagnosis of Chronic Diseases of the Upper Abdomen."——The Roentgen Ray Society of Central Pennsylvania and the Fayette County Medical Society held a joint meeting, October 14, at Uniontown. Following the banquet, the county medical society showed the Wertheim obstetric film of 5,000 feet, and a film dealing with venereal disease.——At a meeting of physicians of Greensburg, October 18, the Greensburg Academy of Medicine was formed, with Dr. John J. Singer, president, and Dr. Charles C. Crouse, secretary-treasurer.

Philadelphia

Clinic for Defects of Speech.—This clinic, formerly conducted at the Medico-Chirurgical Hospital, was transferred to the Children's Hospital, October 17. The dates and hours will be the same.

Home for General Wood.—Anticipating the coming of Gen. Leonard Wood to the University of Pennsylvania, next January, the board of trustees made provision to complete alterations in the provost's home, 4037 Pine Street. The house was made possible by a fund subscribed by the alumni in 1916.

Alvarenga Prize.—The College of Physicians of Philadelphia announces that the next award of the Alvarenga prize, being the income for one year of the bequest of the late Señor Alvarenga, amounting to $300, will be made, July 14, 1923. Essays intended for competition may be on any subject in medicine, but must not have been published. If written in a language other than English, an English translation should accompany them. All essays must be in the hand of the secretary, John Girvin, 19 South Twenty-Second Street, Philadelphia, before May 1, 1923.

Personal.—Dr. Samuel W. Hamilton, medical director of the Philadelphia Hospital for Mental Diseases, resigned, October 6. It is understood that Dr. Hamilton will return to his former work as assistant medical director of the National Committee for Mental Hygiene of New York.——Dr. Edgar Fahs Smith, president of the American Chemical Society and head of the department of chemistry at the University of Pennsylvania, spoke on "The Early History of Organic Chemistry in America" at the Medical College of Virginia, Richmond, October 13.——Dr. John Marshall, former dean of the medical school of the University of Pennsylvania and professor of toxicology, has been appointed emeritus professor of chemistry and toxicology by the board of trustees of the university. Dr. Marshall retired last June because he had reached the age limit set by the board.——Dr. Charles J. Hatfield has been reelected chairman of the Southeastern Pennsylvania Chapter of the American Red Cross.

SOUTH CAROLINA

Chiropractor Sentenced.—A newspaper report states that R. Lyman Love, chiropractor of Charleston, was found guilty, October 4, of practicing medicine without a license. The jury recommended mercy, and the judge imposed a sentence of ninety days' imprisonment or a fine of $300. Love was formerly convicted on a similar charge.

SOUTH DAKOTA

New Medical Society.—At a meeting of physicians and dentists from Salem, Spencer, Canistota, Montrose and Bridgewater, held in Salem, October 17, the McCook County Medical and Dental Society was formed. Dr. LeRoy E. Angel, Montrose, was elected president, Dr. Andrew H. Hoyne, Salem, vice president, and Dr. Fauser, Salem, secretary-treasurer.

TENNESSEE

Society to Honor Hero Members.—A committee has been appointed by the Shelby County Medical Society to arrange for the erection of a suitable memorial to those members of the society from Memphis who lost their lives in the World War. The park commissioners will be petitioned for permission to erect a tablet in Confederate Park.

TEXAS

Hospital News.—The contract has been let and work will be started in the near future for the addition of a $12,000 building for the Victoria Hospital.——Drs. J. S. Yates and J. W. Weeks, recently consummated negotiations for opening a modern public hospital in Rosenberg. A large residence has been leased which will contain patients' rooms, quarters for nurses and for servants, and kitchens. The institution will be known as the Rosenberg Hospital.——The contract has been let for the construction work on the Soldiers' and Sailors' Memorial Hospital at San Marcos.

VIRGINIA

New Health Board Members.—The state health commissioner has appointed the following physicians members of the board of health: Dr. Sidney J. Tabor, Craddock; Dr. Josiah Leake, Churchland, and Dr. Camilus F. Eason, Hickory, Drs. Tabor and Eason succeed Dr. Archibald M. Burfoot, Fentress Station, and Dr. Albert G. Horton, Ocean View. Dr. Leake is an incumbent. The budget for the board of health for Norfolk County has been cut from $25,000 to $15,000 for the year.

WASHINGTON

New Hospital Dedicated.—St. Anthony's Hospital, Wenatchee, was formally dedicated, October 8. The institution is operated by the Sisters of St. Joseph, who formerly had charge of the now abandoned Wenatchee General Hospital. The building now opened is the first of three units that will be constructed on the site.

WISCONSIN

Tuberculosis Conference Elects.—At the Mississippi Valley Tuberculosis Conference in Milwaukee, T. G. Paterson, Columbus, Ohio, was elected president, and Mrs. Saches, Chicago, vice president. The next meeting will be held in Evansville.

CANADA

Extension Lectures by Ontario Medical Association.—The committee on education of the Ontario Medical Association will issue a new graduate schedule covering the extension lectures to be offered by the association in the near future. It is announced that, through the cooperation of the medical colleges and the medical profession, the program will be complete and comprehensive.

British Columbia Medical Association.—At the recent annual meeting of the association in Vancouver, the following officers were elected: president, Dr. Richard Eden Walker, New Westminster; president-elect, Dr. George A. B. Hall, Victoria; vice president, Dr. William O. Rose, Nelson, and secretary-treasurer, Dr. William A. Clarke, Vancouver. Dr. Alexander S. Monro, Vancouver, presided at the session.

Personal.—Dr. William J. Bell, Toronto, pediatrician to the Ontario Board of Health, read a paper before the annual convention of the National Child Hygiene Association at Washington, recently.——Dr. Robert Wightman, Vancouver, has resigned as school medical officer.——Dr. Edward R. Secord, president of the Ontario Medical Association, and Dr. Thomas C. Routley, secretary, gave addresses at a special session of District Number Four of the provincial association, at Niagara Falls, recently.

The Congress of French-Speaking Physicians.—The *Union médicale du Canada* reproduces some of the addresses at the Seventh Congress of French-Speaking Physicians of North America, held at Montreal, Sept. 7-9, 1922, with an attendance of 400. This association grouping the French-speaking physicians was founded by Dr. Brochu. The leading addresses had been printed, and were distributed at the opening of the meeting. A feature of the congress was the tribute to Pasteur in commemoration of his centennial in December, Dr. L. Parizeau delivering the address at the opening meeting. It was suggested that French-speaking physicians in Europe should be eligible to membership. The meeting was the first since the war, and the Paris university, the Académie de médecine, and the Société médicale des Hôpitaux de Paris sent Professor Achard at the head of a delegation comprising Professors Ombrédanne and Desmarest and Drs. Gaston, Pinard and Guinez. The *Bulletin* of the Académie de médecine published recently Achard's report on his mission. The success of the congress is due in large part to the president, Dr. Dubé, and the secretary, Dr. St.-Pierre. They had provided ample facilities for practical demonstrations in the hospitals, an innovation at these meetings.

PHILIPPINE ISLANDS

Philippine Government Refuses to Send Medical Delegates.—*The Journal of the Philippine Islands Medical Association* states that, although the government did not consider it excessive to defray the expenses of nearly 150 athletes representing the Philippines in the Olympiad that took place in Shanghai, China, it decided that the government funds would not permit of the expense of sending the five medical representatives of the islands (already appointed) to the International Congress of Tropical Medicine, held at Weltevreden, Java, in August. The cost of transportation for the five representatives would only have been 5,000 pesos ($2,500).

GENERAL

Warning.—Dr. J. R. Sprague of Athens, Ohio, warns against a man about 60 years old, with fistula, who entered the hospital in that city, and disappeared after passing a worthless check. A similar procedure was undertaken by the same man at Piqua, Ohio. If he is apprehended, it is requested that the prosecuting attorney, Athens, Ohio, be notified.

Vaccination Ordinances Assailed in Court.—The validity of municipal ordinances under which boards of health are authorized to enforce vaccination against smallpox and to take other precautions to prevent epidemics was assailed in the Supreme Court, Washington, October 20, in a case brought by Rosalyn Zucht against officials of San Antonio, Texas.

National Tuberculosis Association's Film.—A 160-foot motion picture entitled "Matty Wins His Greatest Game" will be released by the National Tuberculosis Association in connection with the Christmas seal sale. The trailer shows the hero in the days when he was the greatest pitcher; the announcement of his illness follows; and the film concludes with pictures of "Matty" after his recovery from tuberculosis.

Lasker Memorial Fund.—The proceeds of the fund, given to the American Society for the Control of Cancer by the family of Mrs. Lasker in memory of her son, will be used this year in the publication of a series of fourteen lithographed posters. They will be distributed to each of the society's 700 committees for exhibit, especially during Cancer Week. They call attention to the need of early diagnosis and treatment of cancer.

Dermatological Research Laboratories Discontinue Manufacture of Arsphenamines.—The Dermatological Research Laboratories, Philadelphia, announces that it will discontinue the manufacture of arsphenamines and neo-arsphenamin and that all the interests of this organization have been transferred to the Abbott Laboratories, Chicago. Dr. George W. Raiziss will continue to direct the production of these drugs. The funds resulting from the sale will be used to further research in the Dermatological Research Institute, Philadelphia.

American College of Surgeons.—The annual congress of the American College of Surgeons was held in Boston recently. More than 2000 surgeons, including those from South America and Europe, attended the sessions. Dr. Raffaele Bastianelli, Rome, delivered the John B. Murphy oration in surgery. Dr. Francis Seymour Kidd, London, England; Dr. Andrew Fullerton, Belfast, Ireland, and Dr. Einar Key, Stockholm, were among the foreign visitors. Dr. Albert J. Ochsner, Chicago, was elected president, and Dr. Franklin H. Martin, Chicago, was appointed director general.

Women Oppose Antivivisection Bill.—At the annual convention of the Colorado Federation of Women's Clubs, the following resolution was passed:

> Whereas, It is impossible to estimate the number of persons alive today who owe their existence to the application of methods, preventive or remedial, made possible through scientific experimentation on animals; be it
>
> *Resolved,* That the Colorado Federation of Women's Club, in gratitude to medical science for past discoveries, beneficial both to humanity and to animals, go on record as favoring the continuance of medical research through animal experimentation.

At the regular meeting of the Colorado League of Women Voters, a resolution was passed in which they declared themselves opposed to the passage of the proposed Antivivisection bill.

Dr. W. W. Keen Receives Bigelow Medal.—October 25, Dr. W. W. Keen received from the Boston Surgical Society the second Henry Jacob Bigelow medal. The first medal was awarded to Dr. William J. Mayo, and a picture of the medal was published in The Journal, in connection with his address. In the address delivered by Dr. Keen, he recapitulated his hospital experience since the sixties, and enumerated the great advances made in medicine during the nineteenth century. The three chief advances made in medicine, said Dr. Keen, were vaccination, in 1796, anesthesia, in 1846, and bacteriology, including the special work of Pasteur and Lister. Dr. Keen contrasted the surgery of 1800 with the magnificent operations of today.

Weekly Health Index.—The Department of Commerce is publishing each week the census mortality reports from the largest cities of the United States. The total number of deaths reported (excluding stillbirths), the death rate, the number of deaths under 1 year of age, and the infant mortality rate based on deaths under 1 year for the week and estimated births for the previous calendar year, are given. Data for the corresponding week of the previous year and the infant mortality rate for 1920, for comparison, are also given for each city. These totals permit valuable comparisons, and serve as a health index for health officers and others. For the week ending October 7, telegraphic reports from sixty-two cities, with a total population of 27,000,000, indicate a mortality rate of 11.1 as against 10.6 for the corresponding week of last year. The highest rate appears for Nashville, Tenn. (22.5), and the lowest for Akron, O. (5.3). The highest infant mortality rate appears for Cambridge, Mass. (164), and the lowest for Worcester, Mass., which reported no infant mortality. As weekly figures always fluctuate widely, caution should be used in their interpretation.

Bequests and Donations.—The following bequests and donations have recently been announced:

St. Louis Children's Hospital, for the erection of an addition, $326,000, by public subscriptions.

Asbury Hospital, Minneapolis, $300,000, by an anonymous donor.

Roper Hospital, Charleston, S. C., $100,000, by the will of Mrs. Mary Ross of Charleston.

Chicago Children's Benefit League, $93,000, the result of a tag day.

Flushing Hospital, Long Island, N. Y., $25,000, and the Sailor's Snug Harbor, Staten Island, $50,000, by the will of Miss Angie Booth.

Pikesville, Ky., the new hospital building, $50,000, by local coal corporations.

Free Hospital for Poor Consumptives, White Haven, Pa., and the White Haven Sanatorium Association, each $5,000; Children's Seashore House, Atlantic City, N. J.; the Kensington Dispensary for the Treatment of Tuberculosis, and the Starr Center Assciation, Philadelphia, each $3,000, by the will of Henry Freund.

Methodist Episcopal Hospital, Philadelphia, $2,500, by the will of Anne Norris.

St. Anthony's Hospital, Pendleton, Ore., $1,000, from the Catholic Women's Guild.

Hand Hospital, Shenandoah, Iowa, for upkeep, $500, by the physicians of the city.

Children's Memorial Hospital, Chicago, following personal bequests, one third of the residue of the estate of the late Edward Archibald Valentine, Chicago.

State Charities Aid Association, $500, from Mrs. Higgins of Olean, N. Y., and $100, from Mrs. George Baker of New York.

Suffolk County Tuberculosis Sanatorium, Holtsville, N. Y., a new schoolhouse for the children of the sanatorium, by the citizens of Suffolk County, through the Suffolk County Tuberculosis Committee.

Waynesboro (Pa.) Hospital, the new operating room with modern equipment, by D. Byers, Ira N. Byers and R. J. D. Byers, in memory of their parents.

LATIN AMERICA

Mexican Academy of Medicine.—In his annual report for the year 1921-1922, the outgoing president, Dr. Nicolas León, reviews the work accomplished by the Academy of Medicine of Mexico during the year. The academy was recently compelled to vacate its quarters at the medical school and is now lodged at the office of the public health department. The lack of funds has prevented the publication of the official journal, *Gaceta Médica de México.* Members of the academy are at present paying as monthly dues from 5 to 10 pesos ($2.50 to $5).

FOREIGN

Term "Shell Shock" Will Not Be Recognized.—It is reported that the British government has decided to drop from all official literature the term "shell shock."

Stamps Will Bear Portrait of Pasteur.—In compliance with the Madrid Postal Convention, France will issue a new 50 centime stamp. It is proposed that the stamp shall bear the portrait of Louis Pasteur, in honor of his centenary.

Use of Hydrocyanic Acid Forbidden in Germany.—The *Deutsche medizinische Wochenschrift* states that a recent decree forbids use of hydrocyanic acid or any of its esters, or volatile preparations of it, for any purpose whatever.

Health Officers' Annual Banquet.—The annual dinner of the Medical Officers of Health was held in London, October 20. Sir Alfred Mond, Sir Arthur Robinson, Sir George Newman and Sir Humphry Rolleston were among those present.

New Building at University Opened.—The new building for the Institute of Pathology of the University of Freiburg was formally opened in September. Dr. Ludwig Aschoff, professor of pathology at the university, gave the inaugural address.

Museum of Pharmacy.—The University of Lausanne has bought the Reber historical pharmacutic collection for its museum, which is to be inaugurated next year at the celebration of the semicentennial of the university.

French Mother Decorated.—The minister of agriculture of France decorated a woman farmer at Moulins, France, October 22, with the order of agricultural merit, as an example for all French women to follow. The woman is the mother of fifteen children, fourteen of whom are working on the land.

Donation from Ireland to Austria.—Following the visit to Dublin of Professor Frankl of Vienna, the Royal Academy of Medicine of Ireland recently made a collection among its members for the aid of the medical library of the Medical Society of Vienna. Nearly $250 was collected, which at the present rate of exchange was of real assistance.

Rollier Course of Lectures.—Another free course of lectures and clinical demonstrations on heliotherapy will be given at Leysin, January 16-21, 1923, by Dr. Rollier and his collaborators. Inscriptions will be received until December 20. For program and other particulars, apply to the secrétariat médical du Dr. Rollier, "Les Frênes," Leysin, Switzerland.

The Mendel Centennial.—The celebration at Brünn of the centennial of Gregor Mendel turned out to be an imposing international tribute to the pioneer research worker, with numerous representatives of different countries, America, England, Switzerland and Japan. The main address was delivered by Professor Brauer, director of the Berlin Institute for Research on Heredity.

New Russian Periodical.—The first number of *Meditzinskaia Bibliographia,* a new medical magazine published by the Narkomsdrav of the Soviet government in Moscow, has recently appeared. Narkomsdrav is an abbreviation of National Commission for Preservation of the Public Health. The periodical employs the new form of spelling of the Russian language. The editors are Drs. I. A. Bagashef, E. I. Kvater and N. G. Freiberg.

Professional Congress of Hospital Medical Forces.—The Third Congress of the Association professionelle of the physicians, surgeons and specialists of the civilian hospitals of France was held at Paris early in October, Prof. H. Reynes of Marseilles presiding. The association now has 400 members and its official journal, *Hôpitaux de France,* has a comparatively large foreign subscription list. Among the subjects discussed were professional risks, and abuse of charity hospital service by those able to pay.

Memorials to Physicians.—A tablet with bas-relief to commemorate Dr. Magnan has been placed at the entrance of ie Sainte-Anne Asylum, formerly in his charge.——The hysicians of Forli, the birthplace of Morgagni, have opened subscription to aid in transferring the statute of the great natomist to the grounds of the hospital.——At the annual ieeting of the German Society for Repression of the Spread f Venereal Diseases, held at Berlin in October, a special eremonial service was arranged in memory of Prof. A. laschko.

Fukien Medical Missionary Association.—At the recent nnual meeting of the association at Kuliang, China, papers ere read by Drs. J. Laidlaw Maxwell, H. D. Matthews and onald R. Walker. The serious loss that medical work in ie province has sustained during the last few years by the eath, retirement or transfer to other places of eleven physicians was discussed, and the secretary was instructed to rite to the secretaries of the home boards, pointing out the epletion of staff and the impossibility of maintaining ficiency of the work.

Personal.—Dr. James H. Martin has been appointed proessor of midwifery and diseases of women in the Anderson ollege of Medicine, Scotland.——Dr. A. L. McGregor of ie Johannesburg Hospital, South Africa, has been appointed rofessor of anatomy at the Medical School of Witwatersand University to succeed Dr. E. P. Stibbe, who resigned ecently.——The Swedish Society of Physicians at their ecent meeting in Stockholm awarded the Anders Retzius iedal to Sir Charles S. Sherrington of the University of)xford for his researches in physiology and on the nervous ystem.——A gold medal was presented to Prof. Domenico arduzzi by his students on the occasion of his retirement om the chair of skin diseases and syphilis at the University f Siena, and his fiftieth anniversary in the profession. A istory of his career was also published and presented to im.

Students Appeal for Help.—The Ukrainian students and ie representatives of all Ukrainian associations in the world ssembled at a congress at Prague recently, and it was ecided to send an appeal, in the form of a letter, requesting ll students of civilized countries, heads of high schools, cientific societies, friends of public education, universities, cademies, institutes, colleges and student associations to ike, if possible, a few Ukrainian students under their care) enable them to study during the next school term, or to end money, books or old clothes. The invasion of the olsheviks into the Ukraine, and the consequent famine, orced the professors and students to earn their living as orkmen. Lack of books, technical instruments and even rdinary school requisites renders all teaching impossible, ie letter states. Any gifts should be sent to the National ssociation of Ukrainian Students, Praha, Hlavni Posta, rihradka 411, Czechoslovakia.

Personal.—The *Gazette des hôpitaux* gives the details of ie reception of Prof. A. de Castro of Rio de Janeiro at the all of the Faculté de médecine at Paris, where—as already ientioned—he delivered an address on "Glandular Dysophias."——Prof. V. Benzon of Copenhagen has been ecorated as commander of the Italian Order of St. Maurizio nd as officer of the Netherlands Orange-Nassau Order.——)r. N. D'Ancona of Padua has been made an officer of the rench Légion d'honneur.——The Bavarian Academy of ciences has elected as corresponding members, Dr. Tigeredt, professor emeritus of physiology at Helsingfors, and)r. Ramón y Cajal, professor emeritus of histology at ladrid.——A committee has been formed to organize a ibute to Professor and Senator Pio Foà on his retirement om the chair of pathologic anatomy at the University of urin. He reaches the age limit next year. The secretary f the committee is Prof. C. Gamna, via Pietro Giuria 15, urin.——A Cajal prize is offered this year by the Academia e Medicina y Cirugía at Barcelona, as part of the tribute to rof. Ramón y Cajal. The prize, 1,000 pesetas, will be warded for the best work describing original research on ny histologic topic, accompanied with slides, photomicroraphs, etc.——The organized physicians of Finland recently lected Prof. F. Martius of Rostock to honorary membership. —Dr. A. Loewy, professor of physiology at Berlin has ccepted the charge of the institute for study of the physiolgy of altitudes recently founded at Davos by the Swiss overnment.——Laval University conferred an honorary egree on Professor Achard on his recent visit to Canada.

Deaths in Other Countries

Dr. **Alexander Maclean** of the Glasgow Health Department, from pneumonia.——Dr. **Anne Fenton Cleaver,** assisnt medical inspector of schools for the Transvaal, South Africa, September 24, from influenza.——Dr. **J. H. Goodliffe,** formerly medical officer of the Uganda Protectorate; at Kingston, Jamaica.——Dr. **J. S. Tew,** health officer; at one time assistant demonstrator of anatomy at Durham College of Medicine, England; also a barrister, September 27.——Dr. **Armand Bernard,** lecturer on venereal diseases at the Liverpool University, England, October 4, aged 77.——Surg.-Gen. **W. C. Roe,** October 8, at Bournemouth, England.——Dr. **Thomas C. Railton,** at Buxton, England, aged 78.——Dr. **T. D. Luke,** formerly lecturer in anesthetics at the University of Edinburgh; author of a "Manual of Physio-Therapeutics," aged 49.——Dr. **F. T. Trouton,** emeritus professor of physics in the University of London, September 21, aged 58.——Lieut.-Col. **William Price,** brigade surgeon, former principal and professor of medicine, Madras Medical College, Coonoor, India, August 26, aged 76, from heart disease.——Dr. **Alan Kidd,** superintendent of the Colombo General Hospital, Ceylon, recently, from neurasthenia.——Dr. **Paul-Henri Lucas-Championnière** of Paris, whose medical degree dates from 1906, was killed recently in an automobile accident.——Dr. **T. Severin J. Nordentoft,** one of the pioneers of roentgenology in Denmark, aged 56. The *Ugeskrift for Læger* mentions that he died a victim to the science he worshiped.——Dr. **E. Dupont,** an eminent army medical officer in Belgium, aged 57.——Dr. **du Cazal** of Clermont-Ferrand, France.——Dr. **H. Schönheimer** of Berlin, a worker in the interests of the organized profession.——Dr. **K. Beerwald** of Berlin, founder of the German League for Public Hygiene, aged 64.

CORRECTION

Appointments at Ohio State University.—In regard to the item published in THE JOURNAL, October 21, announcing appointments to the faculty, Dean McCampbell writes that the names of H. W. Hughes and H. E. Lowery should have been omitted as they are technicians.

Government Services

Honor for General Wolfe

Brig.-Gen. Samuel H. Wolfe, reserve officer, U. S. Army, New York, was recently awarded a distinguished service cross by Secretary of War Weeks, for having instituted measures for the protection of soldiers during the World War that ultimately resulted in the establishment of the War Risk Insurance Act.

New Clinic for Psychotic Patients

A new clinic has been opened by the U. S. Veterans' Bureau at Huntington, W. Va., under the direct supervision of Dr. L. V. Guthrie, superintendent of the Huntington State Hospital. The building is entirely separate from the state hospital and is used exclusively for ex-service men, claimants of the bureau. It is equipped with all modern apparatus for the care and treatment of the different forms of psychosis and is identical with the clinics at Marion, Va., and at Catonsville, Md.

A New Aeroplane Ambulance

At the next international Red Cross convention, to be held eighteen months hence, the immunity from attack of the newly adopted airplane ambulance will be considered. It is desired to extend to this ambulance the agreement and rules that apply to certain specified objects, institutions and personnel connected with the medical service in time of war. It is proposed to have the United States represented at the convention by an officer of the medical corps of the army, one of the Navy Medical Corps, one of the U. S. Public Service, a member of the American Red Cross and a representative of the American Medical Association. The argument in favor of including the airplane ambulance and its personnel in the list of those exempt from attack in war is based on the fact that it is a means of the army medical department for the transportation of the sick and wounded. All personnel operating and pertaining to airplane ambulances is such as would enjoy the immunity under the present Red Cross convention in the performance of their duties as part of the sanitary service. The machine carries a pilot and medical officer. No personnel trained as observers or capable of making aerial observations is carried in the machine. No instruments or apparatus used in observation are included in its equipment. The airplane ambulance has a distinctive marking, being painted white with maroon trimmings, bearing the Red Cross on the fusillade and wings, and the caduceus (the symbol of the medical department) on the tail.

Research Division for Chemical Warfare Service

A medical research division of the chemical warfare service is to be established at Edgewood Arsenal, Maryland. This step has been taken on recommendation of Col. H. L. Gilchrist, M. C., U. S. Army, and with the endorsement of Brig.-Gen. Amos A. Fries, chief of the chemical warfare service. Lieut.-Col. E. B. Veder, M. C., U. S. Army, has already been placed in charge of the new division, and to it will be attached a toxicologic department under First Lieut. H. A. Kuhn of the chemical warfare service. The purpose of the new organization is to conduct important investigations into the pathologic results produced by toxic gases, with the developments of methods of treatment of gas poisoning in human beings. Treatment of gas cases is entirely different from that of other wounds produced by implements of war, and in this connection it is proposed to conduct a school for instruction of medical officers. It also is planned to investigate certain specially developed serums that may be used as a protection against gas attack, after the manner of the antityphoid inoculation for prevention of that disease and vaccination as a protection against smallpox. By this means it is hoped to discover some form of serum that will reduce the suffering caused by gases in battle. No school in this country furnishes this sort of instruction, and the institution at Edgewood Arsenal will provide training and education on these subjects of inquiry. The work already performed by the medical division of the chemical warfare service has been of great importance, particularly in ascertaining the after-effects of gas. A more widely effective prospect is the result of an investigation that may prove that certain kinds of gases, notably that known as "mustard," is efficacious in the treatment of respiratory diseases, including tuberculosis.

Dr. McDill Appointed General Medical Consultant

The office of medical adviser has been abolished by the U. S. Veterans' Bureau, and the position of general medical consultant has been established in its place. Dr. John R. McDill, Washington, D. C., has been appointed to the position.

Dr. Sawyer to Retain Position

President Harding has announced that he is satisfied with the service of Brig.-Gen. Charles E. Sawyer, his personal physician, and will not ask his resignation as demanded by the American Legion in its national convention held at New Orleans. It was stated also at the White House that the Federal Board of Hospitalization of which Dr. Sawyer was chairman was a voluntary creation of the President and as such the President assumed all responsibility for it. The President, it was also explained, plans to bring the hospitalization board into closer cooperation with the agencies of government having to do with the treatment of disabled former service men and by this new arrangements expects the hospitalization board to more than justify itself.

Veterans' Bureau Graduate Medical Courses

Establishment of U. S. Veterans' Bureau schools for physicians at St. Elizabeth's Hospital, Washington, D. C., and at Oteen, N. C., was announced by Col. Charles R. Forbes, director, this week. The schools will be in operation within the next thirty days, and will give scientific instructions to physicians, working under the bureau, in the treatment of mental diseases and tuberculosis. For the school at St. Elizabeth's Hospital in Washington to be used for the instruction of psychiatrists, $200,000 has been assigned by the Veterans' Bureau as a preliminary fund, with Dr. W. A. White, head of St. Elizabeth's, to take charge and arrange the course. Physicians from the Army, Navy and the Public Health Service and from civil life working for the Veterans' Bureau in the care and treatment of disabled war veterans will be accepted for special training. The tuberculosis school at Oteen has already been started, with a special course for physicians, and it will be immediately expanded. No new buildings will be necessary, as the institution's present facilities are sufficient. The bureau, however, will finance all necessary new equipment to conduct the school, including the salaries of the teaching staff as well as the expenses of students in attendance. The psychiatric school at St. Elizabeth's will be attended by hundreds of physicians from all parts of the country, it is predicted, and its graduates will be sent to the bureau's several institutions to take personal charge of the patients and to instruct other physicians in the latest developments of this science. Expenses for the two schools, it is announced by Colonel Forbes, will come from the U. S. Veterans' Bureau general fund and not from the $17,000,000 appropriation for hospitals.

Foreign Letters

BELGIUM

(From Our Regular Correspondent)

Liége, Oct. 4, 1922.

Congress of Anatomists

At the International Congress of Anatomists held at Ghent, in the Institute of Anatomy, an imposing array of anatomists, histologists, pathologic anatomists and biologists were present. To the large contingent of French anatomists were added distinguished personages from England, the United States, Switzerland and Portugal.

The Ghent school was called on to furnish most of the papers, for it was decided at the preceding congress that at coming meetings the opportunity would be seized to familiarize the visitors at the congress with the particular institute where the association held its meetings. The papers, as a whole, reveal the fact that among anatomists there exists a happy tendency to go beyond pure description and seek to discover, under the aspects of form, the physiologic rôle, and at times even the physicochemical interpretation, of anatomic structures.

The Academy of Medicine

Monsieur Arthus, professor of physiology at the University of Louvain, has been elected official correspondent of the Royal Academy of Medicine of Belgium. By a unanimous vote, Dr. Depage has been chosen the recipient of the quinquennial prize for the best work published in the field of medical science for the period 1916-1920. The works in question were written mainly during the war. The committee of award held that laboratory science ought to give way this time to the science of action, to the science of the field of battle, to which we are indebted for the preservation of so many lives.

Special Graduate Courses in Tuberculosis

The national committee for combating tuberculosis has secured the collaboration of the principal tuberculosis specialists of the capital for the creation of special graduate courses, some theoretical and some practical, in the subject of tuberculosis, for the benefit of physicians who may be interested.

Medical Care of Artists

In January, 1915, an association was formed for the purpose of assuring proper medical care to all artists, in the broad sense of the word. Since that time, the activity of the movement has manifested itself by 1,400 domiciliary visits, 1,000 hospitalizations, 3,500 treatments by specialists and the care of 15,000 patients of many different nationalities. The association has been given official recognition, and its constitution and by-laws have been published in the *Moniteur Belge*. Public donations have been numerous, testifying to the interest taken in this altruistic movement. The dispensaries give medical assistance gratuitously, without distincon as to religious or political affiliations, to lyric artists, usicians, dramatists, painters, sculptors, designers and térateurs, and to their wives and children. In case of ave disease, operation or confinement, free hospitalization furnished, while the remedies prescribed by the physician their choice are also procured. Milk and eggs are proded for nursing mothers during the first months of nursing; hile for weak children and those in a pretuberculous contion temporary homes in the country are found.

Surgical Treatment of Ozena

Basing his statements on the results in twenty-six operaons for ozena, Dr. van Wildenberg has called the attention the Belgian Otorhinolaryngological Society to a new eration in which he removes the turbinate bones en masse; ore particularly, the inferior and middle turbinate bones. he narrowing of the nasal cavity secured by this procedure erts a markedly favorable influence on all atrophic states the nasal cavities, and especially on ozena. The incision the mucoperiosteum begins at the head of the middle turnate, descending obliquely in front of the head of the ferior turbinate and extending to the inferior nasal floor, hich it crosses transversely, passing near and parallel to e inferior margin of the pyriform orifice. The incision rminates in the septum. Then the mucoperiosteal covering the nasal floor is detached with a rasp up to a point a tle beyond the junction of the floor and the lateral wall the nose. At this point, a gingivolabial incision is usually ade. The periosteum is detached to the level of the pyrirm crest. Then the inferior border of the lateral nasal all is separated within the lateral submucous pocket of e floor. At this point, dull rasps are introduced into the rtical incision in the bone and by prying movements the tral wall is pressed up to the septum. The maxillary sinus thus opened widely and can be easily explored.

In following this technic, van Wildenberg has observed t one accident in twenty-six cases: a phlegmon of the wer eyelid. The results of the operation were very encourging and seem to warrant its continued application to a ide extent.

BERLIN

(From Our Regular Correspondent)

Oct. 14, 1922.

Eye Affections in Motion Picture Actors

Professor Adam of Berlin spoke recently at the ophthalmogic congress in Jena on eye affections in motion picture tors. The observed disturbances consisted of inflammary manifestations, reddening and swelling of the lids and more or less marked sensitiveness of the eye. Adam cribes these disturbances to an affection of the conjunctiva. he characteristic feature of motion picture conjunctivitis is at, in addition to the inflammation, small granular nodules pear, which gives rise to the assumption that this comication is due not only to the intense light radiation, but so to the effect of the dust on the conjunctiva. The unusual nount of dust in the air in motion picture studios is due part to the shifting of scenery and in part to the cranking the camera. There is no doubt that this dust may be at nes dangerous to health. All persons who spend much time the dazzling brightness of such studios are liable to conact the affection. To be sure, the degree of sensitiveness d sensibility varies with the individual. Professor Adam ggested that a commission composed of technicians and hthalmologists be appointed to test the special effect of the umination of motion picture studios, with a view to making oposals as to how injuries to actors may be prevented. In ese conditions, Adam employs what he terms *medikamense Wattenmassage* (massage with medicated cotton). The disturbances yield in a short time to the treatment, but recurrences are not infrequent.

Vital Statistics of Germany for 1920

According to the statistical year-book for the German empire, the number of marriages in the years 1918, 1919 and 1920 were, in round numbers, 352,000, 844,000 and 895,000. In 1918, the total mortality exceeded the total number of births by 680,000. In 1919, however, there was an excess of births over deaths of 282,000, and in 1920, of 666,000. The total number of deaths from suicide has steadily increased during this period (1918-1920) from 10,000 to 13,000.

Results of Body Measurements of Schoolchildren

In connection with the supplemental feeding of our schoolchildren by the American commission, the public health office of the empire has published a series of tables giving the results of body measurements of schoolchildren. Especially important are the records on the height and weight of more than 69,000 children of the *Volksschulen* (public schools of the elementary and grammar grades) of Leipzig. In the period from 1919 to 1921, an increase in the height of the children of both sexes was noted. The increase was especially noticeable for the ages 7 to 10; from then on, it was not so marked. The increase in weight was much less, proportionately, than the increase in height; it was greater in 1919-1920 than in 1920-1921. It must be borne in mind that the 10-year-olds of 1921 were from 6 to 7 years old in 1918, and that infants and children under school age stood the war and the food blockade better than did schoolchildren. According to tables from the prewar period for Germany, England, America and Sweden, as published by the American commission, the "height" figures for Swedish children are much higher, and in English and American children up to the tenth year much lower, and from then on higher than for the German children of Leipzig in 1921. The weights of foreign children are, however, almost uniformly higher, only the youngest age groups constituting exceptions. The difference in weight was often considerable, so that it becomes evident in how far the Leipzig and the German schoolchildren in general were behind the children of the other countries. If we compare the results of the Leipzig measurements with the measurements for Germany in peace times, it will be seen that the weights today are still below the weights recorded just previous to 1914. The development of the children in the postwar period had not yet become normal.

THE NETHERLANDS

(From Our Regular Correspondent)

Oct. 4, 1922.

Organization of Public Health Services

The draft of a law has been presented to the legislative chamber which tends to put all public health services under medical control. The law of 1872 in force at present puts the responsibility of combating transmissible diseases into the hands of the communal authorities, who, as a rule, accept the advice of the general practitioners, who are thus in reality the arbiters of the application of the law. A general reorganization of the whole public health system is needed. The present bill merely outlines the basis for such a reorganization. It is planned to divide the country into a certain number of sanitary districts. In each district, a public health service (*gezondheidsdienst*) will be established. The bill provides for a laboratory as well as an administrative establishment in and for each district. If it should prove impossible to create a special laboratory in each district, the public health service should at least have some definite laboratory affiliated with it. At the head of the public health service of each district will be placed a physician who is a competent bacteriologist and who is thoroughly familiar with public health work. He will be aided by an assistant and also by several public health officers (physicians) in charge of the various subdivisions of the district. The public health officers in charge of these subdivisions may be merely functionaries, or they may be chosen from among the general practitioners. The district director and his assistant should, in any event, be appointed by the central government, so as to be in a position to act independently of the communal authorities (in fact, it would, according to the bill, become their duty to report any neglect of duty that came to their notice). A committee chosen from among the inhabitants of each district will serve as a connecting link between the public health authorities and the public in matters of hygiene. It is emphasized that the work of the *gezondheidsdienst* should be confined solely (or, at least, mainly) to the field of preventive medicine. The services of therapeutic medicine (hospitals, dispensaries, etc.) should be separate and distinct, under an independent director. The best system would be to establish in each district, as independent organizations but acting in collaboration: a public health service; a medical service, and a special service for the medical inspection of schools. One laboratory, in charge of the director of the public health service, would serve all three organizations alike.

A New Publication

The first number of a new weekly dealing with the subject of the hygiene of alimentation and bearing the title *Volksvoeding* appeared recently. Its purpose is to organize a campaign against all adulterations and against the dangers that threaten general food values. This movement started with the promulgation of the act termed the *Warenwet,* a law which establishes an effectual supervision over all food products offered for sale. Dr. van Roolte is the editor-in-chief.

Malaria in the Navy

The statistics on malaria in the navy in 1919, as recently published, have a certain degree of interest. The number of cases of malaria observed in the navy, outside the East Indies, during the year 1919 runs high—1.51 per cent. However, among Europeans sojourning in the Indies, the amount of infection has decreased quite perceptibly, dropping from 17.11 per cent. in 1918 to 12.20 per cent. in 1919, for primary cases, and from 43.16 to 25.62 per cent. for recurrences. It would seem, therefore, that the campaign that has been conducted systematically during recent years may be regarded as effective.

National Bureau of Anthropology

A national bureau of anthropology has been created at Amsterdam. It is affiliated with the International Institute of Anthropology, the seat of which is at Paris. This organization purposes to develop these studies in the Netherlands and in all Dutch colonies, to aid in the establishment of missions to further anthropologic study, and, more particularly, to coordinate the results and the methods of research. The bureau will likewise endeavor to make known in foreign countries what the Netherlands is accomplishing in this field. With this purpose in view, it will furnish articles regularly to the *Revue anthropologique,* the organ of the international institute. The bureau will also do its utmost to improve the instruction in anthropology. Many learned societies have already been registered as constituent members of the bureau; for example, the Colonial Institute, the Geographic Society and the Encyclopedic Bureau of the Dutch East Indies. Prof. Kleiweg de Zwan has been elected president. The new society consists of the following six sections: physical anthropology and anthropologic geography, ethnography, eugenics, folklore, sociology, archeology and prehistory.

Marriages

MATHESSON JAMES MONTGOMERY, Lieut., M. C., U. S. Navy New York, to Miss Rosina Moorhead La Ross of McDonald Pa., September 18.

DAVID HERBERT SMITH, Glenn Spring, S. C., to Miss Elizabeth Lurania Davis of Columbia, October 17.

ERNEST HAROLD KING to Miss Mildred Engle, both of Lo Angeles, at Riverside, Calif., recently.

ELMER ROCKWOOD EDSON to Miss Marie Frances Gashweiler, both of Seattle, in September.

THOMAS JUDSON IRISH, Forest City, Iowa, to Miss Magdaline Grimm of Iowa City, recently.

CHARLES LINCOLN STODDARD to Mrs. Orlou Ballard Ross both of San Diego, Calif., recently.

ROGER H. DUBOSE, Roanoke, Va., to Miss Lucy Ross o East Orange, N. J., October 4.

DAVID MARTIN BOYD to Miss Janet Pressly Mabon, both o Pittsburgh, September 23.

ROBERT GOODALL PACKARD to Miss Elfrida Van Meter, both of Denver, September 20.

GEORGE F. GRACEY, Harrisburg, Pa., to Miss Jean Smith o Gordon, September 23.

GLENN D. DUNMIRE to Miss Bess Botkin, both of Duquesne Pa., September 20.

Deaths

William Augustus Quinn ⊕ Chicago; College of Physicians and Surgeons, Chicago, 1894; member of the Chicago Dermatological Society; professor of dermatology and syphilology at Loyola University School of Medicine, Chicago; formerly associate instructor in skin and venereal diseases at Rush Medical College; on the staffs of the St. Joseph's, Mercy, Frances Willard and St. Bernard's hospitals; died, October 17, aged 53, from myocarditis and chronic nephritis.

George Barrie ⊕ New York; Georgetown University School of Medicine, Washington, D. C., 1892; formerly associate professor of surgery at his alma mater; member of the American Society for the Advancement of Science and the New York Academy of Medicine; surgeon to the New York City, Children's and Post-Graduate hospitals and the hospital for the Relief of Ruptured and Crippled; died suddenly, October 15, aged 57, from angina pectoris.

John Wallace Ellis, Elk Point, S. D.; Hahnemann Medical College and Hospital of Chicago, 1895; member of the State Medical Association of Texas; for several terms county clerk; formerly member of the school board and city council; at one time president of the state board of health; superintendent of the Union County Board of Health; died recently, aged 70, from metastatic carcinoma of the liver.

Oscar Maurice Shere ⊕ Denver; Gross Medical College, Denver, 1902; formerly instructor in surgery at the University of Colorado School of Medicine, Denver; member of the Western Surgical Association; one of the founders of the Jewish Consumptive Relief Society; died, October 17, aged 44, at St. Joseph's Hospital, following an operation.

Robert Tilford Pirtle ⊕ Louisville, Ky.; Medical Department, University of Louisville, 1902; formerly assistant in orthopedics at his alma mater; served in the M. C., U. S. Army, during the World War, with rank of captain; aged 43; was killed, October 15, when the automobile in which he was driving overturned.

Edwin Thompson Jaynes, Waterloo, Iowa; Rush Medical College, Chicago, 1894; member of the Iowa State Medical Society; served in the M. C., U. S. Army, with rank of captain, during the World War; died recently, aged 53, at the Synodical Presbyterian Hospital, from meningitis, following abscess in the ear.

Joseph Augustus Guinn, Conyers, Ga.; Atlanta Medical College, Atlanta, Ga., 1885; member of the Medical Association of Georgia; for several years president of the board of health; member of the school board; died, October 3, aged 56, at the Wesley Memorial Hospital, Atlanta.

⊕ Indicates "Fellow" of the American Medical Association.

Charles Andrew Kepner, Allentown, Pa.; Temple University Department of Medicine, Philadelphia, 1921; recently completed his internship at the Samaritan Hospital, Philadelphia; editor of the *"Medical Templar"*; died, October 19, aged 25, at the Sacred Heart Hospital.

James Woodward George, Minneapolis; University of Minnesota College of Medicine and Surgery, Minneapolis, 1902; member of the American Association of Anesthetists; on the staff of the Abbott Hosptial; aged 53; died suddenly, from heart disease, October 16.

John Whitehurst Stewart, Washington, D. C.; Medical Department of Columbian University, 1900; member of the Medical Society of District of Columbia; formerly on the staff of the Sibley Hospital; died, October 13, aged 50, from cerebral hemorrhage.

Robert A. Lancaster, Columbia, S. C.; Medical College of Virginia, Richmond, Va., 1882; member of the South Carolina Medical Association; at one time president of the Florida Medical Association; died, October 16, aged 62, from cerebral hemorrhage.

James Monroe Howell, Haleyville, Ala.; Memphis Hospital Medical College, Memphis, 1904; member of the Medical Association of Alabama; aged 40; was instantly killed, September 24, when the automobile in which he was driving was struck by a train.

Dodson Wright Tidmore, Black, Ala.; University of the South, Medical Department (Sewanee Medical College), Sewanee, Tenn., 1899; member of the Medical Association of the State of Alabama; died recently, aged 49, from cerebral hemorrhage.

Eugene Kelso Anderson, St. Charles, Iowa (licensed, Georgia, 1898); member of the Iowa State Medical Society; aged 55; was instantly killed, October 14, when the car in which he was driving was struck by a train.

Francis Craft, East Stroudsburg, Pa.; Catholic University, Louvain, Belgium, 1870; gave up the practice of medicine to become a Roman Catholic priest; died, September 11, aged 68, from hemorrhage of the stomach.

Levi Atchley Golden, Denver; Rush Medical College, Chicago, 1880; formerly president of the state board of health; at one time surgeon for the Chicago, Rock Island and Pacific Railway; died, October 16, aged 64.

Emanuel Allison Alleman, Berwick, Pa.; Medico-Chirurgical College of Philadelphia, 1890; member of the Medical Society of the State of Pennsylvania; member of the school board; died, October 16, aged 69.

George H. Newton, Waterbury, Vt.; University of Vermont College of Medicine, Burlington, Vt., 1891; died, September 13, aged 53, at the Fanny Allen Hospital, Winooski, Vt., following an appendectomy.

Abraham G. Bowman, Lancaster, Pa.; University of Pennsylvania, School of Medicine, Philadelphia, 1864; member of the Medical Society of State of Pennsylvania; died, September 23, aged 80, from senility.

John VanDolah Schofield, Inspiration, Ariz.; Miami Medical College, Cincinnati, 1878; member of the Arizona Medical Association and the Colorado State Medical Society; died, October 13, aged 67.

James Louis Quesenberry, Worthington, Ky.; Medical Department, University of Louisville, 1882; member of the Kentucky State Medical Association; deputy county assessor; died, October 14, aged 64.

Henry Jackson, Salem, N. J.; Hahnemann Medical College and Hospital of Philadelphia, 1882; formerly county physician; died, October 12, aged 73, at the West Jersey Homeopathic Hospital, Camden.

Charles Elliott Cook, Lockport, N. Y.; Bellevue Hospital Medical College, New York City, 1866; Civil War veteran; died, October 11, aged 81, at the Lockport City Hospital, from pneumonia.

Richard Whiteford, Toledo, Ohio; McGill University Faculty of Medicine, Montreal, Que., 1857; examiner of the Toledo Medical College; died, October 10, aged 87, following a short illness.

Charles L. Holt, Bellingham, Wash.; Berkshire Medical College, Pittsfield, Wash., 1864; also an aurist and oculist; aged 83; died, October 14, at a local hospital, from cerebral hemorrhage.

William Henry Cooke, Long Beach, Calif.; Trinity Medical College, Toronto, Ont., Canada, 1888; aged 67; died recently, in Redondo Beach, from heart disease.

Leslie James Parker, Hugo, Colo.; Denver and Gross College of Medicine, Medical Department, University of Denver, 1910; died at the Parker Hospital, October 16, aged 35, from pneumonia.

Anthony T. Schmit, Beloit, Wis. (licensed, Wisconsin, 1899); member of the State Medical Society of Wisconsin; died, October 8, aged 59, from heart disease and chronic nephritis.

Michael William Murray ⊕ Albany, Ala.; McGill University Faculty of Medicine, Montreal, 1890; aged 61; was killed, October 10, when he fell from a train near Columbia, Tenn.

Nelson O. Benson, Randlett, Okla. (licensed, years of practice); aged 51; died, August 27, at the Central Oklahoma State Hospital, Norman, Okla., from cerebral hemorrhage.

Walter H. Keesee, Denver; St. Louis College of Physicians and Surgeons, St. Louis, 1891; member of the Colorado State Medical Society; aged 51; died suddenly, October 5.

George Pierce Pipkin, Lancaster, Texas; University of Texas Department of Medicine, Galveston, Texas, 1898; died, October 13, aged 52, following an appendectomy.

James Lumsden Addison, St. George, Ont.; McGill University, Faculty of Medicine, Montreal, Que., Canada, 1884; died, October 6, aged 68, from pernicious anemia.

Irving John Cross, Walpeton, N. D.; University of Michigan Medical School, Ann Arbor, 1904; aged 49; hung himself, October 24, while temporarily insane.

Christo Theodoroff ⊕ Detroit; Washington University Medical School, St. Louis, 1909; died, August 11, aged 47, at Powell, Mich., from diabetes.

Elbert Arthur Norton ⊕ Houston, Texas; Baltimore University School of Medicine, 1904; died suddenly, October 5, aged 45, from heart disease.

William Conner Ranson, Blairsville, Pa.; Hahnemann Medical College of Philadelphia, 1882; died, October 7, aged 61, from chronic nephritis.

Oliver Hollinger Lau, Detroit; University of Michigan Medical School, Ann Arbor, 1882; died, October 13, aged 67, from cerebral hemorrhage.

Demetrius Jones Prather, Laton, Calif.; Louisville Medical College, Louisville, Ky., 1876; aged 73, died, October 5, from cerebral hemorrhage.

Elijah William Ryon, Wilmington, Del.; Medico-Chirurgical College of Philadelphia, 1904; died, October 16, aged 39, from heart disease.

William Burr Caldwell, Monticello, Ill.; Rush Medical College, Chicago, 1875; also a druggist; died, October 11, aged 83, from senility.

William Cloyd Guss, Hannibal, Mo.; Missouri Medical College, St. Louis, 1899; aged 57; died, October 16, from cerebral hemorrhage.

John Charles Whiteaker, Seattle; University of Oregon, Medical School, Portland, 1910; died, September 3, aged 38, from heart disease.

J. Levi Lord, Mays, Ind.; Medical Department of Butler University, Indianapolis, 1882; died, October 17, aged 64, from heart disease.

Charles Payne, Union City, Pa.; University of Wooster, Medical Department, Cleveland, 1869; died, October 13, aged 77, from senility.

Charles H. Walters, Quanah, Texas; Marion-Sims College of Medicine, St. Louis, 1895; died, September 29, aged 57, at Waverly, Ill.

Charles F. Manson, Philadelphia, Hahnemann Medical College, Philadelphia, 1876; died, October 16, aged 66, following a long illness.

J. J. W. Glenn, Conyers, Ga.; Medical College of Georgia, Augusta, Ga., 1852; aged 90; died, September 20, from carcinoma.

Arthur W. Oharro, Chicago; Rush Medical College, Chicago, 1896; died, October 20, aged 52, from carcinoma of the tongue.

Theodore Drozdowitz ⊕ Chicago; Rush Medical College, Chicago, 1897; died, October 21, aged 54, from heart disease.

Correction.—Newspaper clippings from several New York papers, July 8, stated that Dr. W. J. Wanless had died suddenly in India. Dr. Wanless writes from Shangli-Miraj that the report of his death, published in The Journal, July 22, is "greatly exaggerated."

The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other General Material of an Informative Nature

ABRAMS' "OSCILLOCLAST"

Some of the Lessees of this Alleged Therapeutic Device *

It is no longer necessary to tell the readers of The Journal who Albert Abrams is. Although a sensational magazine that has opened its reading pages—and incidentally its advertising pages—to Abrams' disciples has charged that "the American medical profession, comprising some 140,000 physicians . . . have done their utmost to keep the great news for which humanity has been waiting in agony for centuries from reaching the public," the "great news" seems to have leaked out.

Abrams' "Oscilloclast," it will be remembered, is a piece of electrical apparatus, which is said to produce vibrations of varying rates. Its use is based on Abrams' theory that "specific drugs possess a like vibratory rate as the diseases for which they are effective." Instead of using a drug, one starts the "Oscilloclast" going, moves the indicator to the number corresponding to the vibration rate of the drug wanted and applies the instrument to the sufferer, who, it is alleged, then gets the therapeutic action of the drug in question. The "Oscilloclast" is not for sale; it can be leased by those who are willing to pay the price (about $200) and who will sign a contract that they will not open it!

Mr. Upton Sinclair who is convinced that Albert Abrams is the medical Merlin of the twentieth century, tells us that "a great number of physicians who are using this instrument ["Oscilloclast"] are today enjoying incomes of from $1,000 to $2,000 per week." Needless to say, it will take a good deal of argument to persuade these men that Abrams "Oscilloclast" belongs in the same category as Elisha Perkins' "Tractors."

Within the past few months—since, in fact, he withdrew from his local medical society and the American Medical Association—Abrams has been making frank bids for osteopathic patronage. Followers of that cult have not been slow to respond; the lure of the dollar and the bizarre is irresistible. Up until March, 1922, there were listed among the lessees of the "oscilloclast" 166 physicians and 2 osteopaths. On March 25, 1922, the first article on Abrams appeared in The Journal. Since that time the additional lessees of the "oscilloclasts" comprise 51 physicians and more than 130 osteopaths.

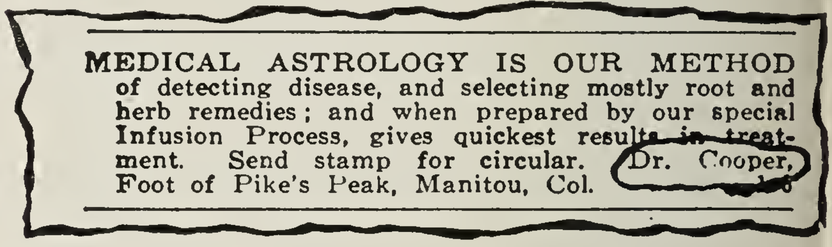
Attention has already been called to the fact that in checking up the published lists of those who are leasing the "oscilloclast" it was found that many of the names were already in Propaganda files in some other connection.

The names of nearly 100 lessees of the "oscilloclast" appeared previously in the Propaganda files of The Journal. Some were in the "advertising specialist" business—we reproduce some of their old advertising—but the majority of the names in the files are of individuals who for years have lived in what we have called the twilight zone of professionalism, where it is difficult to distinguish between the visionary with a fad and the quack or near-quack with a scheme.

A surprising number of "oscilloclast" lessees have also been engaged in the "Auto-Hemic Therapy" business, which was the subject of an extended article in the Propaganda department of The Journal, Feb. 14, 1920. Many are members of the "Orificial Surgery" cult; a fair sprinkling belonged to the "National League for Medical Freedom," while some are members of the later organization, the "American Medical League." A large number are, or have been, members of that egregious aggregation calling itself the "Allied Medical Associations of America." Some of these write panegyrics of Abrams in the official publication of that organization; these Abrams quotes with evident satisfaction, giving credit to "J.A.M.A.A." Many readers imagine, doubtless, that the references are to the J.A.M.A.

Following are brief sketches of but a few of the individuals who are not only lessees of the "oscilloclast" but whose names also figure in the Propaganda files:

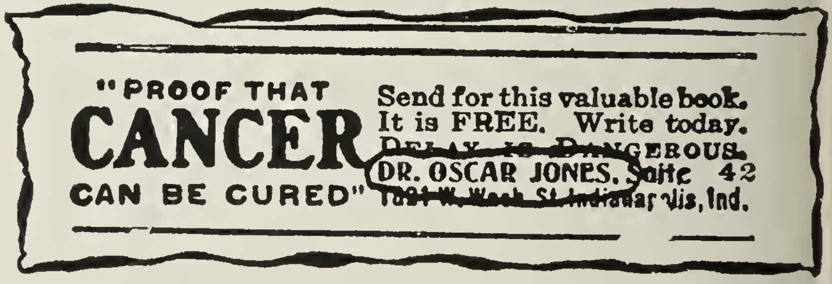
Cooper, F. M., Colorado Springs, Colo.—Born in 1854; graduated in 1877 by the American Medical College of St. Louis and in 1880 by the College of Physicians and Surgeons, Keokuk, Iowa. This man was for some time located at Manitou, Colo., where he taught "astrology by mail" and would render "Astrological Advice" on "all Law Questions" (see illustration). He would, in fact, "Advise on all Affairs of Life"—"Consultation Fees, from $10 to $25." According to Cooper's advertising matter, he is a "graduate of Astrology and of the Eclectic, Regular and Homeopathic schools of medicine and surgery." Cooper has claimed also to make a specialty in curing cancer "without caustics or cutting." Cooper has one "Oscilloclast."



MEDICAL ASTROLOGY IS OUR METHOD of detecting disease, and selecting mostly root and herb remedies; and when prepared by our special Infusion Process, gives quickest results in treatment. Send stamp for circular. Dr. Cooper, Foot of Pike's Peak, Manitou, Col.

Baldwin, Zell L., Kalamazoo, Mich.—Born in 1864; graduated in 1888 by the Eclectic Medical Institute, Cincinnati. For some years Baldwin was in Niles, Mich. While there, he seems to have dabbled in local politics, sold copper stock and established a so-called sanitarium for the exploitation of the "Hyer-Baldwin Treatment for Tuberculosis" (See "Nostrums and Quackery," Vol. 2, p. 26). According to Baldwin, the treatment, which was administered intravenously, was "the most positive of anything yet brought before the profession for tuberculosis." Finally, Baldwin left that city and went to Kalamazoo. There he opened the "Baldwin Sanitarium" which specialized in "The Intravenous Treatment for Tuberculosis" and "The Eye Repression Treatment for Goiter." When the L. D. Rogers "Auto-Hemic Therapy" fad was appealing to the type of physician that "fall for" such things, Baldwin apparently became one of the disciples, as his name appears as an officer of the "Auto-Hemic Therapeutic League." His name also appeared as an active member of the "Allied Medical Associations of America." Baldwin has one "Oscilloclast."

Jones, Oscar, Indianapolis, Ind.—Graduated in 1901 by the Central College of Physicians and Surgeons, Indianapolis. For many years he has been in the "cancer cure" business and has advertised "Cancer, My Cure is Guaranteed" (see illustration). While running his "medical non-surgical treatment of cancer" he also seems to have been connected with the "Medilation Co."—a medical, non-surgical treatment of piles, claiming to cure nine out of every ten patients that he accepted. Jones' name appeared as an officer in the "Allied Medical Associations of America." Jones has one "Oscilloclast."



"PROOF THAT
CANCER
CAN BE CURED"

Send for this valuable book.
It is FREE. Write today.
DELAY IS DANGEROUS.
DR. OSCAR JONES, Suite 42
[illegible] W. Wash St. Indianapolis, Ind.

Doern, William G., Milwaukee, Wis.—Born in 1878; graduated in 1902 by the Keokuk Medical College. Doern's name appears as the giver of a testimonial on the "Bio-Dynamo-Chromatic System of Diagnosis." This freak system seems to have been developed by one George Starr White, originally a disciple but now a competitor of Abrams. Doern has eight "Oscilloclasts."

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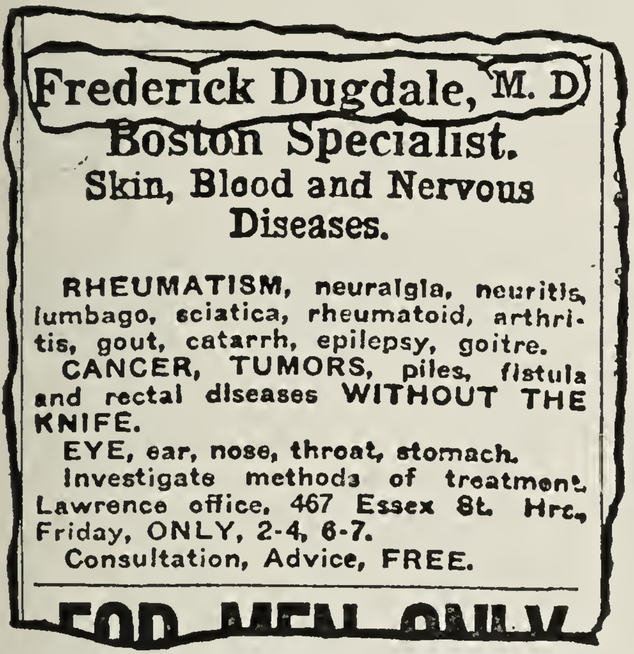
* Lack of space makes it impossible to give all the data available on this subject. A reprint of the Abrams matter, containing this and additional material, will be sent if the request is accompanied by a two-cent stamp.

FOWLER, WALTER N., Kalamazoo, Mich. — Born in 1867; raduated in 1889 by the University of Michigan, Homeoathic Department; received an Indiana license in 1897 and Michigan license in 1911. For many years Fowler pracced at Bluffton, Indiana, and left that city under circumtances that brought a great deal of newspaper publicity but hich, at this time, it is unnecessary to go into. In 1911 one f the owners of the "United Doctors" aggregation of dvertising quacks, admitted under cross-examination that V. N. Fowler was one of their "noted specialists" in charge f the Logansport, Ind., office. In 1912 the Anderson (Ind.) ewspapers reported that a "medical institute" operated by ie Pettigrew Medical Company was going to be opened in iat town and that Dr. W. N. Fowler would have charge of .. In 1914 and 1915 Fowler, judging from newspaper clipings on file, was in the "intravenous remedy" business. owler has one "Oscilloclast."

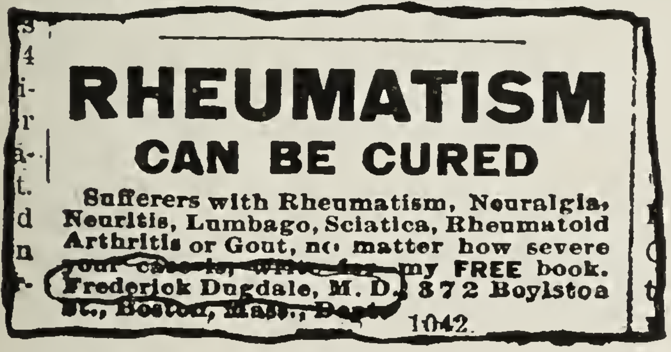
DUGDALE, FREDERICK, Boston, Mass.—Born in 1880; gradated in 1903 by the Baltimore Medical College. Has long dvertised as a "Specialist in Rheumatism, Cancer. Chronic lood and Nervous Diseases" (see illustration). Dr. Dugale's name appears as "President" of the "Allied Medical ssociations of America" for 1921-22; his name also appears s one of the officers of the "Medical Society of the United tates," a similar organization. Dugdale has one "Osciloclast."



Frederick Dugdale, M. D
Boston Specialist.
Skin, Blood and Nervous Diseases.

RHEUMATISM, neuralgia, neuritis, lumbago, sciatica, rheumatoid, arthritis, gout, catarrh, epilepsy, goitre.
CANCER, TUMORS, piles, fistula and rectal diseases WITHOUT THE KNIFE.
EYE, ear, nose, throat, stomach.
Investigate methods of treatment.
Lawrence office, 467 Essex St. Hrc., Friday, ONLY, 2-4, 6-7.
Consultation, Advice, FREE.

FOR MEN ONLY

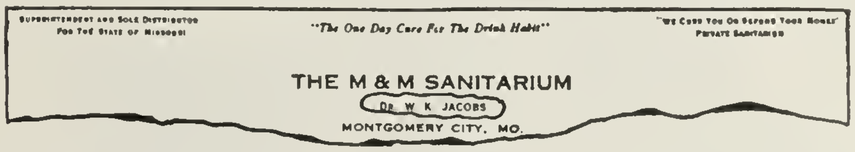


RHEUMATISM
CAN BE CURED

Sufferers with Rheumatism, Neuralgia, Neuritis, Lumbago, Sciatica, Rheumatoid Arthritis or Gout, no matter how severe your case is, write for my FREE book. Frederick Dugdale, M. D., 872 Boylstoa St., Boston, Mass., Dept. 1042.

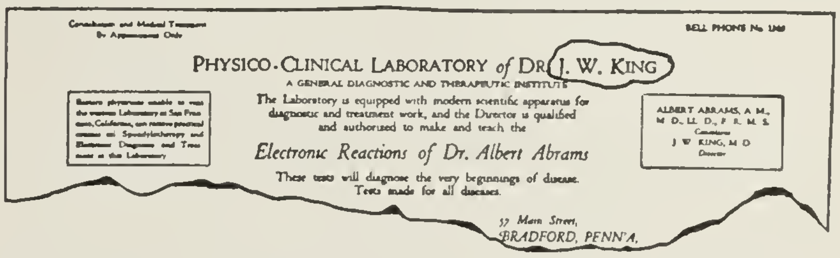
GUILD, W. A., Des Moines, Iowa.—Born in 1879; graduated 1903 by the Chicago Homeopathic Medical College. Guild's ame has appeared as the Secretary-Treasurer of the "Ameran Association of Orificial Surgeons" and as the secretary f the "Cancer Research Laboratory and Hospital of Chiago," a creation of L. D. Rogers, and located at the same lace as Rogers' notorious "National Medical University." uild seems to have conducted a so-called cancer sanitarium Des Moines. His name also appeared as one of the officers f the "American Association of Progressive Medicine" and a member of the executive committee of the "American ssociation for the Study of Spondylotherapy." Guild's name ppears as Secretary-Treasurer for Iowa, 1919, of the "Medal Society of the United States"; his name is published y L. D. Rogers among those who have "traveled hundreds f miles to see me and take a personal practical course of struction in Auto-Hemic Therapy." Guild has one "Oscilclast."

JACOBS, W. K., Montgomery City, Mo. — When this man arrived in Montgomery City in 1916 he was announced in the local papers as an "Osteopath and Optician of Detroit, Michigan." In 1917 Jacobs seems to have conducted "The M & M Sanitarium" (see illustration) which exploited "The M & M Remedy," which in turn was said to "cure the drink habit" in twenty-four hours. In 1920 a Montgomery City paper contained a long article by a local minister regarding an alleged $3,000 pipe-organ that had been donated to the local Methodist Church "through the efforts of Dr. W. K. Jacobs of our city." The plan by which the church was to get a free pipe-organ, it seems, "was originated by Dr. Jacobs" who had "been in close touch" with some "successful oil producers in Texas" and who knew "from his own experience how desirable the stocks were which were put on the market by these producers." The good Methodists of Montgomery City would, of course, have "to sell or absorb a certain number of shares of one of their best dividend oil stocks, with the understanding that as soon as the required shares of stock were sold the company agreed to pay for and install any organ the church might select, the cost not to exceed $3,000." The local paper congratulated "the church, the company" and also "Dr. Jacobs . . . on the successful outcome of this undertaking." This was in June, 1920. In October, 1922, we were told that the Methodists of Montgomery City were still looking for their pipe-organ. W. K. Jacobs carries occasional announcements in the local newspapers regarding his Abrams "specialty"; he also advertises what is rather importantly termed the "Elmwood Hospital," a name that we understand Jacobs applies to his residence. Jacobs has one "Oscilloclast."



"The One Day Cure For The Drink Habit"
PRIVATE SANITARIUM
THE M & M SANITARIUM
DR. W. K. JACOBS
MONTGOMERY CITY, MO.

KING, J. W., Bradford, Pa.—Born in 1866; graduated in 1889 by Jefferson Medical College. This man operates what he is pleased to call the "Physico-Clinical Laboratory of Dr. J. W. King for the Electronic Reactions of Abrams" (see illustration). According to the stationery the "Director" of this concern is King himself; the "Consultant" is Albert Abrams. About a year ago a somewhat interesting case relative to one diagnosis made by King was brought to the attention of THE JOURNAL. In the case of a patient who was referred to King from another part of Ohio a diagnosis was made of "acquired syphilis (bovine type)." Before a satisfactory test (which proved negative) could be obtained from a *bona fide* laboratory, this report is said to have led to the institution of divorce proceedings. Another group of reports (on one individual) from King's "laboratory" is also of interest. The first report stated that the patient was suffering from "Sarcoma of the digestive tract" and that the "strength of the disease" was "2 ohms." King suggested to the physician in charge: "Locate tumor and paint with safranin and over it apply Oscilloclast, current 3, without concussion, and then go to spleen and then concuss the seventh cervical." A month later King made another report on the same patient. The "strength of the disease" had been reduced to "1/25th of an ohm"! King remarked that the sarcoma was "now practically negligible, but continue the treatment." A little more than two weeks later a third report was made. At that time King reported "All reactions negative" and remarked "congratulations to you in having effected a cure in her case and let us all rejoice." The name of J. W. King also appears as one of the organizers of the "Society of Physical Therapeutists," which has for its presi-



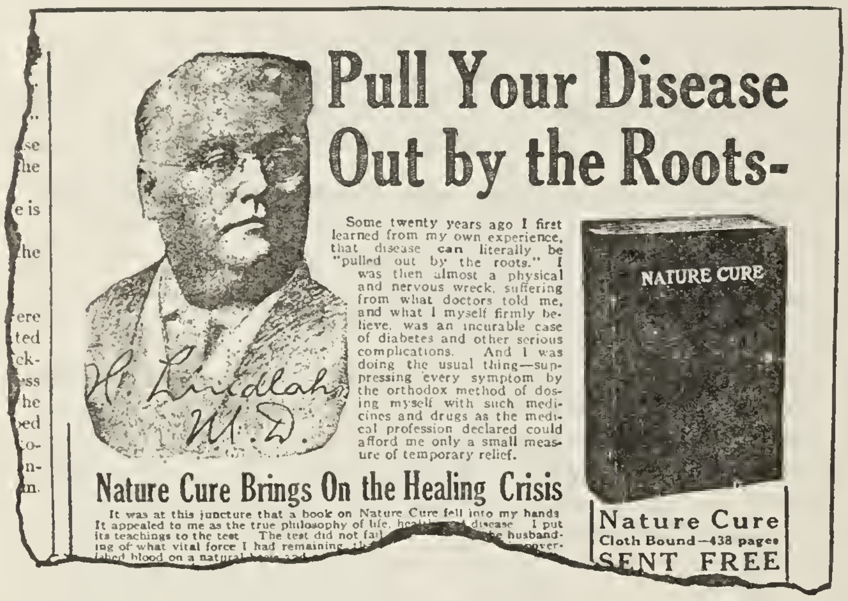
PHYSICO-CLINICAL LABORATORY *of* DR. J. W. KING
A GENERAL DIAGNOSTIC AND THERAPEUTIC INSTITUTE
The Laboratory is equipped with modern scientific apparatus for diagnostic and treatment work, and the Director is qualified and authorized to make and teach the
Electronic Reactions of Dr. Albert Abrams
These tests will diagnose the very beginnings of disease.
Tests made for all diseases.

ALBERT ABRAMS, A. M., M. D., LL. D., F. R. M. S.
J. W. KING, M. D.

57 Main Street,
BRADFORD, PENN'A.

dent T. Howard Plank (another "Oscilloclast" lessee). King's name also appears among the "Auto-Hemic Therapeutists," and in connection with the "Allied Medical Associations." King has seven "Oscilloclasts."

Lindlahr, Henry, Chicago, Ill. — Graduated in 1904 by "National Medical University" of Chicago. This "university" was run by L. D. Rogers, the "Auto-Hemic Therapy" gentleman. Some time ago newspapers reported that Lindlahr had announced that he had cured 200 cases of cancer in two years. Lindlahr has a "Nature Cure Institute." His treatment for diphtheria is: "Wet packs, no food except fruit juices, osteopathic treatment and—*no anti-toxin.*" Lindlahr holds that vaccination is not only worthless as a protection against smallpox, but is one of the causes of cancer, tuberculosis, syphilis and insanity; he holds that the secondary and tertiary manifestations of syphilis are due to the treatment of syphilis by mercury, iodids and the arsenicals; he claims that syphilis, and even well-developed cases of locomotor ataxia can be cured by "natural methods"—"These facts," he says, "are proven beyond doubt by the Diagnosis from the Eye." In addition to operating a "Nature Cure Institute" (see illustration) he is president of the "Lindlahr College of Natural Therapeutics," which gives a "course of instruction" that "is not taught elsewhere in America." One of the Lindlahr fads is what he calls "Iridiagnosis," by which, we are told, one is "able from the eye alone to tell the patient his inherited and acquired tendencies toward health and disease, his condition in general and the state of every organ in particular." Lindlahr's name appears as member of the 1922 Section on Iridology of the "Allied Medical Associations." Lindlahr has eight "Oscilloclasts."



Pull Your Disease Out by the Roots-

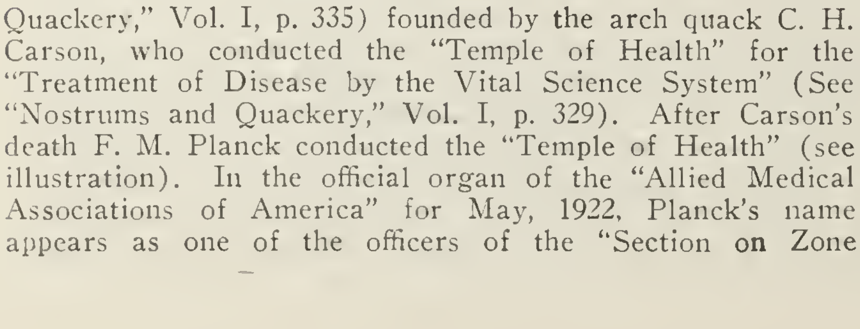
Some twenty years ago I first learned from my own experience, that disease can literally be "pulled out by the roots." I was then almost a physical and nervous wreck, suffering from what doctors told me, and what I myself firmly believe, was an incurable case of diabetes and other serious complications. And I was doing the usual thing—suppressing every symptom by the orthodox method of dosing myself with such medicines and drugs as the medical profession declared could afford me only a small measure of temporary relief.

Nature Cure Brings On the Healing Crisis

It was at this juncture that a book on Nature Cure fell into my hands It appealed to me as the true philosophy of life, health and disease I put its teachings to the test The test did not fai

Nature Cure
Cloth Bound—438 pages
SENT FREE

Planck, F. M., Kansas City, Mo.—Born in 1868; graduated in 1904 by the Eclectic Medical University of Kansas City. The Eclectic Medical University graduated its first class in 1900 and, after various vicissitudes, became extinct in 1918. Planck, it seems, was for some time secretary of the "College of Psychic Sarcology" (See "Nostrums and Quackery," Vol. I, p. 335) founded by the arch quack C. H. Carson, who conducted the "Temple of Health" for the "Treatment of Disease by the Vital Science System" (See "Nostrums and Quackery," Vol. I, p. 329). After Carson's death F. M. Planck conducted the "Temple of Health" (see illustration). In the official organ of the "Allied Medical Associations of America" for May, 1922, Planck's name appears as one of the officers of the "Section on Zone Therapy." In 1915 Planck was featuring "Spondylotherapy," an earlier fad of Albert Abrams; at that time, also, Planck's name appeared as second vice-president of the "American Association for the Study of Spondylotherapy." His name was on the program following Albert Abrams for a paper on "New Methods and Unusual Cases by Reflexology." Planck has one "Oscilloclast."



DR. F. M. PLANCK—HIS WORK.

Dr. F. M. Planck is known to thousands of families all over the land as a man who has brought happiness into the homes of a great army of people by driving disease and suffering from their homes. Dr Planck has devoted his life to suffering humanity

HOW TO REACH DR. PLANCK'S OFFICE.

The Temple of Health Building is centrally located and the stranger to Kansas City will have no difficulty in finding it if he will follow the instructions given below

On leaving the train at the depot, if you de-

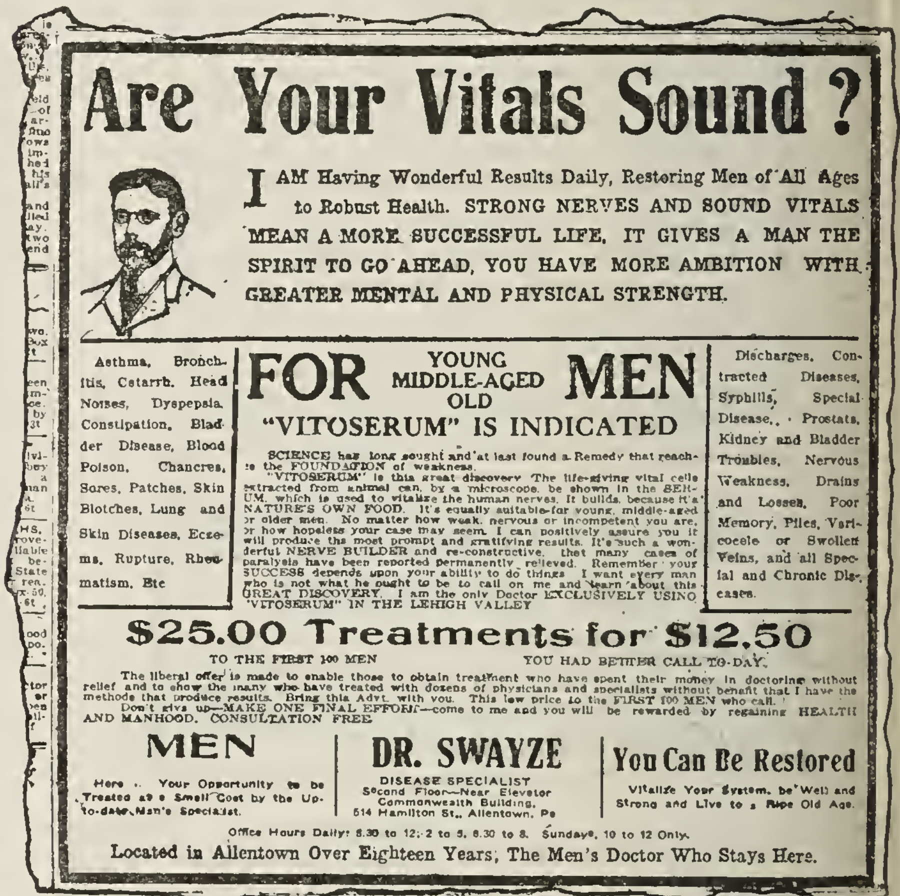
THE PSYCHOPHANOMETER.

Much has been said about the vital forces of life. People have read for years of psychic emanations from the body, just as real as any other force, but always so subtle that many felt these emanations were more imaginary than anything else.

Dr. Planck has just perfected a device which he has named the Psychophanometer, which shows positively the existence of these emanations from the body. This device is attached to a person with whom the test is to be made, a second person then stands from six to eight feet behind the first person and points his hand at certain parts of the cervical and dorsal regions. When this is done a small electric light on the device is lighted or ex-

Pope, R. D., Long Beach, Calif.—Born in 1869; graduated by George Washington University Medical School, 1897. Practiced at Du Quoin, Ill., practically from the time of his graduation until within the last two or three years, when he moved to Long Beach. His name appears as one of the officers of the "American Association of Orificial Surgeons" for 1919 and as an endorser of L. D. Rogers' "Auto-Hemic Therapy." Pope has two "Oscilloclasts."

Swayze, Burton W., Allentown, Pa.—Born in 1868; graduated in 1891 by Jefferson Medical College. Swayze is a great "booster" for Albert Abrams. An extensive puff of the Abrams method, in the form of a contributed article, appeared under Swayze's name in a sensational lay magazine that has seen fit to espouse Abrams' cause—and incidentally get some advertising from some of Abrams' disciples. A puff on the same subject by Swayze has also been published in the *Medical Herald and Electro Therapeutist.* Abrams' house-organ, *Physico-Clinical Medicine,* for March, 1922, contained an article by Swayze, as did also the same publication for June, 1922. We have in our files a number of advertisements of the "men specialists" type published by Swayze in Allentown newspapers (see illustration). Swayze has one "Oscilloclast."



Are Your Vitals Sound ?

I AM Having Wonderful Results Daily, Restoring Men of All Ages to Robust Health. STRONG NERVES AND SOUND VITALS MEAN A MORE SUCCESSFUL LIFE, IT GIVES A MAN THE SPIRIT TO GO AHEAD, YOU HAVE MORE AMBITION WITH GREATER MENTAL AND PHYSICAL STRENGTH.

Asthma, Bronchitis, Catarrh, Head Noises, Dyspepsia, Constipation, Bladder Disease, Blood Poison, Chancres, Sores, Patches, Skin Blotches, Lung and Skin Diseases, Eczema, Rupture, Rheumatism, Etc

FOR YOUNG MIDDLE-AGED OLD MEN

"VITOSERUM" IS INDICATED

SCIENCE has long sought and at last found a Remedy that reaches the FOUNDATION of weakness.

"VITOSERUM" is this great discovery The life-giving vital cells extracted from animal can, by a microscope, be shown in the SERUM, which is used to vitalize the human nerves. It builds, because it's NATURE'S OWN FOOD. It's equally suitable for young, middle-aged or older men. No matter how weak, nervous or incompetent you are, or how hopeless your case may seem. I can positively assure you it will produce the most prompt and gratifying results. It's such a wonderful NERVE BUILDER and re-constructive, that many cases of paralysis have been reported permanently relieved. Remember your SUCCESS depends upon your ability to do things I want every man who is not what he ought to be to call on me and learn about this GREAT DISCOVERY. I am the only Doctor EXCLUSIVELY USING "VITOSERUM" IN THE LEHIGH VALLEY

Discharges, Contracted Diseases, Syphilis, Special Disease, Prostate, Kidney and Bladder Troubles, Nervous Weakness, Drains and Losses, Poor Memory, Piles, Varicocele or Swollen Veins, and all Special and Chronic Diseases.

$25.00 Treatments for $12.50

TO THE FIRST 100 MEN YOU HAD BETTER CALL TO-DAY.

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Hanor, W. A., Corning, N. Y.—Born in 1879; graduated in 1903 by the Syracuse University, College of Medicine. His name appeared as a member of the "Central Society of Physical Therapeutists." In one of the advertising leaflets put out by L. D. Rogers on "Auto-Hemic Therapy" appears some "clinical reports" credited to Hanor. Hanor's name appears as "Second Vice-President" of the "Allied Medical Associations" for 1922; it also appears as an officer of the "Section of Electronic Diagnosis and Therapy," as an officer of the "Section on Anesthetics" and as an officer of the "Section on Irodology" (whatever that may be), also as a member of the "Committee on Ethics"—all of the "Allied Medical Associations." On the 1922 program of this same organization Hanor's name was down for a paper on the "Electronic Therapy made Practical for the Diagnosis and Treatment of Disease." Hanor has two "Oscilloclasts."

Correspondence

CHANGING CONDITIONS IN VIENNA

To the Editor:—Perhaps American physicians are interested in knowing how the war and subsequent events have affected Vienna as a teaching center. One hears conflicting reports in America about the medical teaching situation here. The purpose of this letter is to comment not only on present conditions in Vienna, but also on tendencies which point unmistakably to what the future is likely to bring.

Today, Vienna still holds first place in Europe as a graduate medical teaching center. Its organization, personnel and prestige have thus far kept the machine going fairly well from sheer force of its own momentum. But even the asual observer must conclude that its days of leadership are numbered. It cannot escape the distintegrating influences of poverty. The amount and variety of clinical material n some departments, indeed in most departments, have lately uffered a severe slump. I learned today that one clinic, which formerly treated from 15,000 to 20,000 patients a year, s to be closed entirely. A vacant professorship in another ighly important department has been offered to various men, ut it is still vacant. Motives of economy inspired a recent aw which denies free treatment to members of Krankenassen. Each society must pay for its members who are treated in the hospital. This law appears to be one of the ig factors in reducing the number of patients and the amount f clinical material for teaching purposes.

In the days of the empire, a research worker here could commandeer any patients he wished to study from Prague, Budapest, and other medical centers. Now, it is impossible. Furthermore, some of the research workers who have made Vienna famous are now obliged to devote their energies to earning a livelihood. Earning a living in Vienna at present s not conducive to that serenity of mind which is so essenal to satisfactory teaching and research work. Salaries aid by the university are hopelessly inadequate. This week, Austrian kronen are selling at the rate of 74,000 for a dollar. iving costs have increased by leaps and bounds in the past wo months. Six months ago, the price of street railway ares was 80 kronen. Today, it is 1,700 kronen. This great ncrease in the cost of transportation is one of the causes f the falling off in the amount of clinical material for teaching purposes. For example, a mother taking her child to the utpatient department of a clinic must pay for herself and hild 6,800 kronen for the round trip on the street car —a burden sufficient to reduce the attendance at clinics normously.

The American colony, which is the real meal ticket for any of the medical teachers, is undergoing noticeable hanges. Not only is it showing a tendency to fall off in umbers: the students do not remain here so long as they rmerly did. Many students who come with the expectation staying from six to twelve months leave after a few eeks.

From the foregoing, it must not be inferred that there no longer any good teaching done in Vienna. On the ntrary, work of the highest order is still being done in ost departments in spite of grave handicaps. The clinical partments of medicine and surgery are the first to suffer, nd it is hard to see how a slow, but progressive, deterioraon can be prevented. Defections in the teaching ranks ave not yet been numerous, but I believe they will become ore so as opportunity offers, for the brighter men among he younger teachers go to more promising parts of the world. An observer with a broad perspective cannot escape the eling that Vienna herself is moribund. Unless help comes from unexpected sources, the supremacy of this famous medical teaching center appears doomed to certain, if gradual, decline.

Chester M. Echols, M.D., Vienna, Austria. (Milwaukee.)

INFECTIOUS JAUNDICE—INFORMATION WANTED

To the Editor:—For the last seven or eight months, I have been endeavoring through correspondence to obtain information regarding infectious jaundice in the United States.

The disease is seldom fatal and usually takes the form of rather sharply localized endemics. For these two reasons, it is not a reportable disease in most states, though it has been made reportable in a few states within the last year or two. I have been able to obtain a good deal of information from state boards of health and from individuals; but I feel confident that the disease is much more widespread than my information would indicate, and I am, therefore, writing to The Journal in the hope that this request for information will meet the eye of physicians who have observed even small outbreaks of infectious jaundice and that they will write me a brief statement to that effect, giving such details as they may have the time to present.

George Blumer, M.D., New Haven, Conn.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

DIABETES — CAROID

To the Editor:—Kindly answer the following questions: 1. What do you think of the serum prepared by physicians of the University of Toronto? According to the lay press, "it will do for diabetes what antitoxin has done for diphtheria." (I am referring to Mr. Brisbane's recent editorial.) 2. What is caroid? I should like to know something about its composition, action, and uses, if any. This product is manufactured by the American Ferment Company, Buffalo.

Aaron Dubnove, M.D., Detroit.

Answer.—1. See editorial, "A Pancreatic Hormone in Diabetes," The Journal, Oct. 21, 1922, p. 1428. The preparation is undergoing thorough trial by expert investigators in properly controlled hospitals and is not available for general use. While promising, it must be considered as in the experimental stage.

2. Caroid is a preparation of papain (obtained from papaya). Caroid was first marketed by the American Ferment Company, and later by Mead Johnson & Company. The Council on Pharmacy and Chemistry had Caroid under consideration for a considerable time and in the end rejected the product on account of its variability. Examination showed that the claims for its digestive efficiency were exaggerated. Though Caroid was found more active than other preparations of papain on the market, and though its curdling effect on milk indicated some advantages, the Council refused recognition to Caroid because the manufacturer admitted that, because of the indefinite source of supply of papaya, he could not produce a reliable and uniform product. Since the publication of the Council's report in 1914, Mead Johnson and Company does not seem to have made any propaganda for Caroid. It is now being promoted by the American Ferment Company, but this firm has not requested a reconsideration of the product by the Council.

Infant Mortality in New Zealand.—New Zealand has been for years the country with the lowest infant mortality rate. It has also been the pioneer in systematic development of infant welfare work. New Zealand showed, in 1908, an infant mortality rate of 68 per thousand live births—a rate considerably lower than the present rate of 94 per thousand in the United States. Since 1908, New Zealand's rate has been steadily lowered; the latest figure, for the years 1917, is 48 per thousand.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Arkansas: Little Rock, Nov. 14-15. Sec., Reg. Bd., Dr. J. W. Walker, Fayetteville; Sec., Eclec Bd., Dr. C. E. Laws, 803½ Garrison Ave., Fort Smith; Sec., Homeo. Bd., Dr. George M. Love, Rogers.

Connecticut: Hartford, Nov. 14-15. Sec., Reg. Bd., Dr. Robert L. Rowley, 79 Elm St., Hartford.

Connecticut: New Haven, Nov. 14-15. Sec., Eclec. Bd., Dr. James E. Hair, 730 State St., Bridgeport; Sec., Homeo. Bd., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

Delaware: Wilmington, Dec. 12-14. Sec., Dr. P. S. Downs, Dover.

Louisiana: New Orleans, Nov. 30-Dec. 2. Sec., Dr. Roy B. Harrison, 1507 Hibernia Bank Bldg., New Orleans.

Maine: Portland, Nov. 14-15. Act. Sec'y., Dr. Adam P. Leighton, Jr., 192 State St., Portland.

Maryland: Baltimore, Dec. 12. Sec., Dr. J. McP. Scott, 141 W. Washington St., Hagerstown.

Massachusetts: Boston, Nov. 14-16. Sec., Dr. Samuel H. Calderwood, 144 State House, Boston.

Missouri: Kansas City, Nov. 20-23. Sec., Dr. Cortez F. Enloe, State House, Jefferson City.

Nebraska: Lincoln, Nov. 6-8. Sec., Mr. H. H. Antles, Capitol Bldg., Lincoln.

Nevada: Carson City, Nov. 6. Sec., Dr. Simeon L. Lee, Carson City.

North Carolina: Durham, Dec. 12. Sec., Dr. Kemp P. B. Bonner, Raleigh.

Ohio: Columbus, Dec. 6-8. Sec., Dr. H. M. Platter, Hartman Hotel Bldg., Columbus.

South Carolina: Columbia, Nov. 14. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

Texas: Waco, Nov. 28-30. Sec., Dr. T. J. Crowe, Dallas County Bank Bldg., Dallas.

Virginia: Richmond, Dec. 5-8. Sec., Dr. J. W. Preston, McBain Bldg., Roanoke.

Ohio June Examination

Dr. H. M. Platter, secretary, Ohio State Medical Board, reports the oral, written and practical examination held at Columbus, June 6-9, 1922. The examination covered 11 subjects and included 110 questions. An average of 75 per cent. was required to pass. Of the 164 candidates examined, 160 passed and 4 failed. Seventeen candidates were licensed by reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Rush Medical College	(1922)*	82.1
Johns Hopkins University	(1918) 82.6, (1921) 88.1, (1922)	86.4
Harvard University	(1920)	83.6, 83.7
Tufts College Medical School	(1919)	87.7
St. Louis University School of Med.	(1921) 85.5, (1922)	81.9, 85.2, 86
University and Bellevue Hospital Medical College	(1910)	85
Eclectic Medical College	(1922)	75.9, 76, 77.1, 78.3, 79.9, 81.2, 81.8, 81.9, 82.5, 83.3, 83.4, 83.8, 84.2, 85.1, 85.3, 85.5, 85.7, 85.8, 85.9, 86, 86.4, 88.4
Ohio State University College of Homeopathic Med.	(1922)	79.6, 81, 82.5, 84.1, 84.2. 84.4, 85.5
Ohio State University College of Medicine	(1922)	76.2, 81.2, 81.8, 82.6, 82.7, 83. 83.1, 83.5, 84.1, 84.3, 84.4, 84.5, 84.5, 84.5, 85.2. 85.7, 85.8, 85.8, 85.8, 85.8, 86, 86, 86, 86.2, 86.7, 87.8, 88.3, 88.3, 88.5, 89.7, 90.8
University of Cincinnati College of Medicine	(1922)	79.3, 79.4, 79.5, 79.6, 79.7, 80, 80.5, 80.5, 80.6, 81.1, 81.4, 81.4, 81.4, 81.8, 81.8, 82, 82.4, 82.7, 82.8, 83.1, 83.2, 83.3, 83.4, 83.9, 84.3, 84.5, 84.5, 85.3, 85.5, 85.5, 85.5, 85.6, 86.2, 86.4, 86.6, 86.6, 86.8, 87.1, 87.1, 87.4, 87.5, 87.7, 88.1
Western Reserve University	(1922)	82.7, 83, 83.4, 83.8, 84.4, 84.9, 85, 85, 85.4, 85.5, 86, 86.7, 86.9, 87, 87.4, 87.5, 87.5, 87.6, 87.9, 88.3, 88.3, 89.1, 89.4, 90.2, 90.4
Jefferson Medical College	(1921)	88.9
University of Pennsylvania	(1921)	82.5
University of Pittsburgh	(1921) 85.6, (1922)	82.4, 83.8, 84.3, 84.7, 86.1, 86.2, 88.2, 89.4
Meharry Medical College	(1922)	75. 75.7, 76
University of Toronto	(1913)	82.1
University of Vienna	(1908)†	82
University of Budapest	(1914)† 81, (1915)†	‡75
University of Naples	(1919)*	79.1
University of Tomsk	(1915)†	‡75

FAILED

Loyola University	(1918)	70.4
Ohio State University College of Homeopathic Med.	(1921)	71.6
Meharry Medical College	(1917)	61.4
University of Naples	(1919)†	73.4

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
Northwestern University	(1899)	New York
Rush Medical College	(1921)	Illinois
University of Illinois	(1914)	Illinois
Woman's Medical College	(1890) Indiana, (1899)	New York
University of Louisville Medical Department	(1921)	Kentucky
Tulane University	(1916)	Mississippi
Johns Hopkins University	(1916)	Maryland
University of Maryland	(1921)	Maryland
St. Louis University School of Medicine	(1921, 3)	Missouri
New York Homeopathic Medical College and Flower Hospital	(1921)	New York
Jefferson Medical College	(1906), (1920)	Penna.
University of Pennsylvania	(1918)	California
Queen's University	(1900)	Washington
National University, Athens	(1911)†	W. Virginia

* This candidate has finished the medical course and will obtain the M.D. degree after he has completed a year's internship.

† Graduation not verified.

‡ Percentage given for years of practice.

Medical Economics

A PHARMACEUTICAL CODE OF ETHICS

At its reorganization meeting in August, the American Pharmaceutical Association adopted a code of ethics. The code, which is brief, consists of three chapters concerning, respectively, the relations of the pharmacist to the public, to the physician and to other pharmacists. Many sections of the code, in addition to that dealing with medical relations, are of interest to the medical profession. Pharmacists are urged to uphold the legal standards of the Pharmacopeia and the National Formulary, and to encourage the use of official drugs and discourage the use of objectionable nostrums. They are asked to exert care in selling poisonous substances. They are urged to consider knowledge gained of ailments of their patrons as given in confidence. It is inimical to public welfare, says the code, for the pharmacist to have any clandestine arrangement for the division of fees or for the preparation of secret prescriptions. Of the relation of the pharmacist to the physician the code says:

> The pharmacist, even when urgently requested so to do, should always refuse to prescribe or attempt diagnoses. He should, under such circumstances, refer an applicant for medical aid to a reputable, legally qualified physician. In cases of extreme emergency, as in accident or sudden illness on the street in which persons are brought to him pending the arrival of a physician, such prompt action should be taken to prevent suffering as is dictated by the humanitarian impulses and guided by scientific knowledge and common sense.
>
> The pharmacist should not, under any circumstances, substitute one article for another, or one make of an article for another in a prescription, without the consent of the physician who wrote it. No change should be made in a physician's prescription except such as is essentially warranted by correct pharmaceutical procedure, nor any that will interfere with the obvious intent of the prescriber, as regards therapeutic action.
>
> He should follow the physician's directions explicitly in the matter of refilling prescriptions, copying the formula on the label or giving a copy of the prescription to the patient. He should not add any extra directions or caution or poison labels without due regard for the wishes of the prescriber, provided the safety of the patient is not jeopardized.
>
> Whenever there is doubt as to the interpretation of the physician's prescription or directions, he should invariably confer with the physician in order to avoid a possible mistake or an unpleasant situation.
>
> He should never discuss the therapeutic effect of a physician's prescription with a patron or disclose the details of composition which the physician has withheld, suggesting to the patient that such details can be properly discussed with the prescriber only.
>
> When an obvious error or omission in a prescription is detected by the pharmacist, he should protect the interests of his patron and also the reputation of the physician by conferring confidentially on the subject, using the utmost caution and delicacy in handling such an important matter.

This code is an appeal to the ideals which have marked pharmacy as a science and a profession since the days when the preparation of medicine was an art and when the pharmacist was the dignified assistant of the physician. Observance of the code by the pharmacist and teaching it to the students of today promise much for the pharmacy of the future.

U. S. Bureau of Mines.—Accidents at all mills and smelters, excluding iron blast furnaces, operated in the United States in 1921, resulted in the death of twenty-seven employees and the injury of 4,494, according to reports received from operating companies by the federal bureau of mines. In the preceding year, sixty-one employees were killed and 8,863 were injured. At milling plants, 10,047 men were employed and at the smelters 18,656 men worked 5,733,969 shifts. During the fiscal year recently ended, 16,291 persons associated with the mineral industries were trained in mine rescue or first-aid work by the bureau.

Miscellany

ANTON CHEKHOV—PHYSICIAN AND LITERARY ARTIST

HERBERT THOMS, M.D.
New Haven, Conn.

In 1892, cholera became epidemic in Russia. Among the physicians who responded to the call for volunteers was a young man from the town of Melihova. Although sick himself with pulmonary tuberculosis, he served many months in the Moscow district without pay. Day and night he drove countless miles over wretched roads to visit patients, and at times for days he scarcely removed his clothing. The district he served comprised twenty-five small villages, and here the young physician remained many months until the spread of the epidemic was checked.

This event in the life of Anton Chekhov gives us the keynote to his whole life and character. These are worth considering, for he was one of the great literary geniuses of his time, and wrote at least one play that has been placed by able critics among a half dozen of the greatest dramas since Shakespeare. Since his death in 1904, the fame of Chekhov as a literary artist has steadily increased, and today he stands in a small group of the greatest masters of the short story that we have known.

Chekhov wrote about three hundred short stories, and about a dozen plays. In all of these he created an atmosphere of subtle mystery and a veiled philosophy that one may never discover unless one looks beyond the words of those who people his stories, and knows the noble character of the man who wrote them. It was through a physician's eyes that Chekhov saw his world, and it is the spirit of the physician that pervades his entire art.

CHEKHOV'S LIFE

Anton Chekhov's grandfather was a serf, or slave, who purchased freedom from a nobleman for himself and family for 3,500 roubles, 700 roubles per soul, with one daughter Alexandra thrown in for good measure. His father was an unsuccessful grocer. Anton was born at Taganrog, a small seaport on a gulf of the Black Sea, Jan. 17, 1860. He had four brothers and one sister. While a boy, he attended the local Greek school; and, although his father was unsuccessful as a merchant, his devotion to his family was praiseworthy. He taught them music, singing, violin and piano; in fact, trained them into a choir. Languages they learned from a French governess. The influence of the mother is shown by Chekhov's remark in his later years, "Our talents we got from our father, but our souls from our mother."

In 1876, the family removed to Moscow, but Anton remained at Taganrog and went to high school, earning his own living and paying his own tuition. After three years, he joined the family and entered the university. The father at this time was working away from home, and the young medical student found himself at the head of a family, every one of whom worked for their common living. It was during this period hat he did his first writing, publishing in some of the local newspapers short sketches, mainly of a humorous character.

In 1884, he received his degree, and the year afterward was spent practicing in a small hospital in a suburb of Moscow. He kept on with his literary work, however, declaring that "medicine is my lawful wife and literature is my mistress." In 1890, he made a journey to the penal settlement of Sahalin in Siberia, driving nearly the entire distance of 3,000 miles. This journey, a pure labor of love, was made n order that he might study at first hand the conditions of he Siberian prison system. He afterward published a series of articles on Sahalin, and two short stories of the life there. Chekhov unquestionably influenced later reforms.

In 1892, as a physician and member of the sanitary council, he was asked by the zemstvo, or municipal council, to take charge of a section of the province to aid in combating cholera. He immediately accepted, and gave his services free. He showed unusual executive ability in organizing his district, establishing hospitals, delivering lectures and driving all over the territory day and night to see patients.

After this service he made Melihova his permanent home, developing his farm there, writing, and practicing his calling among the poor of his district. In 1896, he again became active in civic affairs while a census of the people was being taken. Although weakened by his disease, and by a severe attack of influenza, he carried on his work alone, going from village to village gathering statistics. In 1897, after an unusually severe pulmonary hemorrhage which necessitated hospital treatment at Moscow, he journeyed south, spending the autumn and winter at Nice. In 1900, he lived in Moscow again, and in May, 1901, he was married to Olga Knipper, a leading actress at the Art Theater. From this time until his death, his life was spent fighting disease, seeking health in various places in Europe. He died at Badenweiler in the Black Forest, July 2, 1904.

Such is the bare outline of the life of Anton Chekhov, a life uneventful as far as triumphs in this world are concerned, but inspiring in its usefulness and inspiring in the same way that the life of Stevenson is, with the same silent suffering and the same basic optimism.

HIS NOVELS

Some one has waggishly said that a Russian novel is one in which two people neither want each other nor get each other, and about this 450 profoundly melancholy pages are written. Two truths are evident here: It is true that Russian writers have been much more interested in delineating character than in developing plot, and it is also true that in Russian fiction more than any other we find the persistent theme of human suffering and despair. The souls of both nobleman and peasant have been laid bare by such writers as Gogol, Turgenef and Tolstoy. But no Russian author became the open enemy of the sluggishness, the stupor, the banality of the people, as did Chekhov. Story after story reveals the utter helplessness of his characters, living under the hopelessly stupid system. Character regeneration and heroic climax are never found.

Immediately you ask, What can be attractive about a fiction that always creates an atmosphere of such crushing discouragement? Strange to say, Chekhov is never dull. Indeed, his genius gives us characters which are so vibrant with personality that we are carried to the end of his stories expectantly, even though we know that hope is left behind.

Chekhov has been compared to de Maupassant, but his methods are the converse of that master of the short story. Unlike de Maupassant, Chekhov is never dramatic; he is usually pointless, and depends not on episode but wholly on character study complete in its environment. In sketches of but two or three pages, we find not only complete character delineation but also the entire atmosphere that surrounds it. Chekhov's genius enables him to bring before us, often in a single terse sentence, living beings in striking relief. He describes a young girl, "Tanya, small, pale and slight, with her collar bone showing, with her widely opened, her dark and clever eyes," or an old man, "Father Andrey, a lean, toothless old man whose face always looked as though he was just going to say something amusing," and these sentient, pulsating beings charm us. They fascinate us because they live not only in Russian villages but also in American villages, among our own acquaintances, in our own families. Underneath the apparent triviality of their speech is the soul struggle of the author himself; his ceaseless attack against the banality and the stupidity of his country. Story after story reveals his intense and bitter hatred. So in his greatest play, "The Cherry Orchard," Trofinov says, "Meanwhile in Russia, only a few of us work. The vast majority of those intellectuals whom I know seek for nothing, do nothing, and are at present incapable of hard work." In another place, he writes, "Contempt for life, for suffering and for death, and so on, this is the philosophy best suited for the Russian Lie-abed."

It is the physician Chekhov who writes, "It does not matter that Anna should die in childbirth, but it does matter that all these Annas, Marfas, Pelagueyas, from dawn to sunset should be grinding away, ill from overwork, all their lives worried about their starving, sickly children; to be looking after themselves; they fade in youth, grow old very early, and die in filth and dirt; their children as they grow up go the same way, and hundreds of years slip by and millons of people live worse than animals—in constant dread of never having a crust to eat; but the horror of their position is that they have no time to think of their souls, no time to remember that they are made in the likeness of God: hunger, cold, animal fear, incessant work, like drifts of snow, block all the ways to spiritual activity, to the very thing that distinguishes man from the animals and is the only thing indeed that makes life worth living." "O Mother Russia," the heart of Chekhov cried, "what a burden of idle and useless people you still carry."

Professor Phelps must have had Chekhov in mind when he wrote, "A Russian novelist with a pen in his hand is the most truthful being on earth." Chekhov's sensitiveness to impression makes him always the unerring reporter. With the discerning eye of the physician, he picks out the vital essentials that make the ensemble lifelike. He tells us his own method in one of his letters: "I overhear a conversation on pessimism," he writes, "between two Russians, and my business is to report the conversation as I heard it, and let the jury, i. e., the readers, decide as to its value. My business is only to be talented, to be able to distinguish between important testimony, to be able to illuminate the characters and speak in their language. . . . My business is to show them as they are."

Chekhov's profession had great influence on his art. Every one of his characters is a pure psychologic study. Physicians frequent his pages incessantly. He himself believed that his training helped him greatly in writing stories and plays. "My Party," he wrote, "has pleased the ladies; they sing my praises wherever I go. It really isn't bad to be a doctor and to understand what one is writing about." It was through the physician's eyes that Chekhov saw the apathy and banality of those about him. One sees the author clearly in Kiriloff the physician, who "condemned Abogin and his wife, and all that class of persons who live in a rosy twilight and smell of perfumes; all the way he hated and despised them to the point of torture; and his mind was full of unshakable convictions as to the worthlessness of such people." Chekhov's experience in medical school, hospital, prison camp, registered on him as on a sensitive plate. The dumb mass of Russian humanity was to him a great sick animal, and it was by lessons of its indolence that he tried to waken it to activity.

HIS CHARACTER

It is interesting to know that, in spite of his somber pen, Chekhov was not a gloomy person. He was, in fact, a cheerful, fun-loving soul, whose presence at dinner parties and social gatherings was eagerly sought. His friend Kuprin writes of his "incomparable spiritual firmness and beauty. . . . the most beautiful, refined, and spiritual face I have ever seen in my life." Gorky says, in his recollections: "In front of that dreary, gray crowd of helpless people there passed a great, wise and observant man; he looked at all these dreary inhabitants of his country, and with a sad smile, with a tone of gentle but deep reproach, with anguish in his face and in his heart, in a beautiful and sincere voice he said to them, 'You live badly my friends; it is shameful to live like that.'"

Chekhov's life, his struggle with poverty and tuberculosis, his love for the unostentatious, for the quiet outdoors, gave a sublimity to his character that one unconsciously reads in his stories. Gray toned they all are, sad in their extreme helplessness, yet it is in these very characters that the philosophy of their creator is revealed. A philosophy full of earnest hope and of the conviction of the coming of better things. Those who label him the "incorrigible pessimist" understand him not. One sees the author as Sasha the ill fated tuberculous artist in "Betrothed," who says, "Only enlightened and holy people are interesting; it is only they who are wanted. The more of such people there are, the sooner the kingdom of God will come on earth."

Chekhov has shown us the exact civilization in which he lived—peasant and nobleman, artist and poet, physician and priest, all of those with whom he came in daily contact, with their books, their plays, their actions and their thoughts. With gentle but unerring crayon, not one has been falsely drawn. Their usually unhappy lives are full of dissatisfaction, they are often stupid, and many times only the remnants of personality remain. These pictures are depressing, yes, but not hopeless. Let their author speak to us in the quiet voice of Sonia in the closing scene of "Uncle Vanya": "What can we do? We must live our lives. (A pause.) Yes, we shall live, Uncle Vanya, we shall live through the long procession of days before us, and through the long evenings; we shall patiently bear the trials that fate imposes upon us, we shall work for others without rest, both now and when we are old; and when our last hour comes we shall meet it humbly, and there beyond the grave, we shall say that we have suffered and wept, that our life was bitter, and God will have pity on us. Ah then, dear, dear Uncle, we shall see that bright and beautiful life; we shall rejoice and look back upon our sorrow here; a tender smile and we shall rest. I have faith, Uncle, fervent, passionate faith."

59 College Street.

CHILD LABOR LESSENS ADULT EFFICIENCY

Both child and community are losers when children under the age of 16 years are gainfully employed, according to a report just issued by the U. S. Department of Labor. Such children have not received sufficient education to make them adaptable to changing industrial conditions, or to give them an understanding of the duties of citizenship. They are "subjected also to positive damage," the conclusions state, "from irregular habits of work, from labor unadapted to their needs and capacities, and from unsuitable associations and environments."

The study dealt with conditions which attended the entrance into working life of all children in Boston, Cambridge, Somerville, and Chelsea, Mass., who passed their fourteenth birthday in a given year and who entered employment within two years thereafter, a total of 5,692. Information concerning subsequent working histories was secured for a number of these children about three years later, and the advantage of those who had completed higher grades in school appeared at this time to have been pronounced. The report says "that even the small amount of education which the eighth-grade graduate could boast over the sixth-grade graduate was a real industrial asset."

The reason most frequently given by the children for going to work was that of necessity, but retardation and lack of adjustment to school life appeared to be important factors, as well. Of 3,399 who had entered full-time employment, 50.4 per cent. had not completed the eighth grade before entering industry.

Book Notices

Gaseous Exchange and Physiological Requirements for Level and Grade Walking. By Henry Monmouth Smith. Paper. Price, $6. Pp. 310, with 43 illustrations. Washington: The Carnegie Institution of Washington, 1922.

This monograph, from the Carnegie Nutrition Laboratory, Boston, is a report of an extensive series of measurements of the energy required by standing, walking on a level, and walking up grade at varying speeds. The energy requirements were calculated from the gaseous exchange, the subjects being fitted with a gas mask that permitted accurate determination of oxygen consumption and carbon dioxid output. The results are not new to science, but are probably the most accurate and extensive so far reported. Considerable skill is shown in devising experimental procedures that permit accurate energy measurements without placing the subject in too abnormal conditions. Dr. Smith finds that standing requires about 12 per cent. more calories than lying horizontal, while horizontal walking requires about 0.5 gm. calory for each kilogram of body weight transported a disance of 1 meter. This factor remains practically constant up to a speed of walking exceeding 80 meters a minute. Beyond this point the energy requirement increases faster than the speed. In grade walking the average energy requirement was 7.5 gm. calories per kilogrammeter of work perormed. This gives a net efficiency of 30 per cent. But if the grade or walking speed is such that the work done is more than 500 kilogrammeters a minute, the efficiency ecreases. One unexpected result is reported, namely, that in horizontal walking the pulse rate was slower than on tanding, even though the metabolic rate in walking was ncreased from 100 to 200 per cent. Most of the physiologic djustments (pulse rate, respiration rate, etc) in passing rom standing to walking is effected within thirty seconds, nd, in normal persons, complete adjustment is attained at he end of the third minute.

Mental Diseases. A Public Health Problem. By James V. May, M.D., Superintendent, Boston State Hospital. With a Preface by Thomas W. Salmon, M.D., Professor of Psychiatry, Columbia University. Cloth. rice, $5 net. Pp. 544. Boston: Richard G. Badger, 1922.

This is not a textbook of mental diseases. In Part I, which ccupies the first 250 pages, Dr. May has compiled from many sources a mass of extremely valuable data, statistical nd historical, which demonstrate the wide contact of sychiatry with problems of modern social life, indicate the rowth and present status of psychiatric science and of the ublic care of mental disease, and point out the need for common ground to serve as a basis for statistical studies ssential for determining causes, and thus laying the foundaon for rational steps towards prevention. This portion of he book can be most heartily recommended to the consideraon of physicians and others interested in this most importnt field of public health work. Part II is a condensed ccount of the history, characteristics and relations with her systems of nomenclature of the various types of mental sease which comprise the standard classification adopted y the American Psychiatric Association. This, while essenal for the public health purpose which the author has in ew, is rather severely technical, and will appeal chiefly to ose engaged specially in this field of medicine.

The Surgical Treatment of Non-Malignant Affections of the tomach. Charles Greene Cumston, M.D., and Georges Patry, M.D., ectures at the University of Geneva, Switzerland. With an Introducon by Sir Berkeley G. A. Moynihan, K.C.M.G., C.B., M.S., Professor Clinical Surgery, University of Leeds. Cloth. Price, $5. Pp. 349. hiladelphia: J. B. Lippincott Company, 1921.

This work might properly be called a "library monograph" that it consists in a general, although not too comprehenve, outline of gastric surgery. It deals particularly with e historical development of technical ideas, and with the position of the work of various men who have written on e subject. A number of criticisms are called for. Referces to recent literature are too few compared to the many ferences to literature antedating 1908 or thereabouts, escribing procedures long since obsolete. Details of technic are not adequately described. The historical development of gastro-enterostomy is admirably given; description of the technic is poor. There is a brief discussion of jejunal ulcer; treatment is not discussed. In discussing congenital hypertrophic stenosis of the pylorus, the now almost universally used Rammstedt operation, is incidentally mentioned, but not described. Since the book deals with "nonmalignant affections of the stomach," the omission of malignancy of the stomach and duodenal ulcer are permissible; but such an arbitrary division of these conditions is by no means a logical one, particularly the omission of the subject of malignancy. It will not be generally agreed that the treatment of the peritonitis following perforated gastric ulcer "is that of all peritonitides," since stomach contents are virtually sterile. The book is of value for a general review of the subject; the student would be likely to leave it without a good idea of relative values, because it lacks "shading," or "color."

Gynäkologische Strahleneffekte und eine merkwürdige Alopecie. Von Dr. Karl Neuwirth Vorstand des von der Polizeibehörde in Wien errichteten Wöchnerinnenheimes und Frauenambulatoriums. Paper. Price, 144 marks. Pp. 143. Vienna: Alfred Hölder, 1919.

The author observed a unique case of alopecia following the combined administration of roentgen rays and radium, subsequent to a Ries-Wertheim operation for cancer of the uterus. This alopecia entailed the entire loss of the capillitium, followed by complete return to health within a few months, although no special therapeutic efforts were employed. This case induced the author to make a study of the efficiency and untoward effects of radiotherapy. He reviews the theories concerning the physical action, on the tissues, manifested by therapeutic rays originating in the roentgen-ray tube and also from radioactive substances. He distinguishes in discussing untoward results the immediate effects—*Roentgenkater*—then destructive changes occurring several weeks after treatment, and finally very remote injuries that occasionally make their appearance in the intestine. The causes of those incidents and the means proposed for their prevention are mentioned and discussed. A comparative evalution of roentgen rays versus the rays emanating from radium and mesothorium is attempted in reporting the views of the authors supposed to be authorities on this subject. It is a reference book, written by a man of scientific ability and discrimination, and furnishes a wealth of information to those desiring to orientate themselves with regard to the present status of the theories of radiotherapy.

Handbook of Organization and Method in Hospital Social Service. An Outline of Policies as Practiced at The Johns Hopkins Hospital. By Margaret S. Brogden, Chief of Social Service, The Johns Hopkins Hospital. Cloth. $2.50. Pp. 77, with 2 illustrations. Baltimore: The Norman, Remington Company, 1922.

This book has been arranged and compiled from materials that the author accumulated while serving as chief of social service in the Johns Hopkins Hospital. It is virtually a printed reproduction of policies and instructions first issued in loose leaf form for the direction of the workers in her department, and more particularly for the guidance of new workers. It contains such rules and policies as might be evolved out of the experience of any social service department. The book will be of greatest value to the heads of social service departments by affording them the opportunity of comparing their problems and methods with those that have been worked out in the experience of social service workers at the Johns Hopkins Hospital, and recorded by Miss Brogden in her book.

Diagnostig der Kinderkrankheiten mit besonderer Berücksichtigung des Säuglings. Eine Wegleitung für praktische Aerzte und Studierende. Von Professor Dr. E. Feer, Direktor der Universitäts-Kinderklinik in Zürick. Second edition. Paper. Price, $2.80. Pp. 307, with 240 illustrations. Berlin: Julius Springer, 1922.

This monograph is especially well illustrated by pictures and charts selected from among the large clinical material of the author. It is written from the standpoint of the differential diagnosis of symptoms of diseases in infancy and childhood, and covers the conditions commonly seen and the more rare ones as well. Under each symptom are described the different diseases during the course of which such localized or general findings may be present.

Medicolegal

Not Entitled to Portion of Viscera for Examination

(Application of Wnuk (N. Y.), 193 N. Y. Supp. 353)

The Supreme Court of New York, Appellate Division, Fourth Department, says that, after the death of one Henrietta Schieck, petitioner Wnuk alleged that an action was about to be brought against him by the representatives of the decedent to recover damages for her death, on the ground that it was caused by his negligence in an automobile accident; whereas he was informed that her death was caused by inflammation of the liver. Wherefore, he petitioned for, and was granted, an order for the production of portions of the body of the decedent, more particularly the liver, for the purpose of an examination by physicians of the petitioner. There had been a private necropsy, ordered by members of the family, and the liver, which had been removed from the body, which had not yet been buried, was in the possession of an attorney or the surgeon who made the necropsy, for the purpose of having an examination made of it. In reversing the order that was granted, the court holds that the provisions of Section 5-a of the Public Health Law, relied on by the petitioner as a basis for the order, which allow the medical representatives of a person likely to be a defendant in a civil action to be present at certain necropsies, had no application to this case, as that section relates to what may be termed official necropsies; that is, those performed by or under the direction of the coroner. Further, the order in this case is no way related to a necropsy, but to an examination of a portion of the viscera, a matter not covered by the statute. Neither was the order justified by Section 803 of the Code of Civil Procedure, as the discovery there provided for can only be required at the instance of a party to an action, while in this case no action was pending. Although in this instance the organ seemed to have been removed from the body, at least temporarily, it was still a part of the human remains, and as such was to be disposed of as the family might desire. In the absence of a clear right or a statutory command, the courts should not interfere with the relatives' possession or control of the remains or any part of them.

Percentage of Disability—Examination—Treatment

(Pocahontas Mining Co. v. Industrial Commission et al. (Ill.), 134 N. E. R. 160)

The Supreme Court of Illinois, in reversing a judgment that affirmed an award of compensation by the industrial commission for injuries sustained by an employee of the mining company, who suffered burns from an explosion, says that the commission, under the evidence in the case, was required to find as ultimate facts whether or not the claimant had sustained any permanent loss of the use of his arms or eyes, and, if any, what percentage of such loss. This court has frequently ruled that a lay witness, or even an expert, cannot testify in direct terms that an injured employee has lost any stated percentage of the use of an eye or of a limb. It is proper for an injured employee to testify how and in what manner his injuries affect him; and to detail his ability to see or to use his injured parts, his ability to work or to use his injured eyes or limbs, and in what manner such use affects him. It is proper for an expert to testify as to whether or not a man's vision is normal or otherwise, as to the amount or extent of his vision as disclosed by scientific tests or examination, and as to the amount of movability or apparent use he has of an injured limb; but he cannot answer in direct terms as to what percentage of loss he has sustained in the use of an eye or of a limb, as such conclusion or finding must be made by the commission from the legitimate evidence in the record.

A blood test of the claimant showed a syphilitic condition, and the mining company offered to furnish him treatment by a physician, with all expenses of hospital treatment paid, and without charge of any kind to the claimant; an offer which was refused by him. The commission declined to consider the petition of the company to suspend payment of the compensation for failure of the claimant to accept medical treatment tendered him for his injuries, on the ground that, under the rulings of the commission, compensation must be paid up to the filing of such a petition; which was not done. The commission also declined to require the claimant to be examined by the medical director of the commission, or by any physician selected by it, at the expense of the company, or to allow the report of such physician to be incorporated in the record as evidence. But the employer is entitled to a physical examination of his employee by a physician without being compelled to pay the compensation awarded by the commission. Furthermore, the company was entitled to a decision of the commission as to whether or not the claimant should submit to the treatment for his ailments that was tendered; and, if it found that such treatment was reasonably essential to promote his recovery, the commission should have entered an order that he submit to the same, and, in case of his refusal, should reduce or suspend the compensation. It seems to the court that an examination of the claimant by an impartial expert as to his physical injuries and condition, and the expert's opinion on the question of the efficacy of the proposed treatment and its desirability, would be most valuable to the commission in making its decision as to whether the claimant was acting within his reasonable discretion in refusing to submit to such examination and treatment, without having his compensation suspended or reduced.

Privilege Waived as to Any Physician

(Fennelly v. Schenectady Ry. Co. (N. Y.), 193 N. Y. Supp. 641)

The Supreme Court of New York, Appellate Division, Third Department, reverses a judgment for damages for personal injuries that was rendered in favor of the plaintiff, on account of error in the exclusion of the testimony of a physician called by the defendant as a witness after the plaintiff had introduced the testimony of another physician. The court says that the plaintiff sought to prove by his physician certain injuries which were alleged to have been caused when the plaintiff was ejected from one of the defendant's cars. This physician did not examine the plaintiff until three days after the alleged assault. The defendant denied that the plaintiff had suffered any injury whatever, and sought to prove, by the physician at the hospital to which the plaintiff was taken, what he found with reference to the physical condition of the plaintiff on his examination of him the morning after the alleged assault. This testimony was objected to by the plaintiff as privileged, and was excluded. But the refusal of the trial court to permit the physician to state what he found, if anything, in his examination of the plaintiff, was reversible error, irrespective of the question whether the plaintiff had met the burden which rested on him to establish that the privileged relationship of physician and patient existed between the plaintiff and the physician, for the reason that the plaintiff had placed his person before the jury as a basis for damages and had his condition described by his own physician. He thereby waived any privilege, not only as to the physician called by him, but also as to any physician who examined him at about the same time.

Society Proceedings

COMING MEETINGS

American Physiological Society, Toronto, Canada, Dec. 28-30. Dr. Chas. W. Greene, University of Missouri, Columbia, Secretary.

Hawaii, Medical Society of, Honolulu, Nov. 19-21. Dr. F. J. Pinkerton, 45-46 Young Building, Honolulu, Secretary.

Isthmian Canal Zone, Medical Association of, Ancon, Dec. 15. Dr. L. S. Chapman, Ancon, Secretary.

Philippine Islands Medical Association, Manila, Dec. 20-22, 1922. Dr. I. Concepcion, College of Medicine and Surgery, Manila, Secretary.

Porto Rico, Medical Association of, Ponce, Dec. 15-17. Dr. Augustin R. Laugier, San Juan, Secretary.

Radiological Society of North America, Detroit, Mich., Dec. 4-8. Dr. M. J. Sandborn, Appleton, Wis., Secretary.

Society of American Bacteriologists, Detroit, Dec. 27-29. Dr. A. P. Hitchens, Army Medical School, Washington, D. C., Secretary.

Southern Medical Association, Chattanooga, Tennessee, Nov. 13-16. Mr. C. P. Loranz, Empire Building, Birmingham, Alabama, Secretary.

Southern Surgical Association, Memphis, Tenn., Dec. 12-14. Dr. H. A. Royster, Raleigh, N. C., Secretary.

Western Surgical Association, Minneapolis, Minn., Dec. 8-9. Dr. Warren A. Dennis, Hamm Building, St. Paul, Secretary.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Anatomy, Philadelphia

September, 1922, **31**, No. 1

Changes in Mammary Gland of Albino Rat (Mus Norvegicus Albinus) During Lactation and Involution. L. M. A. Maeder, Minneapolis.—p. 1.
Histology of Testis from Case of Human Hermaphroditism; Significance of Hermaphroditism in Relation to Question of Sex Differentiation. H. E. Jordan, Charlottesville, Va.—p. 27.
Significance of Prechordal Plate. H. B. Adelmann, Ithaca, N. Y.—p. 55.

American Journal of Medical Sciences, Philadelphia

September, 1922, **164**, No. 3

*Infection of Gastro-Intestinal Tract in Systemic Disorders: Medical Viewpoint. G. R. Satterlee, New York.—p. 313.
*Id. Surgical Viewpoint. J. W. Draper, New York.—p. 322.
*Id. Neurologic Viewpoint. H. A. Cotton, Trenton, N. J.—p. 329.
Application to Other Institutions of Results of Treatment of Insane in Trenton State Hospital. B. G. Lewis, Trenton, N. J.—p. 338.
*Carcinoma of Esophagus with Perforation of Aorta: Radium Therapy. J. G. Carr and C. W. Hanford, Chicago.—p. 340.
*Studies in Physiology of Gallbladder. L. S. Auster and B. B. Crohn, New York.—p. 345.
Chemical Changes of Blood During Immunization. G. L. Rohdenburg, O. F. Krehbiel and A. Bernhard, New York.—p. 361.
*Biochemical Studies in Disease of Skin. II. Acne Vulgaris. O. L. Levin and M. Kahn, New York.—p. 379.
Clinical Importance of Aseptic Infarction of Kidney. P. W. Aschner, New York.—p. 386.
Study of Vestibular Nerve Function in Myxedema. R. A. Barlow, Rochester, Minn.—p. 401.
*Treatment of Syphilitic Liver and Heart: Therapeutic Paradox. U. J. Wile, Ann Arbor, Mich.—p. 415.
Acute Lung Abscess Treated by Therapeutic Pneumothorax. H. M. Rich, Detroit.—p. 428.

Infection of Gastro-Intestinal Tract in Systemic Disorders.—From a detailed study of more than 1,000 chronic intestinal invalids medically treated and of more than 200 similar patients in whom a portion or all of the colon had been removed, Satterlee has come to the belief that many of these patients with severely infected colons will not get well until the diseased portion of the organ is removed together with every other local focus. Medical treatment with vaccines and serums is indicated in every case.

Id.—Draper states that colectomy should never be considered until all other local foci have been removed and the patient thoroughly treated from a modern medical standpoint, especially with vaccines and serums. Extensive colon pathology exists in 20 per cent. of all so-called "functional" psychotics. Mental symptoms have been arrested in 28 per cent. of these and improvement has occurred in a large percentage. The mortality of partial (46) and total (31) colectomy in seventy-seven consecutive cases has been 12 per cent.

Id.—Cotton is convinced that the psychotic individual harbors multiple foci of infection which often can be located and eliminated only with the greatest difficulty. The so-called functional psychoses are due to a combination of many factors, but the most constant one is the intracerebral, biochemical and cellular disturbance arising from circulatory toxins originating in chronic foci of infection situated anywhere throughout the body and probably secondary disturbances of the endocrine system. The psychoses then, instead of being considered a disease entity, should be considered as a symptom, and often a terminal symptom, of a long continued marked infection, the toxemia of which acts directly on the brain.

Carcinoma of Esophagus with Perforation of Aorta.—To the twenty-one cases of esophageal carcinoma with perforation of the aorta or other large vessels reported in the literature another case is added by Carr and Hanford. Necropsy disclosed certain deficiencies in the application of radium therapy. Suggestions are made for more effective technic.

Physiology of Gallbladder.—Auster and Crohn are inclined to the belief that the flow of bile originates in the liver and sweeps down the ducts into the duodenum disregarding in main part the gallbladder. Such variations in bile flow and concentration as occur originate in the liver in answer to the various degrees of food stimuli. It does not seem to them that the gallbladder as an active organ enters into the physiology of bile excretion. Certainly it does not seem to have an ejaculatory mechanism or the proper musculature for such a function in the same light as one speaks of the urinary bladder or of the seminal vesicles. The outflow from the gallbladder appears to be in the nature of an overflow incontinence. Under pathologic conditions this organ is capable of great distention, acting at such times as an exhaust vent or safety valve to relieve intraductal pressure. Such a function is complementary to its great capacity to concentrate the bulk of bile by dehydration and inspissation.

Biochemical Status in Acne Vulgaris.—The biochemical status of thirty-eight patients with moderate and severe acne vulgaris of from one to fifteen years' duration has been studied by Levin and Kahn. In fifteen cases in which the nitrogen retention products in the blood were investigated no constant defect could be detected. The calcium content of the blood was not increased. Hyperglycemia, or a high normal blood sugar, accompanied more than 50 per cent. of the thirty-four cases studied. The blood sugar curve was normal in all the twenty-three patients who were studied for their carbohydrate tolerance. The renal glucose threshold was decreased in four out of twenty-three patients. A mild form of acidosis was found in about 30 per cent. of the thirty-four patients. Feces from nineteen of twenty-three patients showed carbohydrate fermentation, while only four showed protein putrefaction. The enzymes were excellent in all cases for amylase, were good in all cases save four for protease and were good or fair in all cases for lipase. The metabolic rate seemed to be slightly increased in acne vulgaris. The presence of hyperglycemia and the increased basal metabolic rate seem to point toward dysfunction of the thyroid as a possible causative factor. The following measures have proved valuable in the treatment of this condition: Reduction of the carbohydrates in the diet, gastro-intestinal supervision, administration of alkalies and organotherapy. Thyroid in some cases caused the appearance of increased sympathicotonus and increased the severity of the cutaneous condition; occasionally it seemed to produce involution of the lesions. The administration of ovary, lutein and pituitary has been of benefit in some cases.

Treatment of Syphilis of Liver and of Heart.—Although Wile is an ardent advocate of the use of arsphenamin in the treatment of syphilis, he is of the opinion that it should not be used as a routine measure in the treatment of cardiac and hepatic syphilis. When indicated in these two conditions it may be used with reasonable safety in those cases which have responded to a previous administration of mercury and iodid. With everything in its favor apparently, from the extent of the lesion, the shortness of its duration and the general well being of the patient, a case of cardiovascular or hepatic syphilis may well turn out to be one with serious or even fatal sequels. Mercury and iodid are admirably suited for the treatment of cardiovascular and hepatic as well as other forms of visceral syphilis. Their action is slow, and this is desirable. In all cases their use should be combined with the intelligent treatment of the diseased heart. The syphilized liver and heart, in whatever stage of the disease, from clinical experience at least, seem to do better when the process of repair is slow and when no great strain is placed on their normal functioning activities.

American Journal of Tropical Medicine, Baltimore

September, 1922, **2**, No. 5

Carbon Tetrachlorid as an Anthelmintic. M. C. Hall, Washington, D. C.—p. 373.
*Use of Carbon Tetrachlorid for Removal of Hookworms in Human Beings. G. G. Hampton, New York.—p. 381.
Geographical Distribution of Hookworm Infection in United States, Detected in Army Recruits. C. A. Kofoid, Berkeley, Calif.—p. 389.
*Hookworm Index and Mass Treatment. S. T. Darling, Baltimore.—p. 397.
Graphic Analysis of Certain Factors in Hookworm Control. W. W. Cort, Baltimore.—p. 449.
Influence of Malaria on Circulation. S. R. Roberts, Atlanta, Ga.—p. 463.
Action of Light in Production of Relapse in Malaria. E. R. Whitmore, Washington, D. C.—p. 475.

Use of Carbon Tetrachlorid for Hookworm Disease.—Hampton states that one 1.5 c.c. dose of oil of chenopodium gives microscopic cures in from 30 to 50 per cent. of the patients treated, while one 3 c.c. dose of carbon tetrachlorid gives microscopic cures in 90 per cent. of the cases treated and costs only one-tenth as much as chenopodium.

Eradication of Hookworm Disease.—In hookworm control, Darling says, it would seem to be strategic to treat by vermicide all the people in a community within as short a period of time as possible so that soil pollution and soil infestation will not continue but be terminated abruptly, and so that there will be no reinfection of those already treated. Hence, mass treatment of entire communities is recommended wherever it is practicable. It is believed that when an entire community is purified of most of its worms by mass treatment within a few days, very few hookworm embryos will be passed to infest the soil, and the latter instead of remaining highly infested, as before treatment, rapidly becomes lightly infested and only light and relatively very harmless infections can result.

American Review of Tuberculosis, Baltimore

September, 1922, **6**, No. 7

Phthisiogenesis and Latent Tuberculous Infection. E. L. Opie, St. Louis.—p. 525.
*Hereditary Factor in Etiology of Tuberculosis. A. Govaerts, Cold Spring Harbor, N. Y.—p. 547.
*Possible Mode of Transmission of Infection in Tuberculosis. S. J. Shipman and A. G. Foord.—p. 566.
Permanent Pulmonary Effects of Gas in Warfare. J. L. Hankins and W. C. Klotz, Johnson City, Tenn.—p. 571.
Lymph Node Distribution of Experimental Tuberculosis in Guinea-Pig. G. B. Webb, C. T. Ryder and C. T. Olcott, Colorado Springs, Colo.—p. 575.
*Serum Ring Reaction in Tuberculosis. M. A. Smeeton, Kentville, Nova Scotia.—p. 588.
Significance of Roentgenographic Mutations of Lesions of Chronic Pulmonary Tuberculosis. J. B. Amberson, Jr., Loomis, N. Y.—p. 591.
*Juvenile Tuberculosis. J. B. Hawes, Boston.—p. 606.

Hereditary Factor in Etiology of Tuberculosis.—Govaerts' study of 214 families, in which 185 tuberculous matings and twenty-nine nontuberculous matings were found, representing 5,629 individuals shows that (1) the different percentages of defective or normal offspring are correlated with the quality of their parents; (2) the defect or taint is carried in the parental gametes. The tuberculous diathesis is not inherited always in the same degree, but in different degrees depending on the gametic constitution of the individual. One fact stands out clearly in these statistics: that is, that a larger proportion of the offspring are nontuberculous when the mother alone shows active tuberculosis than when the father alone shows it. Wherever the paternal stock alone is known to be tainted, more of the children show active tuberculosis than when the maternal alone is known to be tainted. This suggests that a nonresistant sperm is more injurious to the zygote than a nonresistant egg. On the other hand, when one parent alone is tainted or has active tuberculosis, there is nearly twice as much respiratory disease in the offspring when that parent is the mother as when it is the father. Biometric and statistical studies agree in indicating a high correlation in inheritance of tuberculosis between parents and offspring. Govaerts' study shows that the percentage of tuberculous offspring is higher in tuberculous families. In the same surroundings, there is a greater occurrence of tuberculous without than with close contact. This holds for the cases of suspects and respiratory diseases. In the distribution of the offspring according to parental and ancestral combinations, the percentage of the tuberculous increases and that of the nontuberculous decreases with the degree of the ancestral tuberculous influence. There is a parental influence by which the defect is introduced. Thus the defect is doubtless carried by the gametes. The maternal influence is very slight and there is no evidence of a prenatal influence. The variation of tuberculous suspects and respiratory diseases among the defectives indicates the presence of an inherited character, which is the constitutional component called diathesis. Of these there are biotypes. Among the biotypes there are those who are more resistant, less resistant and nonresistant.

Mode of Transmission of Infection in Tuberculosis.—Shipman and Foord advise that a tuberculous mate should not kiss his or her consort, nor should a young child be kissed, particularly not on the mouth, because tuberculosis may be transmitted by a healthy person by kissing. The period of infectivity of the noninfected person is at least fifteen minutes. These statements are based on experimental and clinical observations.

Serum Ring Reaction in Tuberculosis.—The technic of Krumwiede and Valentine's test for the determination of the pneumococcus types was carefully followed by Smeeton with sputum containing large numbers of tubercle bacilli and homologous serum. In no case, however, was a reaction observed. O. T. was then used in place of the sputum antigen extract with very definite results. The presence or absence of natural complement appears to play no part in the reaction, since the ring formation was noted in both fresh and inactivated serums. While the reaction is well defined and apparently occurs with greater frequency in tuberculous persons than in normal ones, it is evidently not specific. Nor does the test indicate the degree of immunity possessed by the individual; consequently it is of no prognostic value.

Juvenile Tuberculosis.—Five diagnostic points have been found useful by Hawes in the diagnosis of bronchial lymph node tuberculosis. (1) A positive skin tuberculin test, unless the child has recently recovered from measles or any of the other acute infections which might lead to a negative test, or unless the child has advanced tuberculosis. (2) A definite history of exposure from either human or bovine sources of tuberculosis. (3) Constitutional signs and symptoms, particularly loss of weight or failure to gain weight, along with "ease of tire" or undue fatigue, fever or rapid pulse. (4) The presence of enlarged bronchial nodes as shown by the roentgen-ray or by clinical examination of the chest. (5) The absence of other evident sources of infection or toxemia, such as, (*a*) infected tonsils or adenoids, (*b*) carious teeth, (*c*) intestinal disturbances and particularly a chronic appendicitis, and (*d*) other possible sources of infection, such as middle ear, lymph nodes in the neck, bronchopneumonia, measles, whooping cough, etc.

Boston Medical and Surgical Journal

Oct. 5, 1922, **187**, No. 14

Nutrition and Growth in Relation to Tuberculosis. W. R. P. Emerson, Boston.—p. 495.
Special Training in Home Nursing. A. Worcester, Waltham, Mass.—p. 498.
Investigation of Reliability of Laboratory Tests and Discussion of Technic of Laboratories in and Near Boston. F. H. Slack, Brookline, Mass.—p. 500.

Oct. 12, 1922, **187**, No. 15

Some Changes in Medical Teaching and Surgery. C. A. Porter, Boston.—p. 525.
Factors in Dyspepsia. F. W. Palfrey, Boston.—p. 527.
Some Aspects of Problem of Sterility. S. R. Meaker, Boston.—p. 535.
Instrument for Suction, Medication and Massage of Tonsils, and with Uses in General Medicine. J. Taylor, Jr., Worcester.—p. 539.
Investigation of Reliability of Laboratory Tests and Discussion of Technic of Laboratories in and Near Boston. F. H. Slack, Brookline.—p. 540.
*Bone Sarcoma; Prevalence in Massachusetts. E. A. Codman, Boston.—p. 543.
Postmortem Radiography. J. A. Honeij, Boston.—p. 545.

Prevalence of Bone Sarcoma in Massachusetts.—Four practical points are brought out by the investigation thus far conducted by the bone sarcoma registry in which Codman is active: (1) That the diagnosis should be made with great caution. (2) That Bloodgood's claim of the benign character of giant cell tumors (erroneously called sarcoma) is confirmed by experience in Massachusetts. (3) That true osteogenic sarcoma is almost always fatal (the rare exceptions being cases in which early amputation is performed). (4) That since only nine living cases could be located in a population of 4,000,000 there are probably only 225 in the whole United States (100,000,000). Another point of considerable interest which has been brought out is the frequency with which amputation has been performed for giant cell tumor. Codman says it should be possible by early diagnosis and complete local excision to save the limb in all such cases. No metastasis need be feared. However, early diagiosis is not an easy matter. Even if the surgeon excises issue, the pathologist must have had special experience with hese tumors and even then is occasionally in doubt. Even vhen the diagnosis of giant cell tumor is quite certain, there vill be found occasions when amputation is the wisest course, or the bone may be destroyed to such an extent as to appear ncapable of regeneration sufficient for functional use. This conclusion must be made with caution, however, for it is urprising how in certain cases after roentgen-ray treatment he bone has regenerated. The registry has a few cases in vhich roentgen-ray treatment without help from operation as apparently been effective. It is clear, says Codman, that ogically the roentgen ray may be used in a suspected bone umor, on the ground that surgery has little chance if the umor is metastatic or a sarcoma, and delay will do no harm f the lesion is benign. This is, perhaps, better reasoning han to cut off all the arms and legs on the ground that now nd then a life will be saved, for only six five-year cures re known in the whole United States.

Illinois Medical Journal, Oak Park

October, 1922, **42**, No. 4

Empyema. J. T. Gregory, Chicago.—p. 253.
Surgical Aspects of Uterine Malpositions. J. A. Pettit, Portland, Ore. p. 258.
Diagnosis and Treatment of Peptic Ulcer and Gallbladder Diseases. D. Deal and C. V. McMeen, Springfield.—p. 261.
Memory Defect of Korsakoff Type, Observed in Multiple Neuritis Following Toxemia of Pregnancy. F. A. Ely, Des Moines, Ia.—p. 263.
Origin of Trachebronchial Inflammations. J. Niess, Carmi.—p. 272.
Differential Diagnosis of Abdominal Pain. C. S. Salmon, Chicago.—p. 274.
Nephrolysis and Ureterolysis. G. Kolischer, Chicago.—p. 279.
"Evil" of Adenoids in Infants. G. S. Duntley, Bushnell.—p. 280.
Bilateral Blood Staining of Cornea. H. S. Gradle, Chicago.—p. 281.
Rectal Fistula Involving Internal Sphincter Muscles. C. J. Drueck, Chicago.—p. 286.
Prognosis in Radical Cure of Hernia. W. F. Grinstead, Cairo.—p. 287.
Alexia (Cortical Word Blindness) with Agraphia in Child. S. D. Wilgus, Rockford.—p. 291.
Question of Tonsillectomy in Early Childhood. C. J. Swan, Evanston.—p. 295.
Enlarged Thymus. O. Barbour and L. S. Goin, Peoria.—p. 299.

Journal of Biological Chemistry, Baltimore

September, 1922, **54**, No. 1

*Reliability of Benedict and Folin-Wu Blood Sugar Determinations. F. A. Csonka and G. C. Taggart, Pittsburgh.—p. 1.
Mineral Content of Normal White Rat During Growth. G. D. Buckner and A. M. Peter, Lexington.—p. 5.
*Distribution of Iodin Between Cells and Colloid in Thyroid. IV. Distribution of Iodin in Hyperplastic Thyroid Gland of Dog After Intravenous Injection of Iodin Compounds. H. B. van Dyke, Chicago.—p. 11.
Fermentation of Pentoses by Molds. W. H. Peterson, E. B. Fred and E. G. Schmidt, Madison, Wis.—p. 19.
*Influence of Sodium Ion in Production of Tetany. F. F. Tisdall, Toronto.—p. 35.
Studies of Human Mixed Saliva. I. Determination of Hydrogen Ion Concentration of Human Mixed Saliva. H. E. Starr, Philadelphia.—p. 43.
Id. II. Variations in Hydrogen Ion Concentration of Human Mixed Saliva. H. E. Starr, Philadelphia.—p. 55.
Structure of Fucose. E. P. Clark, Washington, D. C.—p. 65.
Dietary Factors Influencing Calcium Assimilation. III. Comparative Efficiency of Timothy Hay, Alfalfa Hay and Timothy Hay Plus Calcium Phosphate (Steamed Bone Meal) in Maintaining Calcium and Phosphorus Equilibrium in Milking Cows. E. B. Hart, H. Steenbock, C. A. Hoppert and R. M. Bethke, Madison, Wis.—p. 75.
Unsaturated Fatty Acids of Brain Cephalins. P. A. Levene and I. P. Rolf, New York.—p. 91.
Unsaturated Fatty Acids of Brain Lecithins. P. A. Levene and I. P. Rolf, New York.—p. 99.
Possible Asymmetry of Aliphatic Diazo Compounds. III. P. A. Levene and L. A. Mikeska, New York.—p. 101.
Metabolism of Inorganic Salts. I. Organic Ion Balance of Blood in Parathyroid Tetany. E. G. Gross and F. P. Underhill, New Haven, Conn.—p. 105.
Studies of Gas and Electrolyte Equilibria in Blood. I. Technic for Collection and Analysis of Blood, and for Its Saturation with Gas Mixtures of Known Composition. J. H. Austin, G. E. Cullen, A. B. Hastings, F. C. McLean, J. P. Peters and D. D. Van Slyke, New York.—p. 121.
Id. II. Reversibility of Effects of Changes in CO_2 and O_2 Tensions on CO_2 Content of Defibrinated Horse Blood. J. P. Peters, G. E. Cullen and J. H. Austin, New York.—p. 149.

Reliability of Sugar Determinations.—Csonka and Taggart assert that the Folin-Wu blood sugar determination gives more reliable results than Benedict's picric-picrate method.

Distribution of Iodin in Thyroid.—The findings of Marine, Feiss and Rogoff previously made that the hyperplastic thyroid gland of the dog rapidly binds iodin intravenously introduced as a solution of potassium iodid were confirmed by van Dyke. By a method already described the ratio value of iodin in cells to iodin in whole gland was determined and found to be very low after the intravenous injection of potassium iodid solution into dogs with hyperplastic glands when those glands were removed from 1.5 to 60 minutes after the injection. The ratio value more nearly approached the normal if the interval elapsing between injection and removal of gland was made about twenty-four hours instead of one hour or less as in most of the experiments. When iodin as colloid iodin solution of normal animals was administered intravenously practically none of the colloid iodin was taken up by hyperplastic glands during the periods of time used in these experiments; yet from an injection of a comparable amount of iodin in the form of potassium iodid the ready binding of iodin by similarly hyperplastic glands was proved. Colloid iodin of hyperplastic glands removed one hour after the intravenous injection of potassium iodid solution was taken up to some extent by hyperplastic glands; but these last named glands bound additional iodin as potassium iodid introduced after the colloid iodin injection.

Influence of Sodium Ion in Production of Tetany. — The sodium-calcium ratio is believed by Tisdall to be the important factor in the production of tetany, with the exception of the gastric type. Gastric tetany is not due to a disturbance of the sodium-calcium ratio but apparently to an increase of the bicarbonate ion. No evidence has been found that the calcium-phosphorus ratio has any influence on the production of tetany.

Journal of Infectious Diseases, Chicago

September, 1922, **31**, No. 3

*Factors Controlling Intestinal Bacteria; Effect of Acute Obstruction and Stasis on Bacterial Types. L. R. Dragstedt; P. R. Cannon and C. A. Dragstedt, Chicago.—p. 209.
*Nonspecific Immunity. P. F. Clark, C. E. Zellmer and H. W. Stone, Madison, Wis.—p. 215.
*Complement Fixation in Typhoid Fever. L. G. Hadjopoulos, New York.—p. 226.
Cultivation of Bacterium Abortus Bang. C. P. Fitch, St. Paul.—p. 233.
*Meiostagmin Reaction. W. E. Gouwens, Chicago.—p. 237.
Effect of Urea on Immunologic Reactions. N. P. Sherwood, Lawrence, Kan.—p. 252.
Studies of Hemolytic Staphylococci. L. A. Julianelle, Philadelphia.—p. 256.
Hecht-Weinberg-Gradwohl Test. Studies on Serodiagnosis of Syphilis. L. W. Famulener and J. A. W. Hewitt, New York.—p. 285.
*Mather's Coccus in Throat in Influenza. F. W. Mulsow, Iowa City, Ia.—p. 291.
*Incubation Period of Typhoid. J. R. Miner, Baltimore.—p. 296.
Relative Effect of Certain Triphenylmethane Dyes on Growth of Bacilli of Colon Group in Lactose Broth and Lactose Bile. C. E. A. Winslow and A. F. Dolloff, New Haven, Conn.—p. 302.

Effect of Intestinal Stasis on Bacterial Types.—Evidence is presented by Dragstedt et al. which indicates that other factors than the character of the diet are concerned in determining the type of intestinal flora. Either a complete obstruction or a stasis in the passage of the intestinal content results in a proteolytic flora irrespective of the character of the diet. The intestinal secretions do not suppress the growth of gram-negative bacteria in closed intestinal loops. The disappearance of gram-positive aciduric organisms from closed intestinal loops is probably due to the absence of utilizable carbohydrate and to the alkaline reaction of the medium.

Nonspecific Immunity.—By the intravenous injections of repeated doses of gram-positive cocci, Clark et al. rendered rabbits more resistant to the injection of a totally unrelated organism, *B. typhosus*. This type of nonspecific vaccination causes the rabbits to respond, when they are subsequently inoculated with *B. typhosus*, by building up a higher concentration of agglutinins against this unrelated antigen than do normal animals when they are kept under the same living conditions.

Complement Fixation in Typhoid.—In the course of typhoid infection, Hadjopoulos states, the formation of complement fixing antibodies is one of the earliest and most constant immune manifestations. The introduction of a differential quantitative, active serum technic for the complement fixation test makes it possible to utilize this property for the diagnosis of typhoid fever, with satisfactory results. In a limited number of typhoid cases the test has been repeated with inactive serum and found similarly satisfactory. It is recommended, however, that the active serum technic be used, as it saves much time in the routine work of the test.

Value of Meiostagmin Reaction.—More than 1,100 tests were made by Gouwens in a study of the meiostagmin reaction, using almost 200 different mixtures of rabbit serum and antigen. He found that this reaction does not reveal the presence of antibodies in *B. paratyphosus* B immune rabbit serum of high titer regardless of (*a*) the dilutions in which the serums and antigens are employed, and (*b*) the solvents used in the preparation of the antigens.

Mather's Coccus in Throat in Influenza.—A green producing streptococcus resembling the pneumococcus in morphology but insoluble in bile was found by Mulsow to be the predominating organism in an influenza epidemic affecting 75 per cent. of a class of students. The same organism was found as the predominant one in the throats of other students with similar symptoms and in the throats of patients in the hospital with influenza. This coccus grows characteristically on blood agar and uniformly ferments dextrose, levulose, maltose, sucrose, and lactose. In most cases inulin, salicin, and raffinose are also fermented. Dextrin and mannite are not fermented. It is only slightly virulent for mice and rabbits. The relation of this organism to the epidemic is very interesting. For convenience of discussion and because of the early study by Mathers of this organism in relation to influenza, the name of *Streptococcus mathersi* is suggested for it.

Incubation Period of Typhoid.—The results obtained by Miner are consonant with the belief that the length of the incubation period depends in part on the virulence of the infection. The means of the epidemics due to infected water are 13.81 ± 0.83, 19.38 ± 1.66, and 19.50 ± 0.31, whereas the means for those due to infected food, in which the dose was probably more massive, are 7 ± 0.26 and 9.54 ± 0.39.

Journal of Industrial Hygiene, Boston

October, 1922, **4**, No. 6

Ideal Work Curve. T. Bedford.—p. 235.
Cooling Power of Atmosphere and Comfort During Work. L. Hill and J. A. Campbell, London.—p. 246.
Estimations of Mercury in Hatters' Fur and in Felt. A. S. Minot, Boston.—p. 253.
Study of Mortality of Coal Miners of England and Wales. E. L. Collis.—p. 256.
Medical Examination of Employees. D. A. Coles, London.—p. 273.
Labor Records in Factories. G. M. Broughton.—p. 275.

Journal of Radiology, Omaha

October, 1922, **3**, No. 10

Bone Diseases, Osteoporosis or Lipomasia from Fixation and Nonuse. J. C. Bloodgood, Baltimore.—p. 403.
Cancer: Its Character and Causes. L. Loeb, St. Louis.—p. 407.
Gallbladder. R. A. Arens, Chicago.—p. 411.
Cecocolic Sphincteric Tract. I. S. Hirsch, New York.—p. 413.
Roentgen-Ray Anthropometry (Skull). A. J. Pacini, Chicago.—p. 418.

Journal of Urology, Baltimore

October, 1922, **8**, No. 4

Case of Bilateral Pyelitis Due to Bacillus Pyocyaneus: Unusual Kidney Infection Diagnosed Through Ureteral Catheterization. C. P. Mathe and A. E. Belt, San Francisco.—p. 281.
Pathologic Changes in Experimental, Ascending and Hematogenous Pyelitis. H. F. Helmholz, Rochester, Minn.—p. 301.
*Relationship of Blood Concentration to Nitrogen Retention in Experimental Nephritis. F. P. Underhill and R. Kapsinow, New Haven.—p. 307.
*Association of Hypernephroma with Tuberose Brain Sclerosis and Adenoma Sebaceum. A. Hyman, New York.—p. 317.
Extraperitoneal Pelvic Suppuration in Male. L. Herm and B. Stuart, Philadelphia.—p. 323.
Development and Surgical Importance of Rectourethralis Muscle and Denonvilliers' Fascia. M. B. Wesson, San Francisco.—p. 339.

Blood Concentration and Nitrogen Retention in Nephritis.—Underhill and Kapsinow found a close relationship in uranium nephritis between the degree of retention of nonprotein nitrogen and creatinin and blood concentration; the greater the retention the more dilute becomes the blood. It is suggested that changes in blood concentration may be employed clinically as an indication of the severity of a nephritic condition; and that this factor, in part at least, is responsible for the anemia observed clinically at times in nephritis.

Association of Hypernephroma, Tuberose Brain Sclerosis and Adenoma Sebaceum.—Hyman's patient was a boy, aged 10, who had had convulsions since 2½ years of age. He had been mentally deficient since early childhood, so much so that his parents were forced to remove him from school on account of his inability to keep up with even the lowest grade classes. During the past year he has had peculiar athetoid movements of hands. He has had an eruption on the face for a number of years. The eruption consisted of innumerable tiny pin head sized nodules, from yellowish to dark red in color. Abdominal examination demonstrated a hard nodular mass, the size of a grape fruit, in the right loin. The mass was easily balloted from the loin and was slightly tender on pressure. The rest of the physical examination was negative. Roentgen-ray examination of the urinary tract demonstrated a large shadow which might be a considerably enlarged kidney occupying the entire right renal region. A typical nephrectomy was done. The kidney removed was three times the normal size, very soft and friable, with necrotic infected areas. The pathologic report was hypernephroma.

Kansas Medical Society Journal, Topeka

October, 1922, **22**, No. 10

False Conceptions Concerning Pulmonary Tuberculosis. J. B. Crouch, Colorado Springs, Colo.—p. 291.
Epidemic Encephalitis. G. W. Robinson, Kansas City, Mo.—p. 297.
Endocrines in Pregnancy. W. E. Stone, Florence.—p. 304.

Michigan State Medical Society Journal, Grand Rapids

October, 1922, **21**, No. 10

Pericarditis with Effusion. A. F. Jennings and J. E. Delph, Detroit.—p. 419.
American Foot. H. B. Knapp, Battle Creek.—p. 423.
Present Day Syphilis. Inactive and Latent Syphilitic and General Résumé of Treatment. R. C. Jamieson, Detroit.—p. 425.
Modern Views of Cancer. H. C. Saltzstein, Detroit.—p. 429.
Blind Spot. H. S. Gradle, Chicago.—p. 435.
Tuberculosis Laryngitis. B. R. Shurly, Detroit.—p. 438.

Nebraska State Medical Journal, Norfolk

October, 1922, **7**, No. 10

Roentgen-Ray Treatment of Toxic Goiter. E. W. Rowe, Lincoln.—p. 329.
Medical Aspects of Brain Tumor. G. A. Young, Omaha.—p. 340.
Hematuria as Symptom. A. D. Munger, Lincoln.—p. 342.
Diaphragmatic Hernia. J. R. McKirahan, North Platte.—p. 345.
Acute Abdomen. H. B. Boyden, Grand Island.—p. 347.
Fractures of Radius. W. L. Sucha, Omaha.—p. 349.
Second Rupture of Uterus Complicating Pregnancy. F. B. Young, Gering.—p. 352.
Care of Perineum During Labor, or Plea for Episiotomy. R. Rix, Omaha.—p. 354.
Sclerosing Keratitis Following Uveitis. I. M. Haughey, Aurora.—p. 356.

New Jersey Medical Society Journal, Orange

October, 1922, **19**, No. 10

Modern Diagnosis and Treatment of Gonorrhea in Male. C. H. de T. Shivers.—p. 268.

New York Medical Journal and Medical Record

Oct. 4, 1922, **116**, No. 7

*Two Cases of Oriental Sore (Cutaneous Leishmaniosis). H. Fox, New York.—p. 365.
Precancerous Dermatoses. W. J. Highman, New York.—p. 367.
Alopecia and Its Treatment. L. K. McCafferty, New York.—p. 369.
*Pityriasis Rubra Pilaris Associated with Dystrophia Adiposogenitalis. P. E. Bechet, New York.—p. 372.
Diagnosis and Treatment of More Common Diseases of Skin. E. Pisko, New York.—p. 374.
Case of Leprous Keratitis Punctata. M. J. Levitt, Brooklyn.—p. 376.
*Bacteriologic Study of Cutting Oils Causing Skin Lesions. R. C. Rosenberger, Philadelphia.—p. 377.
Value of Roentgen-Ray in Skin Diseases. M. V. Leof, Philadelphia.—p. 379.
Tungsten Incandescent Electric Lamp Used as Therapeutic Agent. F. T. Woodbury, Fort Ringgold, Tex.—p. 382.
Radiotherapy of Cancer. J. T. Stevens, Montclair, N. J.—p. 386.
Roentgen-Ray Treatment of Adenopathies. M. K. Fisher, Philadelphia.—p. 389.

Rhinoscleroma. H. Goodman, New York.—p. 391.
*Case of Spontaneous Gangrene, Simulating Purpura, Due to Acute Thrombo-Arteritis. D. W. Kramer, Philadelphia.—p. 394.
What the Family Physician Should Know About Cancer. C. J. Broeman, Cincinnati.—p. 397.
Dermatology and Nervous System. G. H. Hyslop, New York.—p. 402.
Temple Offerings to Aesculapius. J. Wright, Pleasantville, N. Y.—p. 404.

Cutaneous Leishmaniasis.—Fox cites two cases occurring in immigrants from Syria and Persia for the purpose of directing attention to the occurence of this disease in the United States.

Pituitary Extract in Pityriasis Associated with Adiposogenital Dystrophy.—Bechet gave his patient pituitary extract (posterior lobe), one-half grain, three times a day. Plain petrolatum was used externally. There was a marked and progressive improvement in both the eruption and the hypopituitary state within a few weeks.

Bacteriologic Study of Cutting Oils.—It is a very common thing to observe in those workers in or with oil a condition, either of an acne, a dermatitis or furunculosis. Various factors have been put forward as the causative agent in these conditions. Some have mentioned the irritating properties of the higher paraffin, others have mentioned the presence of the particles of metals, while all mention the personal cleanliness of the workers. Rosenberger asserts that the presence of staphylococci or streptococci in fresh or used oil is exceedingly rare, and therefore the alleged presence of these organisms in freshly made oils should not be accepted as the whole cause of the conditions cited. The addition of antiseptics or germicides to the cutting oils appears to exercise very little, if any, action on pyogenic bacteria in pus, nor is it effective in the prevention of infections of the skin.

Spontaneous Gangrene Due to Thrombo-Arteritis.—Kramer cites one case which illustrates the occurrence of an infection of the arteries independent of the general maladies which may be associated with bacteremias and which is usually regarded as a purpura. It is an acute condition with a definite clinical picture. It is presumably caused by some strain of streptococcus, and the point of entrance may be the throat. The lesions in the vessels are varied. The media is most commonly involved. The intima and adventitia, as well as the perivascular tissues, likewise show evidences of inflammation. The clinical picture in the early stage is vague and indefinite so far as a diagnosis is concerned, although it is quite evident that the patient is seriously ill. Later as the blood vessels become more definitely involved, through the direct action of the bacteria or their toxins on the arteries, thrombi are produced with occlusion of the lumen of the vessels or rupture of their walls, and the clinical aspect becomes clearer. Usually the extremities, both upper and lower, are affected. The condition may terminate fatally within a few days or the patient may gradually recover with sloughing of the gangrenous areas, or after surgical intervention.

Ohio State Medical Journal, Columbus

October, 1922, **18**, No. 10

Infections of Gallbladder and Biliary Apparatus. F. Fletcher, Columbus.—p. 661.
Present Status of Gallbladder and Pancreatic Disease as it Pertains to Etiology, Diagnosis and Treatment. K. Hale, Wilmington.—p. 665.
Diagnosis and Treatment of Asthma and Hay-Fever. M. B. Cohen, Cleveland.—p. 669.
Odors. J. J. Sutter, Lima.—p. 672.
Autonomic Nervous System in Mental Depression. H. D. McIntyre, Marion.—p. 675.
Blood Typing. H. R. Huston, Dayton.—p. 680.
Dacryocystitis: Etiology, Pathology, Treatment, Medical and Surgical. C. S. Means, Columbus.—p. 682.
*Granuloma Inguinale. H. L. Claassen, Cincinnati.—p. 685.
*Precocious Mother: Case Report. M. F. Hussey, Sidney.—p. 689.

Granuloma Inguinale in Ohio.—In Claassen's experience granuloma inguinale is not so rare outside the topics as most physicians believe. None of his patients (four) had ever been in the tropics. The peculiar bodies described by Donovan were not constantly present, although they seem to bear an etiologic relationship. The intravenous administration of tartar emetic constitutes a specific form of treatment.

Ten Year Old Mother.—Hussey relates the case of a girl, aged 10 years, 11 months and 13 days, whom he delivered of a 6 pound baby. A point of interest mentioned was a ridge the size of a man's arm extending from the pubis to the ensiform cartilage, 2 inches or more to the right of the median line, with a tumor-like projection at the superior point the size of a cocoanut.

Public Health Journal, Toronto

September, 1922, **13**, No. 9

Function of College in Promoting Mental Hygiene. C. M. Hincks.—p. 385.
Interpretation of Wassermann Test. H. K. Detweiler.—p. 395.
Nostrum and Quack Evil. P. S. Campbell.—p. 400.
Vitamins. A. H. Wright.—p. 411.
Dental Hygiene. H. W. Black.—p. 416.
Victorian Order of Nurses for Canada. I. McMann.—p. 420.

Rhode Island Medical Journal, Providence

October, 1922, **5**, No. 10

Reminiscences of Surgery for Last Thirty-Six Years. J. J. Baxter, Woonsocket.—p. 319.
Problems of Health Officer. C. V. Chapin, Providence.—p. 322.

Southern Medical Journal, Birmingham, Ala.

September, 1922, **15**, No. 9

*Procedure for Demonstrating Power of Kidneys to Concentrate and Diurese Normal Constituents of Urine. W. H. Olmsted, St. Louis.—p. 677.
*Case of Sporotrichosis. C. M. Grigsby and R. H. Moore, Dallas, Tex.—p. 684.
*Tartar Emetic in Treatment of Granuloma Inguinale and Other Granulomas and Granulating Ulcers. K. M. Lynch, Dallas, Tex.—p. 688.
*Direct Exposure to Tuberculosis in Infancy and Childhood and Its Relation to Manifest Pulmonary Tuberculosis in Adult. W. M. Taylor and L. J. Moorman, Oklahoma City, Okla.—p. 692.
Case of Hypertrophic Pyloric Stenosis, Complicated with Marked Pylorospasm. H. L. Moore, Dallas, Tex.—p. 699.
Eight Cases of Jaundice. J. R. Snyder, Birmingham, Ala.—p. 703.
Gastro-Intestinal Expression of Sympathetic and Vagotonia. J. B. Fitts, Atlanta, Ga.—p. 705.
Syphilis of Colon. J. P. Keith, Louisville, Ky.—p. 709.
Surgery of Gallbladder with Analysis of Five Hundred and Twelve Cases. W. H. Goodwin, Charlottesville, Va.—p. 712.
*Analysis of One Hundred and Sixty Cases of Osteomyelitis with End Results. J. S. Speed, Memphis, Tenn.—p. 721.
Prostatic Surgery. F. L. Carson and E. L. Yeakel, Shawnee, Okla.—p. 727.
Problem of Chronic Infection of Prostate. A. Nelken, New Orleans.—p. 730.
Treatment of Gonococcal Arthritis in Male. N. Moore, St. Louis.—p. 737.
Amputation of Leg. T. H. Hancock, Atlanta, Ga.—p. 742.
Abscess of Lung: Etiology. H. W. Lyman, St. Louis.—p. 744.
Clinical Course and Diagnosis of Postoperative Pulmonary Abscess. C. L. Minor, Asheville, N. C.—p. 749.
Treatment of Lung Abscess. C. O. Giese, Colorado Springs, Colo.—p. 755.
Choked Discs from Perisinus Abscess: Sinus Normal. J. H. Buckley, Fort Smith, Ark.—p. 762.

Power of Kidneys to Concentrate and Diurese.—If the kidney could be forced to concentrate so that with a normal kidney the specific gravity of urine were high, say 1.025 or 1.030, Olmsted says, it might be possible to show that in early nephritis the degree of concentration of the urine or its specific gravity is not so high as in the normal person. And if, after forcing such an early diseased kidney to concentrate, a large amount of water were given, it is conceivable that there would occur an increased washing out of temporarily retained urinary constituents. The method used by Olmsted to force the kidney to exercise a concentrated urine is a twelve-hour fast, during which neither food nor water are taken. The procedure is as follows: After the evening meal at 6 p. m., the patient goes through the night without food or water. Between 6 and 7 a. m. the bladder is emptied as completely as possible. The time of voiding is carefully noted. For three hours more the patient is asked to go without food or water. Exactly three hours after the 6 o'clock voiding the patient voids again. This urine represents a three-hour elimination of the body in a basal state after a twelve-hour fast and thirst. Immediately on finishing voiding of the three-hour concentrated specimen the patient drinks 2½ liters of warm water in the next one and one-half hours. All urine voided for the three hours during and after the drinking of water is collected by noon of the day of the test.

There are two specimens of urine, the one of small volume, from 50 to 200 c.c., and of high specific gravity; the other of large volume, usually more than 1,000 c.c. and of very low specific gravity. Both specimens represent a three-hour basal metabolism. These urines are referred to as the "concentration" and the "diuresis" specimens. Olmsted discusses the normal response of the kidney, the variation in concentration and diuresis in certain types of pathologic conditions and compares the ability of the kidney to concentrate and diurese with other tests of kidney function.

Sporotrichosis of Lungs and Skin.—In Grigsby's case, the disease apparently involved the lungs as well as the skin. The organism was easily cultured. In the treatment the measures of value were rest, tonics and high diet. Roentgen-ray, vaccine, neo-arsphenamin, potassium iodid, mercury and arsenic were all of very little use. Silver nitrate, in 10 or 15 per cent. solution, applied often to the skin lesion, was most helpful of all.

Tartar Emetic in Granuloma Inguinale.—The three cases cited by Lynch failed to improve before the tartar emetic administration and did improve very materially under it.

Exposure to Tuberculosis in Childhood Causes Disease in Adults.—In the opinion of Taylor and Moorman there seems to be a definite relation between childhood exposure and manifest pulmonary tuberculosis in the adult as shown by the fact that routine history taking showed childhood exposure in 62 per cent. of 200 cases. They believe there must be many periods of mild tubercle toxemia between the date of infection and the discovery of clinical disease, and that many cases of so-called malnutrition, nervous instability, malaria, anemia and undetermined fever may be the result of toxemia.

Results of Osteomyelitis Treatment.—The records in Speed's series do not favor the complete subperiosteal reaction of the tibia, radius or ulna, even when practically the entire shaft is involved. Any loss of continuity in the shaft of the long bones is to be avoided if possible. Defects of as little as one-half inch, cause marked prolongation in the period of disability. Simple fractures through the involucrum have all united much as ordinary bone does. Continuity of the bone was broken in sixteen cases of this series; fourteen cases in the tibia and one case each in the ulna and radius. The ulna completely regenerated and there is still bony deficiency in the radius after fifteen years. In only four, or about 29 per cent., of the tibial cases did complete regeneration take place. In all of the cases in which the after-treatment could not be supervised there was some shortening and bowing deformity in the leg. Transplantation of the fibula and bone grafts between the ends of the tibial fragments was necessary to give a stable leg. Permanent deformities requiring operative treatment for the improvement or cure were apparently much more frequent following osteomyelitis than is generally reported, occurring in 30 or 27.3 per cent. of 110 chronic cases.

Southwestern Medicine, Phoenix, Ariz.

October, 1922, **6**, No. 10

*Mental Hygiene in Arizona. T. H. Haines, New York.—p. 351.
Injuries to Face and Jaws. W. T. Coughlin, St. Louis.—p. 356.
Infantile Spastic Paralysis. R. D. Kennedy, Globe, Ariz.—p. 360.
Roentgen Ray of Heart. R. G. Karshner, Los Angeles.—p. 362.
Relation of Nasal and Accessory Sinus Disease to Bronchial Asthma. J. J. McLoone, Phoenix, Ariz.—p. 367.
Value of Blood Chemistry to Practitioner. P. B. Newcomb, Tucson, Ariz.—p. 371.

Mental Hygiene in Arizona.—Haines reports the findings made by the Arizona Mental Hygiene Survey in its examination of about 9,000 children in ten counties of the state and also of some of the least desirable families in Arizona. Some of them are delinquents, some are dependents, some are feebleminded, and some are psychopathic. In every case, however, the mental condition is shown to be the fundamental cause of the dependency or of the delinquency, and that this cause is more or less hereditary in character, so that the family as such is to be classed among the undesirable, the unfit, and, therefore, suitable for elimination. Haines points out that it is a part of wisdom to work out means of managing such families, not only for the present minimizing of the expense to which they put the public, but to minimize and ultimately eliminate the expenses for such stocks in the state.

West Virginia Medical Journal, Huntington

October, 1922, **17**, No. 4

Progress of Medical Education at West Virginia University Since 1921. J. N. Simpson, Morgantown.—p. 121.
Driven or Driver. J. H. Anderson, Marytown.—p. 124.
Hallux Valgus. J. A. Guthrie, Huntington.—p. 142.
Acute Gonorrheal Epididymitis. E. W. Strickler.—p. 144.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Tuberculosis, London

October, 1922, **16**, No. 4

*Alpine Climate: Physiology and Therapeutics. B. Hudson, R. G. Bannerman and T. N. Kelynack.—p. 153.
Leysin Revisited. C. W. Saleeby.—p. 181.
Impression of Work of Section of Tuberculosis at Glasgow Meeting of British Medical Association. A. S. M. MacGregor.—p. 185.

Alpine Climate in Tuberculosis.—The authors endeavor to show that great benefit is to be derived in certain cases of tuberculosis from residence in the thin, pure, dry and invigorating air of the Swiss Alps. Patients in the stages of a suitable type of the disease when sent straight to the Alpine climate and kept there for a long enough period almost invariably make extraordinarily quick and stable recoveries. An average sojourn should not be for less than six months, and, better still, it is wise to devote one year, or even more, with periods of change of environment, when necessary, to securing arrest of the trouble. In the Alps a large number of second and third stage patients who have tried to get well elsewhere, without success, receive great benefit.

China Medical Journal, Shanghai

September, 1922, **36**, No. 5

Surgical Problems and Difficulties in Tropics. D. J. Harries.—p. 385.
Five Cases of Fasciolopsis Infection. A. F. Cole.—p. 391.
Several Cases of Rare Forms of Subconjunctival Granuloma. F. H. Judd.—p. 397.
Technic for Staining Ameba with Iron Hematoxylin. C. A. Kofaid.—p. 406.
Epidemic Encephalitis. C. McA. Wassell.—p. 410.
Case of Epidemic Encephalitis. G. S. Shibley.—p. 418.

Edinburgh Medical Journal

October, 1922, **29**, No. 4

Sthenic Dyspepsia—"Hyperchlorhydria." J. J. G. Brown.—p. 161.
Passage of Latchkey Through Intestinal Canal. H. A. Lediard.—p. 213.

Indian Medical Gazette, Calcutta

September, 1922, **57**, No. 9

Some Economic Aspects of Bengal Malaria. C. A. Bentley.—p. 321.
Problem of Kala-Azar. F. P. Mackie.—p. 326.
*Causation of Epidemic Dropsy. H. W. Acton.—p. 331.
*Surgical Aspects of Amebiasis. K. K. Chatterji.—p. 333.
Cataract Extraction with Iridotomy. R. P. Ratnakar.—p. 337.
Flavine as Therapeutic Agent. P. Ganguli.—p. 338.
*Case of Liver Abscess Which Had Ruptured Into Abdominal Cavity. E. C. C. Maunsell.—p. 340.
Case of Retroperitoneal Hemorrhage. E. C. C. Maunsell.—p. 340.

Cause of Epidemic Dropsy.—The peculiar distribution of epidemic dropsy among the middle class Bengali Hindus, whose main article of diet consists of seasoned rice, Acton asserts, indicates that the poison is formed during the seasoning process of rice. The seasoning is probably due to bacterial invasion of the fruit, and is more apt to occur in polished rice, where the fruit is injured during the milling, and during the monsoon months, owing to temperature and humidity. The high price of foodstuffs leads to hoarding of the rice in hot, damp godowns, when the decomposition products are allowed to go still further, and give rise to toxic bodies. The etiologic evidence distinctly incriminates seasoned rice which if allowed to over-ripen gives rise to certain poisons causing epidemic dropsy. The cause and prevention of the disease are obvious, viz., the elimination of seasoned rice from the diet.

Surgical Treatment of Amebiasis.—In treating a fairly large number of cases some of which were in an advanced stage, Chatterji has departed from the more orthodox method of surgical treatment and devised methods which have yielded better results, and considerably reduced postoperative mortality. These are: (1) Aspiration and irrigation. (2) Evacuation and drainage by open operation and daily application of Klapp-suction apparatus, for small abscesses bulging anteriorly. (3) Evacuation and drainage by continuous irrigation and use of Klapp-suction apparatus whenever possible for abscesses bulging in the costal spaces laterally.

Rupture of Liver Abscess.—Although general peritonitis developed in Maunsell's case as the result of rupture of the liver abscess, the patient survived. On the third day the abdominal tympanites had completely disappeared. There was tenderness over the liver, between the sixth and seventh ribs in the anterior axillary line. A hypodermic needle passed withdrew typical amebic abscess pus, and under local anesthesia an incision was rapidly made, a tube inserted and the contents of a large abscess evacuated. This second abscess had no relation to the first.

Lancet, London

Sept. 30, 1922, **2**, No. 5170

Future of Hospitals. H. J. Waring.—p. 697.
Fibrous Diathesis and Malignancy of Fibrous Tissue. E. S. Reynolds.—p. 702.
Rapid Digitalis Effects by Oral Administration. F. R. Fraser.—p. 703.
Ophthalmic Progress in Egypt. A. F. MacCallan.—p. 705.
Trachoma in Palestine. I. Ticho and I. J. Kligler.—p. 706.
Cascade Stomach: Two Cases. J. H. D. Webster.—p. 707.
Dormant Filarial Infection. K. Playfair.—p. 709.
Case of Rupture of Cord During Forceps Delivery. W. E. Lee and J. S. Leslie.—p. 709.
*Case of Carcinoma Mammae. G. H. Colt.—p. 710.

Carcinoma of Both Breasts with Thirty Year Interval.—In Aug. 30, 1890, a woman, aged 35, was operated on for carcinoma of the right mamma. In 1915, the patient remembered that this tumor of the right breast had been noticed for a year before her third child was born, that the child was 11 months old at the time of the operation, and that she had suckled it from both breasts until a week before. The swelling was "a good big one." In August, 1915, the patient noticed a painless nodule in the left breast, with a hard mass of glands in the left axilla. The supraclavicular glands on the left side were palpable, being discrete and shotty. There was a sound scar, supple and healthy, extending from the middle of the right axilla downward and forward for a distance of 7 inches, and there was no sign of the nipple or of mammary tissue in this region. The pectoralis major was present. There was no axillary or supraclavicular enlargement on the right side and no evidence of visceral disease. In October, 1915, Colt removed the left breast and axillary contents with a wide area of skin and a wider one of deep fascia, together with both pectoral muscles. The supraclavicular glands were not removed. The pathologic report was "spheroidal cell carcinoma with extensive infiltration of the axillary glands." In July, 1919, a colleague removed a recurrence from over the left fifth rib. In January, 1920, the left supraclavicular glands were apparently in the same condition as originally noted in 1915. In July, 1921, there was a hard mass about half an inch across, situated in the middle of the original scar of the operation on the right breast, nearly thirty-one years before. Another small, hard mass was felt in the right axilla. The right supraclavicular glands were not enlarged, but the left glands were larger and softer than before. There was no local recurrence on the left side. Thereafter there was little change externally, but signs of right pleural effusion developed and the patient died in October, 1921, aged 66, more than thirty-one years after the operation on the right breast, and six years after the operation for carcinoma of the left breast. There was no postmortem examination. In the absence of definite information as to the nature of the original tumor in the right breast and in view of the appearance of the nodules in the original scar (right) late in the course of the disease of the left breast, it seems to Colt that these nodules were embolic in origin, the emboli having been arrested where the lymphatic tissue was interrupted by the old scar.

Medical Journal of Australia, Sydney

Sept. 16, 1922, **2**, No. 12

Puerperal Infection: Its Prophylaxis and Treatment. W. T. Chenhall.—p. 317.
Indications for Cesarean Section. C. E. D'Arcy.—p. 322.
Prematernity Work. J. C. Windeyer.—p. 325.

Practitioner, London

October, 1922, **109**, No. 4

Common Errors in Treatment of Rectal Conditions. P. Lockhart-Mummery.—p. 269.
*Sudden Death from Cardiac Failure in Diabetes Mellitus. R. T. Williamson.—p. 279.
Duodenal Ulcer. C. Rowntree.—p. 283.
Treatment of Aural Sepsis in Adults. W. Stuart-Low.—p. 290.
Ear, Nose and Throat Complications of Influenza. G. S. Hett.—p. 298.
Recent Public Health Work. J. Priestley.—p. 306.
Cortical Epilepsy Excited on a Damaged Cortex by Peripheral Trauma. G. Robertson.—p. 320.
Successful Treatment (Peptone Injections) of Case of Longstanding Epilepsy. G. R. Hull.—p. 325.
Diathermy in Treatment of Pulmonary Tuberculosis. P. Hall.—p. 328.

Death from Heart Failure in Diabetes Mellitus.—Sudden cardiac failure has ranked third among the causes of fatal termination in diabetes in Williamson's experience. Fifty-nine patients died of diabetic coma ("acidosis"); seventeen died of phthisis, and in seven sudden cardiac failure supervened. Other causes of death were less frequent. In all of the heart cases there was no previous sign of valvular disease, no edema, no cyanosis, and the termination was apparently due to failure of the cardiac muscle ending in sudden death.

South African Medical Record, Cape Town

Sept. 9, 1922, **20**, No. 17

Problem of Examination of Labor Recruits in Transkeian Territories. R. H. Welsh.—p. 323.
*Leiomyoma of Esophagus. E. A. Grunberger.—p. 325.
New Landmarks in Public Health. A. J. Orenstein.—p. 327.
Public Ill-Health. J. A. Mitchell.—p. 328.
Action of Vaccines. J. Pratt-Johnson.—p. 328.
Hospital Control. R. P. Mackenzie.—p. 329.

Leiomyoma of Esophagus.—The roentgen ray in Grunberger's case disclosed a very marked stricture of the esophagus just below the manubrium sterni, just allowing a thin stream of the bismuth to pass through, but there was no sign of a tumor. The esophagoscope disclosed a normal and healthy-looking mucous membrane, which at a distance of about 20 cm. from the teeth bulged into the lumen, giving the impression that a round smooth object pressed on the lumen from the front toward the back, and from left to right. This bulging swelling was hard, and could not be pressed away with the esophagoscope, and even the thinnest probe could not be passed down alongside it. The manipulation with the esophagoscope had a very beneficial effect, for the next day the patient could swallow solids for the first time in four months. The patient kept on improving for several weeks; after that, however, the condition gradually became worse again, and after some weeks had become so bad that not even fluids would pass the narrowed esophagus. Gastrostomy had to be performed, but the patient died some days after the operation. The postmortem cleared up the condition. The esophagus was taken out of the body as a whole. It was thicker than usual, and not adherent to the surrounding tissues. No swollen glands were found. Except at the upper section of the esophagus, its wall gave the impression of containing fairly hard masses, not quite evenly distributed, but more pronounced at certain levels than at others. The mucous membrane was normal over the whole length. Microscopic sections through the more normal parts of the esophagus showed some hypertrophy of the muscular coat, but no unusual elements. In the thickened parts the picture was that of a leiomyoma.

Tubercle, London

October, 1922, **4**, No. 1

Physiologic Adjuvant (Restricted Breathing) in Rest Cure of Pulmonary Tuberculosis. S. A. Knopf.—p. 1.
Heart in Connection with Work of Welsh National Memorial Association. G. A. Stephens.—p. 7.
Low-Tension Pneumothorax. Gwerder.—p. 13.

Annales de Médecine, Paris

August, 1922, **12**, No. 2

*Pathologic Physiology of Gout. M. Labbé.—p. 81.
*Relations Between "Scrofula" and Tuberculosis. S. Livierato.—p. 93.
*Action of Artificial Pneumothorax. E. Leuret et al.—p. 110.
*Epinephrin Tests. D. Daniélopolu and Carniol (Bucharest).—p. 127.
Myoclonia. H. Roger.—p. 150.

The Pathologic Physiology of Gout. — Labbé reports research which seems to show that eating meat closes the kidneys to uric acid in the gouty. This tendency to retention is the exaggeration of what occurs rudimentarily in the healthy, and manifestly in the obese and in persons inclined to chronic Bright's disease, and to diabetes. It is so pronounced and so constant in gout that it can sometimes be utilized for differentiating gout from other painful affections. Retention of uric acid is not the only factor in gout. There is, besides, a special tendency to precipitation of uric acid, and cartilage seems to attract this precipitation. Van Loghem suggests that the abundance of sodium salts in cartilage renders the urates less soluble so that they drop out of the blood. Labbé regards the attack of gout as a crisis of urate precipitation induced by some sudden change in the colloidal state of the body fluids. There seems to be some physico-chemical upset, like that in anaphylaxis.

Influence of "Scrofula" on Tuberculosis.—Livierato does not agree with those who think that attenuated tuberculosis of the lymphatic glands predisposes to pulmonary tuberculosis. The results of his experimental and clinical research testify directly to the contrary. An extract of tuberculous lymph glands and extracts of scrofulous glands from children had a decided protecting influence when injected into animals. There seems every reason to assume that the extracts of scrofulous glands contain special antibodies against tuberculous antigens. He obtained extract of the tuberculous glands from 20 guinea-pigs and experimented with it in two sets of 8 guinea-pigs injected before or after they were inoculated with tuberculosis, and another group of 4 controls. In the second series of researches, four sets of 9 guinea-pigs each were treated either with extract of guinea-pig tuberculous glands or human scrofulous glands or an extract of normal glands from the calf. In addition to these researches, the complement fixation reaction was investigated in the extracts of scrofulous glands. Hemolysis was complete in all the tubes except in those containing the extract of human scrofulous glands.

Artificial Pneumothorax.—The title of this article in the original is "New Data on Artificial Pneumothorax." The writers emphasize the great difference in the effect according as the lung is merely held in repose or is actually compressed. They emphasize that the amount of gas insufflated is no criterion as to the amount of compression exerted by it. The intrapleural pressure is the only gage for this. An illustrated description of the simple apparatus they advocate for this is given, and a number of charts recording the effectual intrapleural pressure from among 300 patients. The clinical findings were supplemented by research on animals. All the evidence testifies to the advantages of resting the lung. Actual compression of the lung should be reserved for cases in which function is entirely lost and no parts of the lung are left that have to be spared.

Epinephrin Tests.—The tests were made by the vein; the blood pressure, the pulse, the plethysmographic findings and the subjective sensations were systematically recorded. The epinephrin was injected in the dose of 1 c.c. of a 1 : 100,000 solution, reducing gradually to 1 : 1,000,000 or increasing to 1 : 20,000 according to the results observed. Physiologic saline was the vehicle. Injected subcutaneously, resorption is too variable for any dependence on the findings. A number of charts and tables are given from twenty supposedly healthy persons tested in this way. This research supplements previous work by the same writers with atropin, physostigmin and calcium chlorid. They assert that with these four tests we obtain instructive oversight of the functioning of the involuntary nervous system. It throws an entirely new light on the therapeutic use of drugs, and explains the difference in the reaction to drugs in health and disease.

Archives Franco-Belges de Chirurgie, Brussels

May, 1922, **25**, No. 8

Results of Osteoperiosteal Grafts. H. Delageniere.—p. 673.
Multilocular Cystic Osteitis of Humerus. E. Sorrel.—p. 719.
Fracture of Surgical Neck of Scapula. Ferry and Ortscheit.—p. 726.
Deep Contusion of the Hip Joint. Caraven.—p. 738.
Central Luxation of Head of Femur. H. L. Rocher.—p. 746.
*Heterotaxia. G. Michel and Mathieu.—p. 753.
Apparatus for Congenital Bilateral Luxation. L. Delrez.—p. 761.

Heterotaxia.—Michel and Mathieu report a case of inversion of the viscera in a woman of 26 with gallstone cholecystitis on the left side. Death occurred eight days after surgical intervention. They warn that it is important to remember such anomalies during examination of the thoracic or abdominal viscera. The beating of the heart on the right side should not be mistaken for an aneurysm of that organ or of the aorta. Congenital dextrocardia should not be mistaken for pleuritic dextrocardia, and the liver on the left side should not be taken for hypertrophy of the spleen. Radioscopy clears all doubts.

Archives de Médecine des Enfants, Paris

September, 1922, **25**, No. 9

*Tuberculids in Child. G. Salès.—p. 513.
Tuberculous Bronchial Glands. J. Belot.—p. 537.
Astasia-Abasia in Girl of Thirteen. J. Comby.—p. 543.
Empyema in Young Children. J. Comby.—p. 548.

Tuberculids in Child of Two.—The necrotic papules were followed by fatal miliary tuberculosis. Inoculation of guinea-pigs with scraps from the tuberculids gave a positive response.

Gynécologie et Obstétrique, Paris

August, 1922, **6**, No. 2

*Ovarian Tumors. P. Masson.—p. 81.
*Evolution of Hysteromyomectomy. D. de Ott.—p. 106.
*Chorio-Epithelioma. Potocki and A. Lelièvre.—p. 112.

Ovarian Tumors.—Masson gives fifteen photomicrograms to show the great variety of tumors that may be encountered in the ovaries, aside from teratomas. They may originate in the germinative tissue—in which case they seem to be always malignant—or in the interstitial, excretory or connective tissue, and each type of tissue may develop several forms of neoplasms.

Evolution of Hysteromyomectomy.—De Ott remarks that the mortality of ovariectomy was at first so high that it was styled "a necropsy on the living woman." Nowadays the mortality is only 2 or 3 per cent., and the mortality from operative treatment of uterine myomas is even less than this. In his 1902 operations for fibromyomas the mortality by the abdominal route since 1895 has been reduced from 15 to nearly 5 per cent., and by the vaginal route, from about 4 per cent. to nearly zero. Since 1913, in his 11 cases of conservative myomectomy by the vaginal route, the mortality was 9.09 per cent., but it was only 0.6 per cent. in the 323 cases in which the uterus was completely removed, cutting out the fibroma in parts when it was unusually large—*morcellement*. Since 1918 there have been no fatalities from this cause, and only a total of 3 since 1913. In short, he concludes, he has cooperated in the evolution of hysteromyomectomy by the vagina which saves all but less than 1 per cent. of the women.

Chorio-Epithelioma.—In the case here reported, the malignant chorio-epithelioma had followed expulsion of a hydatidiform mole in the woman of 43. Necropsy revealed metastases in lung and vagina. The metastasis in the lungs had dominated the clinical picture, and thus misled the diagnosis until too late.

Paris Médical

Aug. 19, 1922, **12**, No. 33

*False Peritoneal Reactions. E. Gelma.—p. 165.
*Diphtheric Paralysis in Tabes. M. P. Weil and J. Hutinel.—p. 169.
*Arsphenamin By-Effects. H. Mouradian.—p. 172.
Special Syndrome in Epidemic Encephalitis. P. Cantaloube.—p. 176.

False Peritoneal Reactions.—Gelma classifies the abdominal psychoneuroses with extremely diverse symptoms but no appreciable organic lesion. They obey the laws of neuropsychopathic conditions, which used to be all labeled hysteria. The pains and fever may suggest peritonitis from appendicitis, but in reality they have nothing to do with the peritoneum. The soil is always emotional or hysteric, and these cases of "peritonism" belong in the hands of the psychiatrist, not the surgeon. In one case, the imposing train of symptoms, pain, fever, distress, followed an injection in the right flank of 250 c.c. of sea water. The patient was a man of 42, healthy except for periods of extreme depression and irritability, and he had worried about the absorption of this fluid. The pseudoperitoneal reaction subsided the following day, and three more injections at other points were borne without further disturbance. In a second case the young man presented symptoms suggesting chronic peritonitis, the abdomen enormously distended and sagging, diarrhea alternating with constipation. The rapid recovery under psychiatric measures confirmed the psychopathic origin. The pains in these cases of peritonism are sensory hallucinations, independent of any emotional association. They are experienced by the subject as if they were normal sensory phenomena. They may be elicited by some organic "thorn," but may occur from merely some slight peripheral stimulus. Fever, in itself, does not imply an organic element. The thermometer reading may vary under the influence of emotions just as the galvanometer findings may vary under emotional influences. Moral suasion is futile, and narcotics are especially dangerous in these cases as breeding addiction. The peritonism is usually briefly transient, yielding to bed rest, warmth and isolation.

Diphtheric Paralysis Plus Tabes.—The diphtheria had roused and speeded up the tabes in the man of 35, while the tabes had prepared the soil for the diphtheria to attack the nervous system with special gravity.

Nitritoid Disturbances After Arsphenamin.—Mouradian declares that restoring conditions to normal in the constipated, the dyspeptic and those with chronic bowel trouble, will ward off the by-effects of arsphenamin treatment. Subjects in this class are especially liable to nitritoid crises, as he shows by seven cases.

Aug. 26, 1922, **12**, No. 34

*The Vitamins. A. Lumière.—p. 181.
*The Cells in the Duodenal Juice. J. Hatzieganu.—p. 185.
General Anesthesia for Operations on the Nasopharynx. J. Tarneaud.—p. 188.
Success of Serotherapy in Pneumococcus Pneumonia Epidemic. B. Ballet.—p. 192.

The Vitamins.—Lumière classifies vitamins in two great groups: One group serves to stimulate the glands with an external secretion. The other group is indispensable for the formation of the specific colloids of the cells. The requirements vary with the species. He says that as we do not know the substances which are indispensable, it is wise to have a great variety in the food so that the necessary vitamins will certainly be found in the diet.

The Cytology of the Duodenal Juice.—The cells in the duodenal juice throw light on inflammatory processes in the biliary passages.

Revue Franç. de Gynécologie et d'Obstét., Paris

July, 1922, **17**, No. 7

*Labor Contractions in the Surviving Uterus. P. Balard.—p. 369.
*High Blood Pressure with Gonad Insufficiency. P. Zénope.—p. 401.
Bistouri with Interchangeable Blades. P. d'Avenas.—p. 406.

Labor Contractions in the Surviving Uterus.—Balard reviews the methods and results of study of the functioning of isolated organs under various influences. The uterus seems to possess in itself means to regulate its own functioning. In animals, the uterus may pass through the whole gestation process after the spinal cord has been severed or the nerves of the uterus divided. Pregnancy can occur and proceed apparently normally in women with paraplegia only that the expulsion phase is defective as the woman is unable to strain. This insufficiency of the abdominal muscles calls for artificial delivery. This automatism of the uterus explains postmortem deliveries a few instants or hours after the heart has stopped beating. He noted himself in a case of postmortem cesarean section, half an hour after the woman's death, that the walls of the uterus retracted the same as in the living subject. He gives illustrations of a case in which the uterus, six months and a half pregnant, was removed with a huge fibroma. The woman was in labor but the cervix was not dilated. A 1 cm. snip with the scissors allowed the fetus to be seen through the 3 cm. opening as the uterus with its adherent fibroma lay on a tray for twenty minutes. The uterus muscle continued its tonic and clonic contractions, the same as observed in the surviving uterus, and by the end of the eighth hour the head and the left arm of the fetus had been spontaneously expelled. If anatomic conditions permit, delivery can sometimes be induced by the natural route when the parturient has just died, as the aid of the uterus can usually be counted on for easy and rapid delivery.

High Blood Pressure from Insufficiency of the Genital Glands.—Zénope has been impressed with the close relations between the ovaries or testes and the blood pressure. The latter is in inverse proportion to gonad functioning. When the menses are comparatively insignificant, the blood pressure is high, and vice versa. The sphygmomanometer can thus reveal conditions in the genital sphere. His theory is that when the ovaries or testicles are functioning below par, thyroid function is speeded up to compensate, and this raises the blood pressure, while treatment with ovary or testicle extract reduces it.

Revue Médicale de la Suisse Romande, Geneva

August, 1922, **42**, No. 8

Relation Between Chemical Constitution and Physiologic Action of Organic Compounds. A. Oswald.—p. 481.
*Oïdium Albicans in Stomach Contents. G. G. Moppert and J. Kagan.—p. 505.
Present Status of Protein Therapy. S. Katzenelbogen.—p. 510.
*Rôle of Body Lesions in Traumatic Neuroses. A. Chelmonsky.—p. 529.

The Thrush Fungus in the Stomach.—Moppert and Kagan insist that *Oïdium albicans* is a saprophyte of the stomach. The slightest obstacle to normal evacuation favors its proliferation. It was cultivated from the stomach content in 53 per cent. of thirty cases of ulcer; in 93 per cent. of twenty-nine with cancer; in 67 per cent. of forty-eight with other pathologic conditions, and in 50 per cent. of six normal subjects.

Physical Injuries and Traumatic Neuroses.—Chelmonsky states that persons with grave bodily injury from trauma, such as the loss of a leg or arm, etc., very seldom present symptoms of neurosis. As a rule those actually crippled by an accident never develop a traumatic neurosis or it is insignificant. It seems plausible to admit that serious bodily injury protects the injured to a certain extent against traumatic neuroses: They know positively that their disability entitles them to an indemnity and they do not have to worry about money damages.

Schweizerische medizinische Wochenschrift, Basel

July 27, 1922, **52**, No. 30

Sprains of Large Joints. C. Kaufmann.—p. 737. Conc'n No. 31.
*The Urine Test for Tuberculosis. E. Stiefel.—p. 746.
Treatment of Placenta Praevia. A. v. Reding.—p. 748.
Early Movements, Reflexes and Muscular Reactions of the Fetus. M. Minkowski.—p. 751. Conc'n.

The Wildbolz Urine Test for Tuberculosis.—Stiefel applied Wildbolz' technic in 400 cases of tuberculosis, parallel with the Mantoux intradermal tuberculin test. The results seem to confirm the value of a negative response as excluding active tuberculosis. Positive reactions are not conclusive.

Sept. 14, 1922, **52**, No. 37

*Recurrence of Goiter. J. Dubs.—p. 901. Conc'n No. 38, p. 931.
Mammary Cancer. A. Jentzer.—p. 908.
Paraganglioma of Organ of Zuckerkandl. M. Hausmann and S. Getzowa.—p. 911. Conc'n.
Psyllium Seeds as a Laxative. M. Brot.—p. 918.
Movable Retrodisplacement of the Uterus. Michalski.—p. 918.

Operations for Recurrence of Goiter.—Dubs relates that 6.2 per cent. of his 840 goiter operations were for recurrence. He tabulates the data from 26 cases in which paralysis of the recurrent laryngeal nerve followed the operation. He has the patient use his voice at each ligature, each clamping and each resection, and in this way was able to determine the exact cause responsible for the paralysis in all but 5 of the cases. In one patient the paralysis was bilateral, although the intervention had been on one side only. Reexamination later of 17 showed persistence of the paralysis in 11 and complete recovery in 4, with slight paralysis in 2. Recurrence of the goiter after resection was known in 55.2 per cent. of 255 cases reexamined later, and in half of the recurrence cases there were more or less serious disturbances. The interval before the recurrence developed was from one to twenty years; twelve years in 7 of the cases, and the interval was from six to twelve years in the 7 cases in which a second recurrence called for an operation. Such experiences urge the necessity for systematic iodin prophylaxis after goiter operations, at least in certain endemic foci. Conditions are much the same with goiter and with gastric ulcer: the cause still persists after excision of the lesion.

Riforma Medica, Naples

July 24, 1922, **38**, No. 30

Syphilitic Fever. A. Zuppa.—p. 697.
Sources of Error in Friedländer Test for Urea. Alessandri.—p. 699.
*Operative Treatment of Varicose Veins. M. Balsamo.—p. 701.
*Enterostomy in Peritonitis. G. Marchetti.—p. 702.
Tuberculosis of Pelvic Girdle. E. Aievoli.—p. 705.

Operative Treatment of Varicose Veins.—Balsamo expatiates on the advantages of a roller bandage commencing at the foot and carried up to the root of the thigh, in operations on varicose veins. The vein can then be extracted rapidly and without hemorrhage.

Enterostomy in Peritonitis.—Marchetti reports experiments on dogs with induced peritonitis treated with or without ether lavage plus enterostomy. The peritonitis untreated proved fatal in 100 per cent. in an average of sixty-two hours. The mortality was 83.33 per cent. in the dogs treated with ether lavage after twenty-four hours. The mortality was only 2.5 per cent. when the ether had been supplemented with enterostomy. In the group of six dogs treated in this way but not until after an interval of forty-eight hours, the mortality was 100 per cent. The enterostomy was done on a terminal loop of the small intestine.

Aug. 7, 1922, **38**, No. 32

*Beans and Peas in Culture Mediums. N. Pane.—p. 745.
*Test for Fat in Blood. L. Condorelli.—p. 746.
Suppurating Hydatid Cyst in Liver. O. Cignozzi.—p. 748.
Mechanism of Leukemic State. R. E. Leone.—p. 750.
Operative Treatment of Fracture of Patella. G. Carisi.—p. 755.

Culture Mediums from Legumes.—Pane reports attenuation of diphtheria toxin when the bacilli are grown on broths made with beans or peas instead of meat.

Micromethod for Estimation of Fat in the Blood.—Condorelli applies Bang's chromic acid technic but has modified the original method, as he describes, for estimating separately the phosphatids and the free cholesterin.

Aug. 14, 1922, **38**, No. 33

*Physiopathology of the Stomach. A. Rossi and P. Marcovich.—p. 769.
*Ultraviolet Rays and Healing of Wounds. R. Rasero.—p. 772.
Gold Salts in Treatment of Tuberculosis. Cicconardi and Reale.—p. 774.
Hernia and Workmen's Compensation. E. Aievoli.—p. 778.

Physiopathology of the Stomach.—Continuing his long research in this line, Rossi has been studying the muscular tone of the stomach under the influence of atropin and pilocarpin, and the interrelations between the muscular tone and the other functions of the stomach. The research was done on twelve adults between 25 and 35. Atropin retarded the evacuation of the stomach, while pilocarpin accelerated it in some of the subjects but not in all. The secretory and digesting power seemed to parallel the muscular tonus.

Influence of Ultraviolet Rays on Healing of Wounds and Ulcers.—Rasero reports favorable experiences in twenty-two cases of various chronic ulcerations or torpid wounds. He advises to begin with exposures of only three or five minutes, with the lamp 10 cm. from the tissues, progressively increasing the length of the exposures and shortening the distance to bring the lamp in contact with the skin. In one girl, a suppurating skin affection in the neck, which had proved rebellious to all measures, including a course at a seaside health resort, subsided completely after four brief contact exposures.

Aug. 28, 1922, **38**, No. 35

*Double Refracting Power of Muscle. C. Gargano.—p. 817.
*Celluloid Slides in Bacteriology. O. Nuzzi.—p. 818.
*Sedimentation Rate of Erythrocytes. E. Puxeddu.—p. 819.
*Roentgen Ray Treatment of Tuberculosis. A. Pais.—p. 821.
Heredity, Constitution and Tuberculosis. H. Koenigsfeld.—p. 825.

The Muscle Fibers in Chronic Appendicitis.—Gargano states that the normal double refraction of polarized light in contractile muscle fibers is a test of its vitality. With chronic inflammation this double refracting property is lost. The appendix, for example, may appear to be sound, but if this property is lost, chronic inflammation can be assumed, and vice versa.

Celluloid Slides in Bacteriology.—Nuzzi extols the advantages of using celluloid films, not over 0.11 mm. thick, for slides and object glasses. A noninflammable celluloid can be used.

Suspension Stability of the Erythrocytes in Malaria.—Puxeddu relates that the rate of sedimentation of the erythrocytes is much accelerated in plasma from subjects with malaria. There is rapid sedimentation also in malarial blood, but it is slowed when malarial corpuscles are added to normal blood plasma. Addition of bile to any blood seems to retard sedimentation.

Stimulating Radiotherapy in Tuberculosis.—Pais is chief of the antimalaria institute in the Rome district, and he has been much impressed with the benefit derived from mild stimulating doses of the roentgen rays applied to malarial subjects presenting symptoms of tuberculosis. The same benefit was observed in cases of uncomplicated tuberculosis, and he insists that this is a powerful ally in stimulating the entire system, the functions of the cells and, above all, of the defensive forces. Manoukhine's method of treating the spleen is an effort in this line, but, he asks, why restrict it to the spleen?

Rivista di Clinica Pediatrica, Florence

July, 1922, **20**, No. 7

*Clinical Cure of Valvular Disease in Children. C. Cocchi.—p. 385.
*Essential Enuresis in Children. L. Sironi and L. Sabatini.—p. 399.
*Is the Nursing Bottle Indispensable? A. Borrino.—p. 422.

August, 1922, **20**, No. 8

Resistance of Capillaries in Disease. G. Frontali.—p. 449.
Familial Ataxic Syndrome. A. Malaguti.—p. 482.
Diphtheria Antitoxin in Treatment of Noma: Recovery. Ciaccia.—p. 496.

Cure of Valvular Disease in Children.—In the case described by Cocchi, symptoms of aortic insufficiency of rheumatic origin in the boy of 5 subsided completely to a clinical cure in a few weeks. The coincident mitral stenosis persisted. The pulse was of the anacrotic type while the diastolic murmur was manifest. He compares this case with the literature on clinical recovery from valvular lesions that had persisted for a longer or shorter period, and he theorizes to explain the anacrotism.

Essential Enuresis in Children.—Sironi and Sabatini comment on the contradictory publications as to malformations, occult spina bifida, etc., as factors in enuresis. In their own series of twenty cases of enuresis in children, in sixteen the fifth lumbar vertebra was deformed or there was spina bifida, and in one case the fifth lumbar vertebra and the sacrum had separated. In some there was also myelodysplasia. No deformities of the kind were found in other children free from enuresis. These findings suggest that an anatomic basis for enuresis is not so rare as supposed.

Is the Nursing Bottle Indispensable?—Borrino asserts that, even at the best, the nursing bottle is hard to keep immaculately clean, and she has been much impressed with the advantages of feeding even the youngest infants from cup or tablespoon when breast nursing is out of the question or has to be supplemented.

Archivos Latino-Amer. de Pediatría, Buenos Aires

July, 1922, **16**, No. 7

Chronic Nephritis and Renal Aplasia in Children. V. Hutinel.—p. 321. Cont'd.
*Means to Reduce Infant Mortality. E. Bordot.—p. 353.
Typhoid Parotitis. M. A. Jaureguy.—p. 370.

Means to Reduce Infant Mortality.—Bordot reviews the work of the well baby clinic and milk stations at Buenos Aires, 1910-1921. With a population of 1,708,829, the mortality of infants less than a year old has been reduced to 8.1 per cent. The baby clinic reduced the mortality by 16.2 per cent. in 1914 and by 12.5 per cent. in 1921.

Revista Médica del Uruguay, Montevideo

August, 1922, **25**, No. 8

*Medical and Hospital Records. M. Becerro de Bengoa.—p. 597.
*Library Records. M. Becerro de Bengoa.—p. 601.
*Pregnancy Polyneuritis. C. P. Colistro.—p. 605.
*Diabetes and Pregnancy. F. Cortabarría.—p. 611.
Recovery from Puerperal Septicemia Under Vaccine Therapy. J. Iglesias Castellanos.—p. 616.
A Medicolegal Case. E. Moreau and J. May.—p. 621.

Hospital and Library Records.—Becerro de Bengoa describes a simple system of indexing records and books by four letters.

Pregnancy Polyneuritis.—In Colistro's case the pregnancy ntoxication attacked the peripheral nerves directly, without any phase of uncontrollable vomiting. The woman of 39 was in the sixth month of her fifth pregnancy when the pains and contracture developed in the left leg, with paralysis. The foot was drawn up in talipes equinus and varus, and the knee was flexed by retraction of tendons. After delivery at term the nervous phenomena all slowly subsided, the pains disappearing, and the use of the limb was regained.

Diabetes and Pregnancy.—The glycosuria was intense and refractory as also the acetonuria in the multipara, six months pregnant. The glucose in the urine ranged from 49.5 to 16 and 8 gm. per liter, and as the liver seemed to be suffering, the uterus was evacuated. After this the glycosuria and acetonuria subsided, although slight glycosuria persisted for some time. The macerated fetus was unusually large.

Semana Médica, Buenos Aires

July 13, 1922, **2**, No. 28

*Diversion of the Urine. J. Salleras Pagés.—p. 62.
Subacute Lymphatic Leukemia in Girl. Bazán and Vallino.—p. 92.
*Peripheral Sympathectomy. E. Matons.—p. 98.
Vacuum Extraction of Cataract. M. Leiva Daza.—p. 103.
The Medical Examination. A. Vitón.—p. 103.

Diversion of the Urine.—Salleras gives 122 bibliographic references to the various methods of diverting the flow of urine, and presents twenty-seven illustrations. When the diversion has to be above the bladder, nephrostomy is generally preferred to suturing the ureter to the skin. The operations to divert the urine to other organs with an external outlet, bowel, vagina, tubes, etc., are losing ground more and more every day on account of the almost inevitable complications. Diverting the urine into the gallbladder has been done only on dogs. In two of the seven cases reported, nephrostomy on both sides was the only recourse with the noperable cancer in bladder and prostate.

Peripheral Sympathectomy.—By mischance, both of the muscular layers of the artery were cut in removing the sympathetic network around the right external iliac artery. The operation was done to relieve chronic pains and ulceraion in the feet. Under mercurial and iodid treatment the esions had subsided on the left side but had persisted unmodified on the right side until they began to improve after the peripheral sympathectomy. A suppurating hemaoma developed in the iliac fossa on that side, and the operation showed that the artery had perforated at the point of the accidental injury, confirmed by the necropsy. The case sustains Leriche's assumption that vasomotor and vasorophic disturbances may be arrested by interrupting the reflex arc or by removing the nervous network displaying a tendency to neuritis. The case teaches further that the ympathectomy should be done in a region where supervion is easy and can be complete. In this case it might have been done in the middle third of the thigh as well as at the point selected, in the more inaccessible iliac fossa. The media was torn in resecting the adventitia.

Archiv für Kinderheilkunde, Stuttgart

Aug. 26, 1922, **71**, No. 4

Congenital Fibrous Cystic Osteitis. E. Wieland.—p. 241.
Parenteral Quinin Treatment in Pneumonia in Children. E. Friedberg. —p. 264.
Stenosis of Portal Vein in Child. M. Bardach.—p. 270.
Pituitary Adiposis in Children. G. Peritz.—p. 277.
Serotherapy in Meningococcus Meningitis. Nebendahl.—p. 294.

Congenital Fibrous Cystic Osteitis.—The left leg of the 5 months infant presented congenital diffuse lipomatosis, and he roentgen rays showed symmetrical multiple irregular cavities in the metaphysis in both legs and also in one wrist. The child at 2 looks healthy except for this progressive fibrous cystic osteitis. The right ankle is now bent.

Stenosis of Portal Vein in Boy of Six.—The large spleen, severe anemia and profuse hemorrhages in the digestive tract were explained by the necropsy as the result of stenosis of the portal vein. The vein had become embedded in cicatricial tissue from old peritonitic changes, entailing stenosis. The splenic vein showed thrombosis. The bleeding came from varices in the digestive tract. In early infancy there had been a suppurative dermatitis with abscesses. This explained the peritonitic changes. The child had always been pale and had always refused to eat vegetables and fruit. At 2 years there had been a brief period of vomiting of blood, and at 4 years, epistaxis and swelling of joints. Otherwise the child seemed well.

Pituitary Adiposis in Children.—Peritz describes the metabolic findings in several cases of "hypophyseal adiposis" in older children, nearly all with inherited syphilis. In two cases in which hydrocephalus seemed to be a factor, the stunted growth was modified by pituitary treatment, one youth of 18 growing 15.5 cm. taller in three years. The growth seemed to stop when the pituitary treatment was suspended. There was no change in the adiposis or dysgenitalism.

Serotherapy in Meningococcus Meningitis.—Nebendahl reports that there was only one death in his 8 cases in which the antiserum was given in the first week, while 5 died of the 12 in the second week. The absolute harmlessness of the antiserum was confirmed anew by his 26 cases. The antiserum has to be injected intraspinally and, if necessary, repeated daily, and continued for a few days after improvement sets in. His mortality was 30 per cent., excluding 7 moribund cases. The serotherapy seemed to ward off sequelae. Only 5 of the 14 children that recovered developed hydrocephalus. None of the others have shown the slightest injury later from the disease during the one to three years since to date.

Deutsche medizinische Wochenschrift, Berlin

Aug. 18, 1922, **48**, No. 33

*The Donné Test for Pyuria. Fürbringer.—p. 1093.
Is There Such a Thing as a General Activation of Protoplasm Accompanied by a General Increase of Performance? W. Seiffert.—p. 1094.
*Experimental Tuberculosis of Lymph Glands. Koch and Baumgarten. —p. 1096.
*Horse and Beef Heart Extracts in Serodiagnosis. H. Felke.—p. 1097.
Nature of Action of Astringents. F. Müller.—p. 1097.
*Carriers of Dysentery Bacilli. P. Bergell and L. Bonnin.—p. 1098.
*Erythrocyte Sedimentation in Gynecology. G. Haselhorst.—p. 1100.
Treatment of Puerperal Fever. L. Reichert.—p. 1102.
The Hereditary Hemorrhagic Diathesis. F. Krömeke.—p. 1102.
Surgical Treatment of Gastric and Duodenal Ulcer. Krause.—p. 1105.
Treatment of Carcinoma of Papilla Vateri. P. Kleinschmidt.—p. 1107.
Primary Myosarcoma of Small Intestine. Glass and Alsberg.—p. 1108.
Affections of the Hip Joint. G. Ledderhose.—p. 1111.

The Donné Method for the Determination of Pyuria.—Fürbringer expresses surprise that the Donné test is not more generally used, as he has found it for many years a remarkably simple and rapid method of determining whether there is pus in the urine. [Liquor potassae is added until a white gelatinous deposit is formed.]

The Experimental Production of Tuberculosis of the Lymph Glands of the Neck by Oral and Conjunctival Infection.—Koch and Baumgarten state that tuberculosis of the lymph glands of the neck may be caused by an infection of the buccal mucosa or of the ocular conjunctiva. Pulmonary tuberculosis can arise irrespective of the location of the portal of entry of the tubercle bacillus; it may originate through the lymph or the blood stream. The lungs are the area in which tubercle bacilli are most likely to secure a firm foothold.

Horse and Beef Heart Extracts for Precipitation Reactions.—Felke has found no essential difference between beef heart and horse heart in performing the Meinicke test.

Autovaccines for Carriers of Dysentery Bacilli.—Bergell and Bonnin report five cases in which carriers of dysentery bacilli (Shiga-Kruse) were cured by the use of an autogenous vaccine. Beginning with a weak dose, deep subcutaneous injections in the back were given, the dosage (increased from day to day) being: 5, 10, 20, 30, 40, 50 and 60 million bacteria. If a reaction occurred, they waited three or four days before giving the next to the last dose. The reactions consist mostly of a slight rise of temperature and often of an extraordinary disturbance of the general health, requiring one or two days' rest in bed, whereupon the symptoms disappear entirely. Two or three strong reactions caused the bacteria to disappear in every case, without exceeding the dose of 60 million. The stools were examined after one, three (or six) and twelve months. Only in one (the most severe) case did a positive finding appear, at the third month, parallel with clinical manifestations, which made revaccination necessary.

Stability Reaction in Gynecologic Examination.—Haselhorst has investigated the speed of sedimentation of the erythrocytes in 800 cases in the last two years, and emphasizes the instructive findings in certain conditions. It reveals the presence of inflammation before the temperature or leukocyte count shows any change. He says that we can be almost certain that inflammatory processes have reached the stage when an operation can be attempted when the sediment measures 15 mm. or less in the sedimentation pipet. We can usually feel certain that the field is sterile, so that the danger of the inflammation flaring up anew is reduced to the minimum. In 200 operations there were only three instances in which with negative sedimentation findings he found redness, swelling and recent adhesions, but there was no pus. The technic followed was Westergren's, described in The Journal, Oct. 22, 1921, p. 1329. He mentions some sources of error to be avoided.

Klinische Wochenschrift, Berlin

April 22, 1922, **1**, No. 17

What Do We Mean by "Constitution," etc. M. Pfaundler.—p. 817.
Place of Liver in Intermediary Metabolism. F. Laquer.—p. 822.
*Pathogenesis of Certain Types of Icterus. A. Géronne.—p. 828.
*Stain Test of Liver Function. Rosenthal and Falkenhausen.—p. 832.
Liver Affections, January, 1914, to March, 1922. I. Müller.—p. 835.
Damage from Indirect Rays in Roentgen Irradiation. F. Poos.—p. 836.
*Effect of Atropin on Gastric Motility. C. H. Lasch.—p. 840.
*Pathology of Polycythemia. H. Brieger and J. Forschbach.—p. 845.
*Albumin in Blood Serum in Edema. F. Kisch.—p. 848.
Electrocardiography of Anaphylactic Shock in Guinea-Pig. H. Koenigsfeld and E. Oppenheimer.—p. 849.
Joint Reflexes in Arms. C. Mayer.—p. 849.
*Hemoglobin in Health and in Disease. Leschke and Neufeld.—p. 849.
Methods of Testing Liver Functioning. K. Retzlaff.—p. 850.
Import of Pirquet Cuti-Reaction in Children. T. Hoffa.—p. 855.
Formation of Bile Pigments. S. J. Thannhauser.—p. 858.

The Pathogenesis of Certain Types of Icterus.—In 1920 and 1921 Géronne examined 46 cases of icterus for leucin and tyrosin. In 2 out of 3 cases of acute atrophy of the liver the findings were positive, but in one of these only just before death. In the third case leucin and tyrosin were never discovered. In 6 cases of severe icterus in the secondary stage of syphilis, a few weeks after arsphenamin treatment, the results were positive in 3. Of 30 cases of so-called "catarrhal" icterus, 8 cases showed a positive result, including one very mild case. He found occasionally leucin without tyrosin or vice versa. Of 7 patients with gallstone colic, with distinct icterus, leucin and tyrosin were found in 2. Géronne holds that in acute atrophy of the liver, damage to the liver cells is the primary cause. Various noxae brought to the liver through the blood stream (either through the portal vein or the hepatic artery) may cause the damage. He assumes the same pathogenesis for a part of the lighter forms of icterus that hitherto have been held and designated as of catarrhal origin. An affection of the bile ducts is not the main factor, as has been frequently supposed.

Chromodiagnosis of Liver Function. — Rosenthal and Falkenhausen report that in all forms of icterus examined, in which the flow of bile was not markedly impaired, and in all affections of the liver in which marked parenchyma injuries characterized the clinical picture, the excretion of methylene blue by the diseased liver was considerably accelerated, as compared with the normal. Whereas under normal conditions the excretion of methylene blue through the bile begins in from fifty-five to seventy-five minutes after its injection, and in several cases does not set in for from ninety to ninety-five minutes, in severe affections of the parenchyma of the liver the stain appeared in the duodenal bile in from fifteen to thirty-five minutes after subcutaneou injection of methylene blue. It is therefore evident tha diseased liver cells are characterized by an unusually high permeability for methylene blue, as compared with healthy parenchymatous cells.

Roentgenologic Research on Effect of Atropin on the Motor Function of the Stomach.—Lasch's investigations showed tha excessive peristalsis is usually checked by atropin; hypertonia is reduced, and a relaxation of the stomach walls i brought about. By reason of this tonus-reducing effect atropin is especially adapted to relieve or dispel pain. The evacuation time is almost always prolonged. Atropin in the cases observed did not prove effective against pylorospasm although spasm of the antrum pylori subsided under i promptly and repeatedly.

Pathology of Erythremia.—Brieger and Forschbach recite a case which they think proves conclusively the causal connection between extirpation or exclusion of the spleen and erythremia. Before the splenectomy, no signs of erythremia had been observed. The clinical picture, they state, presented even to the minutest detail the characteristics of the essential type of erythremia, and proves that elimination of the spleen may cause not only a transitory increase of functioning on the part of erythroblasts but may produce an erythremia of a severe type. This case also helps to substantiate the theory of the excessive stimulation of the bone marrow by elimination of the spleen.

Albumin Content of Blood Serum in Edema, and Its Absorptive Capacity for Sodium Chlorid.—Kisch refers to Eppinger's hypothesis according to which the occurrence of renal, cardiac and other forms of edema is traceable to the elimination of albumin from the blood, through injured capillary walls, into the fluid of the subcutaneous tissue: Not the quantity of the filtrate that exudes from the altered capillaries, but rather its albumin content, is the chief factor Eppinger showed also by experiments on animals with a fistula that sodium chlorid is retained longer in the body or excreted more slowly, corresponding to the quantity of albumin present. Kisch found that in nephrosis (and also in amyloidosis) the albumin content of the blood serum was far below normal, whereas in myxedema it was abnormally high. The sodium chlorid content of the serum varies within wide limits in the various pathologic conditions in which edema formation commonly occurs, and there was no intimate connection between the amount of sodium chlorid in the serum and the intensity of the edema or the amount of albumin excreted in the urine. The capacity of the serum partly to absorb an excess of sodium chlorid was found to be reduced in all pathologic conditions with intensive edema formation; only in nephrosclerosis and in myxedema were the absorptive values approximately normal.

The Blood Pigment in Healthy Persons and in Those with Blood Disease.—Leschke and Neufeld determined in the same blood specimen the iron content and the capacity to combine with oxygen. Examination of washed erythrocytes in cases of pernicious anemia, secondary anemia, polycythemia, hemolytic icterus and in healthy subjects yielded no difference in the iron content of the hemoglobin or in the capacity to combine with oxygen. In all cases they found two atoms of oxygen to one atom of iron, which accords with the values to be expected theoretically. They think their experiments prove the uniformity of hemoglobin in the healthy and in the sick. The brown color of the whole blood in pernicious anemia is therefore not due to a degeneration of the hemoglobin but probably, as is the dark yellow color of the serum, to the presence of waste products of the blood pigment.

Medizinische Klinik, Berlin

Aug. 13, 1922, **18**, No. 33

*Treatment of Ineffectual Labor. E. Sachs.—p. 1045.
Inherited Syphilis plus Tuberculosis in Children. J. Cassel.—p. 1048.
Antivariola Vaccination as Treatment for Whooping Cough. F. Reiche.—p. 1052.
Analogy Between Gastric and Duodenal Ulcer. M. Holzweissig.—p. 1052.
Consequences of Epidemic Encephalitis. Brinkmann.—p. 1054.
The Marasmus Question. W. Spät.—p. 1057.
Irritation from Washing Soaps. C. Siebert.—p. 1059.
*Bilirubin Content of Duodenal Juice. K. Isaac-Krieger and B. Hoefert.—p. 1061.

Version in Obstetrics. W. Strakosch.—p. 1065.
Recent Literature on Heart Disease. E. Edens.—p. 1067.

Treatment of Ineffectual Labor.—Sachs says that the pitui-ary preparations, wisely administered, can be depended on o ward off ineffectual labor. They very rarely fail, and he as never witnessed any harm from them in the over 700 bstetric cases in which he has used them. If the fetus is lready suffering, they are contraindicated, but if the heart s beating well, a transient drop to 100 or even below does o appreciable harm. The heart recuperates at once after he extreme labor contraction from the drug. He has given t even with asphyxia when certain that the birth could be erminated immediately afterward.

The Duodenal Juice.—The varying flow of bile, the varying dilution of the duodenal content, and other variable elements detract from the significance of the bilirubin of the duodenal uice from the diagnostic standpoint.

Aug. 20, 1922, **18**, No. 34

Mishaps in Treating Abortion. W. Liepmann.—p. 1077.
Jaundice Under Arsphenamin. W. Wechselmann and H. Wreschner.—p. 1080.
Estimation of the Constitution. T. Brugsch.—p. 1082.
Progress in Treatment of Fracture of the Radius. Jaroschy.—p. 1083.
Melanodermia in Pernicious Anemia. M. Mosse.—p. 1085.
Miliary Tuberculosis with Myeloblastosis. E. Wiechmann.—p. 1086.
Influence of Irradiation on Liver. A. Czepa and F. Högler.—p. 1087.
Psychopathology of Asthma. F. Reichmann.—p. 1090.
Influence of One Infection on Another. S. Suchy.—p. 1092.
Treatment of Disease of Urethra. E. Portner.—p. 1095.
Recent Literature on Pulmonary Tuberculosis. H. Gerhartz.—p. 1097.

Injuries at Abortions.—Liepmann quotes Bumm's recent tatement that the severer injuries with abortion occur at he hands of physicians. His own experience confirms this. Koblanck even asserts that injury of the bowel in attempting o evacuate the uterus is characteristic of medical interven-ion. Liepmann gives sketches of some of the specimens from his collection which illustrate these grave mishaps. One shows the curet piercing the posterior wall of the uterus opposite the cervix. In another, the retroflexion had not been recognized, and the curet pierced the anterior wall of the cervix at the curve formed by the bending backward of the uterus. In one case of criminal abortion, the physician found that the instrument the woman had used on herself had perforated the cervix wall and the bladder. The physi-cian on ascertaining this sent the woman to the hospital. A bladder fistula resulted, and she sued the physician for mal-practice. Fortunately he was able to produce witnesses to testify that he had refrained absolutely from any intervention. As 90 per cent. or more of all abortions are the result of criminal procedures by the woman herself, the physician must be on his guard against existing perforations. "As A is the first letter in the alphabet so the uterus sound, graduated in centimeters, is the first instrument to use in treatment of an abortion." He explains how to hold it in the right hand with only the thumb pressing it lightly against the hollow of the hand. At the slightest resistance, the sound springs back. "By proceeding in this way, the sound would not perforate even a tissue paper bag, much less the uterus wall. . . . Measurement of the uterus in this way at abortions is as important as pelvis measurements in obstetrics." In a recent case the woman, only one month pregnant, had torn the left wall of the upper cervix and fundus by too abrupt dilation with Hegar dilators. The vaginal portion was intact, and the physician, not aware of the laceration above, introduced a curet which passed through the laceration into the peritoneum when the physician supposed it was in the cavity of the uterus. This case teaches anew the need of extreme caution in artificial dilation of the cervical canal. For this he advises a tent that can be slipped easily into the cervix. It is better to use two narrow ones than a single large one. They must project enough to be readily extracted the next day, but must extend inside beyond the internal os. In one case in which the tent had been inserted too far, he had to slit the cervix to remove it. If it does not reach the internal os, its use is futile. An intramuscular injection of pituitary extract is a useful adjuvant. All these maneuvers can be done in the home; the kitchen table is convenient for it. When the os is dilated enough to admit two fingers easily, the ovum can be removed with the fingers, and the decidua with a large curet. The danger in curetting is naturally less the larger the spoon.

Arsphenamin with Disease in Biliary Apparatus.—In two of ten cases of jaundice during arsphenamin treatment, agglutination tests for the typhoid group were positive; in another case there was a history of malaria, and the jaundice subsided at once under quinin. In another case the malaria modified the behavior under arsphenamin although there was no jaundice. The symptoms would have been ascribed to the arsphenamin if the blood had not been examined. In two cases the arsphenamin roused latent malaria to actual chills and fever; in one of the cases it was the first appreciable manifestation of the malaria, acquired in France.

Melanodermia in Pernicious Anemia.—The pigmentation in the woman of 54 with pernicious anemia had been progressive for six months. It had nothing to do with the destruction of blood but was actual melanosis, and was probably traceable to the prolonged treatment with Fowler's solution.

Influence of Radiant Energy on the Liver.—Czepá states that functional tests of the liver have shown transient derangement after roentgen and radium exposures of the stomach and liver region. The levulose and galactose tests are less convenient and reliable than the hemoclastic crisis after test ingestion of 200 c.c. of milk. The Falta test with bile also proved dependable: The urine is examined by the usual methods every two or three hours during the twelve to twenty-four hours after ingestion of 3 gm. of desiccated bile. Appreciable amounts of urobilinogen testify to pathologic conditions. The details of twelve cases are given. They confirm that changes in liver functioning form an essential element in the general disturbances that sometimes follow treatment with radiant energy.

Psychopathology of Asthma.—Reichmann explains bronchial asthma as a curable neurosis.

Influence of One Infection on Another.—In the two cases reported, an intercurrent influenza seemed to eradicate the acute gonorrhea in the two men.

Monatsschrift für Kinderheilkunde, Leipzig

May, 1922, **23**, No. 2

*Infants in Institutions. E. Stransky and O. Gersuny.—p. 145.
Excretion of Creatinin in Infants and Children. S. Ederer.—p. 157.
*Prognosis of Tuberculosis in Infants. R. Osswald.—p. 168.
The Diagnostic Value of Moro's Tuberculin. W. Röckemann.—p. 183.
*Osteomyelitis of the Spine in Infancy. W. Schoher.—p. 185.
*Exanthems in Typhoid Fever in Children. J. Kisters.—p. 193.
*Erythrodermia Desquamativa (Leiner). B. Haekel.—p. 197.

How Do Infants Thrive in Large Institutions?—Stransky and Gersuny have made investigations to discover how well infants brought up in institutions thrive as compared with those raised in private families. They wished to discover whether the charge of hospitalism is well founded. They found that in the Reichsanstalt for the Welfare of Mothers and Infants at Vienna the children did not suffer more frequently from pneumonia, pyelitis and acute infectious diseases than children raised in families. In the institution at the time were 100 infants and 20 young children. There were 5 cases of smallpox, 11 of chickenpox, 3 of pyelitis and 3 of diphtheria. There were no cases of measles or scarlet fever. With the exception of chickenpox, the infections were confined to one so-called box containing four or five beds. However, it was noticeable that with a protracted stay in the institution the tendency to disease increased. The infants did not gain in weight and length as rapidly as the tables demand, but that may have been mainly due to the scarcity and poor quality of the milk at the time.

Prognosis in Infantile Tuberculosis.—Osswald gives short case reports of thirty-six cases of tuberculosis in infants. The prognosis he does not find so unfavorable as is commonly reported—not even in tuberculosis of the lungs and bronchial glands. If children who became infected with tuberculosis as infants once reach the age of 3, they need not be regarded as being necessarily in greater danger. However, the prognosis is not so good for those who contract the infection during the first six months of life.

Osteomyelitis of the Spine in Infancy.—Schober reports, because of their rarity, two cases of osteomyelitis of the spine in infants. Owing to the fact that the localization of the disease process is difficult of access from without, it is scarcely possible to reach a definite diagnosis in time to operate. However, the necropsy findings prove that osteomyelitis may occasionally involve the spine in young children and that, especially in otherwise obscure cases, such an affection should be thought of.

Exanthems in Typhoid Fever in Children.—Kisters reports two cases of typhoid in children in which exanthems occurred. In a girl of 12 months there appeared on the buttocks a marked intertriginous eczema. On the abdomen, thorax and upper arms were small reddish spots. Ten days later, there appeared, for the first time, on the left cheek three raised reddish spots the size of pinheads (also two on left side of the forehead), which were in the nature of a roseola. Later, the spots grew larger, no longer disappearing on pressure. Such spots in the face are very rare in typhoid. In the second case, a boy of 9 presented a maculopapulous exanthem. The brownish-red spots were the size of a lentil up to the size of a silver dollar, or a little larger—some isolated, some in groups. Some showed a paler hue in the center. They were mostly on the face and both sides of the nose, but also on the arms and legs—not many on the trunk. On the abdomen, there was a typical roseola, which disappeared on pressure. The evening of the second day, the exanthem on the legs began to blanch and disappeared completely in the next two days. Headache and loss of appetite were associated with the exanthem. The boy recovered, the infant died.

Erythrodermia Desquamativa.—Haekel reports an outbreak of erythrodermia desquamativa (Leiner). Of 44 such cases admitted to the Reichsanstalt for Mother and Infant Welfare in Vienna, 1918-1921, 23 resulted fatally; recovery took place in 17 and 4 were dismissed uncured. In the second half of 1920, the clinical picture was especially severe, the disease assuming almost the proportions of an epidemic and most of the cases ending fatally. Almost all the patients were breastfed children, as is usual. In most cases the children were well developed. In 10 severe cases leukocytosis was noted, the leukocytes in 8 cases reaching from 20,000 to 26,000. An increasing leukocytosis seemed to indicate an unfavorable prognosis. As this blood picture is not found in eczematous, exudative dermatoses, leukocytosis has a certain differential value. The striking similarity of the blood picture with that of septic diseases was noted, but there were no other signs of a secondary septic infection. Two cases ran their course without fever; in the other cases there was slight atypical fever. A combination of breast feeding with one or two feedings of artificial food seems advisable, in general. An albumin milk (prepared according to Moll) was used in several cases with good results (7 recoveries). Neo-arsphenamin was given in 2 cases but without success. Proteotherapy did not avail. In one very severe case the patient recovered under the administration of large doses of lemon juice (6 spoonfuls daily), along with breast feeding. Therefore, in every case of exudative phenomena, the blood picture should receive careful attention.

Wiener klinische Wochenschrift, Vienna

Aug. 3, 1922, **35**, No. 31

Modern Treatment of Tabes and Paresis. E. Mattauschek.—p. 665.
Hypselophony, a Study of Overtones. A. Grgurina.—p. 669.
Foreign Bodies in the Duodenum. W. Goldschmidt.—p. 671.
Possible Excitive Effect of Arsphenamin on Tabes, Paresis and Syphilis of the Brain in Secondary Syphilis. K. Wagner.—p. 673.
Tuberculosis in Relation to Medical Inspection of Schools. K. Peyrer.—p. 674.

Zeitschrift für Tuberkulose, Leipzig

August, 1922, **36**, No. 6

*The Fight Against Tuberculosis in Norway. H. Haustein.—p. 403.
*Thoracoplastics. F. Jessen.—p. 425.
*Complications of Pneumothorax. A. Winkler.—p. 426.
Nostrums That Claim to Cure Tuberculosis. K. Klare.—p. 447.

The Control of Tuberculosis in Norway.—Haustein spent three months in studying Norway's fight against tuberculosis. In Norway one death in every six or seven is from tuberculosis; in the northern districts, one in every four or five. The law of 1900 enforced compulsory removal to an institution of the tuberculous dangerous to their environment. At the time there were no institutions to receive them, but the law paved the way for the solution of this difficult problem, as institutions were promptly organized for the purpose. Even yet, however, the number is still inadequate. These "homes" are scattered over the country. Each is planned for about twenty inmates; only rarely are there accommodations for thirty or thirty-five. They receive both sexes, and the homelike atmosphere contributes to their comfort. Curable cases are admitted temporarily, as also chronic cases during merely transient phases of aggravation. This shifting of the inmates helps to remove the stigma of the "home" as merely a place to die in. The county physician visits it at least once or twice a week, and each inmate is examined once a month at least. Two nurses care for each home, with several servants, and there are scarcely any restrictions on visitors and visiting hours. These institutions have proved a complete success, he says, and the tuberculous and their families usually seek them voluntarily. Only very rarely is it necessary to invoke the law.

Dr. Heitmann has been in charge of the system, and he is now urging legislation of a still more stringent character: notification by the physician of every case of tuberculosis, regardless of whether it is "open" or not; provisions for free treatment in sanatoriums, etc.; compulsory retention in the institution of "open" cases; authority to separate man and wife against their will; and authority to remove children from a tuberculous environment. The bill authorizes also the destruction of badly infected buildings, provided the owner consents. Teachers must present a medical certificate that they are free from tuberculosis, and if dismissed on account of tuberculosis they are to be pensioned, the state and the community sharing the expense. This bill represents important progress, especially in its doing away with the distinction between open and closed cases. The tuberculous will thus have no reason for trying to deceive the medical examiner. Each physician is constrained to report each case in which he examines or applies treatment, regardless of whether the case has been reported previously. Haustein remarks that this seems rather too sweeping, and yet it is the only means for thorough statistical records. As the notification is by the full name of the patient, duplication can be avoided in the statistics. He adds that one of the strongest elements of the Norway system is that the enforcement of the measures is centralized in the hands of one person, the official chief of the antituberculosis campaign. This official post was created in 1914, and the proposed bill is the crystallization of six years' experience, and all the medical societies and other organizations engaged in preventive work are sustaining it.

Thoracoplasty.—Jessen comments on the liability to return of symptoms after pneumothorax treatment of unilateral pulmonary tuberculosis when there is a cavity. Hence he advocates thoracoplasty in such cases without wasting time on pneumothorax, as the results of the thoracoplasty are permanent, and by operating at two sittings, three weeks apart, the intervention is free from danger. At the first the eleventh to the sixth ribs are attacked; at the second, the fifth to the first. The incision parallels the spine, then turns at an angle of 120 degrees, and is carried along above the tenth rib.

Complications of Artificial Pneumothorax.—There was perforation of the collapsed lung and this entailed pleuritis on the other side. The lung fistula healed spontaneously as an effusion developed in the space occupied by the pneumothorax.

Zeitschrift für urologische Chirurgie, Berlin

Aug. 19, 1922, **9**, No. 6

*Surgery of Horse-Shoe Kidney. H. Eggers.—p. 427.
*Muscle Patching After Nephrotomy. A. Ciminata.—p. 433.
Cysts, Polyps and Papillomas of Urethra. S. Gottfried.—p. 451.
*Nonoperative Treatment of Calculi in Ureter. L. Buerger (New York).—p. 456.
Papilloma Implants in Ureter. P. Janssen.—p. 474.

Surgery of Horse-Shoe Kidney.—Eggers has compiled eight cases from the literature in which the diseased half of a horse-shoe kidney was removed, and reports a case of nephrotomy on a horse-shoe kidney. This case teaches the necessity for investigating the course of the ureter and straightening it to ward off compression. It also emphasizes the advantages of supplementary nephropexy. He sutured the left half to the twelfth rib with silk after extraction of the calculi and cutting the isthmus. Pains in the other half of the kidney returned three times during the following month, but subsided on change to the knee-elbow posture. If the attacks return, nephropexy of this half will be indicated. Otherwise the patient is in good health.

Muscle Patch After Nephrotomy.—Ciminata's photomicrograms show the findings in twenty dogs in which he had placed a thin strip of free or pedunculated muscle tissue in the slit in the kidney. It healed in place without disturbing the course of the healing of the nephrotomy. The strip is pressed down into the slit and aids in arresting any tendency to hemorrhage. The muscle dies; by the twentieth day there was scarcely a trace left of the muscle fibers, and by the thirtieth, the connective tissue cicatrix was solid.

Nonoperative Treatment of Ureter Stones.—This article brings down to date Buerger's work in this line.

Journal of Biochemistry, Tokyo

January, 1922, **1**, No. 1

Phosphatides of Fish Sperm. M. Sano.—p. 1.
Optical Properties of Sphyngomyelin. M. Sano.—p. 17.
Electromotor Reaction of Frog's Skin. K. Hashida.—p. 21.
Urea Content of Cow's Milk. Simple Method of Determining Urea. Y. Morimoto.—p. 69.
Purin Metabolism. I. M. Kikuchi.—p. 83.
*Studies in Gastric Juice. III. M. Takata.—p. 107.
Nature of Nitrification. K. Miyake and S. Soma.—p. 123.
Mannanase and Laevidulinase. M. Mayeda.—p. 131.
Determination of Assimilation Power for Carbohydrate. K. Sakaguchi et al.—p. 139.
Glycolytic Action of Leukocytes. K. Fukushima.—p. 151.
Influence of Optical Rotation on Cell Permeability. Y. Kotake and M. Okagawa.—p. 159.
Physicochemical Properties of Phospholipin. S. Kakiuchi.—p. 165.

Nature of Empty Stomach Juice.—The physical properties of the secretion coming from the empty stomach, for which the term "empty stomach juice" is proposed, and the enzymes present in it were studied by Takata. He found that the empty juice contains pepsin, pepsinogen, rennet, lipase, nuclease, amylase and maltase. A method of determining the amount of mucus in gastric juice is described. The amount of mucus secreted in an unit of time is not at all influenced by feeding. The amount of mucus does not seem to be affected by the presence of 0.5 per cent. hydrochloric acid.

Tohoku Journal of Experimental Medicine, Sendai

April 31, 1922, **3**. No. 1-2

Studies of Mechanism of Lymph Formation. S. Osato.—p. 1.
Osmotic Concentration of Blood During Life and After Death. K. Yamakami.—p. 17.
Relation Between Main and Associated Agglutination. K. Aoki and T. Konno.—p. 56.
Growth of Influenza Bacillus. S. Kondo.—p. 70.
Does Blood Sugar Level Undergo Annual Variation in Dogs? I. Fujii.—p. 74.
*Arrest of Heart Under Digitalis. M. Maeda and F. Nakazawa.—p. 94.
*Origin of Xerophthalmos in Rabbits. Y. Hayashi.—p. 107.
Transport of Sugar Through Thoracic Duct. I. Fujii.—p. 120.
Cold-Puncture Hyperglycemia. S. Morita.—p. 136.
Caffein Diuresis. K. Tashiro and H. Abe.—p. 142 and p. 155.

Arrest of Heart Action in Diastole by Digitalis Group.—The research was done on the surviving heart of frogs. It confirmed the threefold action of the drug: 1, a paralyzing influence on the conduction system; 2, ditto on the center generating the impulse, and, 3, a stimulating action on the muscular tissue of the ventricle. These three actions do not occur all at once, one or the other predominating according to the dose and the mode of application.

Origin of Xerophthalmia.—Hayashi fed healthy rabbits on a soy-bean food that had been cooked at 120 C. for three hours to destroy the vitamin A. After an interval of from ten days to three months the animals began to lose weight and the cornea to become opaque. The changes in the cornea preceded the decline in weight in his animals. The xerophthalmos developed also in a rabbit fed with the same food not cooked long enough to destroy the vitamins. The experimental xerophthalmos closely resembled the similar clinical affection.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

July 8, 1922, **2**, No. 2

*Tuberculous Multiple Cystic Osteitis. N. Voorhoeve.—p. 133.
The Theoretical Bases of Heliotherapy. C. M. Mol.—p. 144.
*Creatin and Creatinin Content of Urine. D. G. Cohen Tervaert.—p. 152.
*Hot Air Treatment in Otorhinology. W. P. Meijjes.—p. 155.
Cerebral Embolism from Heart Disease. K. A. Kroll.—p. 160.

Multiple Cystic Osteitis.—Voorhoeve has found records of five other cases like the one he describes. His patient was a girl of 18 who had for eight years an affection of the fingers and toes explained by roentgenoscopy as numerous cysts in the bones without periosteitis. In the later course there were tuberculous changes in skin and lungs, lupus pernio and acrosphyxia.

Test for Creatin and Creatinin in the Urine.—Tervaert says that the Blau method is proving reliable for quantitative estimation of the creatin and creatinin even when the urine contains acetone and diacetic acid. The technic and findings are described.

Hot Air Treatment in Otorhinology.—Meijjes refers in particular to the benefit from hot air treatment in cases of deafness following acute otitis. The ordinary air douche does not do much good, but when superheated air is used, the ossicles seem to regain their normal play much better. He applies the hot air for fifteen minutes morning and afternoon. He has found this treatment useful also in infectious sore throat, in trigeminal neuralgia, and catarrh of the maxillary sinus. In several cases of acute otitis media, with pain in the mastoid, the mastoiditis retrogressed. This was noted especially in children, as their skulls are thin.

July 15, 1922, **2**, No. 3

*Infectious Diseases in This Century. R. H. Saltet.—p. 226.
Familial Form of Tuberous Sclerosis. Bastiaanse and Landsteiner.—p. 248.
Fleas in Relation to Plague in Europe. B. Hylkema.—p. 258.
Spontaneous Rupture of the Spleen. J. G. Remynse.—p. 260.
*Etiology of Herpes. K. Edel.—p. 263.

Infectious Diseases in this Century.—Saltet compares the mortality from the principal infectious diseases in fourteen countries from 1900 to the war and during and since the war, and discusses the factors influencing the death rate. In conclusion he adds that it might be instructive to study the reasons why Norway has such a very low infant death rate, and why the tuberculosis death rate in Japan is increasing, and why conditions seem to be so unfavorable for small children in Scotland.

Etiology of Herpes.—Edel reviews what has been published in recent years on herpes and its virus. Kooij has cultivated a micro-organism from herpes vesicles which induces a special keratitis in the rabbit. It is transmissible, and the same micro-organism could be recovered from the blood and spleen of the rabbits. It reproduces in animals a disease analogous in every respect with lethargic encephalitis. This micro-organism is found in the sputum, and carriers have been encountered. There is thus considerable evidence, he says, that the virus of epidemic encephalitis and of herpes is identical. The coincidence or sequence of herpes and varicella has been reported by innumerable writers. It seems plausible to assume that the virus has an affinity both for the skin and for the nerves. When the dermatropism prevails, varicella develops; when the neurotropism predominates, we get herpes zoster. This dual affinity may be influenced by special conditions in the nerves, or toxic action from an infectious process, or chemical or mechanical influences may decide whether the virus manifests itself in skin or nerves.

July 22, 1922, **2**, No. 4

*Experimental Tar Cancer. H. T. Deelman.—p. 334.
The Respiration Variations in the Plethysmogram. A. A. Weinberg.—p. 343.
Maculipennis Mosquitoes at Amsterdam. N. H. Swellengrebel.—p. 350.
Invagination of Ileum. S. T. Heidema.—p. 360.
Spontaneous Rupture of Uterus. H. P. Kortebos.—p. 363.

Tar Cancer.—Among the points emphasized by Deelman from his research on mice is that it takes a certain standard length of time for the benign proliferation of epithelium to occur in consequence of repeated application of tar. It develops cancer in time, but the interval before the cancer becomes manifest varies within a wide range. This suggests, he says, that the precancerous condition develops according to a regular process, but the development of cancer therefrom is dependent on more or less casual circumstances. The cancer seems further to have a multicellular beginning.

July 29, 1922, **2**, No. 5

*Choked Disk. G. C. Bolten.—p. 422.
*The Arneth Blood Count in Liver Disease. G. J. Bon.—p. 432.
Localization of Foreign Body in Eye. A. Verweij.—p. 439.
A New Netherlands-India Mosquito. N. H. Swellengrebel.—p. 443.
Sulphemoglobinemia in an Infant. A. Willemse.—p. 445.

Choked Disk.—Bolten reports that a previously healthy man and woman of about 30 developed bilateral choked disk from a small hemorrhage in the brain. In the woman, the loss of consciousness was brief and all the symptoms rapidly retrogressed. In the man, the retrospective diagnosis is that the hemorrhage had been too small to induce compression of the brain, but the clots from it had obstructed the Luschka and Magendie foramens, with consequent hydrocephalus in all four ventricles. Necropsy at about the sixtieth day revealed the blood encircling the medulla oblongata. The inferior posterior cerebellar artery seemed to be the source. In three other cases, very large brain tumors had developed without choked disk at any time or only toward the last. The extremely slow growth explains this absence of choked disk. On the other hand, it may develop early with even a very small tumor if there is much collateral edema. He has seen cases of this kind in which the choked disk had preceded the distinct focal symptoms. It may occur with serous meningitis and acute swelling of the brain, both of which may be regarded as a fleeting angioneurotic edema of the meninges or brain itself. Unless sinus thrombosis is very extensive or bilateral, choked disk rarely is encountered with this alone.

Arneth Blood Count in Disease of the Liver.—Bon relates two experiences which show the importance of the Arneth blood count in the differential diagnosis between a gumma and an abscess in the liver. In the first case there was no reduction in eosinophils but lymphocytosis was pronounced, with hyperhypocytosis, excluding assumption of an abscess. In the other case, the blood showed anisohypercytosis with no eosinophils. These findings gave the clue at once, and the symptoms promptly disappeared under arsenical treatment in the first case, and, in the second, under emetin, the hepatitis subsiding without reaching the abscess stage.

Hospitalstidende, Copenhagen

Aug. 23, 1922, **65**, No. 34

*Spiritualism and Psychoses. A. Wimmer.—p. 545. Conc'n No. 35, p. 561.

Spiritualism and Psychoses.—Wimmer analyzes some cases of a psychosis from what he calls medium-itis. In one woman of 42 the manic-depressive psychosis became complicated with the spiritualistic ideas and hallucinations, and these persisted during the intermissions of the other, and seem to be now an independent delirium. In other cases the spiritualistic proceedings elicited a psychogenous mental affection in a predisposed soil. The onset is often acute, but the further course is remittent. A special characteristic of this spiritualistic modern delirium is the blending of self-accusations and religious-mystic hallucinations with erotic and blasphemous ideas. The hallucinations are auditory, rather than visual. The clinical picture is like that of the cases of hysteria delirium in the middle ages, the passional demoniacal "possessions," but the modern type may include automatic writing, rappings, etc., like a medium's trance, when the subjects have attended spiritualistic séances. Wimmer emphasizes that in the mediums' trances and in these spiritualistic psychoses nothing new is ever imagined or produced. The ideas and hallucinations are always drawn from the subject's own store of experience. The present vogue of spiritualistic practices and talk of the "subconscious" is a grave danger for the layman or woman with a nervous temperament inclining to mysticism. It is liable to upset their psychic balance until it gets beyond recovery, as in the three typical cases described. In others, an ordinary mental disease assumed certain features picked up at spiritualistic meetings.

Sept. 6, 1922, **65**, No. 36

*Sugar Content of Blood with Glycosuria. J. E. Holst.—p. 577.
Inclusions in Myeloblasts in Myelosis. A. Nyefeldt.—p. 586.

Sugar Content of Blood with Glycosuria.—Holst refers to the great difference in the sugar content of blood drawn from the median vein and from the capillaries after ingestion of carbohydrates. In fourteen cases of diabetes the difference averaged between 0.011 and 0.013 per cent., and in twenty-three cases of glycosuria from other cause it averaged, as in the normal, about 0.023. No regular laws could be detected.

Hygiea, Stockholm

July 31, 1922, **84**, No. 14

*Tuberculosis of Urinary Apparatus. G. Ekehorn.—p. 561. Begun in No. 13, p. 513.
Postencephalitic Parkinsonism. E. Westerberg.—p. 585.

Aug. 16, 1922, **84**, No. 15

Graphic Records of Lung Findings. C. E. Waller.—p. 609.
Abbreviations in Records of Lung Findings. C. E. Waller.—p. 616.
*Circumscribed Serous Meningitis. E. Sahlgren.—p. 619.

Sept. 15, 1922, **84**, No. 17

Danger of Epidemics in Europe. C. Näslund.—p. 689.

Diagnosis and Treatment of Tuberculosis of the Urinary Apparatus.—Ekehorn's article was read as the Lennander lecture. He has found symptoms of cystitis usually the first appreciable manifestation of tuberculosis in a kidney, although the first symptoms may appear in the kidney. Blood in the urine may be the first symptom, without any subjective disturbances. Nephrectomy is the only treatment, and it is not usually necessary to test the functioning of the other kidney beforehand, as the second kidney seldom becomes involved until late. In case of doubt, and if catheterization of the ureters is impracticable, he exposes both kidneys and removes the one most seriously affected—all at the one sitting. He loosens up each kidney but makes no incision nor decapsulation, trusting to inspection and palpation of the kidney and ureter, and suturing without drainage. Removal of the one most seriously involved relieves the other kidney from its toxic action, and the second kidney may recuperate remarkably. If the kidney is totally destroyed, the second kidney has already assumed the functions for both, and the removal of the first kidney is optional.

Compression of Spinal Cord from Circumscribed Serous Meningitis.—Sahlgren's patient was a woman of 68 who developed spastic paralysis and paresthesia in the legs after a trauma affecting the spine. The paralysis and contracture promptly subsided after laminectomy, but fatal pneumonia developed. Necropsy the thirteenth day revealed the spinal cord approximately normal. The compression from the circumscribed serous meningitis may have interfered only with the circulation.

Ugeskrift for Læger, Copenhagen

Aug. 10, 1922, **84**, No. 32

Quinidin in Auricular Fibrillation. S. Andersen.—p. 1003.
*Fatal Neurosyphilis. H. Vøhtz.—p. 1012.

Acute Neurosyphilis.—In Vøhtz' two cases there had been no adequate treatment of the syphilitic infection in the young men. Each developed sudden paralysis of the legs, bladder and rectum. In one the whole clinical picture developed in one day; in the other, there had been lancinating pains for four days. The symptoms subsided so promptly in the first case under specific treatment that the spinal cord disturbances must have been merely from compression by a retrogressing gumma. In the other case the ascending myelitis was traced at necropsy to a vascular origin.

Aug. 24, 1922, **84**, No. 34

*Snapping Scapula. P. Jacoby.—p. 1071.
The Diet in Surgical Tuberculosis. R. Hertz.—p. 1088.

Snapping Scapula.—The snapping sound as the boy of 10 moves his scapula can be heard across the room. Jacoby describes five further cases in athletes but there was no pain in the region. He analyzes the different factors that may be involved and the treatment that may be called for if the *crepitatio scapularis* interferes with the use of the arm or is painful. Exostoses may have to be cut off, or a plastic operation done, interposing fat or muscle tissue.

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RENAL COLIC IN CASES OF RENAL AND URETERAL STONE *

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One of the most common, best known and most suggestive symptoms of renal or ureteral calculus is undoubtedly the sharp, lancinating pain which has been termed renal colic. With this particular sympton in mind, it is our purpose to review the cases of patients with renal and ureteral stone who have been admitted to and treated in the urologic department of the Long Island College Hospital during 1921, to determine, if possible, how far, if at all, temporary measures or procrastination on the part of physician or patient is justifiable after this symptom is encountered. That attacks of colic may be associated with conditions other than kidney or ureteral stone is, of course, a well established fact, and is mentioned only to convey the impression that colic is not in any way absolutely pathognomonic of stone. The ptosed kidney with its kinking ureter, plugs of pus from the suppurating parenchyma, clots from the bleeding neoplasms or masses of the tumor itself are frequently found to produce an attack of colic not unlike that which is seen in calculus, and can be differentiated from calculus colic only by a careful urologic examination.

In the study of our cases we have included only those in which examination and operation by one of us confirmed the diagnosis of renal or ureteral calculus. Many other patients, whose cases have not been included in this review, have been admitted with renal or ureteral calculus as the diagnosis, but the findings were either negative or insufficient to establish the diagnosis. Our records for the year yield thirty-two cases of stone—not a large number by any means, but a sufficient number, we believe, to form the basis for the study we have undertaken. Whether or not a larger series of cases would alter, or merely emphasize, our data is no doubt debatable, as a case or two resulting one way or another will change the relative findings in the small series more markedly than in the larger.

Of the thirty-two patients admitted for stone, thirty stated that they had come to the hospital for the relief of pain. Of the thirty, twenty-seven described their pain as paroxysmal in character, starting over one kidney and radiating along the course of the ureter or remaining localized in the kidney region. Of the others, one complained of dull pain in the lumbar region; one had abdominal pain, first diagnosed as an acute condition of the abdomen; another patient sought relief for backache, which had been diagnosed as due to spondylitis. Two of the patients who later proved to have calculi had had no pain or colic that they could recall, and were sent to the hospital for the relief of other symptoms, viz., pyuria.

From the foregoing data it will be readily seen that while it is possible for calculi to be present in the kidney without the production of pain, as illustrated by two of the cases encountered—the so-called "silent" stones—pain is the rule, and pain so constant and typical during the attack that it should leave little doubt in the mind of the attendant as to the nature of the attack.

It is of interest to note the time elapsing from the onset of the first attack of colic to the day the patient entered the hospital for relief, a point which to our minds represents (1) the time lost through the negligence of the physician who saw the patient in the first attack of colic, to advise him of the true condition and to urge him to have a urologic study of the kidneys and ureters made; (2) the time during which the patient knowing the existing condition has been able to withstand the attacks of pain, or (3) the time during which a stone in the kidney or ureter has succeeded in masquerading under the diagnosis of a recurrent appendicitis, cholelithiasis or backache of postural origin. The duration of colic in this series presented a wide variation; in one case there had been an attack three days before admission and none before, while two of the patients had had repeated attacks for twelve years, a remarkable example of the amount of agony some patients are willing or compelled to withstand before seeking relief. The remaining patients had had attacks extending over three or four years before admission; this was found to be a fair average of the duration of colic.

The fact that two of our patients had had previous appendectomies without relief of symptoms would seem to indicate that modern urologic methods of cystoscopy and pyelography had not been utilized. One had been operated on during the attack because of pain in the right lower quadrant accompanied by nausea and a slight rise of temperature—a supposedly acute appendicitis—a mistake which might well happen when the surgeon is called to see the patient in the home, and, without the facilities at hand for differentiating the two conditions, goes ahead with the operation on the supposition that he is dealing with a case of acute appendicitis in which the appendix should be removed without delay. The second case, however, presents a rather different situation, as this patient had experienced several distinct attacks, and operation was performed in the interval without a urologic investigation. In this case there seems to be little excuse for the mistake in diagnosis, for a roentgenogram of the ureter, made at any time, would have settled the question without further procedure.

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* From the Urological Department, Long Island College Hospital.

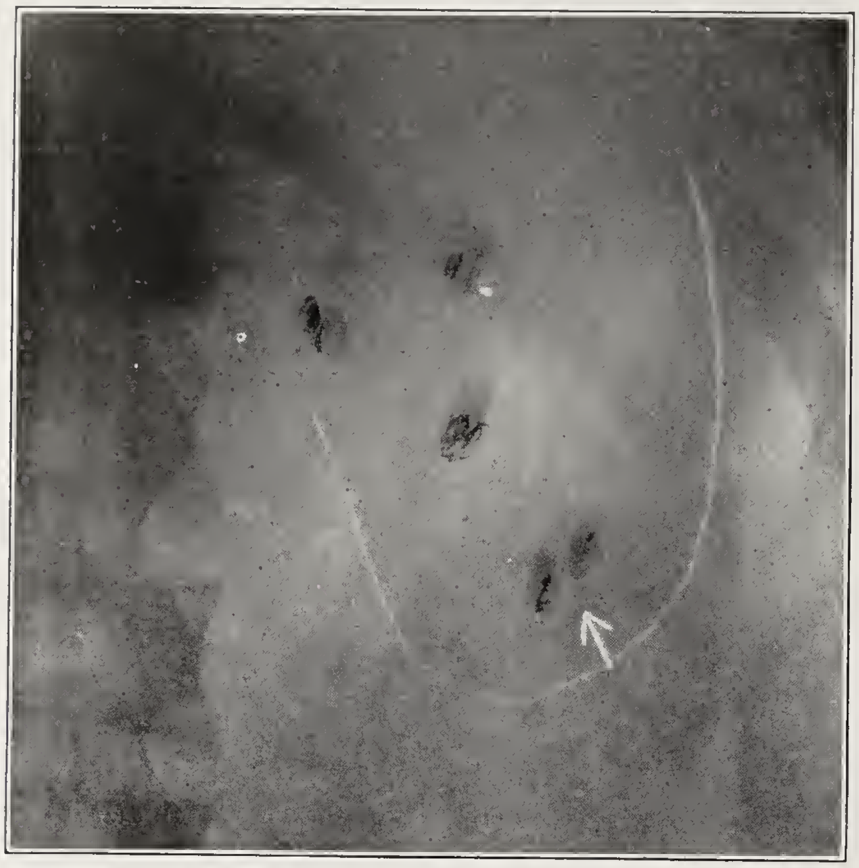

Fig. 1 (Case 1).—Calculi in left kidney and ureter; the kidney is outlined in white.

Lest it be understood that a roentgen-ray examination of the suspected kidney and ureter will settle the diagnosis in every case of calculus, it might be well to mention that in one of our cases, although there had been attacks of colic a few days before the examination, the plates failed to show a shadow either in the kidney or the ureter, but another attack of colic while the patient was still in the hospital caused him to pass a stone larger than a pea. Cabot,[1] in a series of 127 cases, found a persistently negative roentgenogram in 6 per cent. of cases, while the series reported by Braasch and Moore [2] gave 11 per cent. of negatives. Although it will be seen that the roentgen ray is a fairly accurate means of diagnosing stone in the kidney or ureter, with from 6 to 11 per cent. of error, it is not without its limitations. Extra-ureteral or pelvic shadows may sometimes appear in the films, and are very likely to be considered as evidence of stone unless stereoscopic views with the opaque catheter in position, or pyelograms, are made. When these procedures are resorted to, and the films are interpreted by the experienced roentgenologist, the percentage of error should be very small.

That stone in the kidney or ureter, if left undiagnosed and untreated, does not resolve itself into years of repeated attacks of colic without the occurrence of other conditions is well illustrated by our experience in several cases, of which Case 1 is a type.

Case 1.—M. H., a man, aged 37, married, a furrier, admitted Sept. 26, 1920, complained of pain in the left lumbar region more or less for twelve years. The history was negative.

The present illness dated back to 1908, when he had his first attack of sharp, colicky pain in the left lumbar region. The patient had many similar attacks since then. Following an attack in 1916, he passed a small calculus. The last attack was six weeks before admission.

Physical examination was negative except for an area of tenderness over the region of the left kidney. The Murphy sign was positive. The kidney was palpable and slightly enlarged.

Analysis of a catheter specimen of bladder urine revealed slight turbidity, acid reaction, specific gravity of 1.018, a slight trace of albumin, absence of sugar, a few red cells, many pus cells, mucus and epithelium.

Cystoscopy revealed the bladder capacity as 175 c.c. A moderate degree of cystitis was present. The right ureteral orifice was normal, but the left was open and reddened. Ureteral catheters passed to the pelvis of each kidney without obstruction. Urine from the right kidney was clear, with no pus; the content was from 8 to 30 gm.; indigocarmin appeared in seven minutes. Urine from the left kidney was turbid and alkaline, with a trace of urea and many pus cells; no dye appeared in twenty-five minutes.

The pyelography report was: deficient filling of the kidney pelvis due to incomplete emptying of the pelvis before bromid solution was introduced; a large dilated pelvis with three flattened calices.

The roentgenogram revealed the right kidney normal in size and position, with no evidence of calculus in either the kidney or the ureter. There were several large and many small calculi in the left kidney and ureter.

The diagnosis was: multiple calculi, and pyonephrosis.

Left nephrectomy was performed (H. H. M.), Oct. 24, 1921. The kidney, exposed by the lumbar route, freed and partially delivered, was seen to be filled with calculi and badly destroyed. The pedicle was ligated and the kidney removed. The wound was closed with drainage. Convalescence was without event, and the patient left the hospital twenty-two days after operation.

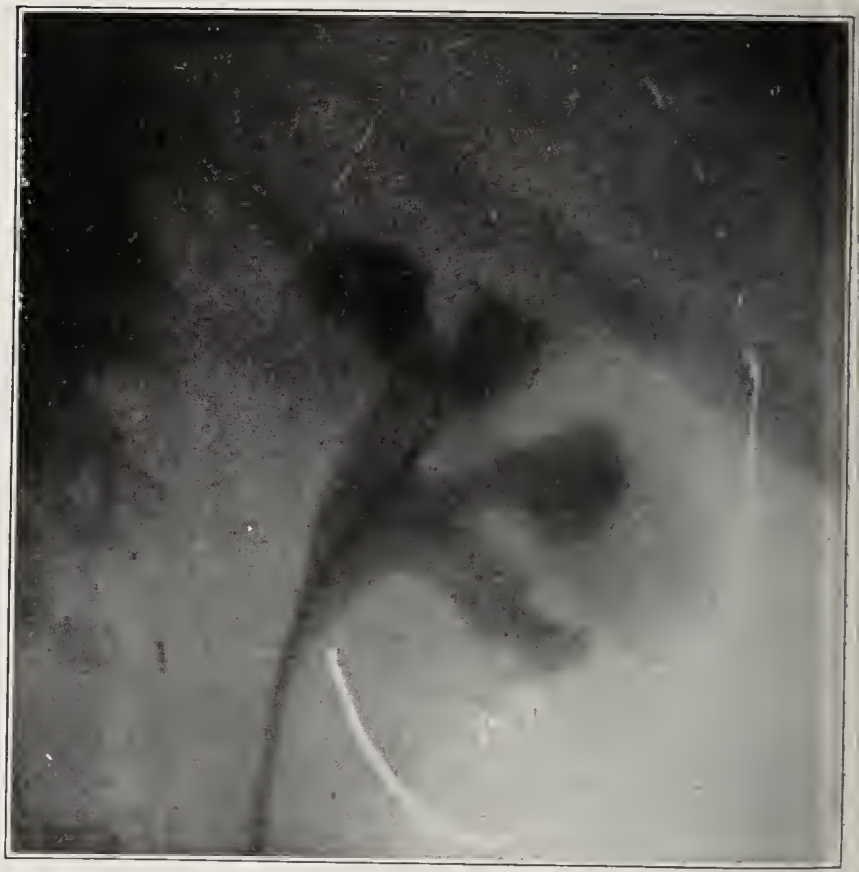

Fig. 2 (Case 1).—Large, dilated pelvis, with three flattened calices; the arrows point to a large stone in the lower calix.

The loss of a kidney, as in the foregoing case, is not the rule in the neglected case of renal calculus; nevertheless, it has occurred sufficiently often in our experience to impress on us the advisability of early diagnosis operative measures for the removal of stones. It ossible that the patient might have had the first of many stones removed by pyelotomy or nephrotomy, y to have a later recurrence which would necessitate hrectomy. However, when we consider that the centage of recurrence following pyelotomy or phrotomy, and this includes stones which were proby missed at operation, does not exceed 50 per cent., believe that by operation performed early we can manently cure at least half of the cases, and thus ke the operation of nephrectomy for destruction of kidney an uncommon procedure.

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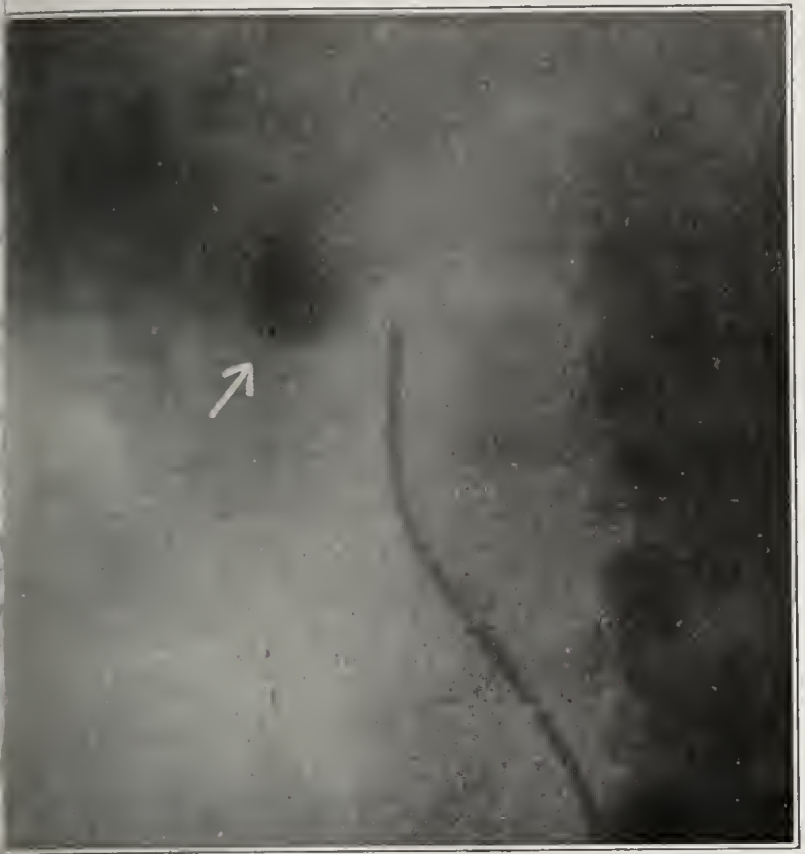
[1] Cabot, Hugh: Errors in Diagnosis of Renal Calculus, Surg., Gynec. & Obst. **21**: 404, 1915.

[2] Braasch, W. F., and Moore, A. B.: Stones in the Ureter, J. A. M. A. **65**: 1236 (Oct. 9) 1915.



ig. 3 (Case 2).—Large stone in lower portion of pelvis of right ney, measuring 4 by 2 cm.; the catheter in the ureter is opaque.

Whatever has been said in the preceding paragraph garding nephrectomy in the instances in which we counter a badly damaged kidney should not in any y be so construed as to leave the impression that hrectomy should not be performed in suitable cases. times one will be tempted to remove the stone from kidney which has undergone a fair amount of struction, with the hope that it may sufficiently cover to resume its function again. Under these cumstances the surgeon will do well to be guided Mayo's[3] statement that "one of the most common ises of recurrence of stone has been the attempt to serve a badly damaged kidney which was of little functionally and a continuous menace to the ient.".

The usual type of case encountered in our series was t of a small stone lying in the pelvis of the kidney, in one of the calices, which had given symptoms for arying length of time sufficient to cause the patient seek relief, as in Case 2.

ASE 2.—M. H., a man, aged 43, single, a presser, admitted, ril 16, 1921, complained of dull pain over the right kidney ion, and frequent micturition. There had been no previous lesses except gonorrhea twelve years previously. He stated t he had colic, severe pain in the right kidney region, six eks before, and that the pain radiated to the right leg.

Physical examination was negative. Cystoscopy revealed subacute cystitis. The right ureteral orifice was injected, and easily catheterized. Urine from the right kidney was cloudy with pus; phenolsulphonephthalein appeared in fourteen minutes. The left ureter was normal, and urine from the left kidney was clear, with no pus; phenolsulphonephthalein appeared in six minutes.

Pyelography revealed a normal left kidney pelvis, and a large stone in the lower portion of the right kidney pelvis, measuring 4 by 2 cm.

The diagnosis was: calculus in the right kidney pelvis.

Right pyelotomy was performed (J. H. B.), April 20, 1921. The kidney was exposed by the lumbar route, delivered, and the calculus removed through the pelvis. The wound was closed with a drain to the pelvis. There was a small amount of urinary leakage for the first few days. The wound closed rapidly, and the patient left the hospital twenty-four days after operation.

This case is cited merely to emphasize the importance of early diagnosis and removal of a stone which, if disregarded, will surely, even though slowly, do serious damage to the kidney. The operative risk attending pyelotomy for removal of stone is so small that the surgeon should never hesitate to advise the operation. Most of the stones in the lower end of the calices and in the pelvis can be removed by this procedure. Now and then one will see a case in which it is not possible to extract the stone or stones through an incision in the pelvis, and it is in these instances that it becomes necessary to perform nephrotomy. Although this operation carries with it a higher mortality, a greater tendency to postoperative hemorrhage, and the possibility of overlooking some of the smaller stones, nevertheless we believe it is better to remove the stone or stones than to allow them to remain in the kidney until the subsequent damage done by them necessitates removal of the kidney.

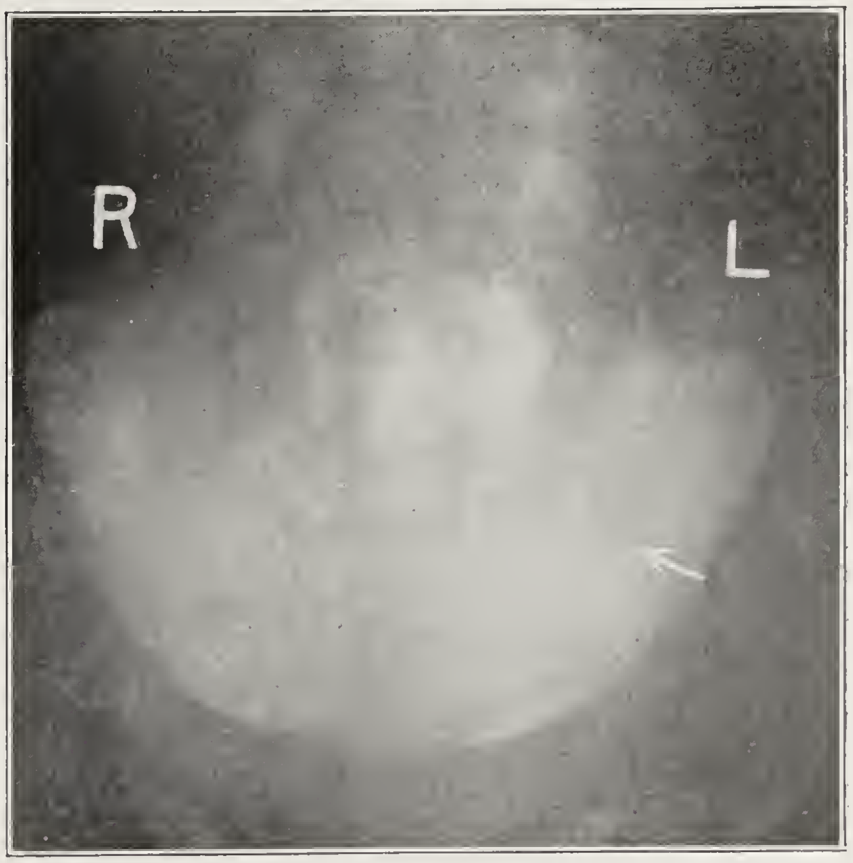


Fig. 4 (Case 3).—Bladder and lower portion of both ureters; the arrow points to the shadow of a small calculus in the left ureter.

The problem of the small stone in the pelvis or ureter presents still another phase in the management of calculus cases, which is well illustrated by the experience of one of us (J. S. R.) in four successive cases in this series. Since it is true that small stones as well as the larger ones will at times cause a very severe colic, and since there is no accurate clinical method of determining the size and location of such a stone, every case in which stone is suspected as being the cause of colic should be studied in conjunction with the roentgenologist. If necessary, repeated roentgenograms should be made until one is satisfied as to the size and location of the calculus. Only then is one able to form any opinion as to whether operation should be performed without further delay, or whether the stones, because of their size and position, will probably pass either with or without the assistance of such maneuvers as can be carried out through the operating cystoscope. Case 3 is a case in point.

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[3] Mayo, W. J.: Removal of Stones from the Kidney, Surg., Gynec. Obst. 24: 2 (Jan.) 1917.

Case 3.—J. L., a fireman, aged 31, was admitted (J. S. R.), July 20, 1921, complaining of left renal colic three months before. The history and physical examination were negative.

Cystoscopy revealed a normal bladder and normal right ureter; a catheter passed without obstruction, yielding clear urine. The left ureter was normal; the catheter met obstruction 10 cm. from the meatus and no urine was obtained.

Roentgen-ray examination revealed a stone the size of a pea in the lower end of the ureter.

The treatment consisted of repeated ureteral dilations and oil injections. The stone passed three months later, following a dilation.

Although no fixed rule can be laid down which will cover the entire question as to what is the proper procedure to advise in dealing with the smaller calculi, it is our belief, based on our experience, that unless the calculus is so impacted that it will in all probability be the cause of a hydronephrosis or pyonephrosis in a short time, these cases should be kept under observation for a certain period in order that the stone may be given an opportunity of passing spontaneously. If after six or seven months it is still in the same position, one may be reasonably sure that it will not pass of itself, and then the decision as to the method of removal must be made.

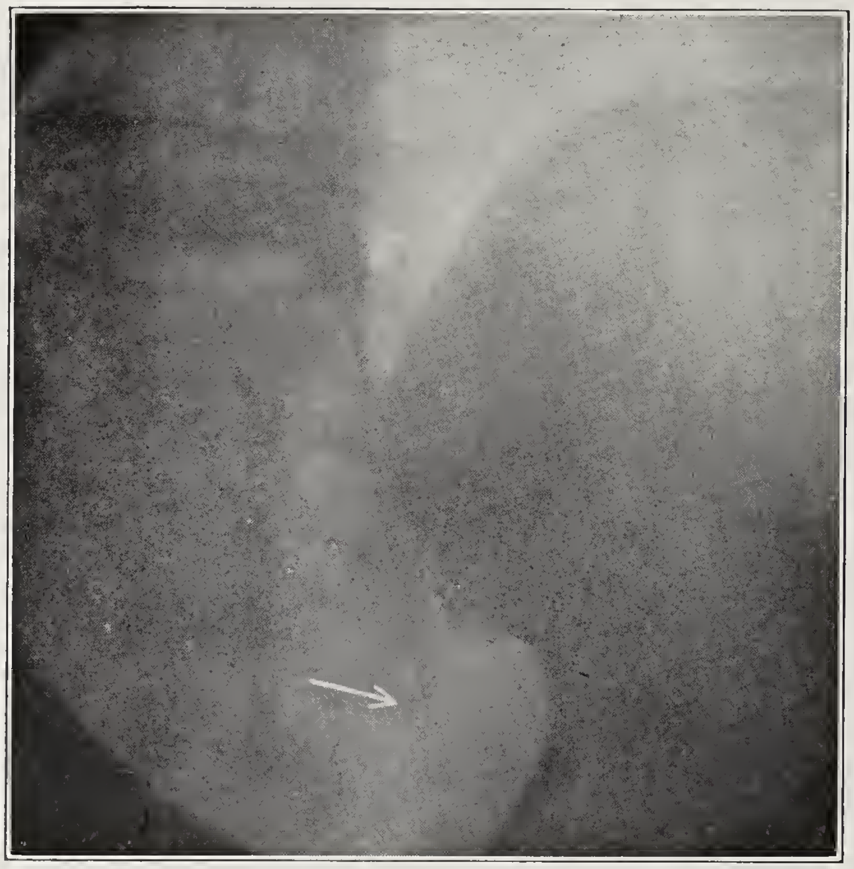

Fig. 5 (Case 3).—Left ureter with an opaque catheter in position, showing relation of the shadow to the ureter.

CONCLUSIONS

1. Renal colic is a constant symptom in all but the "silent" calculus cases.
2. Patients seek relief from pain more frequently than from any other symptom associated with calculus.
3. An early and complete urologic and roentgenologic examination should be made in every instance in which stone is suspected.
4. Early operative intervention is indicated as a measure of prevention against destruction of the kidney.
5. Stone in the kidney, if allowed to remain, eventually results in total destruction of the organ.
6. Small calculi should be observed for a reasonable time before operative removal is attempted. Many of them will pass spontaneously or can be assisted by repeated dilation of the ureter.

CARCINOMA OF THE PROSTATE *

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AND
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In this brief report, we wish to discuss some observ tions and conclusions based on a review of the literatu and our personal experience with the prostatic canc problem.

The literature is crowded with case reports, metho of treatment and statistics of results, but few ha considered ways and means by which a larger pe centage of these patients may be discovered ear enough to give them permanent relief.

The incidence of cancer of the prostate to that benign hypertrophy varies in reports from 15 to per cent. The differentiation of cancer by our prese methods of local examination is at times impossible, that it is probably safe estimate that at least o in four tumors of t prostate is malignant.

Fully one third of the patients give evidence bone metastases at t time they seek relief, a many who do not sho such evidence have exte sive local involvement, metastases which are n demonstrable.

For these reasons, it evident that a rather sm proportion of the patien we treat are seen suf ciently early to give the permanent relief by a known method of trea ment.

Unfortunately, t symptoms which might a tract attention to the pro tate gland do not appe until late in the course the disease, in many i stances after metastas have developed. Therefore, if we hope to discov these cases early they will have to be found i the course of a general physical examination. T prostate gland has been sadly neglected in the course physical examinations, unless the patient happens complain of some urinary disturbance, and unfort nately those suffering from cancer of this gland do n develop these symptoms until late.

The importance of a thorough investigation of t prostate gland in men more than 40 years of age unde going a general physical examination cannot be ove estimated, and this is the only measure by which w may expect to obtain better results by our prese methods of treatment. The appeal for early diagnos is applicable to all forms of cancer, but is more so i cancer of the prostate because symptomatically it is silent disease until far advanced. We may impro these methods, but the great hope of the future in thes

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* Read before the Section on Urology at the Seventy-Third Annu Session of the American Medical Association, St. Louis, May, 1922.

ortunate cases rests in our ability to teach the genl profession to include careful examination of the state in their diagnostic routine.

Early malignancy in the prostate gland may be diffit to determine by ordinary palpation in the rectum, ecially in the early stage, with one or more small as of involvement. These can be felt more readily sound or a cystoscope is introduced into the urethra.

n reviewing the literature of the last six or seven rs, it is evident that most of us, in our early experie, subjected patients to radium therapy who had h glandular and bone metastases. Most of those h bone metastases are now being eliminated, owing present day methods of roentgenologic study. Howr, we are still unable to rule out glandular metases, except in a small percentage, when the pelvic nds are palpable. It is quite evident that a fairly ge proportion of patients treated with radium have ndular involvement, or at least the lymphatic chans which drain the prostate contain cancer cells, and s explains why we freently fail to check the ogress of the disease.

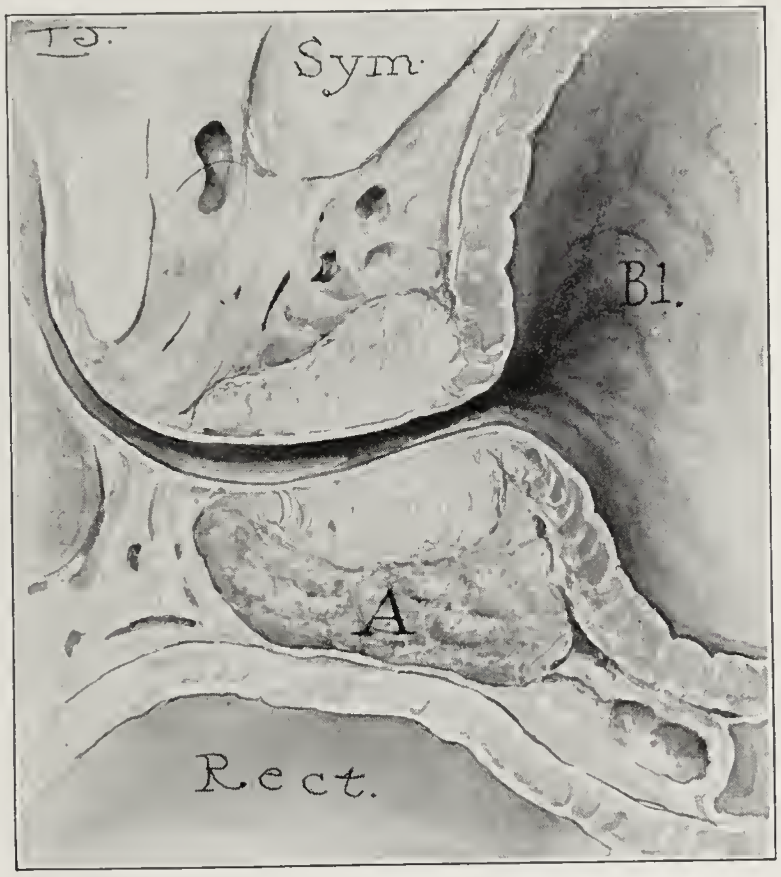

Fig. 1.—Malignant lower posterior segment of prostate (*A*), with benign hypertrophy in the superior part of the gland.

SIGNS AND SYMPTOMS

The urinary symptoms so aracteristic of benign pertrophy do not appear til late, unless the maligncy is associated with begn hypertrophy in the perior segment of the gland. ood is not commonly found the urine until late except the adenocarcinoma type, ecause most of these owths develop behind the inary tract rather than in Pain along the sciatic erve is the one symptom sociated with early maligncy that should attract our tention to the prostate in en of prostatic age. Pubic d sacral pain and pain in e back are usually signifint of extensive local inolvement, but may be used in some cases by glandular or bone metastases.

In addition to the characteristic rectal findings of a ony hard "frozen" gland in which one can usually feel me irregular nodules, we wish to emphasize the sigficance of the increased resistance which is often und in the intervesicular space, just above the ostate gland.

This infiltration produces an elevation of the trigon hich is termed the "subtrigonal" plateau, when seen cystoscopic examination. It can be felt more disctly if a cystoscope is introduced into the bladder and e beak turned downward toward the trigon. Oblitation of the interlobular sulcus is also a characteristic ectal finding in malignancy.

The rich lymphatic drainage of the prostate gland xplains the frequency and often early development of etastases and our failure to arrest the progress of the isease. Even though the gland is not extensively volved and metastases are not demonstrable, the mphatic channels may be loaded with cancer cells. The degree of local involvement does not necessarily bear any relationship to the possibility of metastases. For this reason, a careful necropsy examination of the prostate gland should be made in persons dying from otherwise unexplained secondary carcinoma. In spite of our present day methods of roentgenologic and neurologic study, we fail to recognize the presence of metastases in some cases, especially those which occur in the pelvic and prevertebral lymph nodes. These patients usually complain of severe abdominal pain and pain in the back, which is probably due to pressure on nerve roots by the enlarged lymph nodes. We have found that many of these are not controlled by radium, and they progress rapidly and show glandular metastases at necropsy.

Although in these cases the lungs are rarely involved, one of our patients presented extensive metastases of the lung developing from a rather small prostatic tumor, without evidence of the existence of any other metastases.

PATHOLOGY

From the standpoint of therapy, a classification of cancer of the prostate into three pathologic types seems rational.

1. A scirrhus type, which usually begins in the posterior lobe in the form of small flat or nodular areas. These are harder than the normal gland tissue, but are at times difficult to diagnose by rectal palpation. This type may invade the entire posterior lobe and spread upward along Denonvillier's fascia between the seminal vesicles, sometimes involving them. Metastases are common and frequently develop early in the course of the disease.

Here we have a process developing and spreading behind the urinary tract rather than into it, so that these patients do not have any urinary symptoms until late, and not infrequently the symptoms caused by metastases are the first to appear.

The intervesicular area and the region of the seminal vesicles should attract our most earnest attention, if we hope to control the spread of the tumor. It is difficult to determine when this invasion occurs, but it is safe to state that at least the lymphatic channels which pass through this region carry cancer cells before any infiltration can be determined by palpation in the rectum.

2. Type 2 is a combination of Type 1, associated with a benign hypertrophy of the superior portion of the prostate. This is a rather common form of tumor and at times difficult to differentiate from simple hypertrophy, the malignant area often being discovered at the time of operation. When attempting to enucleate the adenoma, it is found adherent to the posterior lobe, or, on bimanual palpation after removal, the malignant areas are felt. In this type, urinary symptoms develop early, owing to the change in contour of the neck of the bladder and obstruction produced by the adenoma-

tous part of the tumor. In our experience, this type has been easier to control than Type 1 because, owing to the symptoms, the patients present themselves earlier for treatment.

A variation of this type is found in some of these tumors when the adenomatous portion is invaded by the cancer from the posterior lobe. These tumors were described by some of the earlier writers as adenomas of the prostate which had undergone malignant degeneration.

3. Type 3 is a less common form of tumor, in which the entire gland is the seat of an adenocarcinoma. These tumors are as a rule smooth and symmetrical but are harder than the adenoma. Enucleation, when attempted, is found difficult or impossible owing to the absence of a line of cleavage. Symptoms of obstruction occur early, owing to invasion of the prostatic urethra and bladder, but metastases do not occur as frequently as in Type 1 and Type 2. When patients suffer from this type, the condition is easier to control, because they are disturbed by urinary symptoms and seek relief before metastases have developed.

Many variations of the foregoing classification could be described, but a simple division of this kind is helpful in applying various methods of radium therapy used in the control of prostatic cancer.

Type 1 and Type 2 must be looked on as the most malignant forms of the disease, owing to the probability of early metastases; nevertheless, direct extension of cancer into the bladder and surrounding bony structure is not an unusual finding in Type 3.

We have obtained better results in Type 2 and Type 3 because the early development of urinary symptoms leads the patients to present themselves before metastases have developed. Also, in Type 2, the enucleation of the adenomatous part of the tumor gives opportunity to implant and apply radium more accurately to the malignant posterior lobe.

TREATMENT

More than six years ago, we began treating carcinoma of the prostate by embedding needles containing radium in the involved areas of the gland, through the opened bladder. Our reason for applying treatment through the opened bladder was twofold: (1) it gave easy access to the tumor and especially the subtrigonal area, and (2) it gave relief from urinary retention.

Later, following the reports of Barringer and others, we treated some of these patients by introducing needles through the closed perineum, but we found that it w most difficult and often impossible to carry the need well up into the subtrigonal tissues and the region the seminal vesicles.

In many instances, the extent of the infiltration abo the prostate cannot be accurately determined by rec examination; but, with a good suprapubic exposu one is able to outline accurately the extent of t subtrigonal infiltration. Knowing that most of th cancers spread in this direction and get beyond contr we feel that it is most important to irradiate th areas first. Cancer cells are undoubtedly present these tissues before any thickening can be made o and it is our practice to irradiate this area even thou nothing is felt, applying the same principle that we when we attempt to cut through healthy tissue in t excision of malignan tumors; in other wor we go a little beyond t limits of the growth wi the hope of preventing i progress.

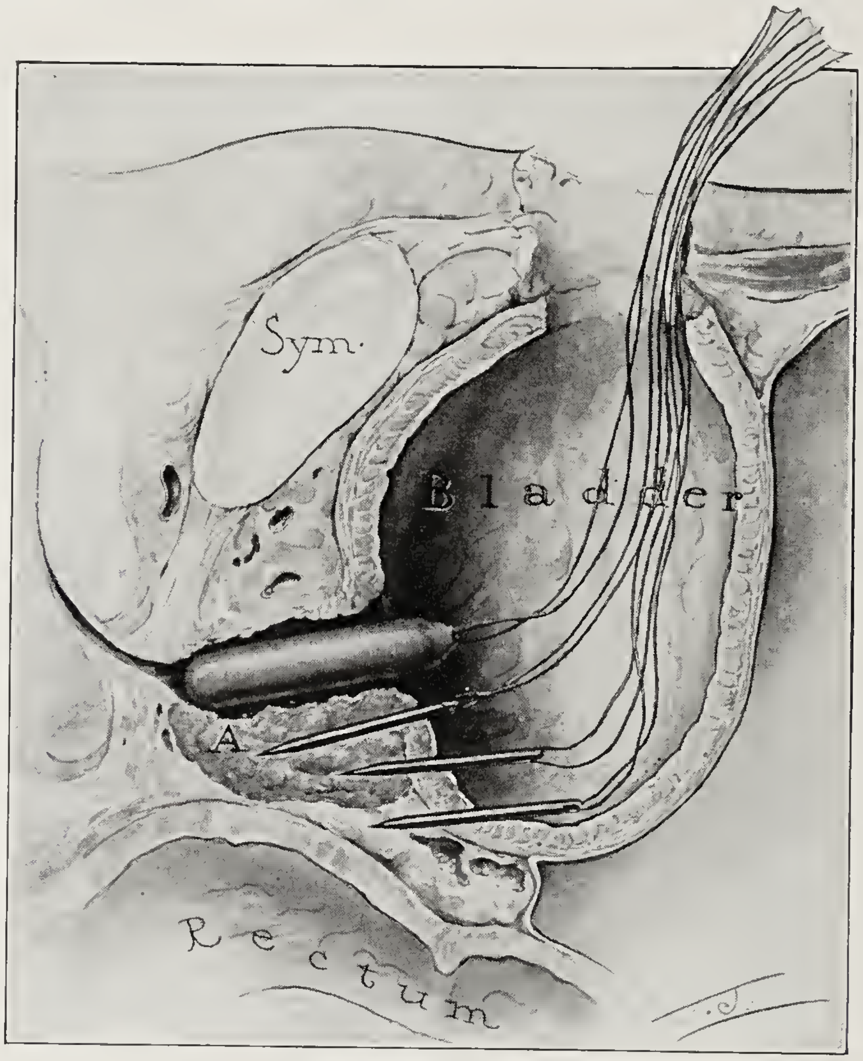

Fig. 2.—Tube of radium fitted into cavity left after enucleation of benign part of tumor; also radium needles embedded in malignant area (*A*). Two lower needles are passed through the posterior wall of the bladder, irradiating the subtrigonal area and the region of the seminal vesicles.

In our efforts to contr cancer, we frequently lo sight of the fact that ma of these patients suff from retention of urin the obstruction bein caused by the maligna tumor or an associat hypertrophy of the midd lobe. Under these ci cumstances, radium w neither relieve the reter tion nor improve the fun tion in time to protect th upper urinary tract. R peated catheterization, not impossible, is usuall painful and not well tole ated. Therefore, a supra pubic cystotomy, in add tion to giving an excelle opportunity for the intr duction of radium, protec the upper urinary tract an does much to make th patient comfortable durin the weeks or months th treatment is carried on.

A part of the failure to secure good function results following irradiation of the malignant prostat can be attributed to the fact that, in a large percentag of cases, the carcinoma is associated with benign hyper trophy, the radium having little or no effect on th adenomatous lobes. This usually occurs in the middl lobe, and the hypertrophied tissue must be enucleate if we may hope to relieve the obstruction. Again, man of these patients cannot be examined cystoscopicall and the middle lobe will not be found until the bladde is opened; all sound arguments in favor of suprapubi cystotomy.

Some of our best results have been obtained in thos cases in which we have been able to enucleate a adenomatous middle lobe; following which, a tube o radium is fitted into the cavity and several needle containing radium are inserted into the malignant par of the remaining shell. This may be repeated if th bladder is kept open; or subsequent applications are made by passing a staff carrying a tube into the urethra or by introducing long needles through the perineum, or both.

In the treatment of these cancer patients, we must not forget that many of them are suffering from the effects of retention and that we have the same problems of elimination that we have in the man with benign hypertrophy. Severe toxemia may be mistaken for cachexia, and it is surprising how some of these patients improve following preliminary treatment such as flushing with large quantities of water, relief of retention and attention to the bowels. It is just about as irrational to apply radium therapy in the case of the severely toxic patient without preliminary drainage as it is to attempt the enucleation of the benign prostate under the same circumstances. Patients with demonstrable metastases may get two or three fairly comfortable years from a suprapubic permanent drain. Even patients who carry a small amount of residual urine will be relieved of pain and show a temporary improvement in general health following the institution of such drainage.

A fibrosis, with narrowing of the neck of the bladder, has interfered with urinary function in some cases. In this condition, dilation has been extremely difficult, and in one of our patients in whom the cancer appears to be controlled we have been compelled to continue suprapubic drainage, although we have dilated the neck of the bladder for a year and a half. In another case, we excised a wedge-shaped piece of tissue from the internal urethral orifice without much improvement in function.

Most observers agree on the value of the roentgen ray in conjunction with radium therapy. The relative value of each is difficult to determine, but here, as in most fields, treatment must be carried out by one of large experience in order to obtain results.

After giving perineal insertions a fair trial, we have again returned to our original method of suprapubic exposure and embedding of needles, utilizing the perineal method and the intra-urethral applications as supplementary forms of treatment.

(Abstract of Discussion will be found on page 1688, this issue.)

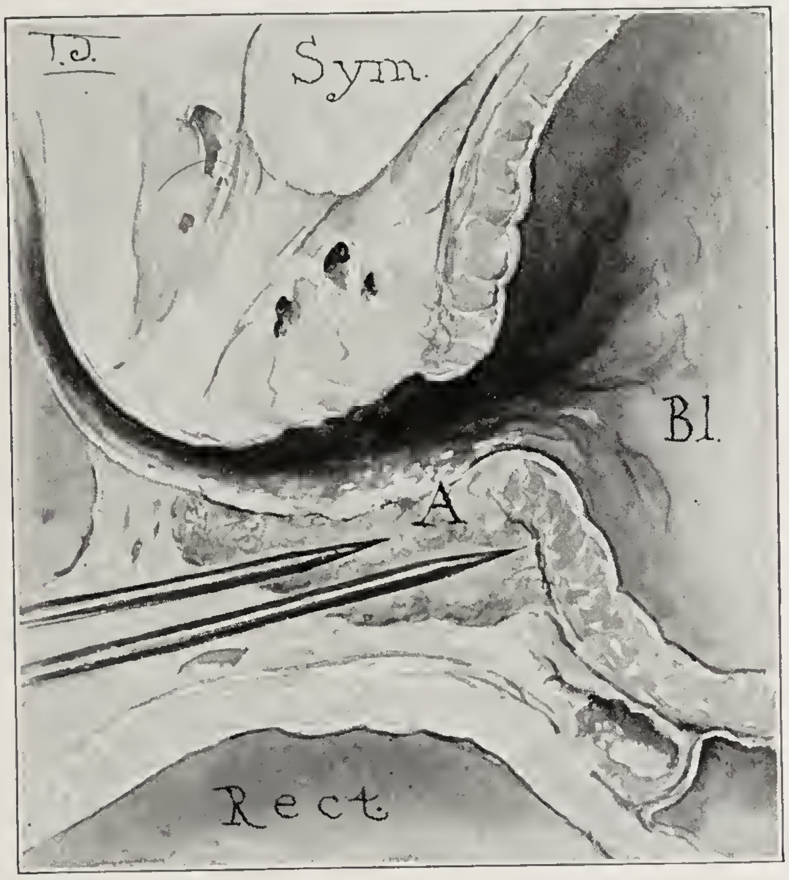

Fig. 3.—Long needles embedded in malignant posterior segment (*A*) of prostate. These have been passed through the perineum.

Syphilis Statistics in Japan.—Dr. Hata has collected data on the reproductive power of women married for three years or more who show a positive Wassermann reaction. He gives the following percentages: Not impregnated, about 40 per cent; impregnated, about 60 per cent. Among the children of these syphilitic mothers, there were 28 per cent. premature and only 30 per cent. survived more than two years, only a third of whom will live a natural healthy life. Maternal syphilis is one of the most serious factors in the problem of repopulation.

THE ANILIN DYES IN THERAPEUTICS *

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Of the various features of the anilin dyes which make them an attractive subject for experimental investigation, I will consider the three with which my own studies of gentian violet (and more recently of acid fuchsin) have been chiefly concerned.

THE SELECTIVE POWER OF THE ANILIN DYES

One of the most striking examples of selective bacteriostatic power is furnished by gentian violet. The behavior of bacteria toward this dye follows pretty closely the Gram reaction, and this feature is characteristic also of other triphenylmethane dyes, among them magenta.[1] These facts are now well known; but I have recently been able to show that the behavior of bacteria toward acid fuchsin (a sulphonated triphenylmethane) is, in certain respects, the exact reverse of their behavior toward the basic dyes. If bacteria are exposed to acid fuchsin and planted on plain agar, it is found that it is now the gram-positive spore-bearing aerobes which survive, and the commoner gram-negative bacteria which die. A plate stroked, for example, with *Bacillus paratyphosus* and *Bacillus pseudo-anthracis* which have been exposed to acid fuchsin will show vigorous growth of the latter, and none whatever of the former; while if the experiment is done with gentian violet or magenta there will be vigorous growth of *B. paratyphosus* and none whatever of *B. pseudo-anthracis* (Fig. 1). I have previously shown that it is quite a simple matter to rid a culture of gram-negatives of contaminating gram-positives by exposing the mixture of the two organisms to gentian violet, previous to plating; and it is equally easy to rid gram-positive spore bearers of contaminating gram-negatives by exposing the mixture to acid fuchsin. One can thus quite easily from a mixture, let us say, of *Bacillus pyocyaneus* and *Bacillus megatherium*, pick out at will either organism in pure culture by the use of these two dyes (Fig. 2).

It proves, moreover, to be the case (experiments with sulphanilic acid, chromotropic acid and ethylsulphonic acid furnished the proof) that it is the sulphonic acid group in the acid fuchsin which accounts for this reverse selective power. We have succeeded, therefore, for the first time in determining which part of a dye molecule is responsible for its selective activity, and it is interesting that this portion is colorless (Figs. 3, 4 and 5).

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* From the Department of Hygiene, Cornell University Medical College.

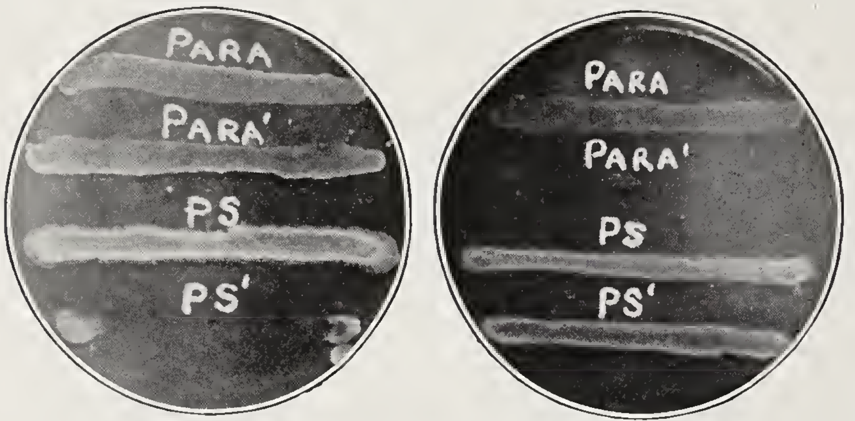
* Read before the Section on Pharmacology and Therapeutics at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] Churchman, J. W.: J. Exper. Med. **16**: 221 (Aug.) 1912; **17**: 373 (April) 1913.

The facts just referred to would seem to bring the problem of the Gram reaction very much nearer solution. Since opposite selective activities have been demonstrated for two dyes (magenta and acid fuchsin), and since the chemical group in the latter dye responsible for its selective activity has been determined, data would seem to be at hand for a chemical explanation of the difference between the two types of organism.

The facts just cited are significant for the problems of chemotherapy in the following respects:

1. It is clear that the cleavage of bacteria represented by the Gram reaction may have therapeutic importance. This matter is not so simple as appeared to be the case when the parallelism between Gram reaction and gentian violet reaction was first observed. One of the facts which complicated matters was brought to light by the observation last year of two strains within a pure culture of *Bacillus coli.* Both of these were gram-negative. Yet one of them grew well in the presence of gentian violet, while the other would not grow at all. This is one of the pioneer observations of microbic dissociation, as it has since come to be called.[2]



A B

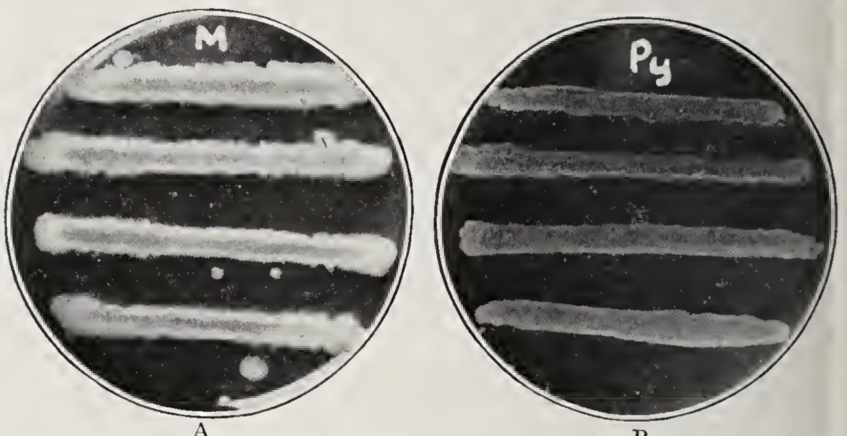
Fig. 1.—Plates stroked with B. parathyphosus and B. pseudo-anthracis which have been exposed to magenta (*A*) and acid fuchsin (*B*): *Para,* B. paratyphosus, unstained for control; *Para'*, stained B. parathyphosus; *P S*, B. pseudo-anthracis, unstained for control; *P S'*, stained B. pseudo-anthracis. In Plate A (magenta), stained paratyphosus has been unaffected; stained pseudo-anthracis has been killed. In Plate B (acid fuchsin), stained paratyphosus has been killed; stained pseudo-anthracis is unaffected.

It is clear, too, that the recent observations with acid fuchsin make it necessary to modify somewhat my published statement that "gram-negative organisms are less susceptible to many—possibly to all—selective bacteriostatic substances than gram-positive organisms"; for, as compared at least with the spore-bearing aerobes, they are not less but more susceptible to acid fuchsin. But these facts only emphasize the soundness of the principle of selective bacteriostasis along the line of cleavage indicated by the Gram reaction.

What is the fundamental nature of these selective activities? An easier penetrability of the gram-positive organisms has frequently been assumed, to explain their susceptibility to the triphenylmethanes. But acid fuchsin, as well as gentian violet, penetrates the gram-positive spore bearers more readily than it does the gram-negatives; yet it does not kill them, though it kills the negatives. Moreover, gentian violet penetrates the spores little if at all, yet they are highly susceptible to it; and gram-negatives may be deeply stained without killing them. Something other than penetration must therefore be concerned. It is tempting to assume that electrical adsorption plays a part; particularly since basic dyes—which are electropositive—behave in one way toward bacteria, while acid dyes (which are electronegative) behave in certain significant respects in exactly opposite ways. These leads would seem to point the way to a better understanding of the chemistry of the spore and of the mechanism of the Gram reaction.

2. Anilin dyes, however, are not only selective as between species of bacteria; they are also selective as between bacteria and tissue cells. It was shown in 1913 that the living nucleus can be stained by gentian violet, a dye which kills many organisms.[3] Later it was shown by injections of the dye into the human knee joint during life that the nuclei of the synovial membrane may be stained without injury.[4] Complete experimental evidence has thus for the first time been brought for the principle that agents which kill bacteria may be innocuous for the vital part of tissue cells, even though they have penetrated it.

I have already indicated by clinical studies some of the possibilities of selective chemotherapy by showing, in a study of amputation wounds at the Walter Reed Hospital, that it was comparatively easy to eliminate the gram-positive *Bacillus diphtheriae* from granulating wounds with gentian violet, but extremely difficult to get rid of the gram-negative *B. coli.* This was a deliberate attempt to apply clinically the principle of selective bacteriostasis along the lines indicated by laboratory studies, and it was a successful attempt. A further step which might be taken in the same direction is suggested by the recent studies with acid fuchsin. This dye kills *B. pyocyaneus,* an organism which frequently occurs as a troublesome secondary invader of wounds, and which is almost unaffected by gentian violet. There may well be many other similar instances of selective activity; and since the number of bacteria is large and the number of dyes and related substances huge, the possibilities seem sufficiently great. The demonstration that gram-negatives are more susceptible to acid fuchsin than gram-positive spore bearers, and the successful isolation of the chemical group responsible for this reverse



A B

Fig. 2.—Method by which either of two organisms desired may be isolated from a mixture of gram-positive spore bearers and gram-negative bacteria by exposing the mixture to acid fuchsin or gentian violet. Plate A has been stroked with the mixture after exposure to acid fuchsin: a pure culture of B. mcgatherium results. Plate B has been stroked with the same mixture after exposure to gentian violet; a pure culture of B. pyocyaneus results.

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[2] Churchman, J. W.: J. Exper. Med. **33**: 569 (May) 1921.

[3] Churchman, J. W.: Proc. Soc. Exper. Biol. & Med. **9**: 120, 1913-1914.

[4] Churchman, J. W.: Treatment of Acute Infections of the Joint by Lavage and Direct Medication, J. A. M. A. **70**: 1047 (April 13) 1918.

elective power, open up new lines of approach in this ield.

BACTERIOSTASIS

Since the time of Ehrlich, *sterilisans magna*—the estruction of all invading organisms at one stroke—as been the ideal of the therapeutics of infection. If he substances capable of producing such a result were lways nontoxic to the host, only that ideal should be ursued. But this is not the case; and the question rises whether there may not also be a place in herapeutics for the principle of bacteriostasis: for the se, that is to say, of substances which—in dilutions oo weak to do the slightest damage to tissue cells—revent the growth of bacteria (though they may not kill them) and thus give the tissues a chance to recover of themselves.

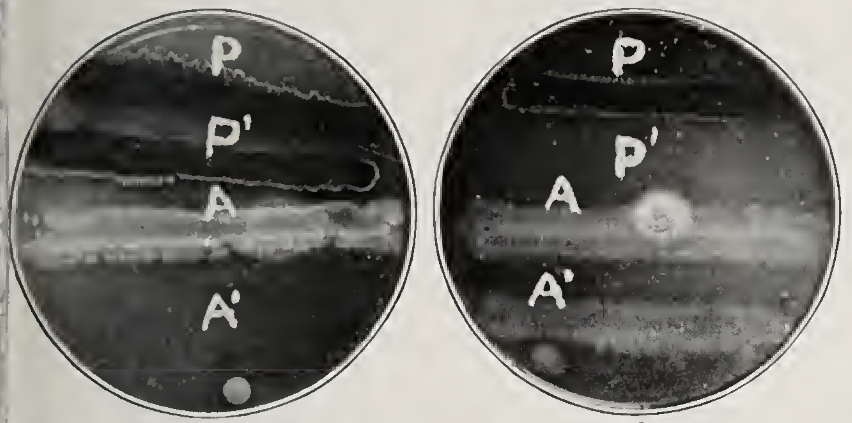


Fig. 3.—Opposite selective powers of sulphanilic acid and gentian iolet: Plate A, gentian violet; Plate B, sulphanilic acid; *P*, B. prodigiosus unstained for control; *P'*, B. prodigiosus stained; *A*, B. anthracis nstained for control; *A'*, B. anthracis stained.

Gentian violet possesses both bactericidal and bacteriostatic properties. The former are well brought out by means of divided plates, and its possibilities for technical tricks in bacteriology are numerous. A contaminating colony on a Petri dish, for example, may be readily controlled by ringing it with the dye (Fig. 6), and separation of gram-positives in pure culture may be accomplished with great nicety by growing the organisms on mediums containing the dye. In the case of gentian violet, bactericidal and bacteriostatic properties run parallel; but this is not true of acid fuchsin and related substances, a puzzling fact for which an explanation has been suggested but not established.

Whatever the mechanism of bacteriostasis may be, it would seem to be a sound therapeutic principle. I have shown that successful use may be made of the principle in the sterilization of acutely infected joints and in ridding stumps of an infection with *B. diphtheriae*. In the joint—a closed cavity—the problem is relatively simple; but one should not expect too much (in spite of some encouraging results already reported) from the use of similar methods in infections of the chest, in which the problem is enormously complicated. Yet even in the chest there seems to be no good reason why the well-known benefits to be derived from aspiration alone, in the early stages of infection, cannot be supplemented by mechanical cleansing and the injection of bacteriostatic agents.

PENETRATION

It is the penetrative power of anilin dyes which, more than any other characteristic, has attracted attention to them. Many observers have noticed that, if injected into a cavity such as the bladder, these dyes could be found in the deeper epithelial cells. My own observation is the only one that has been made on the living human being. Previous to a midthigh amputation I injected the knee joint with gentian violet according to the technic and with the apparatus described for the treatment of acute arthritis. The synovial membrane was prepared for microscopic study by a special technic, and in it the gentian violet could be seen to have penetrated down to the subendothelial layers.

Nor is there any doubt about the ability of dyes to penetrate living bacteria themselves. This has been proved by adding gentian violet to a suspension of *B. coli,* and picking out small groups of the organisms by the Barber technic. These deeply stained individuals grow readily when planted on plain agar, and must therefore have been stained while alive. The significance of the observations already described on the behavior of acid fuchsin and related sulphonic acid substances must be referred to in this connection. When we speak of penetration of bacteria by a dye, we think of permeation of the cell by the whole dye molecule or at least by the visible colored portion of it. It may be, however, that union between the bacterium and the uncolored—though active—portion of the dye has occurred. In the case of acid fuchsin, for instance, the sulphonic acid group is responsible for the dye's reverse selective action. This group is colorless and would not be seen in the organism, though proof of penetration of the gram-negatives is furnished by their death.

LIMITATIONS OF ANILIN DYES

A few of the advantages of the anilin dyes have been pointed out; it remains to consider some of their limitations. They are not very powerful bactericides, though they lend themselves to combinations with substances which are, and so may provide these with their permeating qualities. But this is a procedure which must have sharp limitations. The dyes are chosen for this kind of chemical manipulation because they are not toxic for tissue cells. The substances, like mercury, with which they are usually combined are toxic; and the combinations must therefore be made with great nicety if their purpose is not to be defeated.

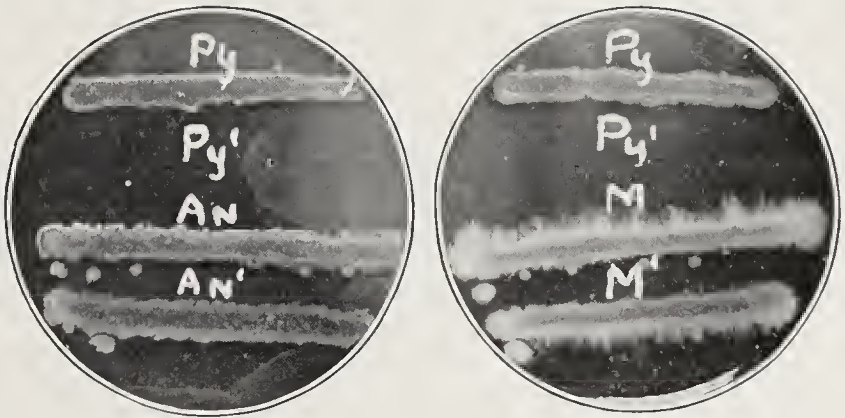


Fig. 4.—Reverse selective power of chromotrophic acid. *Py,* B. pyocyaneus, unstained for control; *Py',* B. pyocyaneus, exposed to chromotropic acid; *An,* B. anthracis, unstained for control; *An',* B. anthrasis, exposed to chromotropic acid; *M,* B. megatherium, unstained; *M',* B. megatherium, exposed to chromotropic acid. The gram-negatives have been killed; the gram-positives are unaffected.

Moreover, the activity of the dyes may be impaired by substances in their environment. The inhibitory effect of serum is well known, and there may be other deterrent influences not now recognized. I have shown, for example, that we are not justified in assuming that substances applied to infected surfaces necessarily reach the invading organisms; the secretions may provide a mechanical barrier against the antiseptic as effective as a layer of petrolatum. If one is working with colorless substances, this fact may not be appreciated; but with dyes, whose course can be followed with the eye, the fallacy of applying antiseptics without preliminary cleansing becomes at once apparent. For treating joints an apparatus has been devised which provides a method of satisfactory preliminary cleansing.[5]

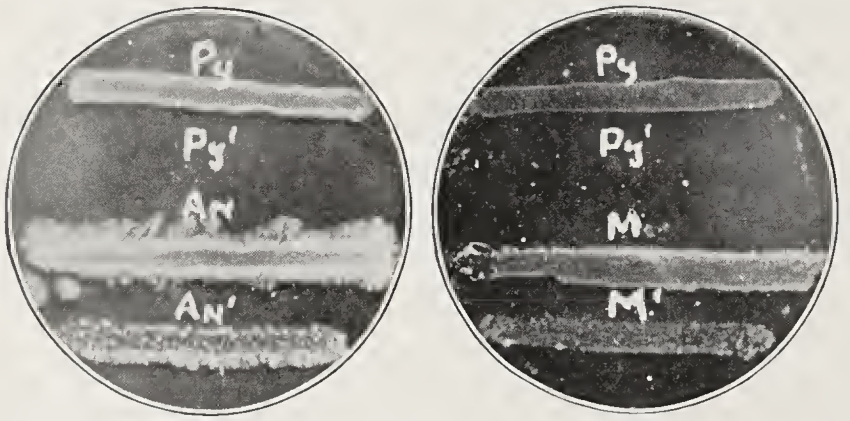
Moreover, the dyes are unstable. Gentian violet injected into the blood stream disappears within two hours; it is incorrect to assume that it circulates very long as such. Perhaps the blood stream could be kept saturated, by repeated injections, with a bacteriostatic substance, and the course of a septicemia thus be checked; but there is no evidence at present that anything like a *sterilisans magna* can be achieved by dyes.

CONCLUSION

The investigation of the problems of infection by a study of the anilin dyes is bound to lead us forward. What we are after is not only the establishment of the therapeutic value of a particular substance (if the principle of selective sterilization becomes established, more than one substance will be used and the substances used may not be dyes at all), but also a clearer understanding of the whole mechanism of selective chemotherapy. And this goal we shall certainly reach.

ABSTRACT OF DISCUSSION

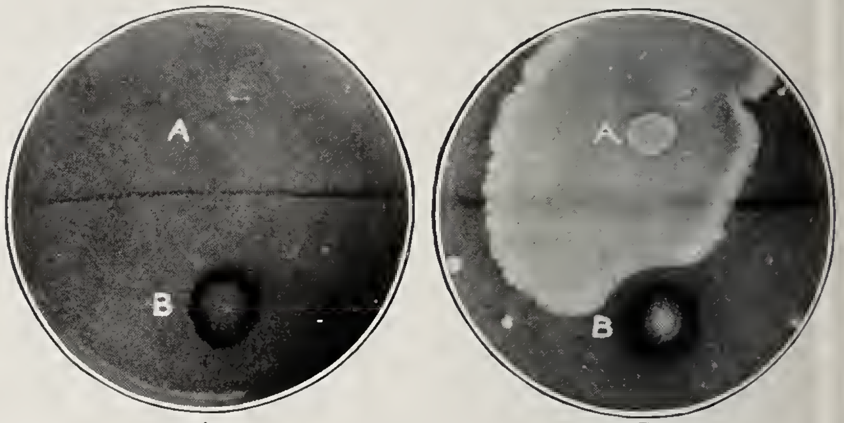
Dr. Carl Voegtlin, Washington, D. C.: This problem of the relation between chemical constitution and physiologic action is fundamental, and it is of importance to ascertain what effect the modification of a dye molecule or other molecule will have on the biologic properties of a given substance. I was particularly interested in the effect of the introduction of the sulpho group. I have conducted such experiments with arsenicals. Take an arsenical that is very effective in the treatment of certain diseases, and introduce a sulpho group, and the toxicity and therapeutic action will decrease. I do not know just how to explain these findings, but I think we have to keep in mind that when we change the chemical constitution of a compound we undoubtedly also change its physical properties. Physical properties have a lot to do with biologic action. In the case of the arsenicals, we find that the introduction of the sulpho group causes the compound, which before the introduction of the sulpho group was retained by the body, to pass out with the urine with the greatest rapidity. Such questions, therefore, are very much in need of investigation in order to put chemotherapy on a rational basis and to get away from testing out empirically thousands and thousands of compounds. We want to proceed in a more logical and scientific way.



A B

Fig. 5.—Reserve selective power of ethyl-sulphonic acid. Notation same as in Figure 4. The gram-negatives have been killed; the gram-positives are unaffected.

Dr. Ralph H. Major, Kansas City, Mo.: From the bacteriologic standpoint, Dr. Churchman's method is of great assistance in the isolation of certain organisms in pure culture from contaminations. From the standpoint of therapy, I had an opportunity of trying out gentian violet during the recent influenza epidemic, in twenty-seven cases of empyema with very gratifying results. Unless there were mechanical problems present, we were able, as a rule, to clear up the infection by the instillation of gentian violet into the pleural cavity, and only one fourth of our patients so treated later came to operation. I have seen four cases of pneumothorax, complicated by *Staphylococcus aureus* infection, become sterile following the instillation of one dose of gentian violet. In two of these cases I have had the opportunity of seeing in vivo precisely the same thing that Dr. Churchman described in the cultures in the test tube. In these individuals the fluid in the chest contained *Staphylococcus aureus* and *Bacillus influenzae*. The influenza bacillus persisted after gentian violet instillation, while *Staphylococcus aureus* disappeared. In five cases of pyelitis in which there were both colon bacillus and *Staphylococcus aureus*, gentian violet instillation cleared up the staphylococcus infection. It would be interesting to see whether the combination of the two dyes with which Dr. Churchman has worked, or perhaps the injection of first one and then the other, will not clear up certain mixed infections.



A B

Fig. 6.—Method by which a contaminating colony of B. subtilis may be restrained by ringing it with gentian violet. At *A* and *B* (Plate A) inoculations of B. subtilis have been made; *B* has been ringed with the dye. Plate B shows the same Petri dish after twenty-four hours' incubation.

Dr. John W. Churchman, New York: I want to correct a possibly false impression that is suggested by Dr. Major's remarks. I showed last year that the addition of a very small amount of heat increases very greatly the effect of dyes. Take gentian violet, for instance, and add it cold to a colon bacillus culture, and one can leave it for twenty-four hours without killing the organisms. Heat the culture to 45 C. for half an hour and one may kill them with fair certainty. In the sulphonic acid group, it is almost necessary to apply the dye warm in order to bring out its reverse selective action. Acid fuchsin will do what I said it will do cold, but more rapidly when it is hot. If any one attempts to use these substances clinically, one should always use them as hot as the body will stand.

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[5] Churchman, J. W.: Sterilization of Closed Cavities by Lavage and Staining with Gentian Violet, J. A. M. A. **77**: 24 (July 2) 1921.

Swiss Social Hygiene Society Activities.—In addition to holding 100 conferences on questions relating to the protection of the family and public morality, during the fiscal year, 1921-1922, this society has dealt with the subjects of public health, nursing, tuberculosis, alcoholism and other health conditions. Stereopticon lectures on venereal disease were given in the barracks of many of the larger cities, and exhibitions, with posters and wax models, were arranged at Neuchatel, Lausanne and Geneva. Two pamphlets, entitled "Beaucoup d'enfants" and "Evil Effects of Alcohol," written by Drs. Hoffman and Revilliod, respectively, were widely distributed, and articles on the protection of the family were published in the newspapers throughout the country. Every young man who declared his intention of marrying was presented with a pamphlet dealing with marriage relations.

A NEW TECHNIC FOR PERFORMING PERINEAL PROSTATECTOMY *

ARTHUR B. CECIL, M.D.
LOS ANGELES

It has for some time been my conviction that if Young's operation could be altered in such a manner as to rid it of technical difficulties, the procedure would lend itself to more general use. I therefore turned my attention toward the development of a technic which, it seemed to me, would rid perineal prostatectomy of any considerable technical difficulties and which would absolutely insure the integrity of the muscles of urinary control and at the same time protect the rectum from injury.

In reviewing the technic of Young's procedure in relation to the anatomy of the perineum, it will be seen that it is necessary to make very accurate entrance to the membranous urethra just back of the external sphincter muscle. To the operator who is not thoroughly familiar with the anatomy of the perineum, this is somewhat difficult or at least uncertain, and my first problem therefore seemed to be to alter this part of the procedure in such a manner that it would not be necessary to introduce a tractor through the membranous urethra, or to drain the bladder from this region. The result was the devising of a tractor which could be easily introduced through the entire length of the urethra, and which when opened in the bladder would be efficient in bringing the prostate into the wound, thus avoiding any possibility of injuring the external sphincter muscle, and avoiding unnecessary scar formation in the region of this muscle.

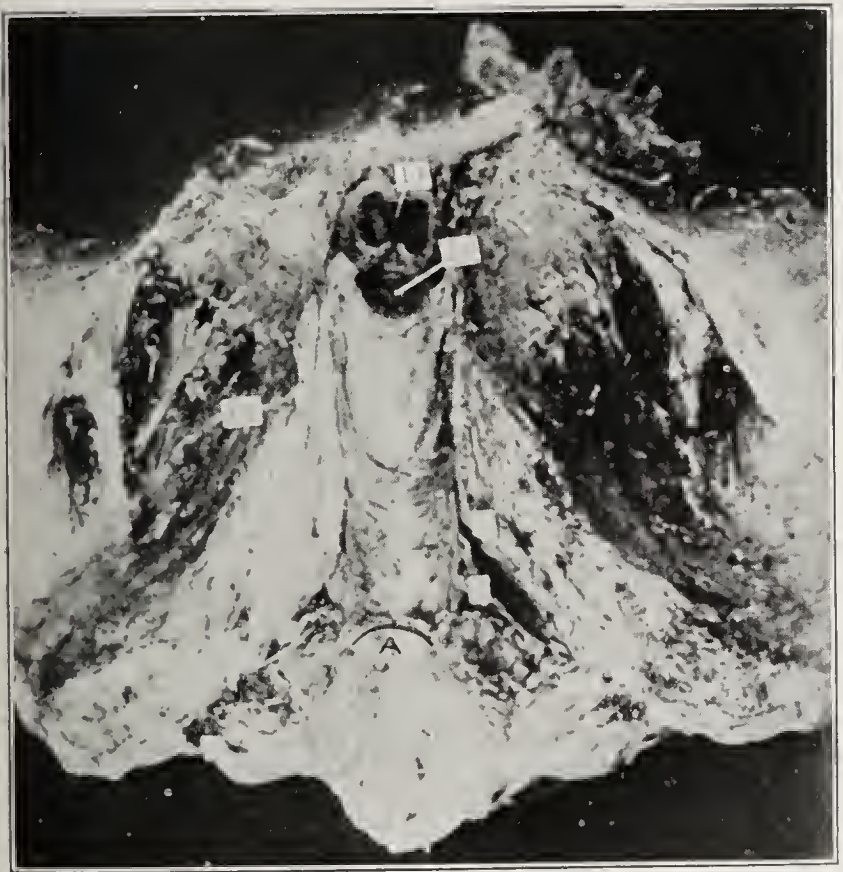

Fig. 1.—Anatomic dissection of perineum: *A*, point at which incision should be made across recto-urethralis muscle.

The tractor which has been devised consists of a long shaft with a curved end, quite similar to the ordinary urethral sound. It has been so arranged that by turning a thumb screw at one end, the other end of the tractor is thrown at right angles. This rotation is brought about by a stout wire which runs through the shaft of the tractor. A handle has been arranged on the tractor, set at such an angle that by lifting up on the handle, the bladder end of the tractor produces traction on the prostate along practically the same plane as is generally brought about when Young's tractor is introduced through the membranous urethra. There may be slight variations in this relationship, according to the size of the prostatic tumor. By turning the thumb screw in the opposite direction, the right angle piece may again be brought into line with the tractor. A tractor devised much after the nature of this one, except for being straight instead of curved as a sound, has been found extremely efficient when the operation is performed by the technic of Young, as this type of tractor has the advantage of being easily introduced.

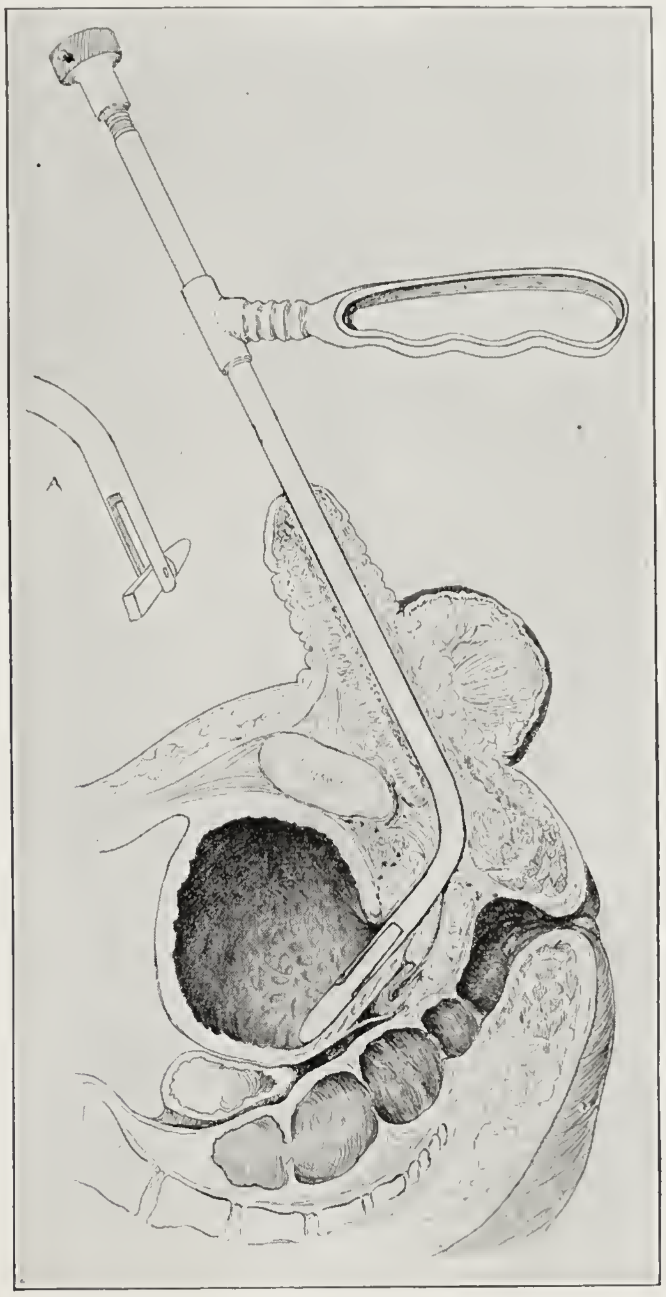

Fig. 2.—Incision through skin and subcutaneous tissues, with tractor introduced and being used as a sound.

This modification of Young's technic having been arranged in order that the external sphincter mechanism might be easily preserved from injury, the only remaining difficulty would seem to be the uncertainty in dividing the recto-urethralis muscle. This difficulty has been met by changing the shaft of the handle of Young's bifid and spatula retractors, so that while these retractors may be firmly held in position, at the same time the operator may have the advantage of placing a gloved finger in the rectum to the apex of the prostate, and thus the dissection may be carried out under the sense of touch rather than by purely anatomic landmarks. As a matter of fact, if the operation is carried out by the sense of touch, anatomic landmarks will be followed.

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* Read before the Section on Urology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

The method of performing prostatectomy by this technic, then, consists in placing the patient on the table in the exaggerated lithotomy position, with the bladder partially filled with fluid, which permits the easy opening of the tractor. The curved tractor is passed into the bladder, and the V-shaped incision made in the perineum. In this connection one should note that the limbs of the curved V-shaped incision extend quite far back, and in making the incision it should be carried definitely through the subcutaneous tissues rather boldly. The finger is then passed down into the fossa in front of the fibers of the levator ani muscle. The bifid retractor is now put in.

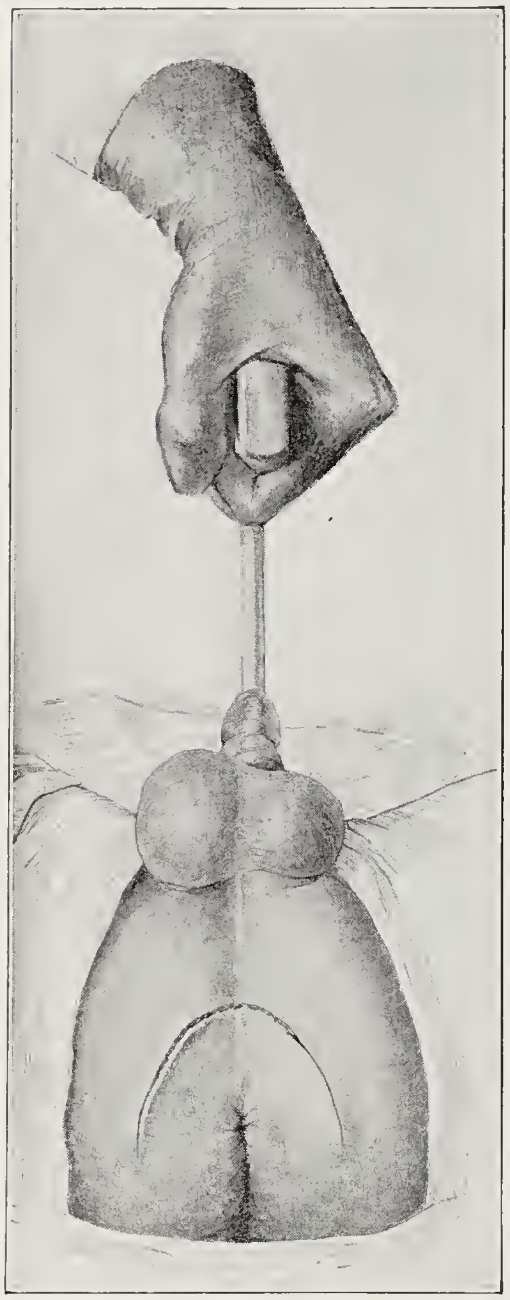
Fig. 3.—Sagittal section: tractor in place; *A*, bladder end of tractor after it has been opened.

With a pair of thumb forceps, the tissues are picked up just back of the bulb, and the central tendon is divided straight downward. With the set-off bifid retractor now held firmly in place, a gloved finger is introduced into the rectum, and by means of a specially devised delicately curved clamp, the entire bridge of tissue down to the apex of the prostate is grasped under the direction of the guiding finger in the rectum. The tissues are now cut across above the clamp with definite assurance that no injury to the rectum is occurring, and in this manner the fibers of the recto-urethralis muscle are divided far back rather toward the rectal wall than toward the region of the external sphincter. The handle and shaft of the tractor are now brought toward the operator, thus throwing its bladder end freely into the bladder cavity so that the tractor may be easily opened, and by turning the thumb screw the bladder end of the tractor is thrown at right angles to the shaft. By now lifting on the tractor and pushing it away from the operator, the apex of the prostate is brought quite far up into the wound. The fibers of the levator ani muscle are pushed aside and the rectum is stripped back along the fascia of Denonvillier.

Up to this point no opening has been made into any portion of the urethra. The usual lateral incisions of Young are made, as these have been found preferable to throwing back a large bridge of tissue. Adenomatous masses are freed by a blunt dissector, and removed through each lateral cavity by the technic described by Young. Having removed the masses from the lateral cavities and any suburethral lobes which may be encountered, an incision 2 cm. in length is made through the right lateral cavity, and the edges of the prostatic urethra are picked up with Allison forceps. In some instances this is not necessary, because the prostatic urethra may be torn in removing the lateral lobes.

The edges of the prostatic urethra having been picked up, the tractor is removed, and in difficult cases it may be found advisable to introduce the straight tractor through this opening. A finger is passed in through the prostatic urethra, and the neck of the bladder palpated. Should an intravesical lobe be encountered, it is removed through this opening. Should the neck of the bladder be found contracted, it may be easily divided. After removal of all obstructing tissue, a single way drainage tube is introduced through this lateral cavity into the bladder and packed about with cephalin gauze to control hemorrhage.

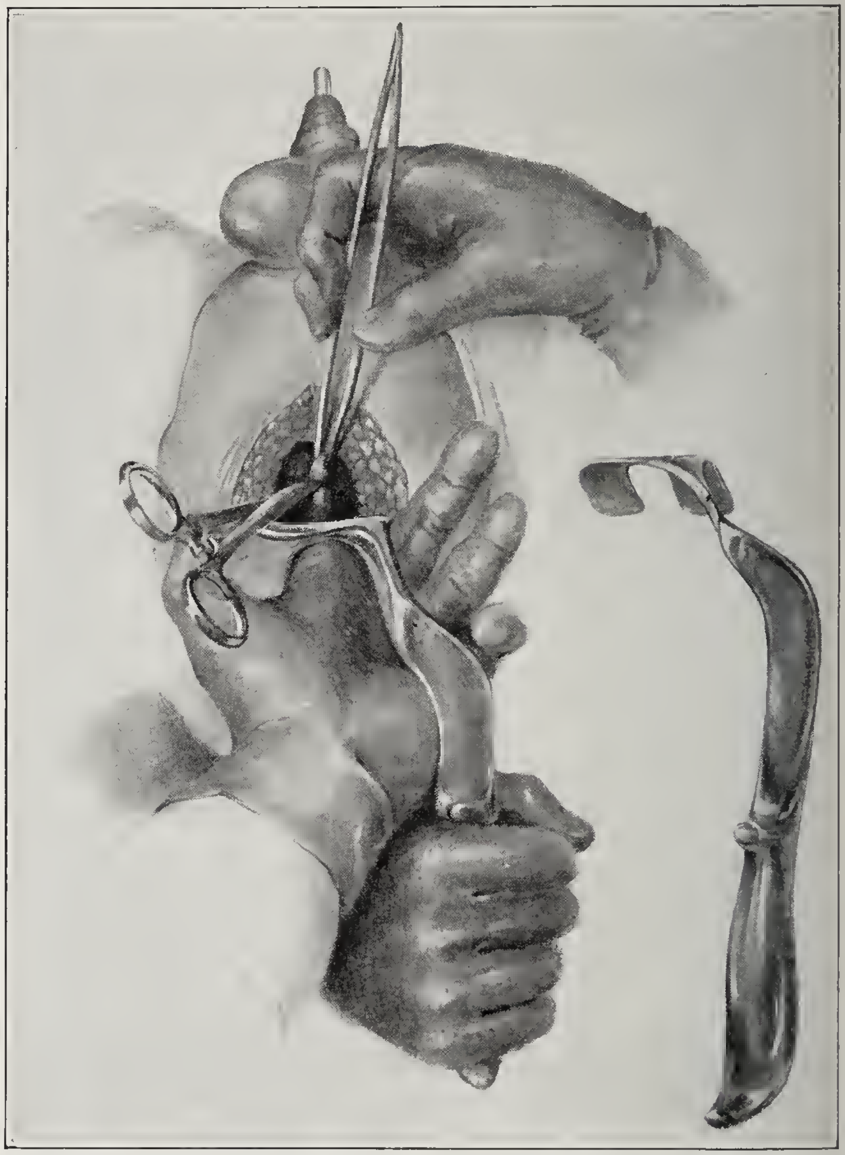
Fig. 4.—Posterior bifid retractor set off. Retractor has been introduced into the fossae between the transversus perineae muscles and the levator ani.

The closure of the wound in no manner differs from Young's original technic, and the postoperative care of the patient is so well known as to require no repetition here.

CONCLUSION

The technic which I have described has as its advantages definite preservation of the external sphincter muscle; the ability to carry out the perineal dissection with a guiding finger in the rectum; location of the opening for drainage far back in the prostatic urethra, which tends toward more rapid healing, and the absence of scar formation in the region of the external sphincter muscle.

It is believed that this technic will make it possible for surgeons to perform Young's perineal prostatectomy more easily than has heretofore been the case.

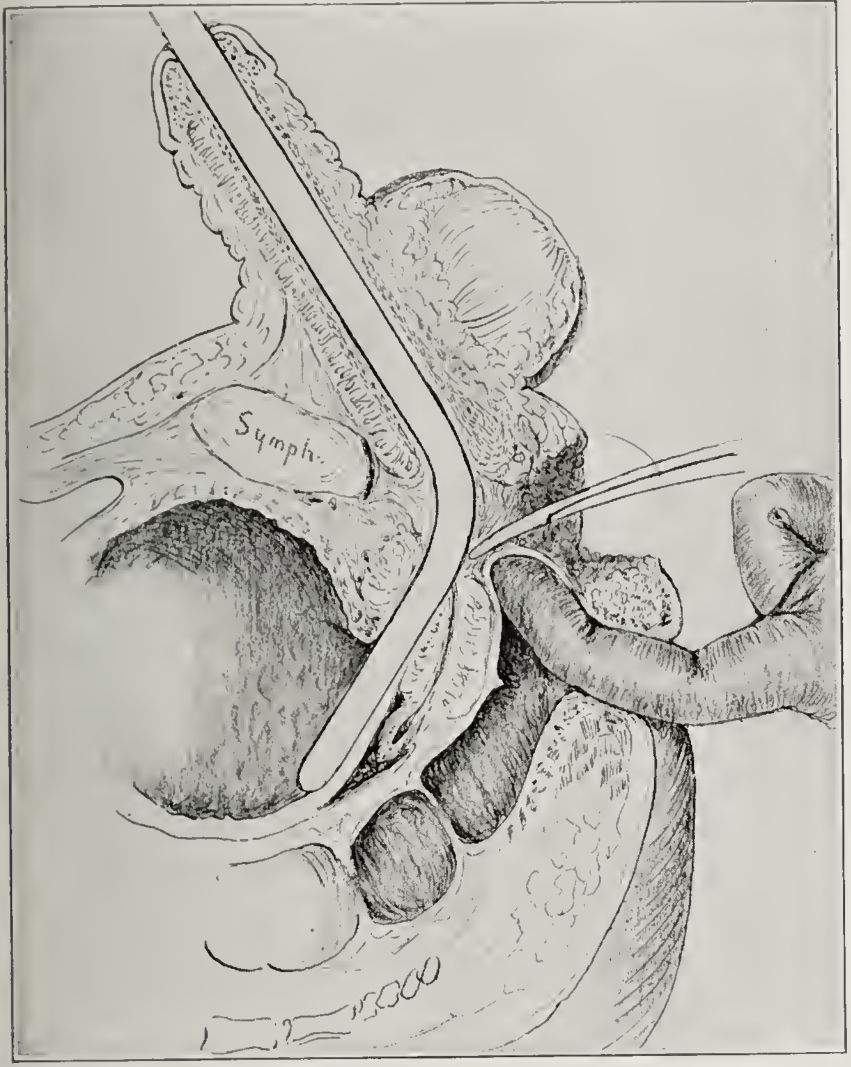

Fig. 5.—Sagittal section: finger in rectum guiding curved clamp as it is pushed down to the apex of the prostate.

ABSTRACT OF DISCUSSION

Dr. James A. Gardner, Buffalo: We have always had more or less friendly controversy between the advocates of the suprapubic and those of the perineal operation. In the perineal operation a slight incontinence is frequently found when men laugh or cough. When prostatics consult you they are ready to submit to any operation. When they return home after operation, if they have any incontinence, every one hears about it; but if they return home completely cured, nobody hears of it because, of course, that is what they came for. When I was doing the perineal operation I encountered the same complication, and for that reason I adopted the suprapubic method because it seemed more fool proof; there is no sinus and the patient has control. By this method the physician guards the rectum, and when he reaches the prostate he enucleates it just as is done from above. Dr. Cecil has gone a long way toward popularizing perineal prostatectomy. There is no question that more suprapubic operations are performed because many surgeons, seeing the operation, think it is not a difficult procedure. They try it, the patient lives and does not have incontinence, and soon they pose as genito-urinary surgeons.

Dr. Henry G. Bugbee, New York: One of the most important features, or the most important feature, to my mind, in the operation of prostatectomy is the control of hemorrhage. Various methods have been advanced from time to time to control the hemorrhage, particularly in the suprapubic operation. Hagner devised his bag, subsequently modified by Pilcher, and later on suggested putting a piece of cotton gauze over the bag to promote clotting. Barringer suggested packing the cavity. Recently I have been packing around the bag, placing this packing carefully, particularly posteriorly to the bag so that it holds down the torn edge of the bladder wall, as that is where most of the bleeding takes place. By using this packing it is not necessary to put much traction on the bag, and this avoids the muscular spasm, which is often very troublesome. The bag and packing are removed twenty-four hours later through the suprapubic wound. Operating in two stages, at the second operation the stitches are not removed. The enucleation is carried out through the sinus with the finger and when the lobes are freed by holding them down in the capsule with the finger in the bladder, there is no difficulty in lifting them out. The sinus, which is very small, heals readily.

Dr. Arthur L. Chute, Boston: I should like to express my admiration for Dr. Cecil's operation. I am sure it will accomplish his desire. For a long time I have employed this principle in all my perineal operations. I do not use such attractive instruments as he does, nor do I think they are necessary. If one will be careful to make the incision through the tip of the prostate onto a sound placed in the urethra, he can easily introduce through the incision a straight tractor, pull the prostate down, and go ahead with the enucleation without the more elaborate apparatus that Dr. Cecil has found useful. It seems to me that by this technic not only does one avoid actual injury to the fibers of the sphincter, but one also avoids what I consider fully as frequent a cause of incontinence, and that is, the getting of the muscle fibers caught in the perineal scar. With the prostate exposed, one can use either a lateral or a transverse incision in the capsule. One can make use of a transverse incision if one wishes. The posterior flap of the capsule acts as an extra protection to the rectum. I believe that the use of the suggestion that Dr. Cecil has made will insure us against injury of the sphincter and consequent faulty control of the urine, and if one adds to it a transverse incision in the prostatic capsule and turns the flap back, one will in a large measure avoid the possibility of injury to the rectum.

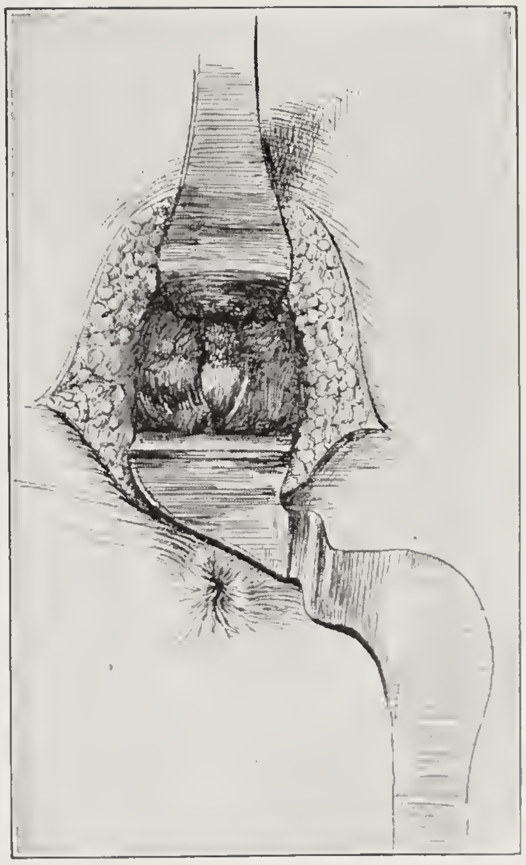

Fig. 6.—The tractor has been pushed into the bladder and opened. The tissues which have been clamped have been cut across, and the prostate has been pulled up into the wound.

Dr. A. Raymond Stevens, New York: It is a great compliment to Dr. Young that so many years have gone by without any material modification of his operation being offered until this spring, when both Dr. Geraghty and Dr. Cecil have come forward with new suggestions. They mark definite advances, and will tend to make the operation more successful in the hands of the average operator. Dr. Chute took the words out of my mouth as to a means that I think many of us have employed in getting a little farther away from the external sphincter. I have been inclined to make my incision in the urethra farther and farther posterior, until recently I have been going right through the apex of the prostate. That also makes it very easy to palpate the vesical neck before closing the wound. Another point on which I think Dr. Cecil is to be congratulated is that he comes out very frankly and suggests that we protect the rectum by keeping one finger in this viscus when cutting the recto-urethralis muscle. I have always felt that it was a matter of pride to cut through this muscle without this guide; but if no one is looking, I often put my finger in the rectum.

Dr. A. I. Folsom, Dallas, Texas: The question Dr. Cecil brought up is very interesting. I have always felt that the perineal procedure has always been described very accurately up to the point Dr. Cecil is talking about, the external sphincter. In discussing the matter this morning, Dr. Cecil told me that Dr. Young has always pushed these fibers up with the back of the knife to get them out of the way. That has been hard for me to understand in any description of the operation, but I think Dr. Cecil's description will help many of us who have been chary about attacking the thing in this way. I think if we get enough of these perineal prostatectomists advocating modifications they must have a reason for them, and pretty soon we shall get the truth of every one's experiences in perineal prostatectomy. As these men have begun to do it themselves, they realize that perfection has not been reached, so I feel that there is an opportunity for good in the future if we go to the bottom of the situation and find out the truth. Regarding the question of incontinence following prostatectomy, one cannot avoid the issue. Those patients are more or less incontinent for a certain length of time and there is no use to dodge the question at all. A few years ago it was stated that the external sphincter had nothing to do with this; it was proved by a beautiful series of roentgenograms that the internal sphincter was the all important sphincter, which I did not believe; and, as Dr. Cecil shows in his work, he himself believes that it is the external sphincter that really maintains the closed bladder.

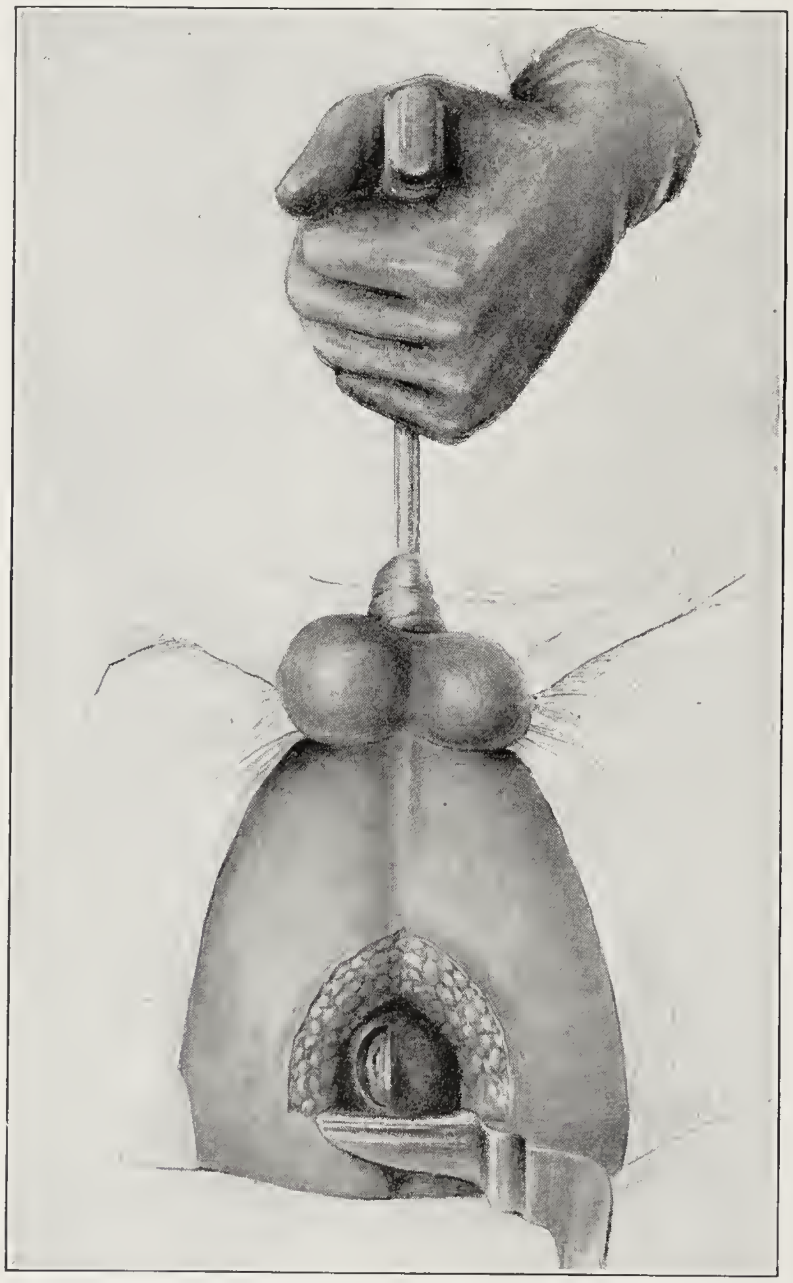

Fig. 7.—Prostate drawn into wound after rectum has been stripped back along the fascias of Denonvillier. A lateral incision has been made and the right lateral lobe has been removed. An opening has been made into the prostatic urethra through this incision.

Dr. John R. Caulk, St. Louis: Dr. Cecil is responsible for one of the great advances in this line. I do not believe it takes much courage, but I think he has done his duty nobly. I had one or two rectal complications, and the striking thing was that they always came when the case was simple and easy, so it is not the difficult cases that have the complications in all instances. They come when we do not expect them. As to the incontinence, that occasionally occurs to all of us, although it is usually temporary. Because of the rectal complications I took up the two-stage operation, and have not regretted it. It is attended with a little more reaction to the patient, but he gets well and the final results are good. The fact that Dr. Cecil protects the sphincter and the rectum makes the operation simple, and I think it will avoid the complications which we used to have. If this is so, the perineal operation should be the one of choice in the hands of those familiar with it.

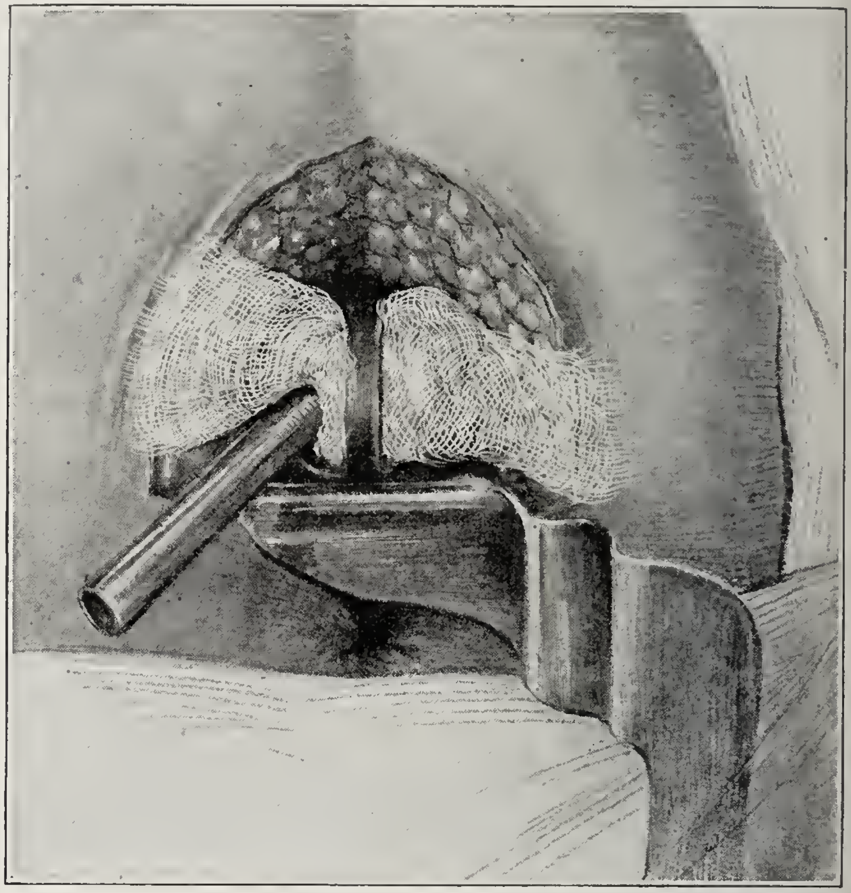

Fig. 8.—Prostatectomy completed: drainage tube introduced through right lateral cavity into bladder. Gauze packs have been introduced to control hemorrhages.

Dr. Arthur B. Cecil, Los Angeles: I have neglected giving credit to Dr. Chute for the idea on which I have based this procedure. Dr. Chute, in discussing perineal prostatectomy last year in Montreal, stated that it had been his principle to open the prostatic urethra far back, in fact, at the apex of the prostate, and in this way he had guarded the sphincter mechanism. To the average operator, however, it is not always easy to make this dissection accurately to the apex of the prostate, and that is the reason why I have devised the procedure which I have described, which has for its prime importance the preservation of the sphincter mechanism of the bladder, the absolute protection of the rectum, and a wider field of application than has heretofore been possible in perineal prostatectomy.

Infant Mortality and Nursing Service in Uruguay.—According to Dr. Julio A. Bauzá, director of infant milk stations in Montevideo, in 1920, over 2,000 infants under 2 years of age died out of a population of 363,000 inhabitants. The Public Health Department spends about one million pesos annually in infant homes, maternities and other infant welfare activities. The Red Cross of Uruguay has offered to furnish 100 visiting nurses for infant welfare work, the need of which has been very great.

SPINAL ANESTHESIA IN PROSTATECTOMY *

ARTHUR L. CHUTE, M.D.
BOSTON

In the enucleation of a prostate, the anesthetic quirements differ from those met in surgery in gen- al. It has been shown by many observers that the inary back pressure that we find in a considerable oportion of prostatic cases renders the kidneys espe- lly susceptible to the irritating effects of ether. I lieve it was the late John C. Munro who showed, me years ago, the irritating effect that the inhalation ether had on the supposedly normal kidney. Obser- tions were made on the urine of a series of patients, fore and after taking ether. In a considerable pro- rtion of cases, it was und that, after ether, e urine showed some bumin in cases in which e urine had previously own none. This was cepted quite properly, I lieve, as an indication at ether frequently irri- ted the normal kidney.

Therefore, one of our rst requirements for an esthetic in prostatec- my is that it spare the dneys to as great a egree as possible. An- her requirement is that should not overtax the eart, since a large pro- rtion of our patients quiring prostatectomy ve arrived at an age at hich they have more or ss weakened heart mus- e, and the stertorous, bored breathing and anosis that I see, not in- equently, with inhalation esthesia certainly do not are the heart. Further- ore, we need good relax- ion of the abdominal alls in most cases of prostatectomy, for in spite of hat seems to me to be the very definite advantages of rineal prostatectomy for certain cases, the greater umber of operations are performed, and I believe will ntinue to be performed, by the upper route. In this eration, the relaxation of the abdominal wall is very sential, especially in the fat man.

Another desirable feature, I believe, is that spinal esthesia lowers the blood pressure to a certain egree, not only at the time of operation, but for a me following it; and in spite of the various means at have been devised to control bleeding following rostatectomy, we still depend, to a large degree, in ost cases, on Nature's spontaneous closure of torn essels, more easily secured when the blood pressure is ot too high. Sometimes, this drop in blood pressure very marked and, I suppose, accounts for some of the faintness that we meet in mildly toxic cases. In one instance, we noted the blood pressure fall from 140 to 40 in a short time. In patients with impaired renal function, it is also an advantage to be able to begin giving water by mouth immediately on the patient's return to bed. The allowance of time that one has with spinal anesthesia is, I believe, an advantage. Once the anesthesia has been secured, one has from an hour to an hour and a half of anesthesia without any additional risk to the patient. One can work with all necessary deliberation, and I believe this is often of great importance, as, for instance, in the careful control of bleeding. It permits the more careful attention to many of the little niceties which one would ordinarily omit if it required a prolongation of an inhalation anesthesia. A further advantage of spinal anesthesia is that it may be used in prostatic patients suffering from diabetes. There were six in this list of prostatectomies, all of whom recovered. This, of course, is not a very important feature, as the number of patients with this combination is relatively small.

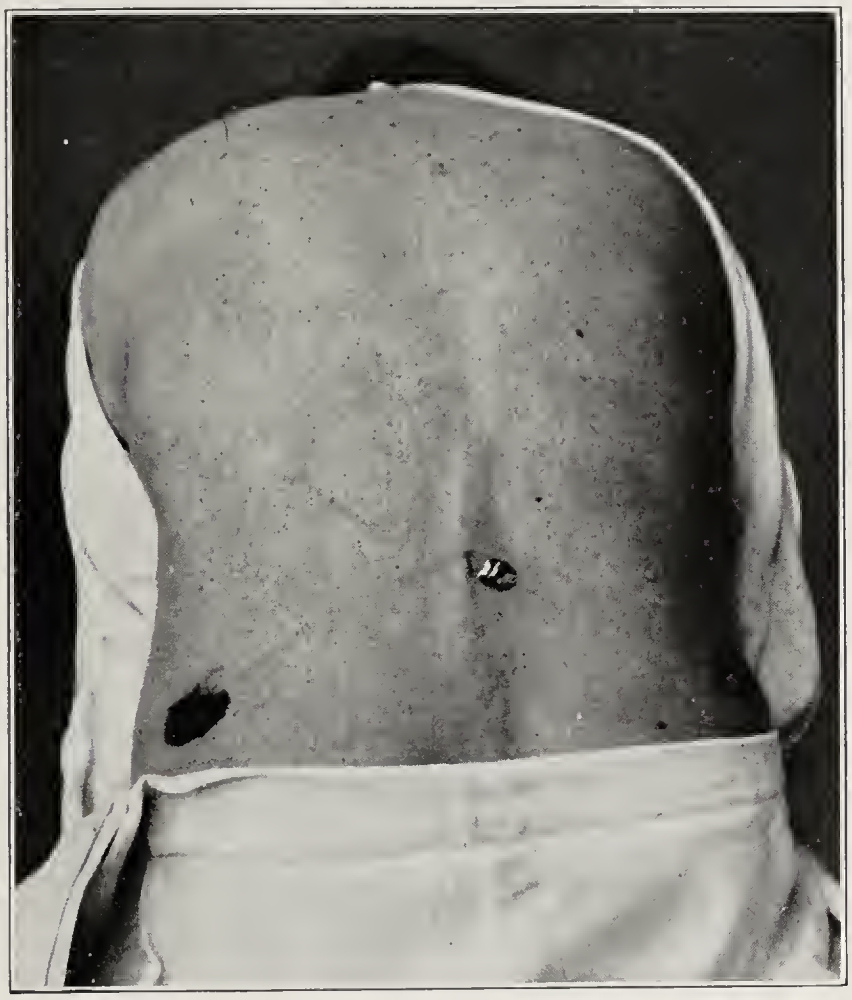

Fig. 1.—Needle inserted in interspace between the third and fourth lumbar vertebrae; crests of ilia marked by iodin; a line between them crosses the interspace betwe.n the fourth and fifth lumbar vertebrae.

In spite of what seems to me to be the great advantage of spinal anesthesia in a considerable proportion of our cases of prostatectomy, so far as one may be allowed to judge from conversation with various men, this method is used in but a small percentage of such operations, and is not used, I believe, because of unwarranted prejudice against it. This prejudice against spinal anesthesia is based, I believe, on its supposed dangers to life, on the occasional inefficient anesthesia that results and on what are believed to be its undesirable effects, both immediate and late. I have been interested to review the cases of prostatectomy in which I have employed spinal anesthesia, particularly as regards its danger to life, its efficiency, and its complications. The number of prostatectomies in which I have used spinal anesthesia has not been very large, 328 cases; but they have the advantage of having been performed by one person under similar conditions. In the present paper, I shall simply consider the subject from its clinical aspects.

DANGERS FROM SPINAL ANESTHESIA

As regards the danger to life from spinal anesthesia, I have seen no one die from the effects of it. Its use in my hands has by no means been limited to the 328 cases that I report here since I have used it many times for painful cystoscopy, perineal section for stricture, and for operations in cases of extravasation of urine, etc. It is true that there have been a certain number of unpleasant and disquieting incidents among

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* Read before the Section on Urology at the Seventy-Third Annual ession of the American Medical Association, St. Louis, May, 1922.

these cases, partly due, no doubt, to the fact that we were at first unfamiliar with its use. One may say of spinal anesthesia that the disagreeable incidents attendant on its use come at the time of operation; at the time when every one is present so that there is ample opportunity to render aid. I shall come back to this phase of the subject and consider it more in detail.

When one considers the efficiency of the anesthesia in these 328 cases, I find that in 293 of these cases the anesthesia was regarded as satisfactory and in most instances was spoken of in my notes as "good," "perfect" or "excellent." In a few of these, however, it was recorded as "fair." In eighteen of the remaining cases, no mention was made of the degree of anesthesia. I believe it is reasonable to suppose that in these eighteen cases there was at least a fair degree of anesthesia or some reference would have been made to the lack of it in the notes made at the time of operation. In twenty-four of the 328 cases, the spinal anesthesia was supplemented by gas or ether. In most of these cases, this was what I have heard termed "psychic ether," that is, the mere smell of ether by making the patient believe he was having ether, was sufficient to relieve the pain of which he complained. In most of these cases, it was perfectly evident that the anesthesia had been good, that it was simply the imagination of the patient which led him to complain. Ordinarily if, in the case of a second stage prostate operation, one can pinch the skin of the abdomen with forceps at the height of the suprapubic opening without causing pain, one may be perfectly sure that the bladder outlet is anesthetized. Other things that point to a good anesthesia are relaxation of the abdominal wall and, especially, relaxation of the rectal sphincter. You may have all these signs of an efficient anesthetic and yet have a neurotic patient who will complain bitterly of pain. It will often be found that a few drops of ether, just enough to give the odor, will afford relief in such cases. The pressure on the abdomen felt by patients with a good spinal anesthesia and which they often resent, must not be confused with real pain. It is, to many, a disagreeable sensation, but far removed from real pain.

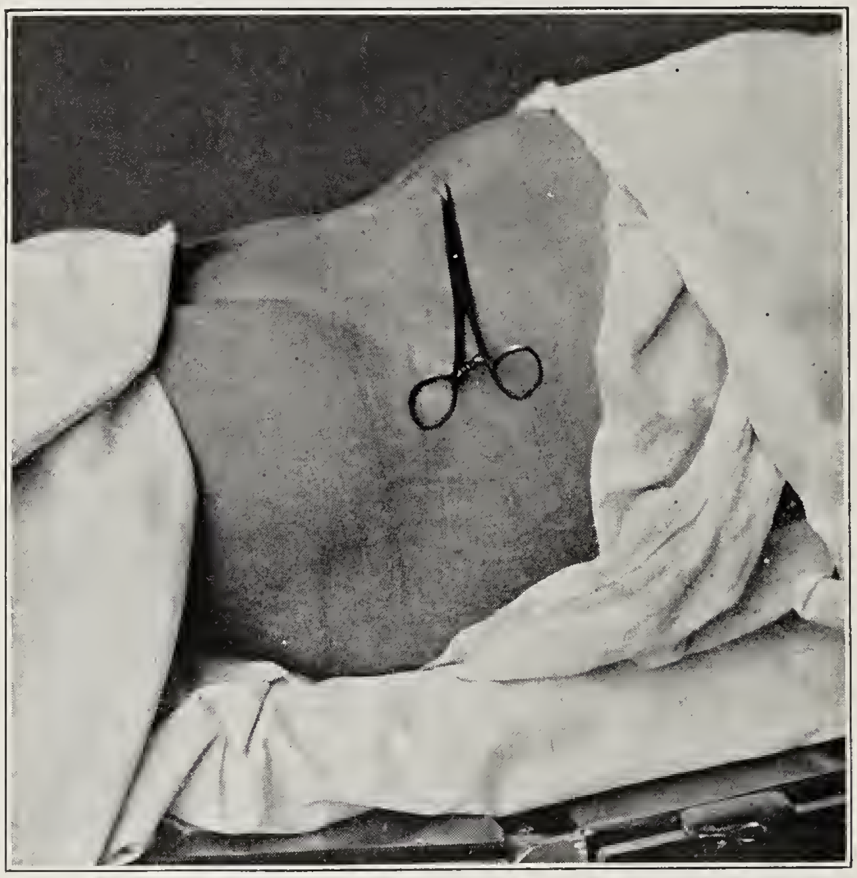

Fig. 2.—Pinching a fold of skin at the level of the suprapubic fistula as a test for anesthesia.

There are a few patients who are not anesthetized following a spinal injection; the condition is ordinarily perfectly evident. There is no numbness or tingling of the feet, no blunting of the sensitiveness of the skin of the abdomen to a needle prick, or to pinching with forceps. These patients may receive a second injection after ten minutes. I have found, in my records, reports of seven cases of reinjection because of no anesthesia. So far as I could ascertain these patients all had good anesthesia after reinjection. As a whole, patients who have a reasonable amount of self-control do very well under spinal anesthesia. Those who have little self-control, or who are prejudiced against this method of anesthesia, are likely to complain bitterly no matter what sort of anesthesia one secures. They are quite unable to grasp the possibility of the blunting of painful sensations without the doing away of consciousness

TOXIC CONDITIONS

The disagreeable and troublesome conditions that occasionally arise during spinal anesthesia may be considered under the heading of toxic conditions. In the mildest type of toxicity, the patient is slightly blanched or he may be a little faint or nauseated, or he may vomit. A condition of this sort is not very uncommon and need not be the cause of alarm. It is difficult to say just how often we meet this slight toxicity, but I believe it has occurred in about 20 per cent. of the cases In the more severe toxic conditions, of which one sees a relatively small number—I found reference to six or seven in this series o cases — there is usually difficulty with respiration The respirations may drop to from 8 to 10 a minute This is usually attended with a certain amount o cyanosis, sighing or stertor. Usually, carbon dioxid stimulation, which is obtained by letting the patient rebreathe air from a closed inhaler, overcome this condition within a short time. Lip friction may be of use. Once o twice we have employed artificial respiration for a short time. This we had to resort to more often when we were less accustomed to this type of anesthesia. I do not remember having resorted to artificial respiration for a number of years. In this condition, we usually us aromatic spirits of ammonia and occasionally a little strychnin or carbohydrate oil, sucutaneously. Besides the respiratory troubles in the more severe toxic cases, there may be a lapse of consciousness or even a slight convulsive attack It seems to me that the patient's mental attitude acts as an important predisposing factor in cases of this sort. My worst patients have been physicians almost without exception; persons in whom there had been a considerable element of dread. One such patient had a slight convulsion on the table and lapsed into unconsciousness. His pulse remained fair, however and by the end of the operation, his condition gave us no concern whatsoever. He made a perfect recovery Another physician lapsed into unconsciousness although he had no convulsive seizures. This man had such a bad heart that it had been a question whether any surgical procedure be tried. Though he was in very poor condition at the end of operation, he had a perfectly good convalescence. At times, the heart becomes very rapid, but no more so, I believe than it does at times with inhalation anesthesia.

Besides these disturbances that come at the time of peration, there is an annoying complication that is ccasionally seen at a later time, the spinal headache. find a record of relatively few spinal headaches, only en. However, it is possible that all have not been oted, since I find that my records of operation are nuch more carefully written up than my records of onvalescence. Such instances of headache as I have een have rarely persisted longer than a week, and I elieve never more than two weeks. The patient otices this headache only when he is sitting up, almost ever when he is lying down. Lying down gives very rompt relief even to the patients who suffer considerbly when sitting up. I have seen nothing to indicate ny infection of the meninges.

I have never seen any lasting interference with ither sensation or motion that it seemed to me fair o attribute to spinal anesthesia. I had one man who aid he could neither hear nor talk, but that lasted only short time.

In performing surgical operations on old people, we ee certain conditions develop that the patients are nclined to attribute to the operation but which we ave every reason to believe bear no relation to it. hus, I have seen men who evidently had a beginning upuytren's contraction, or perhaps one would better ay a predisposition to this condition, develop quite marked contraction during convalescence. I have een this following spinal anesthesia as I have seen it ollowing inhalation anesthesia. It seems to me that it ears no relation whatsoever to the operation or to the nesthesia, but is the result of the lack of use of the and during convalescence. Likewise, I have seen everal people who had a marked arthritis of the spine, vho became stiff during a long surgical convalescence. should say that I have seen this happen quite as ften under inhalation anesthesia as under spinal; ut the patient, perhaps not unnaturally, is inclined o attribute it to the use of spinal anesthesia. If such patient has the misfortune to have a general practioner of rather limited outlook he may coincide with e patient in this view. Another annoyance that I ave seen follow operation, under both inhalation and pinal anesthesia, is a certain numbness in the fingers upplied by the ulnar nerve. This is due, I believe, to ome constrained position in which the patient lay, not ecessarily during operation. I have seen it in a cerain number of prostatic cases following spinal anes- esia. I have no explanation to offer; but I do not elieve that it can be due to the anesthesia.

TECHNIC EMPLOYED

A short description of the technic that I have used n spinal anesthesia may be of interest. We have nade use of tropacocain, procain and apothesin as an nesthetic, all in combination with epinephrin. It has rdinarily been given in the lumbar spine, sometimes n the space between the second and third lumbar verte- ae, but preferably in the space between the third and ourth lumbar vertebrae. A line connecting the high- st points of the crests of the ilia crosses the fourth pace, which is the next below this. So one feels for e space that is on this line, connecting the crests of e ilia, and then makes the puncture in the space ext above it. I make the injection with the patient itting across the table, the feet in a chair, the back owed forward and slightly inclined from the hips. he head should be sharply flexed so that the chin touches the sternum. The ordinary lumbar puncture needle, with a rather short bevel, is inserted in the median line. Usually, it enters the spinal cavity without difficulty. In exceptional cases it may be impossible to get the needle into the spinal cavity. There were three cases, of which I found record, in which it was impossible to give spinal anesthesia because of ankylosis of the spine and consequent inability to enter the vertebral canal. It is not infrequent to have to make two or more attempts in a difficult spine before entering the vertebral canal. We ordinarily use 2 c.c. of a 5 per cent. procain solution or a similar amount of whatever drug one is using, which is then diluted with aspirated spinal fluid to make 5 c.c. One then makes sure that the cannula is still in the vertebral canal, after which he injects slowly, taking from ten to thirty seconds to inject 5 c.c. The patient is allowed to remain in the sitting position for from one to two minutes and then is allowed to lie down, with his head and shoulders a little raised. The anesthesia ordinarily takes place within two or three minutes. Occasionally, a perfectly good anesthesia will be delayed as much as ten minutes. If for any reason one wishes to give spinal anesthesia with the patient lying on his side, with his head and shoulders slightly raised, he may do so. However, in my experience, it is easier to give it in the position first described. Although I wish to keep the patient's head somewhat elevated for a few minutes following injection, I do not hesitate to put him in the lithotomy position as soon as I let him lie down (from one to two minutes after injection). After from fifteen to twenty minutes, I do not hesitate to use the exaggerated lithotomy position. In reviewing my notes I have found records of twenty-two cases of perineal prostatectomy which has been performed under spinal anesthesia without the occurrence of any mishap. In these cases, I employed the exaggerated lithotomy position.

CONCLUSIONS

My experience with the 328 cases of prostatectomy performed under spinal anesthesia leads me to believe that the method is a safe one as regards danger to life. It is efficient in a large proportion of cases; in only slightly more than 7 per cent. of these was it necessary to supplement the anesthesia with gas or ether. In a considerable number of these cases the gas or ether was given because of the mental instability of the patient rather than because of the physical suffering. There are a number of minor annoyances attended with its use, most of which are really of no more importance than the little difficulties we meet daily in the use of inhalation anesthesia. There are some toxic symptoms that are quite terrifying; but they seem to do no serious harm. I have failed to find among my patients any evidence of lasting injury caused by spinal anesthesia.

It is my opinion that the lessened injury to the kidney as a result of spinal anesthesia more than compensates for its drawbacks, and makes it the best anesthetic for use in a considerable proportion of cases of prostatectomy. The time that spinal anesthesia allows for operation is a considerable advantage since it permits more careful work. It spares the heart more than inhalation anesthesia, as ordinarily given, and it is of the greatest value in carrying out prostatectomy safely in diabetics.

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ABSTRACT OF DISCUSSION

Dr. Bransford Lewis, St. Louis: I have such respect for Dr. Chute and his conclusions and such confidence in them that I feel reluctant to express an opinion in opposition to his conclusions. Yet certain facts about spinal anesthesia have made such an impression on me that I feel one should not neglect to bring up an argument in opposition if he feels so disposed. I have no doubt that if I had behind me the experience Dr. Chute has had, I would stand by my convicitions and argue as he does. But I have no such experience, and, on the contrary, I have facing me the knowledge of a striking number of deaths directly due to spinal anesthesia and I am terrified at its significance. In the early period when Jonnesco and others were introducing this method in this country, we grew enthusiastic about it. A number of leading surgeons used spinal anesthesia here, and death ensued in four or five such cases. When patients do not die, as Dr. Chute says, the result is almost ideal. But in its liability to cause death spinal anesthesia is far from ideal. We know that many who formerly were enthusiastic about the utility and safety of spinal anesthesia have abandoned it because of the mortality. On the other hand, must we resort to a method in these advanced states of debility and low vitality that has attached to it this stigma that cannot be denied, this high mortality? I believe not. We can use with the utmost safety and satisfaction for the first stage of the suprapubic prostatectomy an infiltration anesthesia, which has no mortality. I have never heard of a patient dying through infiltration anesthesia and opening the bladder in the first stage. For the second stage, we have sacral anesthesia, which has no mortality. I have heard of some toxic symptoms following sacral anesthesia, but know of no deaths. Authors who have written on this subject have not reported any mortality. Sacral anesthesia in about 10 per cent. of the cases is a failure, and then either gas or a light degree of ether anesthesia has to be added. That places this method of practical safety in contrast with this one, with a pronounced mortality, which is the gist of the situation.

Dr. A. J. Crowell, Charlotte, N. C.: Dr. Cecil's modification of Young's operation simplifies the operation very much as it makes use of a guide and tractor combined. It greatly lessens the danger of getting into the rectum and makes the preservation of the membranous urethra much easier. I am glad to see this revival of interest in the perineal operation and feel sure it will result in great good. The pendulum has swung entirely too far to the suprapubic operation. With regard to spinal anesthesia, I have never been sufficiently brave to try it. My timidity may be the explanation, but I have seen some work under its influence that made me tremble. With the modifications of Young's operation recommended by Drs. Cecil and Geraghty, combined with sacral anesthesia, I believe we will do more perineal prostatectomies in the future. Since last July I have done all prostatectomies under sacral anesthesia. In some of these cases, while enucleating the prostate from its capsule, it was necessary to give a little gas for a few moments, but the perineal anesthesia is so complete that the wound is closed and dressed after the patient wakes up, free from pain. This is probably necessary in 12 or 15 per cent. of the cases.

Dr. H. W. E. Walther, New Orleans: Spinal anesthesia has failed to give me anesthesia in about 50 per cent. of the injections. I do not know the reason for this. I follow the directions Dr. Chute mentioned, get spinal fluid and enter the canal, but fail to get anesthesia. In the after-effects of spinal injections, Dr. Chute did not mention headache. I have seen headaches which lasted for three weeks following spinal anesthesia and nothing has relieved the headache. As to mortality, I have seen deaths from no other anesthetic but the spinal. I have noticed in the writings of a confrere who does much work under spinal anesthesia that he maintains he has never had a death; but he must have a very short memory, for I have seen at least three deaths in his service in the last five years. It certainly is an anesthetic that is very satisfactory when it works; but these deaths on the operating table, before we begin work, are hard to explain. Experience seems to bear out the fact that spinal anesthesia is the most dangerous of all.

Dr. A. Raymond Stevens, New York: I have always been enthusiastic over spinal anesthesia, the injection being made in the low lumbar region. At Bellevue Hospital, we have been using it a great deal since the war for perineal work of all sorts. Dr. Keyes was not keen about spinal anesthesia five or six years ago, when stovain was used. Since the war he has sanctioned its use in a more or less routine way. I have no figures, but it has been used chiefly for perineal work and difficult cystoscopies. We use just one half the amount of procain that Dr. Chute uses. We have had no death on the table. The only death (I think I am correct though speaking from memory), occurred about four hours after operation. In this case, the patient was operated on by someone else on the service and I do not know all the circumstances, but we charged the death to the spinal anesthesia.

Dr. Arthur L. Chute, Boston: What Dr. Stevens says about Dr. Keyes making use of spinal anesthesia is very encouraging since he is one of the irreconcilables on whom I have been exerting all my missionary efforts for years. If he has come around even the least bit, it is a great sign of hope. In our work, we have the patient sit on the side of the table bending forward, with his chin resting on his sternum. I admit that there have undoubtedly been deaths, but I have never seen one. Like many other things, spinal anesthesia must be given properly to be safe and efficient. One cannot do a perineal prostatectomy without having a considerable amount of definite knowledge; no more can one give spinal anesthesia without some knowledge of it. It is not a thing one can do offhand, but when one has learned its technic, it has great possibilities. We speak of the dangers of spinal anesthesia as though inhalation anesthesia was without danger in these cases, while as a matter of fact I believe that the patients who die following prostatectomy die chiefly as the result of inhalation anesthesia. It is often said that patients die of hemorrhage the third or fourth day after operation; they do not. They die the day of the operation. The patient who dies three or four days after operation dies because his kidneys have shut down, in many cases, because of the inhalation anesthesia. These patients almost never die if they are getting an output of 100 ounces or more of urine. I cannot conceive of an agent as powerful as spinal anesthesia not having possibilities for harm, even leading to a fatal outcome at times though I have not as yet seen a fatal case. Against this disadvantage of spinal anesthesia, you must balance the insidious danger that general anesthesia often brings to these patients through its action on the kidneys. Dr. Lewis and Dr. Walther have spoken of the sacral method. Many of these patients were operated on before sacral anesthesia was known to me and I think it is possible that the sacral method may do away with spinal anesthesia to a great extent, but I do not think this is assured. Dr. Walther's failure in 50 per cent. of his cases, I cannot understand. I have no explanation to offer. Evidently, I have not seen as bad headaches as he has. I think, however, he misunderstood me if he thought I intended to minimize the importance of the spinal headache. It may be serious as regards the patient's comfort, but so far as I know, as soon as the patient lies down, he becomes fairly comfortable, and here, again, it is balancing one thing against another. Certainly, the life of the man with spinal headache, following prostatectomy, is in less danger than is that of the man whose kidneys have shut down after inhalation anesthesia.

Cost of Research Work in England.—The report of the British Scientific and Industrial Research Department for the year ending, July 31, 1921, states that the total expenditure of the department during the financial year was £525,584 (approximately $2,500,000). For the current year, the cost is estimated at £342,641, nearly £85,000 less than the previous year. About £40,000 of this reduction is accounted for by the government decision that research work undertaken directly for the Army and Navy at the National Physical Laboratory shall be charged to those departments and not to the research department.

RESUMPTIVE TEST FOR THE ETIOLOGIC FACTOR IN BACTERIAL FOOD POISONING *

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The causes of food poisoning may be roughly classi ed into four groups as regards diagnosis: (1) bac- rial toxins; (2) organisms of the paratyphoid- nteritidis group; (3) ptomains and naturally poison- us foods, such as the toadstools, and (4) chemical oisons, consisting mainly of the poisonous metals.

These groups vary in their resistance to heat, oxidiz- ng agents, disinfectants, acids and antitoxins. They lso vary in the severity of the disease, time of appear- nce, and nature of the symptoms produced. By tilizing these differences it is possible in many cases, hen the suspected food is available, to make a more apid and accurate diagnosis than when one depends olely on the clinical symptoms exhibited by the atient.

The present article is the result of an attempt to evelop a rapid test for the etiologic factor in bacterial ood poisoning, of such a practical nature as to be eadily applied by the practicing physician lacking ccess to a diagnostic laboratory. The test here escribed consists of a rapid, confirmed test for the oxin of *Clostridium botulinum (B. botulinus)* com- ined with a slower presumptive test for organisms f the paratyphoid-enteritidis group. There is also escribed a rapid presumptive test for the presence f botulinus toxin which may be used when botulinus ntitoxin is not available. The application of this test n a recent outbreak of botulism, with the resulting iagnosis and case history, is included.

In food poisoning outbreaks due to botulinus toxin, rapid diagnosis is desirable. It has been well estab- shed that the antitoxin treatment, to be effective, ust be begun early. The experimental evidence ndicates that this treatment is of little value if begun ome time after the symptoms appear, particularly if e patient has received more than one lethal dose of oxin.[1]

A rapid diagnosis in food infections is not so impor- nt. The death rate is low, and there is no specific eatment and no danger of an epidemic.

The main differential characteristics of the food oisoning groups enumerated are as follows:

1. *Bacterial Toxins That Are Toxic When Ingested.* -The botulinus toxins are the only bacterial toxins ported as causing outbreaks of food poisoning. ecently Bengtson[2] has reported on a toxin produced an unclassified anaerobe. Whether or not the toxin this organism ever causes food poisoning remains be determined. Botulinus toxin is easily destroyed heat, or neutralized by its specific antitoxin. It is ot destroyed by exposure to a small amount of hydro- loric acid or sodium bicarbonate. The spores of *lostridium botulinum* are very resistant to heat, but the ingestion or injection of a small number of toxin-free spores does not result in botulism. These toxins are usually associated with poisoning due to the eating of preserved foods, but they are occasionally found in comparatively fresh foods, such as cottage cheese. The clinical symptoms produced by botulinus toxins are distinct.

2. *Organisms of the Paratyphoid-Enteritidis Group.* —The organisms of this group cause outbreaks of food poisoning or, more properly, food infections. These organisms are normally associated with animals and secondarily infect man. They are readily destroyed by heat and disinfectants. The endotoxins which are produced resist heat, hydrochloric acid and sodium bicarbonate in small amounts. The virulence of these organisms for rabbits and the strength of the endotoxin produced varies. Freshly isolated strains are more virulent than laboratory strains. It is this variability in virulence and endotoxin production that limits the test described in this article to a presumptive test for these organisms. It fails to detect the organisms not pathogenic for rabbits. Food poisoning due to the organisms of this group is usually associated with the eating of contaminated fresh foods, such as milk and meat, either raw or poorly cooked, or contaminated after the cooking, and not to decomposed foods as in botulism. The organisms do not thrive in fruit juices. The clinical symptoms produced by these organisms and their endotoxins are characteristic, though variable in severity.

Other gram-negative organisms, such as *B. proteus*, have been recorded as causing outbreaks of food poisoning. However, the belief is becoming prevalent that practically all food infections are due to the organisms of the Gaertner-Salmonella group.

3. *Ptomains.*—Food poisoning due to ptomains is now believed to be rare and of a very mild nature. Ptomains cannot be considered a confusing factor in diagnosis. The use of the diagnostic term "ptomain poisoning" indicates a lack of knowledge or exact information. Ptomains and the poisonous factors in naturally poisonous foods, such as toadstools, are heat resistant and not altered by slight amounts of acid or alkali. The possibility of the patient's suffering from the naturally poisonous foods must be determined by the probability of his having partaken of such foods.

4. *Chemical Poisons.*—These occasionally cause outbreaks of food poisoning attributed to bacteria. Chemical poisons are many, and serve as a confusing factor in diagnosis. The symptoms produced in man and in laboratory animals may or may not indicate the correct diagnosis. Methods of diagnosing these poisons do not come within the scope of this paper.

Following a recent outbreak of food poisoning at Walla Walla, Washington, a jar of asparagus and a dead chicken were sent to the laboratory for examination. The test used to identify the factor causing the poisoning is as follows:

In testing to determine the presence and nature of the poisonous substance in a jar of canned asparagus, 2 c.c. of the unfiltered asparagus liquor was placed in each of five serum tubes. To the asparagus juice in the second tube was added 1 c.c. of Type A botulinus antitoxin. To the third tube was added 1 c.c. of Type B botulinus antitoxin. The fourth tube was placed in boiling water for ten minutes. To the fifth tube was added 0.5 c.c. of a 10 per cent. solution of hydrochloric acid, which was allowed to stand ten minutes. The contents of all five tubes were then neutralized to litmus with a saturated solution of sodium bicarbonate. The contents of each tube were then injected into the marginal ear vein of a medium size rabbit. The results obtained indicate that the asparagus contained a botulinus Type A toxin.

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* From the Laboratory of Bacteriology, State College of Washington.

[1] Dickson, E. C., and Howitt, B. M.: Botulism; A Preliminary port of a Study of the Antitoxins of B. Botulinus, J. A. M. A. **74**: 8 (March) 1920. Burke, Victor; Elder, J. C., and Pischel, Dohrman: eatment in Botulism. Arch. Int. Med. **27**: 265 (March) 1921.

[2] Bengtson, I. A.: Preliminary Report on a Toxin-Producing aerobe Isolated from the Larvae of Lucilia Caesar, Pub. Health Rep. 7: 164 (Jan. 27) 1922.

The test was repeated with a ten day culture of the crop and intestine of the chicken. The results obtained were the same except that Rabbits 1, 3 and 5 showed symptoms of poisoning in an hour and a half, and died in from two to three hours.

TABLE 1.—RESULTS OF A TEST ON ASPARAGUS LIQUOR TO IDENTIFY THE FOOD POISONING FACTOR

Rabbit	Asparagus Liquor, C.c.	Procedure	Result
1	2	Control*	Dead in from five to six hours
2	2	1 c.c. of Type A botulinus antitoxin*	Lived
3	2	1 c.c. of Type B botulinus antitoxin*	Dead in from five to six hours
4	2	Placed in boiling water for ten minutes*	Lived
5	2	0.5 c.c. of 10 per cent. hydrochloric acid, allowed to stand ten minutes*	Dead in from five to six hours

* Neutralized to litmus with a saturated solution of sodium bicarbonate just before injection.

In an experiment to determine what results will be obtained with food containing organisms of the paratyphoid-enteritidis group when subjected to this test, the foregoing test was repeated in detail except that a forty-eight hour culture of *B. paratyphosus* B was substituted for the asparagus juice. The results obtained are given in Table 2.

This experiment was repeated with seven other laboratory strains of *B. paratyphosus* B, *B. enteritidis* and *B. suipestifer,* grown in milk and meat mediums. Some of the strains were not virulent, and the rabbits failed to develop symptoms. The results obtained with the virulent strains varied as regards time of appearance of symptoms and death, but were comparable to the results given in Table 2, with the exception that occasionally Rabbit 5 died. Apparently the acid releases more of the endotoxin than heat, or increases its action in some other way. Controls on Rabbit 5 showed no symptoms.[3]

TABLE 2.—RESULTS OF TEST WITH B. PARATYPHOSUS B

Rabbit	Paratyphoid B 48 Hour Culture C.c.	Procedure	Results: Symptoms, Hours	Results: Death, Hours
1	2	Control*	12	35
2	2	1 c.c. of Type A botulinus antitoxin*	12	28
3	2	1 c.c. of Type B botulinus antitoxin*	12	22
4	2	Placed in boiling water ten minutes*	2	Lived
5	2	0.5 c.c. of 10 per cent. hydrochloric acid, allowed to stand ten minutes*	2	Lived

* Neutralized to litmus with a saturated sodium bicarbonate solution before injection.

The results obtained in Experiment 2 indicate that members of the paratyphoid-enteritidis group are frequently infectious for rabbits when injected intravenously, and that they produce an endotoxin not destroyed by exposure to a boiling temperature for a short time or to a weak solution of hydrochloric acid. It is reasonable to assume from reported data on the organisms of the group that the results obtained with strains in nature will be more uniform, i. e., that freshly isolated strains, or strains in contaminated food, will be more uniformly pathogenic for rabbits. However, there are strains capable of causing infections in man but not in rabbits. For this reason the test for these organisms must remain presumptive.

The results obtained in this experiment (Table 2) offer conclusive evidence that botulinus toxin was not present. Results similar to these, if obtained following the injection of food suspected of causing an outbreak of poisoning, may be considered as presumptive evidence that the poisoning was due to a member of the paratyphoid group. Necropsy findings in the rabbits, together with cultures from the heart blood, and the clinical symptoms of the patient, will confirm or discredit this diagnosis. If the rabbits show no symptoms, botulinus toxin is eliminated, but not the members of the paratyphoid group.

Ordinarily it is not necessary to filter food juice before injection intravenously in rabbits. Finely divided particles that will pass through the needle do not affect rabbits. Air bubbles should not be injected, or embolism may result. In testing solid foods, it may be necessary to resort to trituration and extraction with physiologic sodium chlorid solution.

The amount of suspected fluid to be injected is subject to variation. We have chosen 2 c.c. as a suitable amount. Rabbits will withstand the injection of much larger amounts of nontoxic fluids without showing symptoms. Rabbits are very susceptible to intravenous injections of botulinus toxin. Two cubic centimeters of juice from foods having sufficient botulinus toxin to cause an outbreak of food poisoning will kill a rabbit. When foods have to be triturated or extracted to obtain the fluid for injection, the least amount of salt solution used, the stronger will be the toxin. Under such circumstances the injection of more or less than 2 c.c. of fluid may be advisable. In cases in which there is a suspicion of food infection, centrifuging to concentrate the organisms may be an advantage.

The acidity of some foods is so great that unless it is neutralized the rabbits will react to the acid. Neutralization must be brought about by an alkali that does not affect the toxin or organism present. Neutralization to litmus with a saturated solution of sodium bicarbonate is satisfactory. There should not be an excess of alkali. If food normally acid is strongly alkaline, the cause should be determined as possibly offering a clue to the cause of the poisoning.

The time required for the test to be completed will vary with the nature of the substance causing the poisoning and the amount injected. This test, applied to the can of asparagus from Walla Walla, was completed in six hours. When applied to a 3 weeks old culture from the crop and intestines of a chicken from the same case, the test was completed in three hours. With food containing botulinus toxin, the test will ordinarily be completed in a few hours. Symptoms from botulinus toxin will not appear in less than one to two hours or later than twenty-four hours. Consequently, if the rabbit shows no symptoms in twenty-four hours, we can assume that the suspected food does not contain botulinus toxin.

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[3] Several rabbits were injected with 2 c.c. of sterile milk to which was added 0.5 c.c. of 10 per cent. hydrochloric acid, which was then neutralized with the sodium bicarbonate solution. None of these rabbits died.

No general statement can be made to cover the time required to complete the test if the organisms of the paratyphoid group are present. With a highly virulent strain, the test will be completed in twenty-four hours or less. With less virulent strains, a longer time is required. With virulent strains, one can, by comparing the time of appearance of symptoms in the different rabbits, make a preliminary diagnosis in a few hours. If Rabbits 4 or 5 show symptoms in a few hours, and Rabbits 1, 2 and 3 do not show symptoms for twelve hours or more, the evidence is in favor of paratyphoid organisms being present, and botulinus toxin is eliminated. If the organisms are of low virulence, Rabbits 1, 2 and 3 may not die for several days, or not at all. In general, the test for botulinus toxin and members of the paratyphoid group will be completed in twenty-four hours or less. At the end of twenty-four hours a negative test for botulinus toxin is conclusive, but a negative test for paratyphoid, as is true of negative tests for certain other bacteria, is not conclusive.

The possibility of large numbers of nonpathogenic organisms or their endotoxins and proteolytic products being a confusing factor must be considered. Rabbits resist the intravenous injection of large numbers of saprophytic bacteria and their products, and also nonpathogenic strains of *Staphylococcus aureus* and *B. coli.* We doubt whether such organisms are ever found in foods in sufficient numbers to affect the rabbits. If rabbits show symptoms following the injection of food juices as given for this test, the food should be considered poisonous or infectious for man.

We have selected rabbits instead of other animals for this test because they are always available to the practicing physician. Intravenous injections are recommended because the symptoms appear more quickly, and smaller amounts of the suspected food will suffice for the test.

The test should be made with the suspected food, if any is available. In case none of the food can be obtained, the empty container may be washed with a small amount of salt solution, and this injected. In testing dry foods, extracts should be made with salt solution. If neither the food nor a container is available, the vomitus or stomach contents or the blood may be used. The value of the test is greatly reduced, and may be negligible if the food is not available.

INTERPRETATION OF RESULTS

In interpreting the results obtained with the test, it must be borne in mind that this is presented as a presumptive test to be used by physicians or technicians to whom the facilities of a large, well equipped laboratory are not available. With a well equipped laboratory available, the test can be modified, as will be described later. The following will serve as an aid in the interpretation of results:

If there is no history of preserved food having been eaten, botulism may be excluded from consideration. Preserved foods include not only canned foods but also the foods preserved in various ways and kept for several days. Dried fruits and vegetables have never given rise to botulism. With the exclusion of botulism, attention should be directed to fresh meats and milk as possibly contaminated with organisms of the paratyphoid group. The possibility of the outbreak's being due to mushroom poisoning or to poisonous chemicals must be determined both by the clinical symptoms of the patient and by the probability of such substance's having been ingested.

1. If Type A botulinus toxin is present, Rabbits 1, 3 and 5 will die, usually within a few hours. Rabbit 4 will not die from the injection of botulinus spores that may be present.

2. If Type B botulinus toxin is present, Rabbits 1, 2 and 5 will die within a few hours.

3. If both types of botulinus toxin are present, Rabbits 1, 2, 3 and 5 will die. The possibility of both types of botulinus toxin being present must be considered, but we have no record of such an occurrence in outbreaks of food poisoning.

4. If organisms of the paratyphoid-enteritidis group are present, no hard and fast rule can be laid down for the interpretation of results. The organisms vary in their virulence for rabbits and endotoxin production. The endotoxins are produced in variable amounts, and are heat resistant. In most cases we may expect that Rabbits 1, 2 and 3 will die. Death may occur in from ten to twelve hours, or may be delayed for several days. Mild symptoms may appear in a few hours, owing to endotoxins present, followed by a return to a normal condition with a later development of symptoms as an infection develops. Rabbits 4 and 5 will show symptoms in from one to four hours, and show evidence of recovery in twenty-four hours. They may appear normal in from six to twelve hours. Rabbit 5 will occasionally die. The acid treatment seems to increase the toxicity of the food more than the heat treatment. The rapid appearance of symptoms or more severe symptoms in Rabbits 4 and 5, with a later appearance of symptoms, or of less pronounced symptoms, in Rabbits 1, 2 and 3, suggests the presence of paratyphoid organisms. The recovery of Rabbit 4 and the death of 1, 2 and 3 strengthens this diagnosis. The symptoms exhibited by Rabbits 4 and 5 consist mainly of great prostration, with more or less watering of the eyes. The symptoms in Rabbits 1, 2 and 3 consist of prostration, watering of the eyes, diarrhea and rapid emaciation. At necropsy there is found a congestion of the intestine, particularly around Peyer's patches, and occasionally hemorrhagic exudations. Blood cultures will contain a typical gram-negative bacillus. The symptoms exhibited by rabbits suffering from botulinus toxin are distinct and not readily confused with the foregoing. There is great muscular weakness. The hind quarters are drawn well forward. There is evidence of a disturbance of equilibrium and difficulty in breathing. At necropsy Peyer's patches are not found congested. There is no diarrhea.

5. If none of the rabbits show symptoms, botulinus toxin is eliminated, but not the paratyphoid organisms. The nonappearance of symptoms in the rabbits does not prove that the food is nontoxic for man. As previously stated, the virulence of the paratyphoid organisms for man and rabbits may vary. A strain of these organisms may affect man and not rabbits. Also other poisonous substances may be present in the food in sufficient amount to affect man and not produce symptoms in the rabbits.

6. If all the rabbits show symptoms, botulinus toxin is excluded, but not the paratyphoid organisms. If the symptoms are due to the paratyphoid organisms, the time of appearance and severity of the symptoms and the ultimate fate in the case of Rabbits 4 and 5 will usually differ from those in Rabbits 1, 2 and 3.

7. If some of the rabbits show symptoms and others do not, the naturally poisonous foods and poisonous metals not affected by heat, acid or alkali are excluded

from consideration. Acids are excluded because of the neutralization with sodium bicarbonate. Botulinus toxin and infectious organisms must be considered.

8. If Rabbit 4 shows symptoms, botulinus toxin is eliminated from consideration. This toxin is destroyed by heat. The spores will not be in sufficient numbers to affect the rabbit.[4] It has been shown that massive doses of a botulinus toxic filtrate will kill mice in a few minutes, even though the mice have been immunized to the toxin.[5] This toxic effect has been attributed to ammonia salts.[6] In intravenous injections, the possibility of symptoms or death being due to acid or protein shock must also be considered. Our experience in injecting many rabbits has been that ammonia salts or other proteolytic products likely to be present in contaminated food will not affect the rabbits and interfere with this test. With our present knowledge we are justified in stating that if Rabbit 4 shows symptoms the food is toxic to man because of some substance other than botulinus toxin.

9. If Rabbit 5 dies, the poisonous substance resists the acid as used in the test. The paratyphoid organisms are destroyed, but not their endotoxins or the toxins of *Clostridium botulinum*. The results obtained with Rabbit 5 are of value as a check on the results obtained with the other rabbits, and particularly as a check on the possible presence of both types of botulinus toxin. If a monovalent botulinus toxin is present, the results obtained with Rabbit 5 will closely resemble the results obtained with Rabbit 1 and either Rabbit 2 or Rabbit 3. If a polyvalent botulinus toxin is present, the history of Rabbit 5 will closely resemble that of Rabbits 1, 2 and 3. If the paratyphoid toxins are present, the history of Rabbit 5 will closely resemble that of 4, the symptoms occasionally being more severe and resulting in death.

In general, it may be stated that if Rabbits 1, 2 and 3 die, and Rabbit 4 lives, the presumption is that an infectious organism is present. What happens to Rabbit 5, combined with a comparison of clinical symptoms, will largely confirm or discredit this diagnosis. If Rabbit 5 lives, this diagnosis is strengthened.

The clinical symptoms exhibited by the rabbits and the patients serve as an aid in diagnosis. The symptoms in botulism and paratyphoid infections in the rabbit have already been described. The symptoms in man are given later.

In analyzing this test, it is seen that it consists of a confirmed test for botulinus toxin, combined with a presumptive test for organisms of the paratyphoid group. Rabbits 1, 2 and 3 serve as a confirmed test for botulinus toxin. Rabbits 4 and 5 are added to serve as the test for the paratyphoid group and as a presumptive test for botulinus toxin. The test is only presumptive for the paratyphoid organisms because the number of organisms is uncontrolled and the virulence and endotoxic production of the different strains vary. A confirmed test for the paratyphoid organisms is simple in case the rabbits die. A necropsy of the rabbits showing congested Peyer's patches, and the recovery of a gram-negative organism from the heart blood and exudates suffice. A completed test requires fermentation and serologic tests.

RAPID, CONFIRMED TEST FOR PRESENCE AND TYPE OF BOTULINUS TOXIN IN FOOD

A confirmed test for the presence and type of botulinus toxin can be made only when the antitoxin is available. The injection of Rabbits 1, 2 and 3, as given in Table 1, constitutes such a test. Confusion may result if a polyvalent toxin is present. This possibility can be eliminated by adding both types of antitoxin to the suspected food and injecting a fourth rabbit. Since there is no record of both types of toxin ever occurring in food, the use of a fourth rabbit may be omitted. If only a polyvalent antitoxin is available, the presence but not the type of botulinus toxin can be demonstrated.

In a recent article, Orr[7] described a rapid method of detecting the presence and type of botulinus toxin in food. He recommends the injection of the suspected fluid intraperitoneally in mice. He found that the symptoms appear in from two to four hours, and that death results from one to two hours later. The weaker the toxin, the longer the incubation period. Filtration of the fluid is recommended to eliminate infectious organisms.

More recently, Bengtson[5] has recorded experiments with mice and guinea-pigs. Some of the mice died in from one to two hours following the intraperitoneal injection of large doses of botulinus toxin. She concludes that mice are more satisfactory animals with which to carry out the test, because the symptoms appear more rapidly and are more characteristic.

We have chosen rabbits for the test because these animals can be obtained under practically all conditions of general practice. Rabbits are very susceptible to botulinus toxin, and the test can be completed as quickly with rabbits as with mice. In our experiment, death occurred in from two to three hours following injection of 2 c.c. of a 3 weeks old culture of *Clostridium botulinum* toxin, Type A.

PRESUMPTIVE TEST FOR PRESENCE OF BOTULINUS TOXIN AND PARATYPHOID ORGANISMS IN FOODS

A presumptive test for the presence of botulinus toxin in the absence of antitoxin may be made by making injections in rabbits similar to those given to Rabbits 1, 4 and 5 (Table 1). If botulinus toxin is present, Rabbits 1 and 5 will die, and Rabbit 4 will show no symptoms. If virulent paratyphoid organisms are present, Rabbit 4 will show typical symptoms. Rabbit 5 will show symptoms similar to those of 4, usually more severe, and may die. If the presumptive test for botulinus toxin is positive, the antitoxin treatment should be given as soon as antitoxin can be obtained.

MODIFICATION OF THE TEST

The test, as described, has been designed to meet the needs of the general practitioner. It can be made anywhere with a minimum amount of material and equipment. The laboratory technician and research worker can readily modify the test by making use of other factors, such as filtration, polyvalent antitoxin or an oxidizing agent. Modifying the injection given one rabbit makes it possible to modify the injections given other rabbits. The interpretation of results must vary with and depend on the injections given the different rabbits. The test presented here is as simple as the practical application permits.

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[4] Burke, Victor; Elder, J. C., and Pischel, Dohrman: Treatment in Botulism, Arch. Int. Med. **27**: 265 (March) 1921. Orr, P. F.: Pathogenicity of Bacillus Botulinus, J. Infect. Dis. **30**: 118 (Jan.) 1922.

[5] Orr, P. F.: A Rapid Method of Determining the Presence and Type of Botulinus Toxin in Contaminated Food, J. Infect. Dis. **29**: 287 (Sept.) 1921. Bengtson, I. A.: Direct Inoculation Test for B. Botulinus Toxin, Pub. Health Rep. **36**: 1665 (July 22) 1921.

[6] Bronfenbrenner, Jacques, and Schlesinger, M.: Toxicity of Botulinus Toxin by Mouth, J. A M. A. **78**: 1519 (May 20) 1922.

[7] Orr, P. F.: Rapid Method of Determining the Presence and Type of Botulinus Toxin in Contaminated Foods, J. Infect. Dis. **29**: 287 (Sept.) 1921.

THE WALLA WALLA OUTBREAK

Outbreaks of botulism have received so much publicity that new outbreaks are hardly worthy of record unless some features of the cases are of special interest. The data concerning a recent outbreak at Walla Walla, Wash., are worthy of record because they emphasize the facts that (1) the disease has not received sufficient publicity to prevent people from tasting spoiled food; (2) a cook with a defective sense of smell will fail to detect the odor of botulinus decomposition; (3) heating does not necessarily make the food safe to eat; (4) dependence should not be placed on any nonspecific treatment, and the antitoxin treatment should always be given.

Oct. 13, 1921, Mrs. E. of Walla Walla prepared some home canned asparagus for the evening meal. She was suffering with a boil in her nose, and had temporarily lost the sense of smell. The asparagus was heated before any one noticed the peculiar odor; the daughter of the patient did not believe it was boiled for more than a few minutes. Mrs. E. ate part of a stalk and a son ate a whole stalk. The family then decided that the asparagus was spoiled, and it was thrown to the chickens. Mrs. E. developed symptoms of botulism on the second day, but the son escaped illness. The son's escape can be explained by the assumpton that the asparagus he ate had been sufficiently heated to destroy the toxin. The fact that many of the chickens died indicates that little of the food had received sufficient heat to make it safe to eat. A physician was called, and a diagnosis of botulism was made on the third day. The patient died on the eighth day. Apparently she had taken but a small amount of toxin. Antitoxin was not available; this is regrettable, since it is in this type of case that antitoxin should prove to be of value. No dependence should be placed on any other treatment. Nonspecific treatment should always be resorted to, as it may delay the absorption of the toxin. Laboratory experiments indicate that a slowing down of the rate of absorption will protect an animal from several lethal doses of toxin.[8]

DETAILS OF CASE

The patient ate a small amount of asparagus, Thursday, October 13, and on Saturday noticed dizziness. She took a laxative throughout the course of the sickness so that she did not develop the usual constipation. Sunday her face was flushed, and the eyes were bright, with no increase in temperature, but she was very dizzy; the pulse was 84, full and strong; diplopia developed Sunday and lasted three days. Monday, the patient was unable to swallow milk toast. Tuesday, paralysis of the tongue, pharynx and one side of the face was noticed. Wednesday, she had several sinking spells, but never lost consciousness completely. She developed a strong odor of the breath and body. All symptoms increased, and the patient developed pain in the cardiac region. Thursday, she became weaker and was unable to keep mucus from the throat and it had to be swabbed out. Friday, the pulse was 104; the patient was very nervous and had pain in the cardiac region. Later the pulse was 122; in the evening the patient was more quiet, and seemed improved. Saturday at 1 a. m., the pulse was 150; the patient complained of a sense of weight on the chest. She died at 3 a. m. The attending physician gave paralysis of the vagus and dilatation of the heart as the cause of death.

The asparagus was canned in May, 1921, by the woman who died. It had been boiled three hours. The cold pack method and city water were used. The asparagus was grown on a farm at College Place, Wash. Commercial fertilizer was used. The farmer was not at home when inquiry was made, and definite information could not be obtained. None of the original contents of the can could be secured, and the jar had been destroyed. Twenty-three chickens out of a flock of thirty-five died, six on the first day.[9]

AIDS IN DIAGNOSIS

It occasionally happens that none of the suspected food or the container is available for examination. In such cases, diagnosis must be based on information obtained from the patient, or on observation of domestic animals which have eaten the food and developed symptoms. The examination should be epidemiologic, clinical and cultural. The clinical symptoms in botulism and food infection in man are distinct. Cultures at necropsy, or of the stools of convalescents, may determine the diagnosis. Meyer and Geiger [10] recommend this procedure in botulism and describe the methods to be used. Recovery of *Clostridium botulinum* from the feces or crops or intestines of chickens which died because of spoiled food may be considered as the basis for a presumptive diagnosis of botulism. It cannot be considered a confirmed test because the organisms causing botulism occur in nature on fruits and vegetables,[11] and undoubtedly are frequently ingested and pass out with the feces. We have no record of extensive examination of normal human feces for the spores of *Clostridium botulinum.* Graham and Barger [12] examined 200 specimens of body secretions, urine and stools, from eighty cases of poliomyelitis for *C. botulinum,* and found the organism in one stool and five urine samples. The authors suggest a causal relationship between *C. botulinum* and poliomyelitis. An examination of the feces of normal persons, particularly during the summer when fresh fruits and vegetables are eaten, may give as high a percentage of positive results.[13] Similarly, the recovery of the organism from the crop and intestine of animals suffering from food poisoning should not be considered more than presumptive evidence. Chickens ingest much material that may contain *C. botulinum.* However, in all outbreaks of botulism in which both the contaminated food and affected chickens have been examined, the same type of *C. botulinum* has been found in the chicken as in the food. This might be expected in outbreaks due to home canned food, when the chicken may have obtained the organism from the same source that contaminated the spoiled food. In outbreaks, however, due to commercially canned foods which are shipped long distances, we should expect occasionally to find in the chicken examined, provided the organism is a common inhabitant of the chicken intestines, a type different from that found in the food. Since we have no record of such a finding, we must conclude that the demonstration of *C. botulinum* in chickens suffering from food poisoning associated with human cases is a strong presumptive evidence that the food contained *C. botulinum* toxin. In case nothing but an empty container is available, cultures may be made from this, resulting in a demonstration of the presence of *C. botulinum*. Paratyphoid organisms may be isolated from the food and feces or recovered in pure culture from the blood and organs at necropsy. Specific agglutinins usually appear in the blood eight days after the symptoms appear.

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[8] Burke, Elder and Pischel (Footnote 4).

[9] I am indebted to Dr. E. L. Botts of Walla Walla for the case history and material from the outbreak, and to the daughter of the patient for additional information.

[10] Meyer, K. F., and Geiger, J. C.: Some Suggestions Concerning the Bacteriological Diagnosis of Human Botulism, Am. Food J. **16:** 29-30, 1921; Pub. Health Rep. **36:** 1313 (June 10) 1921.

[11] Burke, G. S.: Occurrence of Bacillus Botulinus in Nature, J. Bacteriol. **4:** 541 (Sept.) 1919.

[12] Graham, R., and Barger, E.: A Note on the Presence of B. Botulinum, Type A, in the Secretions of Poliomyelitis Patients, Bull. University of Illinois **7:** 23, 1921.

[13] Since this was written, the finding of Clostridium botulinum in two of ten samples of feces in normal persons has been reported by Tanner, F. W., and Dock, G. M.: Clostridium Botulinum, II, Presence in the Human Alimentary Tract, J. A. M. A. **79:** 132 (July 8) 1922.

Botulism results from the ingestion of a specific and powerful toxin, and food infections result from the ingestion of bacilli of the paratyphoid-enteritidis group. The former represents an intoxication, and the latter an acute febrile infection. The cause, treatment and clinical symptoms in the diseases are quite distinct. The main differences are summed up in Table 3.

It is generally known that *C. botulinum* Type A produces a stronger toxin than *C. botulinum* Type B. It takes a larger amount of a culture of Type B to kill an animal than of a similar culture of Type A. Graham and Schwarze found that chickens apparently were resistant to Type B toxin, and suggest the feeding of chickens as a means of differentiating the two types of toxin.[14]

If chickens were immune to *C. botulinum* Type B toxin, this would be a confusing factor rather than an aid in the epidemiologic diagnosis of botulism. The action of suspected food on chickens has in many cases served as an aid in the diagnosis of botulism. It is obvious that if only Type A toxin affects chickens, much less reliance can be placed on the action of suspected food on chickens. There is evidence, however, that chickens are not immune to Type B toxin, and that the test for differentiating Types A and B, as presented by Graham and Schwarze, is of value only when the amount of toxin is properly controlled. Hall[15] has shown that large doses of Type B toxin fed to chickens will cause death. There have been at least two outbreaks of botulism in chickens in California due to Type B toxin.[16]

TABLE 3.—SUMMARY OF DIFFERENCES IN BOTULISM AND FOOD INFECTIONS

	Botulism	Food Infections
Cause...............	Botulinus toxin.........	Bacilli of the paratyphoid enteritidis group
Fever...............	Not characteristic; temperature usually subnormal	Characteristic; acute
Occurring...........	Mainly in winter.........	Mainly in summer
Associated with......	Preserved foods.........	Fresh foods, or freshly contaminated foods, usually meat or milk
Condition of bowels	Constipation; rarely diarrhea	Diarrhea; offensive
Visual disturbances..	Double vision; ptosis of lids	Absent
Abdominal pain.....	Absent..................	Present
Onset...............	Usually gradual.........	Sudden
Incubation period...	Variable, usually from twelve hours to several days	Short, usually from six to twelve hours
Throat..............	Swallowing difficult......	Normal
Treatment..........	Antitoxin................	Systemic
Mortality...........	From 60 to 70 per cent. ..	From 1 to 2 per cent.

In view of these facts, physicians should not depend on the action of the toxin on chickens in determining the type of antitoxin to inject in cases of botulism. The only satisfactory means of identifying an unknown toxin is by the use of an antitoxin.

CONCLUSIONS

1. Rabbits are very susceptible to intravenous injections of botulinus toxin. Because of their availability, susceptibility to paratyphoid infection as well as to botulinus toxin, and high resistance to the intravenous injection of other organism and their products, rabbits serve as satisfactory animals with which to make tests for the etiologic factor in bacterial food poisoning.

2. Specific antitoxin treatment in cases of botulism should not be based on the effect of the toxin on chickens. Type A and Type B toxin can be satisfactorily differentiated only by the use of antitoxin.

3. The test described for the etiologic factor in bacterial food poisoning consists of a rapid, confirmed test for the presence and type of botulinus toxin, combined with a presumptive test for members of the paratyphoid-enteritidis group.

4. A presumptive test for the presence of botulinus toxin may be used when antitoxin is not available.

PUBLIC HEALTH VALUE OF THE KAHN TEST FOR SYPHILIS

A PRELIMINARY REPORT BASED ON FIVE THOUSAND EXAMINATIONS *

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July 1, 1922, the Bureau of Laboratories of the Michigan Department of Health added to its various diagnostic procedures the Kahn precipitation test for syphilis.[1] Beginning with that date, physicians forwarding specimens for examination for the diagnosis of syphilis have been receiving the results of both the Wassermann and the Kahn tests. To our knowledge, this is the first attempt on the part of a public health laboratory in this country to report to physicians a laboratory test for syphilis other than the Wassermann. It seems timely, therefore, to discuss some of the important phases of this undertaking.

THE KAHN PRECIPITATION TEST

The outstanding feature of the Kahn test is its practicability. It can be applied in a diagnostic laboratory with comparatively little extra time, effort or expense. The antigen is easily prepared and lasts for many months. This antigen is mixed with salt solution according to simple directions, and a definite amount is added to a measured quantity of inactivated serum. In a large number of strongly positive serums, the precipitate becomes visible after the serum-antigen mixture has been shaken for a minute or two. In order to bring about complete precipitation in the weaker serums, the tubes are incubated overnight at 37.5 C. What makes the test particularly valuable is that the so-called ++++ and +++ reactions show umps instead of ordinary precipitates. These clumps ppear as flakes of coagulated egg albumin and are adily seen by workers unfamiliar with reading prepitates. The weaker reactions require some reading xperience, which, however, can be acquired with omparative ease.

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[14] Graham, Robert, and Schwarze, H. R.: Differentiation of Type A and Type B Botulinus Toxins in Food, J. A. M. A. **76**: 1743 (June 18) 1921.

[15] Hall, I. C.: Differentiation and Identification of the Sporulating Anaerobes, J. Infect. Dis. **30**: 445 (May) 1922.

[16] One of these occurred in Berkeley (Dickson, E. C.: Botulism, Arch. Int. Med. **22**: 483 [Oct.] 1918) and the other in Sacramento, Calif. The latter outbreak has not been recorded (Burke, G. S.: Personal communication to the authors).

* From the Bureau of Laboratories, Michigan Department of Health.

[1] Kahn, R. L.: A Simple Quantitative Precipitation Reaction for Syphilis, Preliminary Communication, Arch. Dermat. & Syph. **5**: 570 (May) 1922; Second Communication, ibid. **5**: 734 (June) 1922; Third Communication, ibid. **6**: 332 (Sept.) 1922; Effect of Dilution on Precipitation Reaction for Syphilis Proposed by Author, Proc. Soc. Exper. Biol. & Med. **19**: 131, 1922; Relation Between Serum and Antigen in Precipitation Reaction for Syphilis Proposed by Author, ibid. **19**: 132, 1922.

Another advantage connected with this test is that e may employ such serum quantities as are available. hus instead of employing the regular quantities of rum and antigen, i. e., 0.3 c.c. of serum and 0.05 c.c. antigen, one may employ 1.5 c.c. of serum and 0.025 . of antigen, or even proportionally smaller quanties, with similar results. All one needs to remember that the test requires 6 parts of serum to 1 part of ntigen.

The following instance will illustrate the ease with hich the technic of this test may be acquired. A mmary of the third communication on this test,[1] gether with a small quantity of antigen, was subitted to Miss Ora Mills, bacteriologist of the branch boratory of the Michigan Department of Health, at oughton, Mich., with the request that she give the st a trial. Two weeks later, Miss Mills reported that r results showed remarkable agreement with the assermann test, and she requested that she be peritted to continue to study the test. This worker had d no previous information on this test and yet was le to get good results from the very beginning. Miss ills is now reporting the precipitation test parallel ith the Wassermann test to physicians of the upper ninsula of Michigan.

It should be stated that before the Kahn test was ported from the main laboratory in Lansing and the anch laboratory at Houghton, 15,354 tests were perrmed. These tests, although showing some variation om the Wassermann,[2] definitely proved that we were aling with a method for serum diagnosis of syphilis ssessing a high degree of sensitiveness and speciity. On the strength of our experience with this mber of tests, as well as the report on the diagnostic lue of this test by Keim and Wile,[3] it was felt that e reporting of this test to physicians in conjunction ith the Wassermann test would aid them in their agnosis and treatment of syphilis.

COMPARATIVE RESULTS OF WASSERMANN AND KAHN TESTS IN 5,080 EXAMINATIONS

The Wassermann tests were performed with a eep-cell system and guinea-pig complement. Two its each of complement and amboceptor were nployed. The detailed procedure of this test as rried out in this laboratory is discussed elsewhere.[4]

In the Kahn test, two cholesterinized antigens were nployed, each as a check on the other. The main fference between these two antigens was that, in one se, the heart muscle was extracted for ten days at dinary icebox temperature, and in the other the traction was carried out for nine days in the icebox d one day at room temperature.

The accompanying table shows that, of 5,080 serums amined: (1) 1,023 were positive, 200 were doubtful and 3,503 were negative, by both methods; total, 4,726 specimens checked by both methods (93.03 per cent.); (2) eighteen positive Wassermann reactions were doubtful, thirty-four doubtful Wassermann reactions were positive, seventy doubtful Wassermann reactions were negative and 181 negative Wassermann reactions were doubtful, in the Kahn test; 303 specimens may be considered as showing relative agreement (5.96 per cent.); (3) thirty-seven negative Wassermann reactions gave positive Kahn reactions and fourteen positive Wassermann reactions gave negative Kahn reactions; fifty-one specimens did not check (1 per cent.).

Of the fifty-one specimens that did not check, the variations were between weakly positive and negative reactions in almost every case.

Since a large number of specimens reach this laboratory without definite clinical histories, it is difficult to determine the condition of the patients in those cases which show variation between the two tests. Judging, however, from those instances in which the clinical condition of the patient was known, it appears that the fourteen positive Wassermann reactions giving negative Kahn reactions, as well as the thirty-seven positive Kahn reactions giving negative Wassermann reactions, were all from patients who were suffering from syphilis.

COMPARISON OF RESULTS OF WASSERMANN AND KAHN TESTS ON 5,080 SERUMS

Wassermann Test	Kahn Precipitation Test		
	Positive	Doubtful	Negative
1,055 positive* tests gave............	1,023	18	14
304 doubtful tests gave............	34	200	70
3,721 negative tests gave............	37	181	3,503

* By positive is meant strongly as well as weakly positive.

The final word as to the value of the Kahn precipitation test must naturally come from the physician, and we are particularly encouraged in reporting the results of this test, by the manner in which Michigan physicians have received this extra service. Words of appreciation are coming in from every side. This appreciation expresses itself tangibly by the increase in the number of specimens reaching this laboratory since this test has been added to our diagnostic procedures.

SUMMARY AND CONCLUSIONS

The need for a test possessing fewer sources of error than the Wassermann test has been felt for a long time. This need has been particularly felt in public health laboratories where personal contact between physicians and laboratory workers is lacking on account of distance. The standardization of the Wassermann test, although helpful, would not, in our opinion, solve the problem of serum diagnosis of syphilis because of the numerous variables that are inherent in the test. Judging from experience gained in more than 20,000 Kahn tests, 5,000 of which have already been reported to physicians, we believe that to check each Wassermann test with this simple test is at present the best solution of the problem. We do not believe that it is the final solution, because we are dealing with tests of which the biology as well as the physical chemistry is very little known. But we do believe that to report the two tests to physicians gives them a far more dependable laboratory diagnosis than the Wassermann test alone could possibly give.

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[2] A complete report of these studies will be forthcoming in the near ture.

[3] Keim, H. L., and Wile, U. J.: The Kahn Precipitation Test in Diagnosis of Syphilis, J. A. M. A. **79**: 870 (Sept. 9) 1922.

[4] Kahn, R. L.: Complement vs. Amboceptor Titrations in the Wasmann Test, J. Lab. & Clin. Med. **6**: 153 (Dec.) 1920; The Wassernn Test and Its Interpretation, ibid. **6**: 579 (July) 1921; Optimum nditions of Fixation of Complement in the Wassermann Test, Arch. rm. & Syph. **4**: 358 (Sept.) 1921. Kahn, R. L., and Johnson, S. R.: termination of Optimum Amount of Antigen in Complement Fixation sts, Proc. Soc. Exper. Biol. & Med. **18**: 63, 1921.

It is recommended that the Kahn precipitation test be investigated in public health laboratories, with a view of establishing it as a routine check on the Wassermann test and thereby increasing the dependability of the laboratory diagnosis of syphilis.

A CASE OF PERSISTENT INFECTION WITH B. DYSENTERIAE (FLEXNER) *

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A person who harbors pathogenic bacteria but who manifests no indication of infection is known as a healthy or true carrier. The best examples of such persons are seen among those who harbor intestinal pathogens. If, however, the person occasionally presents recurrent symptoms, he might not be considered a true carrier but rather as presenting a chronic case with intermittent manifestations of the disease. A definite distinction cannot be made between the two conditions. A review of the current literature of the last twenty-five years discloses a relatively small number of accurately diagnosed instances of either true carriers or of persons having chronic cases of dysentery. Those persons who harbor the Flexner type of dysentery bacillus are usually more common; their condition is less persistent, and the bacillus is discharged less regularly than in carriers of the Shiga type.[1]

Both the true carrier and the person presenting the chronic case have been incriminated in the spread of dysentery, especially in military organizations and in institutions; and also in epidemics of infant diarrhea caused by this group of organisms.[2] The importance of the detection of such an individual in the interest of the community, as well as of himself, is thus evident. If he is a true carrier, an accurate bacteriologic diagnosis is accidental or the result of an epidemiologic study. If he has a chronic case, however, his attacks, although intermittent, may bring him to the attention of an investigator. The infrequency of finding true carriers, and especially chronic cases of the Flexner type, has led Macalister,[3] on the other hand, to conclude that the carrier in dysentery is very rare and is negligible from an epidemiologic standpoint. He considers the convalescent the dangerous factor in the spread of this disease.

The irregularity of symptoms and of the discharge of dysentery bacilli necessitates repeated examination of the stool. Likewise, a series of negative results should be obtained before the dysentery convalescent is released. Because of this uncertainty of isolation of the infectious agent, most writers recommend that the serum of the suspected person, whether he is carrier or he has a chronic or an atypical acute case, be examined for specific agglutinins. Early in the disease, however, the antibodies may not be found; and since their persistence is irregular, the test cannot be taken as reliable evidence of continuation or of cessation of infection.[3]

The case that came to my attention is of special interest because of the relatively few cases of persistent infection with the Flexner type of dysentery reported in this country, and because of the apparently extended existence of the organism in the intestinal tract, if it can be assumed that the organism recently isolated had had an etiologic relation to the symptoms since their onset.

REPORT OF CASE

History.—M. C. M., a white man, aged 25, a student, who had lived in and about Seattle almost all his life, and in whose case the main circumstance of interest before June 1918, was an appendectomy in 1916, was at his home when the first attack of dysentery occurred (June, 1918). The onset was characterized by violent diarrhea, abdominal pain and general weakness. Medical treatment had no lasting effect. He knew no one having similar symptoms and was inclined to think that green vegetables grown by the Chinese in that vicinity were the source of the infection. He entered the army late in the summer of 1918, and suffered mild attacks of diarrhea during his enlisted period of five months. In the following summer, he suffered a recurrence of the severe symptoms. About this time, he had "clay stools," and was treated to correct a suspected obstruction of the bile duct, by the administration of bile salts. During the winter the symptoms always abated, but in the summer of 1920, as in the previous two summers, they were again severe. Since then, attacks of diarrhea had occurred intermittently every two or three months, usually without marked rise in temperature. No bacteriologic examinations previous to these tests reported here had been made.

Laboratory Findings.—Jan. 4, 1922, during the patient's latest attack of diarrhea, I isolated three typhoid-like colonies from the stool culture on Endo medium. The three strains were identical in all reactions, and were evidently the same organism.

The organism was a small, nonmotile, gram-negative bacillus. It fermented dextrose and mannite without the production of gas, but did not ferment lactose, saccharose or maltose. It produced indol in Armour's peptone broth in five days. Its reaction in litmus milk was to cause an acid condition in two days, followed by a gradual change to an alkaline reaction in eight days, without coagulation taking place at any time. These reactions are typical of the Flexner type of dysentery bacillus. This organism was agglutinated to half the titer of specific anti-Flexner and polyvalent serums, and was not agglutinated by serums produced against the Shiga or the Hiss-Strong types; it was completely agglutinated by the serum of the patient in the dilution of 1:80 and partially in the dilution of 1:200, five months after the last attack; and, at the same time, his serum agglutinated a known strain of Flexner dysentery bacillus in the same dilutions, but did not agglutinate a Shiga strain in as low a dilution as 1:40.

The feces were examined four times within four months, after the original positive examination, with negative results in every case, although twice the specimens were examined after the use of a laxative. During this four-month period and for two months since, the symptoms had not appeared. At the end of that time, the student left for the summer, and further observations were impossible.

SUMMARY

In the case of dysentery here reported, the symptoms of violent diarrhea and weakness occurred intermittently for about three and a half years after the onset (June, 1918). A strain of *B. dysenteriae,* Flexner type, was isolated during the latest acute attack (January, 1922). This organism was not found subsequently in a period during which symptoms were absent, and even after the use of a laxative. Possibly a relation exists between the organism isolated and the appearance of "clay stools," in 1919; and it may be reasonably conjectured that there was an infection of the galllder or the bile duct at that time, with temporary truction.

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* From the Department of Hygiene and Bacteriology, University of Chicago.

[1] Fletcher, W., and Mackinnon, D. L.: Medical Research Committee, Special Report Series No. 29, 1920; Macalister, G. H. K.: Brit. M. J., Nov. 12, 1910, p. 1506.

[2] Smillie, W. G.: The Epidemiology of Bacillary Dysentery, Am. J. Dis. Child. **13**: 337 (April) 1917. Gettings, H. S.: J. Ment. Sc. **60**: 605, 1914. Verzar, Fritz: München. med. Wchnschr. **63**: 291, 1916. Kendall, A. I.: Boston M. & S. J. **169**: 749, 1913.

[3] Macalister, G. H. K. (Footnote 1, second reference).

pecific agglutinins for the Flexner type of dysentery illus were found in the blood of the patient, but e for the Shiga type. This agglutination test was le about 145 days after the last appearance of nptoms and the successful bacteriologic examination the feces. The persistence of agglutinins for at t 145 days and the absence of continuous positive ural findings indicate the value of the agglutination in the detection of carriers or of persistent chronic s of the Flexner type of dysentery. The recovery the pathogen only at the time of the appearance of nptoms points not only to the chronicity of the ection, but also to the possibility of an alteration in resistance of the host.

ISOLATION OF MONILIA PSILOSIS IN TROPICAL SPRUE (PSILOSIS)

EPORT OF CASE THAT ORIGINATED IN KOREA *

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n 1916, Ashford[1] reported finding a monilia in es of sprue in Porto Rico, distinct from *Monilia cans*, which Bahr and others had previously orted as occurring in sprue. Ashford called this anism *Monilia psilosis* (Ashford). He considered he specific cause of sprue when it colonizes in an stinal tract rendered favorable to it by a glandular ufficiency caused by climatic or other influences and ulting in a lessened outpouring of the digestive es, with increased bacterial activity producing an reased acidity of the intestinal tract, and so produc- conditions favoring the growth of *Monilia psilosis*.[2] Other articles by him have since appeared from time ime, giving the results of his further investigations the etiology and treatment of sprue, dealing with methods of isolating *Monilia psilosis*, its almost versal presence in sprue at some stage of the dis- e, and also giving the results of the several hundred nplement fixation tests in which suspensions of *nilia psilosis* were used as antigens on persons with l without evidences of clinical sprue. He also has orted the reactions shown by patients injected with cines prepared from this monilia. He obtained in ients with sprue strong allergic reactions, with sys- nic reactions resembling acute attacks of sprue, ereas with patients who did not show evidences of ue he did not obtain these reactions.

)r. Carl Michel,[3] of the U. S. Public Health Ser- e, reported in 1917 the results of his work on *nilia psilosis* in Porto Rico, giving the results of a ge series of complement fixation tests and other oratory investigations which he undertook with Dr. nford. In 1918, he[4] reported the results of the use of a vaccine made from *Monilia psilosis* in cases of sprue. In 1920, Oliver[5] reported a case of sprue originating in Porto Rico from which *Monilia psilosis* was isolated.

This organism was isolated from the case of sprue here reported, originating in Korea, where sprue is at present making great inroads among the foreign residents.

Mrs. R. (wife of the writer) went to Korea in October, 1917, and enjoyed good health until after the birth of her first, and only, child in August, 1918. Soon after this she began to complain of heartburn and epigastric distress, which became much more severe after an attack of inflenza in November. For some months after this, she rarely had more than a week or ten days of comfort each month. In June, 1919, it was found that the blood pressure was very low (systolic pressure, 85). She was treated for that with subsequent improvement. Soon she was generally comfortable, but in June, 1920, a morning diarrhea began, which had become a daily occurrence by October. She was put on a modified sprue diet in January. In April, 1921, after a very acute attack, she was seen by the other three physicians of the mission, who all had had experience with sprue. The diagnosis was confirmed and she was put on a strict milk diet, with fruits and some vegetables, rice being added later. At first, she did well, but in a month she suffered a relapse, and lost ground constantly, until in September she was advised to return to America for treatment.

After her arrival in America, she was treated along the standard dietetic lines, but failed to make any progress until April, 1922, when she began to improve, and her case is now progressing favorably.

COMMENT

February 16, a specimen of one of the diarrheal stools was cultured on Sabouraud's medium, and three days later an abundant growth of raised, shiny, regular, creamy colonies was noted, standing out well above all the other growth on the plates. These were transplated to obtain pure cultures, and February 21 these were obtained, showing grossly a raised glistening shiny creamy growth, with sharply defined regular edges and a yeasty odor, faintly suggesting that of soured honey. The cell was a double contoured, round, yeastlike body about the size of a blood cell, though with many variations in size, showing numerous budding forms. All the cells had well-defined vacuoles containing from one to four motile coccoid bodies, these bodies becoming more numerous as the culture aged. The budding forms were gram-positive; the mycelial forms produced later became gram-negative as they aged. The capsule was shown up distinctly with Wright's stain, while Loeffler's methylene blue revealed the granular chromatin material of the cell body. Mycelial growth was freely produced on gelatin and also on ascitic agar under lowered oxygen tension, and, as the colony aged, on other mediums. A gelatin stab produced a very plain inverted pine tree growth, which Ashford regards as very important in identifying this organism. In litmus milk, the surface was rendered more alkaline, while later a faint acid reaction was produced deep in the medium, with a very marked casein digestion. The sugar reactions, which were considered very important in identifying this organism, were these: One per cent. sugar broths were inoculated with the organism, Andrade's indicator being used to detect acidity. Our organism gave marked acid and gas production with glucose; marked acid and very marked gas production with maltose; a small amount of gas and acid with saccharose; no acid

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The laboratory work mentioned here was done in the laboratories he Crowell Clinic, Charlotte, N. C., at the instance of, and with advice of, Dr. L. C. Todd of that organization.

. Ashford, B. K.: Am. J. Trop. Dis. **3:** 32, 1915-1916; Monila nd in Certain Cases of Sprue, J. A. M. A. **64:** 810 (March 6) 1915; lies in Moniliasis of the Digestive Tract in Porto Rico, Am. J. M. Sc. **):** 680, 1915; Etiology of Sprue, ibid. **154:** 157 (Aug.) 1917.

. Ashford, B. K.: Personal communication to the author.

. Michel, Carl: Toxins and Serological Reactions in Sprue, Am. J. Sc. **154:** 177 (Aug.) 1917.

. Michel, Carl: Use of the Monilia Vaccine in Treatment of Sprue, nfect. Dis. **20:** 53 (Jan.) 1918.

[5] Oliver, W. W.: Cultural Studies on a Case of Sprue, J. A. M. A. **74:** 27 (Jan. 3) 1920.

or gas with lactose, and neither acid nor gas with mannite.

A vaccine made from this organism, prepared according to the technic described by Dr. Michel,[6] caused a very marked allergic reaction, producing in the patient a large red area about 6 cm. in diameter around the point of injection, accompanied by a systemic reaction resembling an acute relapse of sprue. When injected into a normal person over a period of sixty days, according to the method described by Michel, it caused no local reaction except a small reddened area, perhaps 2 cm. in diameter, and produced no systemic reactions whatever.

Since this organism seemed to correspond in all respects to *Monilia psilosis* (Ashford), we sent a culture to Dr. Ashford requesting him to test it out and give us his report. This he kindly did, reporting that it was a specimen of true *Monilia psilosis.*

The question then being raised whether *Monilia psilosis* could be found in patients living all their lives in or near Charlotte, N. C., we cultivated specimens from the stools of fourteen patients having chronic diarrhea. The specimens were furnished us by friends practicing in Charlotte. While large numbers of yeast-like organisms were isolated from these specimens and tested out, no *Monilia psilosis* was found. We cultivated a specimen from the stool of the writer and found *Monilia psilosis.* This could be easily expected, since he had been living for four years in the endemic area in a house in which, during the last six years, five cases of sprue had developed, and had been in daily contact with a case of sprue for two years. Several cultures made from the stools of the young son of the patient, with whom we had taken every possible precaution to prevent contact infection, if such exists, were all found to be negative for *Monilia psilosis,* but showed a heavy growth of what appeared to be two species of true yeasts closely allied to bakers' yeast. It is interesting to observe that he has never been fed yeast in any form except in bread, supposedly well baked.

Later, we cultivated a specimen from the stool of a patient who had lived for seven years in Korea, at Songdö (north of Seoul), and who had had amebic dysentery two years previously, at which time I saw her. Since then she had been subject to occasional attacks of diarrhea, but had never had sprue clinically nor any symptoms of it, except for the occasional attacks of diarrhea. In her case there was found no *Monilia psilosis.* So far as I know, no sprue has ever originated at Songdo.

CONCLUSION

An organism which was identified by Dr. Ashford as *Monilia psilosis* was isolated from a case of undoubted and clinically active sprue (or psilosis) originating in Korea. The same organism was also isolated from the stool of the patient's husband, but was not found in the stools of fourteen other persons, all of whom had chronic diarrhea and resided in or near Charlotte, N. C. Also, this organism was not found in the stools of two other persons, residents of Korea, who did not have tropical sprue. One of them did not live in the area where sprue has become so common among the foreign residents.

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6. Michel, Carl: Preparation of the Monilia Antigen, in Tice: Practice of Medicine, Hagerstown, Md., W. F. Prior Company 4: 183-184, 1922; ibid. 4: 188 1922.

OBSERVATIONS ON THE EFFECT OF SODIUM CITRATE ON THE BLOOD

ESPECIALLY CONSIDERING THE p_H FACTOR *

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In a previous communication, one of us[1] drew attention to the possible rôle of the variable p_H o sodium citrate in the causation of untoward results i transfusion by the citrate method. We wish here t emphasize further our position in regard to the relatio of the p_H factor to reactions following intravenou injections in general. As indicated in our paper, th proposition of imitating as closely as possible the p of the blood by buffering intravenous solutions was b way of suggestion, since it seemed to be a logical procedure. It was distinctly stated then that no claim were made for its efficacy, and none are made now Such claims can come only from experimental wor or from carefully controlled clinical studies.

In the literature of blood transfusion there ar numerous attempts to account for the occurrence o more or less severe reactions when careful preliminar tests had indicated complete compatibility of the blood of donor and recipient. It is scarcely necessary t review here the evidence for the existence of subgroups not discovered in the course of ordinary compatibility tests, or the probable occurrence at times o anaphylactoid reactions from the injection of the mor or less foreign proteins of another individual's blood It is sufficient merely to mention such possibilities t indicate our conviction that not all of these reaction are from the same cause. Our interest has been aroused by the frequent observation that they occu more often when transfusion is performed with citrated blood than when unmodified blood is used

Several questions at once present themselves. I sodium citrate toxic in itself? If so, why are not mos cases in which it is used affected in this way? Why do some clinicians report a higher proportion of case with these unexplained reactions than others using th same method? Do various samples of commercia citrate differ among themselves in their tendency t cause this action? In case citrate is not toxic per se does it produce, in its reactions with the transfuse blood, substances that are toxic or cause other unfavorable changes in the blood? That chemical reactions do take place with the blood is, of course, apparent The very purpose in using citrate is to render calcium unavailable for the formation of thrombin, probably by tying it up in some undissociable form; but the exact reaction involved in this and its end-products have not, to our knowledge, been well studied. The question arises whether these end-products differ a times, owing to varying physical or chemical conditions affecting the reaction. Likewise, may there not be unintended side-reactions, produced by some samples of citrate acting on other salts, the proteins, or even the formed elements of the blood?

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* From the Department of Laboratories, Highland Hospital.

1. Mellon, R. R.; Slagle, E. A., and Acree, S. F.: The Practica Application of Buffers, J. A. M. A. 78: 1026 (April 8) 1922.

An occurrence in this hospital some months ago rved to draw attention forcibly to the last of these ssibilities. A patient was being transfused from a nor whose blood had been found compatible by oss-agglutination tests. While the blood was being jected he collapsed, so completely that for a time he as thought to be dead. Citrate from an ampule epared by a reliable drug firm was being used. In e effort to find the cause of the reaction this was amined and the solution found to have a H-ion con-ntration much to the alkaline side of neutrality, its equaling 10.5. Citric acid being trivalent, commer-al sodium citrate may consist of varying mixtures the monobasic, dibasic and tribasic salts, or even ntain traces of free acid or base.

According to some authorities, at the point of stoichi-netric neutrality pure trisodium citrate has a p_H lue of 11.2; according to others, the p_H is 9.5. It to be noted that, in the neutralization of this sample citrate, more acid was employed than theoretically cessary to bring the solution from 10.5 to 8. This ggests that some impurity of an alkaline nature was esent. In fact, the actual difference in titratable kalinity between a pure citrate solution of p_H 8 and .5 or even 11.2 is exceedingly slight, since the titra-on curve between 8 and 11 is almost vertical, while om p_H 5 to 8 it is relatively horizontal. This ampli-ation gives a clearer statement of the actual signifi-ance of the high p_H value of citrate than may be ferred from the reference to it in our previous ommunication. Practically it means that if the citrate pure, a p_H of 10.5 probably does not mean the esence of free alkali; but if, as in our sample, more an the theoretical amount of acid is required for eutralization, the sample is probably impure, and a of 10.5 would be consistent with the presence of ee alkali of some sort.

It may be contended that a small amount of a solu-on with this reaction, mixed with a much larger olume of so strong a buffer as blood, will change the action of the latter very little, if at all. Trial proved is to be the case, a 1 : 5 mixture of this citrate with ood having a p_H of 7.4. Nevertheless, blood exerts s buffer action by virtue of the numerous substances resent which must be changed in any attempt to alter s H-ion concentration, and the changes occurring in ese substances may themselves be dangerous. A ealthy assistant who had furnished the blood for a st of its buffering effect with this citrate experienced mild but unpleasant reaction on the slow intravenous jection of 2 c.c. of a 5 : 1 mixture of her own blood ith the citrate solution.

The patient in this case was later transfused from e same donor, with citrate buffered to maintain a -ion concentration approximately the same as that the blood, and no reaction occurred. The inference ems justified, therefore, that in this case the reaction as due to the use of an unsuitable citrate solution.

In a recent paper, Unger[2] cites experiments from hich he concludes that sodium citrate, when added to lood in the proportions used in transfusion, causes e formation of substances from the stroma of the d cells that are anticomplementary in the Wasser-iann test; that it renders the red cells more fragile in e majority of cases tried; that, in addition, it dimin-shes the amount of complement in the blood, and that it virtually destroys the phagocytic activity of the leukocytes, and largely destroys the action of opsonin. Details of technic are not given, but careful analysis of the reports indicates confusion in the interpretation of some different experiments that are essentially the same. Since the citrate method of transfusion has been used with striking benefit in numerous cases of sepsis, and also since the method for the estimation of phagocytosis and opsonins that has been used since Wright's first publication involves the exposure of the cells to about ten times the concentration of citrate used in transfusion, such a sweeping condemnation for its effects on so many protective functions was unexpected. In view of the clinical observation of the effect of a too alkaline citrate mentioned above, one's first thought would be that Unger had employed an unsuitable citrate in this work. This suspicion seemed especially plausible, since Miss Evans of the Hygienic Laboratory of Washington had reported a marked interference with phagocytosis from salt solutions that were too acid or alkaline, which effect had been successfully corrected by buffers. It was accordingly decided that we should try to repeat Unger's experiments, using several citrates from different sources.

TABLE 1.—WASSERMANN TESTS WITH CITRATED BLOODS

	Solution 1 ($p_H = 7.9$)				Solution 2 ($p_H = 6.4$)				Solution 3 ($p_H = 5.64$)			
	0.15 C.c.		0.3 C.c.		0.15 C.c.		0.3 C.c.		0.15 C.c.		0.3 C.c.	
Case	W.*	C.*	W.	C.	W.	C.	W.	C.	W.	C.	W.	C.
1	—	—	1+	1+	—	—	2+	2+	—	—	3+	3+
2	—	—	1+	1+	—	—	2+	2+	—	—	3+	3+
3	—	—	—	—	—	—	2+	2+	—	—	3+	3+
4	—	—	1+	1+	—	—	—	+	—	—	2+	2+
5	—	—	—	—	—	—	—	—	—	—	—	—
6	—	—	—	—	—	—	1+	2+	—	—	—	—
7	—	—	—	—	—	—	—	—	—	—	—	—
8	—	—	—	—	—	—	—	—	—	—	—	—
9	—	—	2+	1+	—	—	1+	1+	—	—	2+	2+
10	—	—	2+	2+	—	—	—	—	—	—	2+	2+

* W, Wassermann tube; C, control tube.

First, regarding the production of anticomplementary bodies: Unger tried the Wassermann reaction with the plasmas of bloods to which citrate had been added in the usual proportions for transfusions. As controls, the tests were performed with serums from the same patients. He states that in every instance the serums were negative and the citrated plasmas anticomplementary. We repeated this first, by citrating a series of bloods with a much higher proportion of the citrate solution, using 1 part of a 2 per cent. solution of each of the three commercial citrates found in the laboratory to 2 parts of blood. The fluid portion of these mixtures, therefore, contained approximately equal parts of plasma and citrate solution, minus an unknown quantity of citrate lost by precipitation. The 2 per cent. solutions used gave p_H values of 7.9, 6.4 and 5.64, respectively. Wassermann tests were performed, using an antisheep hemolytic system and a final total volume of 2.15 c.c. The citrated plasmas were used in quantities of 0.15 and 0.3 c.c. Routine Wassermann tests were made of serums in these cases.

Our results in this first attempt are given in Table 1, which records the results with the citrated specimens only. The serums were in all cases negative. It will be observed that, with the smaller quantity of citrated plasma, there was in no case an inhibition of hemolysis, while in more than half the bloods there was a partial inhibition when using 0.3 c.c. Half of this, or 0.15 c.c., is citrate solution, however, and controls run with each citrate alone gave complete inhibition with 0.1 c.c. (We have not attempted to explain the quantitative difference here; partial precipitation of the citrate and the influence of the antisheep amboceptor in some bloods are factors to consider.) There is, at least, no evidence of the presence of any anticomplementary substance other than citrate itself.

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[2] Unger, L. J.: The Deleterious Effect of Sodium Citrate Employed Blood Transfusion, J. A. M. A. 77: 2107 (Dec. 31) 1921.

Thinking that our solutions might still have been too nearly neutral to produce the described effect on the red cells, or that in the excessive quantity used we had introduced a new factor, we next made up citrates, respectively, as acid and as alkaline as any commercial samples we had seen, as well as one approximately neutral. The p_H values of the 2 per cent. solutions of these, in order of alkalinity, were 4.1, 7.25 and 9.54, determined by the hydrogen electrode. These were mixed with a new series of bloods in proportions of 1 : 2 as before, and 1 : 9, the usual proportion for transfusion. Tests for anticomplementary effect were made as before with 0.15 c.c. quantities, the results being shown in Table 2.

TABLE 2.—ANTICOMPLEMENTARY ACTION OF CITRATED BLOOD; NO ANTIGEN USED; CITRATED PLASMA IN 0.15 C.C AMOUNTS *

	Blood 2 : Citrate 1			Blood 9 : Citrate 1		
Case	Solution 1 $p_H = 4.1$	Solution 2 $p_H = 7.25$	Solution 3 $p_H = 9.54$	Solution 1 $p_H = 4.1$	Solution 2 $p_H = 7.25$	Solution 3 $p_H = 9.54$
1	±	—?	±	—?	—	2+
2	—?	—?	—?	—?	—	—?
3	—?	—?	—?	—	—	—
4	—?	1+	—?	—?	—	1+
5	—?	—?	—?	—?	—	1+

* These plasmas contained a precipitate which interfered with the reading of very weak inhibitions of hemolysis.

Since there was no question of an effect on the Wassermann test specifically, no antigen-containing tubes were run, the tubes all corresponding to the serum controls. The results are reported with the same conventions as the Wassermann test, however, the minus sign signifying complete hemolysis. The serums from these cases were all negative in the routine Wassermann tests. A precipitate in the plasma which had been observed, but partly avoided, in the first experiment was shaken up and included in this, since it was thought that it might be involved in the anticomplementary effect. On account of the resulting turbidity, weak reactions were difficult to read, but it was evident that there was no pronounced anticomplementary action. This has since been repeated with avoidance of the precipitate, when all tubes were clearly negative. Similar tests, made with mixtures of the serums from the same cases and citrate in approximately the proportions of the plasma-citrate mixture of Table 2, the whole blood being computed as one-half plasma, gave the results shown in Table 3. There is an anticomplementary effect only in some tubes containing the larger quantity of citrate, and controls show that thi quantity may have such an effect in itself.

TABLE 3.—ANTICOMPLEMENTARY ACTION OF CITRATED SERUM; NO ANTIGEN USED; CITRATED SERUM IN 0.15 C.C. AMOUNTS

	Serum 1 : Citrate 1			Serum 5 : Citrate 1		
	Solution 1 $p_H = 4.1$	Solution 2 $p_H = 7.25$	Solution 3 $p_H = 9.54$	Solution 1 $p_H = 4.1$	Solution 2 $p_H = 7.25$	Solution 3 $p_H = 9.54$
1	—	3+	1+	—	—	—
2	—	—	—	—	—	—
3	—	—	—	—	+	—
4	—	3+	—	—	—	—
5	—	3+	3+	—	—	—

Controls of Citrate for Tables 2 and 3

Amount Used	0.15 C.c.	0.1 C.c.	0.05 C.c.	0.025 C.c.
Solution 1	4+	3+	—	—
Solution 2	4+	3+	—	—
Solution 3	4+	3+	—	—

TABLE 4.—COMPLEMENT FIXATION WITH CITRATE SOLUTIO FROM WASHED RED CELLS

Case	Solution 1 $p_H = 4.1$	Solution 2 $p_H = 7.2$	Solution 3 $p_H = 9.5$	NaCl 0.8% (Control)
1	—	—	—	—
2	—	—	—	—
3	—	—	—	—
4	—	—	—	—

It was contended by Unger that an anticomplementary substance was formed by the action of citrate on red cells, as shown by first washing the cells with physiologic sodium chlorid solution and then mixing the suspended cells with citrate in the proportions used in transfusion, complement fixation tests being made with the supernatant fluid. Our attempt to repeat this is shown in Table 4.

TABLE 5.—COMPLEMENT FIXATION WITH PLASMA, OBTAINE BY CENTRIFUGATION, PLUS CITRATE

	Plasma 1 + Citrate 1			Plasma 5 + Citrate 1		
Case	Solution 1 $p_H = 4.1$	Solution 2 $p_H = 7.2$	Solution 3 $p_H = 9.5$	Solution 1 $p_H = 4.1$	Solution 2 $p_H = 7.2$	Solution 3 $p_H = 9.5$
1	4+	—	—	—	—	—
2	—	—	—	—	—	—
3	—?	—	—	—	—	—
4	—	—	—	—	—	—

There was no inhibition of hemolysis. The converse experiment—using a mixture of citrate with plasma obtained by centrifuging whole blood in paraffined tubes—showed a positive result in only one tube as indicated in Table 5.

Unger further stated that red cells exposed to citrate became more fragile. Drinker and Brittingham [3] make a similar statement, finding increased fragility in somewhat more than half the bloods tested. Sufficient acid or alkali to more than overcome the buffering effect of the blood would obviously cause hemolysis. Whether in the process, lesser changes of reaction may cause changes resulting in increased fragility was a question. We added each of our three citrates to blood, left the mixtures till the following day, washed the cells, and then added a constant amount to sodium chlorid solutions of diminishing strengths. The results are shown in Table 6. The effect was not constant, two bloods

TABLE 6.—THE FRAGILITY OF RED CELLS EXPOSED TO TWO PER CENT. CITRATE

	The Lowest Percentage Solution of Sodium Chlorid Causing Beginning Hemolysis of Washed Cells Previously Exposed One Day to			
Case	Solution 1 $p_H = 4.1$ per Cent.	Solution 2 $p_H = 7.2$ per Cent.	Solution 3 $p_H = 9.5$ per Cent.	NaCl 0.8% (Control) per Cent.
1	0.4	0.4	0.4	0.4
2	0.3	0.3	0.3	0.3
3	0.3	0.3	0.4	0.3
4	0.3	0.3	0.3	0.4
5	0.3	0.4	0.3	0.4

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[3] Drinker, C. K., and Brittingham, H. H.: Cause of Reactions from the Transfusion of Citrated Blood, Arch. Int. Med. **23**: 133 (Feb.) 1919.

ing the same whether citrated or not; another being ightly more fragile after the alkaline citrate, and the hers less fragile than the controls.

It is also charged that citrate reduces the phagocytic tivity of the leukocytes, and at the same time has a leterious effect on opsonin. The experiments scribed by Unger do not show both these effects early since, as we understand, leukocytes, opsonin serum) and citrate are all found together during the cubation period in both experiments. It may be nceded that a foreign salt, present in fair amount, ight conceivably interfere with phagocytosis in some egree, even though the use of citrated leukocytes in easuring this function is almost universal; and this ossibility might be greater, we felt, if a too acid or o alkaline citrate were used. Following Unger's chnic for the phagocytic index, and using our three itrates, with control cells washed without citrate, and ith a rather heavy suspension of *Staphylococcus yogenes*, we obtained the results shown in Table 7.

ABLE 7.—THE EFFECT OF CITRATE ON THE PHAGOCYTIC INDEX

The Average Number of Staphylococci Ingested by Leukocytes Exposed One-Half Hour to			
Solution 1 $p_H = 4.1$	Solution 2 $p_H = 7.2$	Solution 3 $p_H = 9.5$	No Citrate
100	122	109	74

The figures are the average ingested cocci of from ix to thirteen typical leukocytes. Larger numbers of ells were not included, owing to the difficulty of counting the closely packed cocci. Quantitative accuracy in hagocytosis tests is admittedly difficult; and without urther observations we would not conclude that the w count in the control preparation indicates any ctual increase in phagocytosis from the use of citrate.

Throughout these experiments, it has been noticed hat the plasma from citrated blood is decidedly turbid n most cases. It was at first thought that this turbidity as most marked in those cases showing interference ith hemolysis in the larger doses employed; but in ter work all suggestion of parallelism in these factors isappeared. The formation of the precipitate is very oticeable when centrifuged plasma is mixed with itrate, and increases markedly both here and in the lasma from citrated whole blood when they are heated or inactivation. It is not formed in serum-citrate ixtures, and this suggests that it may be either a recipitated calcium compound or some other body volved in coagulation. We plan to make further tudy of this substance in the hope of learning its ature and its possible relation to transfusion reactions. f interest and possible significance is the fact that ith certain bloods this precipitate with plasma was light or absent. If different bloods vary thus, it may e that certain disease processes may cause the variation in the same individual.

SUMMARY

When this work was undertaken, we had no intenion of questioning the work previously reported, and vished merely to determine whether the p_H was not he factor causing these results.

We have attempted to show the formation of anti-omplementary substances from the action of sodium itrate on both whole blood and washed corpuscles, nd have failed to find any anticomplementary action except when so large a dose was employed that sufficient citrate was present to have this effect in itself. The anticomplementary action of citrate seems to be independent of the hydrogen-ion concentration of the solution used.

No increase of the fragility of red cells was observed from any citrate solution employed.

No decrease in the phagocytic index of leukocytes exposed to citrate was found.

We would not conclude that citrate is entirely harmless or without effect on the blood used in transfusion, but merely that in our hands it is without effect on the immune reactions studied, and this without regard to the hydrogen-ion concentration of the solution.

We wish also to reiterate that no doubt exists in our minds that moderately acid or alkaline solutions are quickly neutralized after injection into the blood stream. Accordingly, if the p_H factor is of importance, its action more probably is associated with the disturbances of colloidal equilibrium, which may accompany the rapid neutralization of solutions with an abnormal p_H value. Such a conception is, of course, theoretical, but it is in line with the explanations for anaphylatoxin reactions which Novy [4] and others have advanced.

TREATMENT AFTER IRRADIATION WITH ROENTGEN RAY

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In the vast literature devoted to the so-called deep roentgen-ray therapy of malignant diseases, or the new short wave length roentgen-ray therapy, the technic of the application of the roentgen rays is described with the greatest exactness; but very little attention is paid to the after-treatment. Nobody will deny the importance of the postoperative treatment in cases in which a surgical procedure has been applied. This after-treatment has to deal chiefly with the prevention of postoperative shock and the promotion of conditions favoring the healing of the wound. A roentgen-ray treatment produces frequently more intensive physiologic changes than an operation, and the action of the rays is so prolonged that the patient has to be watched carefully over a considerable period of time. Often there are no visible symptoms immediately after the roentgen-ray treatment, and the undesirable changes appear gradually, even though they might be of such a degree as to menace the health of the patient heavily. As the roentgenologist does not, as a rule, have charge of the patient, the attending physician ought to be familiar with the methods to be applied after deep roentgen-ray therapy. Corresponding to the double kind of action of the roentgen rays on the body—general and local—the after-treatment can be divided into two kinds: general and local.

GENERAL AFTER-TREATMENT

Besides the elective action on the cells of the malignant growth, the roentgen rays possess the property to affect the different organs of the body in an important way. For example, in treating a goiter, it is sometimes unavoidable to expose the thymus to the action of the roentgen rays. Heineke, Rudberg, Aubertin and

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[4] Novy, F. G.; DeKruif, P. H. et al: Articles on anaphylatoxin and anaphylaxis, J. Infect. Dis. **20**: 499, 536, 566, 589, 618, 629 (May) 1917.

Bordet, Pigache and Béclère, and Regaud and Crémien showed the changes that take place in the thymus after exposure to roentgen rays. They observed degeneration and decay of the cells of the reticulum, and hypertrophy of Hassel's corpuscles. These parenchymatous changes certainly affect the function of the thymus gland, which is of special importance in young persons.

Zimmern and Cottenot proved a diminution of the function of the suprarenals in animals after exposure of the abdomen to the roentgen ray.

In Heineke's experiments, within the first four hours after irradiation a microscopic change was noted in the cells of the lymphatic organs—the spleen, the intestinal follicles and the lymphatic glands. These changes consisted in a destruction of the lymphocytes and of the malpighian corpuscles.

About three hours after the beginning of the irradiation, marked changes begin to appear in the bone marrow, and last for five or six days. They consist chiefly in destruction of the white marrow cells. According to Stengel, evidences of hypoplasia or aplasia of the marrow, with resulting loss of hematopoietic function and myelophthisic anemia have been observed in cases in which treatments have been given directly over the bone marrow.

The blood count reveals usually a slight leukocytosis after roentgen-ray treatment, followed by a leukopenia. The action of the roentgen rays on the blood and different organs can be demonstrated not only microscopically but also chemically. Linger proved that the amount of hematoporphyrin in urine, normally insignificant, is considerably increased after irradiation. As hematoporphyrin is nothing but an iron-free hematin, we have to admit that the roentgen rays presumably split the iron from the hemoglobin.

Werner, Exner, Zdarek and Schwarz demonstrated the formation of cholin from lecithin during the irradiation.

The application of the roentgen rays to any considerable portion of the body causes a tremendous increase in the destructive metamorphosis of tissue. The effect under consideration is not that of a toxic dose but that of a single therapeutic application. According to statements of Bloch, Schwarz, Benjamin, Sluka, Reuss, Quadrone, Moravitz and many others, the amount of excreted urea, purin bases and phosphoric acid is increased very markedly after irradiation, especially in cases of leukemia. This calls for increased activity of the eliminative organs. The cases in which this increased destruction of the tissues is likely to produce a harmful effect are those in which there is already a disturbance in elimination of waste products, as in nephritis, congestion of the kidneys, cirrhotic kidneys or those in which the patient suffers from the toxemia of cancer, pernicious anemia, leukemia or similar diseases.

As far as the unfavorable effect of irradiation on the different organs is concerned, there is practically no possibility of any specific after-treatment. The prophylaxis, consisting of a careful protection of the body from the roentgen rays with the exception of the area to be exposed, is the most important factor. It is sometimes extremely difficult to combat the roentgen toxemia. A careful observation of the patients after a roentgen-ray treatment proves in many instances that this toxemia is not to be neglected, as it commonly occurs. Irreversible changes in the blood, a real roentgen cachexia, can cause a premature death. Though it is very vital to administer a lethal cancer dose at the first attack, a reckless irradiation is not justified, an we would not do the patient a great favor in killing the same time the cancer and its carrier. Almost ever roentgenologist has his routine method of treatmen which consists usually in applying approximately a erythema dose to each field. The roentgenologi changes his technic according to the location and kin of neoplasm, the distance of the affected part of th body from the skin, and so on. The general conditio of the patient is seldom taken into consideratio because the only goal is to destroy the cancer withou burning the overlying skin.

It is absolutely necessary to accommodate the roen gen-ray technic to the general condition of the patien in order to avoid any of the complications mentioned a determination of the urea content of the blood an the usual tests of renal function should be mad before the treatment is started. If the test reveals deficient renal mechanism, the applied dose of roentge ray should be made as moderate as possible withou coming down to the stimulating degree. The necessar amount of rays can be divided over a great number o days instead of giving it in one day. The experienc of the roentgenologist will help him to use his judgment in selecting a suitable technic that will destro the malignant growth without affecting greatly th general condition of the patient.

The frequently observed immediate reaction, consisting chiefly of headache, nausea, vomiting, genera discomfort, diarrhea and the so-called roentgen sickness which appears at different times after the irradiation certainly cannot be considered merely as a reflex Kienböck, Bergonié and Speder regard this disturbanc as an initial prodromal stage of excitation in course o a degenerative process of the cells. Werner ascribe the intoxication symptoms to the poisonous action o trimethylamin, which is formed in the tissues durin the exposure. Whatever the toxic material is, we hav to furnish the organism of the patient our assistanc in diluting it and thus making it less toxic, and also i eliminating it in the shortest time possible. This tas is best accomplished by a hydration of the patient, b soaking his body with water. Plenty of distilled wate should be forced by mouth, beginning at least twenty four hours before the treatment, and continued for tw or three weeks—the average duration of the action o the roentgen rays on the body. In cases in which larg quantities of liquids by mouth cannot be given, as i tumor of the gastro-intestinal canal or in very astheni patients, water should be given by continuous proctoclysis or eventually by hypodermoclysis, disregardin the apparent condition of the patient. It should neve be forgotten that the symptoms of roentgen toxemi appear rather insidiously, and that our measures ough therefore be rather prophylactic than therapeutic. I the measurement of intake and output of liquids show a deficiency of the renal functions, diuretics should b given immediately.

If it is necessary to apply great doses of roentge rays in a very short time, in cases in which the excretory organs are defective and the absorption of toxi material is expected to be considerable, the tumor bein large, it is advisable to give the patient a prophylactic blood transfusion the next day after irradiation Kempton-Brown-Percy's method—the indirect ful blood transfusion by means of glass containers line with paraffin—is the method of choice. A physiologi blood count, embracing hemoglobin estimation, re count, white count, color index, differential count, an xamination for abnormal red cells should be made at egular intervals, twice a week in the first fourteen ays and once weekly in the following three weeks, in rder to reveal as early as possible blood changes which ight require a blood transfusion.

When the kidneys are very deficient and the tumor ; very large, a venesection, followed, of course, by a lood transfusion, ought to be taken into consideration, ecause in such a case the loss of blood is less impor- ant than the saturation of the body with toxic mate- ial. This is the case especially in lymphosarcoma, ecause this kind of tumor is extremely sensitive to ie roentgen rays.

We do not know how much of the toxic material ; eliminated by the bowels. It is yet probable that at east one part of this material leaves the body by ectum, and it is therefore advisable to keep the bowels pen. A drastic catharsis is not indicated on account f the more or less asthenic condition of the patient, ut the administration of half an ounce of liquid petro- tum once or twice daily is advisable in every case.

THE LOCAL AFTER-TREATMENT

A very moderate dose of roentgen rays, properly ltered, does not affect the skin at all. But the usual ose applied to each field in cases of malignant tumor ; the so-called erythema dose. This erythema gradually disappears, leaving especially, after repeated radiation, a tan discoloration of the skin. This rythema does not require any special treatment, with he exception of the use of some dusting powder, such s talc, in cases in which it causes itching; petrolatum nakes the condition worse. But if the physician in harge of the patient forgets that this apparently but lightly hyperemic skin is very sensitive to any kind f irritation and he applies any ointment, lotion, etc., vhich without a previous irradiation would not irritate he skin, he is likely to convert a harmless erythema nto a painful exanthem. To avoid this unpleasant omplication, it should be kept in mind that application f salicylic acid, chrysarobin, ichthyol, ether, alcohol, henol, mercuric chlorid, Burrow's solution, or adhesive laster to the exposed skin should be avoided for three veeks after the irradiation. Compresses with lead ubacetate are especially dangerous.

When the roentgen-ray dose is a little too large, it auses an acute dermatitis bullosa. The symptoms are yperemia, infiltration of the skin, blisters, exfoliation, nd pains with a following atrophy of the cutis and of he papillae. In such cases, compresses with zinc oxid nd olive oil, equal parts, changed several times a day, rove satisfactory. A dusting powder, talc and amy- um, equal parts, gave in our cases a better result. In nore severe cases, compresses impregnated with physi- logic sodium chlorid solution may give relief. Lead ubacetate is to be avoided. Quartz light alleviates ie pains and promotes the healing.

A gangrenous dermatitis, causing formation of lcers with sloughs, should never occur. The modern neasuring devices, such as the iontoquantimeter, ntensimeter, and electroscope, allow the determination f the erythema dose precisely enough, for practical urposes at least. If a real roentgen-ray burn occurs, t is due to a faulty technic; for instance, to failure f determination of the erythema dose or failure to se the necessary filters. These ulcers used to occur n the roentgenologists who were steadily exposed to ie action of roentgen rays without using any kind of rotection. Nowadays they are seen much more seldom. Diluted mercurial ointment has been highly recommended for the treatment of small ulcers by Rammstedt, but other authors, as Wetterer, deny its good effect. Scarlet red ointment promotes the granulations. Application of 25 per cent. argyrol is worth trial. I saw the best results from methylene blue, used as a dusting powder. Cocain relieves the pains, but it should never be used, as it has a paralyzing action on the blood vessels and thus causes retardation of the process of healing. Also, iodoform, orthoform, and anesthesin should not be used. Caustic drugs are unfavorable. Finsen light, highly recommended by some authors, made the condition worse in cases treated by Wetterer. Thermopenetration acts as an analgesic and gives good results in many instances. Foveau de Courmelles, Allen, Gerabley, Freund, and P. F. Becker used d'Arsonval's high frequency current daily for many weeks with apparently very satisfactory results. In more resistant cases a thorough destruction of the ulcer with fulguration has been used. In most of the cases, however, only a surgical procedure, namely, an excision of the ulcer, gives a definite result. A skin graft is often necessary. Thiersch's method is frequently unsuccessful in these cases; a skin graft is the method of choice.

The chronic dermatitis occurs practically only in the technicians and not in the patients. This disease is manifested by hyperkeratosis, paronychiae, rhagades, telangiectases, excoriations, warts, ulcers, and eventually cancroids. The photographic solutions—developer and fixing bath—should be strictly avoided; also all disinfecting solutions, as compound solution of cresol, mercuric chlorid and phenol (carbolic acid); alcohol, ether and especially plaster of Paris are very harmful. Refraining from roentgen-ray exposure is important. Irritating drugs, silver nitrate solution, acids, etc., make the condition worse. Cocain should never be used because of its paralyzing action on the blood vessels. Daily bathing of the affected parts in hot water and application thereafter of any kind of fat, as hydrous wool fat, is indicated whenever rhagades are in the foreground of the lesions. Adhesive plaster is frequently very satisfactory; it keeps away the irritating air; it immobilizes the affected part and causes a beneficial swelling of the dry, hardened tissue where excoriations are present; tar renders a good service, especially in the form of tar soap for washing and of an ointment application to the lesions. The ointment consists of: Mercuric sulphate (B. P.), 1 gm.; precipitated sulphur, 10 gm.; rectified oil of birch tar, 10 gm.; casein ointment (B. P.), sufficient to make 120 gm. This ointment gave excellent results in many cases of a very resistant chronic dermatitis. Hyperkeratoses are to be cauterized by 30 per cent. hydrogen peroxid. Small hyperkeratoses can be removed by curretting. Small ulcers heal sometimes nicely under daily painting with tincture of iodin. Larger ulcers often require an immobolization of the affected part, which is best accomplished by means of Unna's paste, consisting of four parts each of zinc oxid and gelatin and ten parts each of glycerin and water. The sheet gelatin is soaked in water over night, the mixture put in a water bath the next morning, heated, and zinc oxid and glycerin added gradually. If this treatment is unsuccessful, application of hard, heavy filtered roentgen rays or radium, according to Holzknecht, may cure the lesion; otherwise fulguration or excision might be necessary. Unna seems to be right in saying:

"The chronic roentgen dermatitis belongs to the affections in which the prophylaxis means all and therapy nothing."

SUMMARY

1. A roentgen toxemia appears insidiously, but nevertheless may cause serious disturbances and even roentgen cachexia. To avoid it, the roentgen technic ought to be accommodated to the general condition of the patient.

2. A renal function test should be made before irradiation.

3. Plenty of water by mouth, proctoclysis, hypodermoclysis, mild cathartics, diuretics and blood transfusion eventually, preceded by venesection, help to dilute and eliminate the toxic material.

4. Irritating drugs should not be applied to the skin for three weeks after irradiation.

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THE HEMAGGLUTINATING FRACTION OF HUMAN SERUMS *

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The fact that iso-agglutinins are present in the blood of certain species of animals has been known since 1906, when Landsteiner and Shattock, working separately, announced that such substance or substances existed in certain members of a species, and acted on the cells of certain other members of the same species. It was not until 1907, however, that Jansky discovered that there existed, among the human species, four groups. The original investigators had described only three groups. Moss, in 1910, without knowing of the work of Jansky, found the same four groups, but, unfortunately, his grouping transposed the Groups I and IV of the Jansky classification. It is also known that these iso-agglutinins rarely occur in the lower animals; are normal to man; vary with certain pathologic conditions; are constant in man; are hereditary according to the mendelian law, and are not present until about one year after birth.[1]

Not being able to find in available literature a report of any work having been done to isolate the particular substance or substances which are responsible for this phenomenon, we undertook such an investigation. The serums of Groups II and III were obtained and fractioned according to the method advocated by Banzhaf,[2] except that the serum was used instead of the citrated plasma. Ten cubic centimeters of serum was diluted with 5 c.c. of distilled water, and to this was added 6.43 c.c. of saturated ammonium sulphate solution. This gave a 30 per cent. saturation with saturated ammonium sulphate solution, and precipitated the euglobulin. The two specimens were centrifuged at high speed, throwing down the euglobulin and allowing the supernatant fluid to be pipetted off. The supernatant fluid was then raised to 50 per cent. saturation by the addition of 4 c.c. of the saturated ammonium sulphate solution, precipitating the pseudoglobulin, which was separated by the same method as used for the euglobulin. The remaining supernatant fluid contained albumin. The two samples of euglobulin, the two samples of pseudoglobulin and the remaining supernatant fluids containing albumin from the two groups were placed in separate Schleicher and Schull thimbles and dialyzed for forty-eight hours in running tap water to remove the sulphate. They were then transferred to distilled water for twenty-four hours for the reason that the tap water contained natural sulphates. They were again transferred to fresh distilled water, and this water was found free of sulphates after immersion of the dialyzing thimbles for twenty-four hours.[3] The three fractions from the serum of the two groups (II and III) were then tested against the cells of Groups I, II, III and IV, the Moss classification being employed. The albumins were used as they came from the dialyzing thimbles. Parts of the euglobulin and pseudoglobulin from each of the two samples were dissolved in a small amount of physiologic sodium chlorid solution. Groups I, II, III and IV cells were suspended in physiologic sodium chlorid solution, and groupings were set up on glass slides. They were checked both microscopically and macroscopically. The results are presented in the accompanying table.

It will be seen that no part of the serum is involved in the process except the pseudoglobulin, and this fraction of the serum acts, in blood grouping, similar to the whole serum. It would appear, therefore, that the other elements are of no importance so far as grouping is concerned.

RESULTS OF INVESTIGATION *

E II	against Group I	cells	negative
P II	against Group I	cells	positive
A II	against Group I	cells	negative
E III	against Group I	cells	negative
P III	against Group I	cells	positive
A III	against Group I	cells	negative
E II	against Group II	cells	negative
P II	against Group II	cells	negative
A II	against Group II	cells	negative
E III	against Group II	cells	negative
P III	against Group II	cells	positive
A III	against Group II	cells	negative
E II	against Group III	cells	negative
P II	against Group III	cells	positive
A II	against Group III	cells	negative
E III	against Group III	cells	negative
P III	against Group III	cells	negative
A III	against Group III	cells	negative
E II	against Group IV	cells	negative
P II	against Group IV	cells	negative
A II	against Group IV	cells	negative
E III	against Group IV	cells	negative
P III	against Group IV	cells	negative
A III	against Group IV	cells	negative

* E II, P II and A II indicate euglobulin, pseudoglobulin and albumin derived from Group II serum. The remainder of the table is self explanatory.

Chemical analyses of the different fractions were not undertaken, nor were definite proportions used in grouping. The amount of the solutions of the three elements used was approximately the same as the amounts of the suspensions of the different cell groups.

The pseudoglobulins from the Groups II and III serums were desiccated over lime for eighteen hours and ground to a powder. This powder has been tested each week for the last two and one-half months, and has been found to retain its original grouping qualities.

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* From the Laboratory, Eighth Corps Area.

[1] Karsner, H. T., and Ecker, E. E.: The Principles of Immunology, Philadelphia, J. B. Lippincott Company, p. 99.

[2] Banzhaf, E. J.: The Further Separation of Antitoxin from Its Associated Proteins in Horse Serum, Collected Studies Bureau of Laboratories, Department of Health, City of New York 7: 114-116, 1913.

[3] Eichhorn, A.; Berg, W. N., and Kelser, R. A.: Immunity Studies on Anthrax Serum, J. Agric. Res. 8: 39 (Jan. 8) 1917.

In performing the test, a small quantity of the powder is placed on a slide, a few drops of physiologic sodium chlorid solution added, and an emulsion produced by trituration. With this is mixed a drop or two of the blood to be typed. Agglutination usually occurs in about one minute.

The reaction is enhanced by employing a drop of blood direct from the donor, rather than diluting it in citrated salt solution.

CONCLUSIONS

The hemagglutinating property is contained in the pseudoglobulin fraction.

The euglobulin and albumin apparently play no part in the reaction.

The desiccated pseudoglobulin retains its potency for at least two and one-half months.

Clinical Notes, Suggestions, and New Instruments

LEAD POISONING FROM FACE ENAMEL

Henry W. Woltman, M.D., Rochester, Minn.

Mrs. W. I. F., aged 38, who had been married for twenty years, but never was pregnant, came to the clinic for examination on account of paralysis of the hands. At the age of 3 years, she had had general convulsions; she had migraine headaches until the age of 16. Ten years before she had had an appendectomy and an operation on the ligaments of the uterus. Five years before she began having constant tremor of the upper extremities, which was rapid and of moderate amplitude; this had been growing in severity. She had always been nervous and irritable. Four years before she began to have nausea and vomiting. Roentgenograms of the stomach were said to reveal ulcer. The patient was placed on an ulcer diet for one and one-half years, and then on an anticonstipation diet. Six months later the vomiting became worse, and appeared almost daily. A full meal was followed by severe pain in the region of the navel. There was some shortness of breath and palpitation on excitement and exertion. For ten weeks chiropractic treatments were given, and water and Epsom salt were taken every second day. Vomiting increased, and in eight weeks the patient lost 25 pounds (11 kg.). She had pains in both arms, thighs and legs, and was unable to sleep, either night or day, for three weeks. The bottom of the feet became very tender, and she was unable to walk. Her hands and arms became very feeble, and five weeks before a bilateral wrist drop had gradually appeared. Two weeks before, between 6 and 8 o'clock in the morning, she had three general convulsions, during which she bit her tongue. Red, tender swelling appeared over the dorsum of the wrists. For the last twelve years the patient had used Owl Enamel Toilet Cream, which on analysis showed a very high lead content.

The patient was pale, high-strung and emaciated, with marked weakness of both upper extremities. The systolic blood pressure was 170, and the diastolic 110. The eyes were somewhat prominent. Both right and left lobes of the thyroid were somewhat enlarged; occasionally a bruit could be heard. The heart was slightly enlarged, particularly for a woman of her size. The radial arteries were definitely sclerotic.

Neurologic examination revealed complete paralysis of the interossei on the left side. Flexor power on the right was slight, and moderately impaired on the left. Extension of the wrist on the right was practically absent, and very weak on the left. The power of the muscles of the upper arms was somewhat impaired, but not nearly so much as the muscles toward the periphery; atrophy corresponded fairly well with the loss of power,. although there was marked general emaciation. Power in the lower extremities, when the general nutritional state was taken into consideration, was almost unimpaired, and the patient walked fairly well. Tendon, abdominal and plantar reflexes appeared to be normal. Rest, static and movement tremors, moderate in amplitude and rate, were present in the arms, hands, tongue and lips. There was also slight tremor in the voice. The calves were moderately tender to pressure; otherwise, sensation was fairly normal. The soles of the feet were very tender to pressure. There was a dark, stippled pigmentation over the gums, particularly over the lower gums; also some pigmentation under the nails.

Examination of the fundi oculi was negative. The pupils were moderately dilated, and reacted somewhat slowly. The urine contained a faint trace of albumin and an occasional pus cell, but was otherwise negative. The leukocyte count, June 21, was 15,800, with a differential count of lymphocytes, 21.5; large mononuclears, 1 per cent.; transitionals, 1.5 per cent.; neutrophils, 75 per cent.; hemoglobin, 50 per cent.; erythrocytes, 3,970,000; color index, 0.6 +; slight anisocytosis and poikilocytosis; moderate basophilic stippling, and slight polychromatophilia. July 10, the leukocyte count was 14,000; lymphocytes, 20 per cent.; large mononuclears, 1.5 per cent.; transitionals, 4 per cent.; neutrophils, 72 per cent.; eosinophils, 1.5 per cent.; slight anisocytosis and poikilocytosis, and moderate basophilic stippling and polychromatophilia. Roentgenograms of the hands were negative; these were taken because of slight swelling of the wrist, which was markedly tender and red. The phenolsulphonephthalein test yielded an output of 30 per cent. in two hours. The Wassermann reactions on the blood and on the spinal fluid with 0.4, 0.6 and 1 c.c. were negative; there was 1 lymphocyte to the cubic millimeter. The basal metabolic rate, June 27, was + 20; July 12, + 28; July 18, +18, and July 19, + 7. The blood pressure varied from 170 systolic and 110 diastolic, to 108 systolic and 74 diastolic.

A diagnosis of lead poisoning was made. The possibility of hyperthyroidism as a factor was considered, but dismissed.

THE USE OF THE HOPKINS TUBE IN STANDARDIZING CELL SUSPENSIONS *

E. E. Ecker, Ph.D., and H. Maynard Rees, M.D., Cleveland

The production of uniform cell suspensions is a matter of great importance in all serologic work. Variations of these suspensions invariably lead to variations in sensitization with a given dose of amboceptor, unless an excess of this antibody is employed, and variation of complement unit. So far, cell count and hemoglobin percentage determination have been proposed and employed; but we found both these methods tedious, time consuming and requiring considerable apparatus. A more simple method employs the Hopkins centrifuge tube. Besides the advantage of simplicity of apparatus, ease of manipulation and expenditure of practically no time, the results have been most satisfactory. A short description of the tube will be given; but for a more complete idea of its possibilities the original article is recommended.[1]

The tube is of the centrifuge type, of 10 c.c. capacity. The end has been drawn out for about 2.5 cm., so that the bore is of capillary diameter. This portion is graduated in hundredths of 1 c.c., from one to five hundredths, and is stout enough to withstand the pressure of centrifuging without a special holder. It is advisable carefully to prepare a preliminary standard suspension from which the volume of precipitated cells can be determined. Proper amounts or dilutions can be roughly figured so that the sedimented corpuscles will not exceed in volume the graduated tip. Two cubic centimeters of a 5 per cent. suspension of sheep erythrocytes will give just sufficient cells to fill the capillary end of this tube. Repeated centrifugations with the same speed and time, have given us constant results which can be read accurately to 1/500 of 1 c.c. Uniform suspensions can later be readily made. If a suspension yields a certain volume of cells in excess, the corresponding volume in salt solution is added; and, if too low a

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* From the Department of Pathology, Western Reserve University.

[1] Hopkins, J. G.: A Method for Standardizing Bacterial Vaccines, J. A. M. A. **60**: 1615 (May 24) 1913.

volume is found, the concentration can be increased by the addition of washed full blood.

For several months, we have employed this method in routine serologic work, with uniform results. We found, further, greater uniformity in complement titrations than prior to the use of the tube.

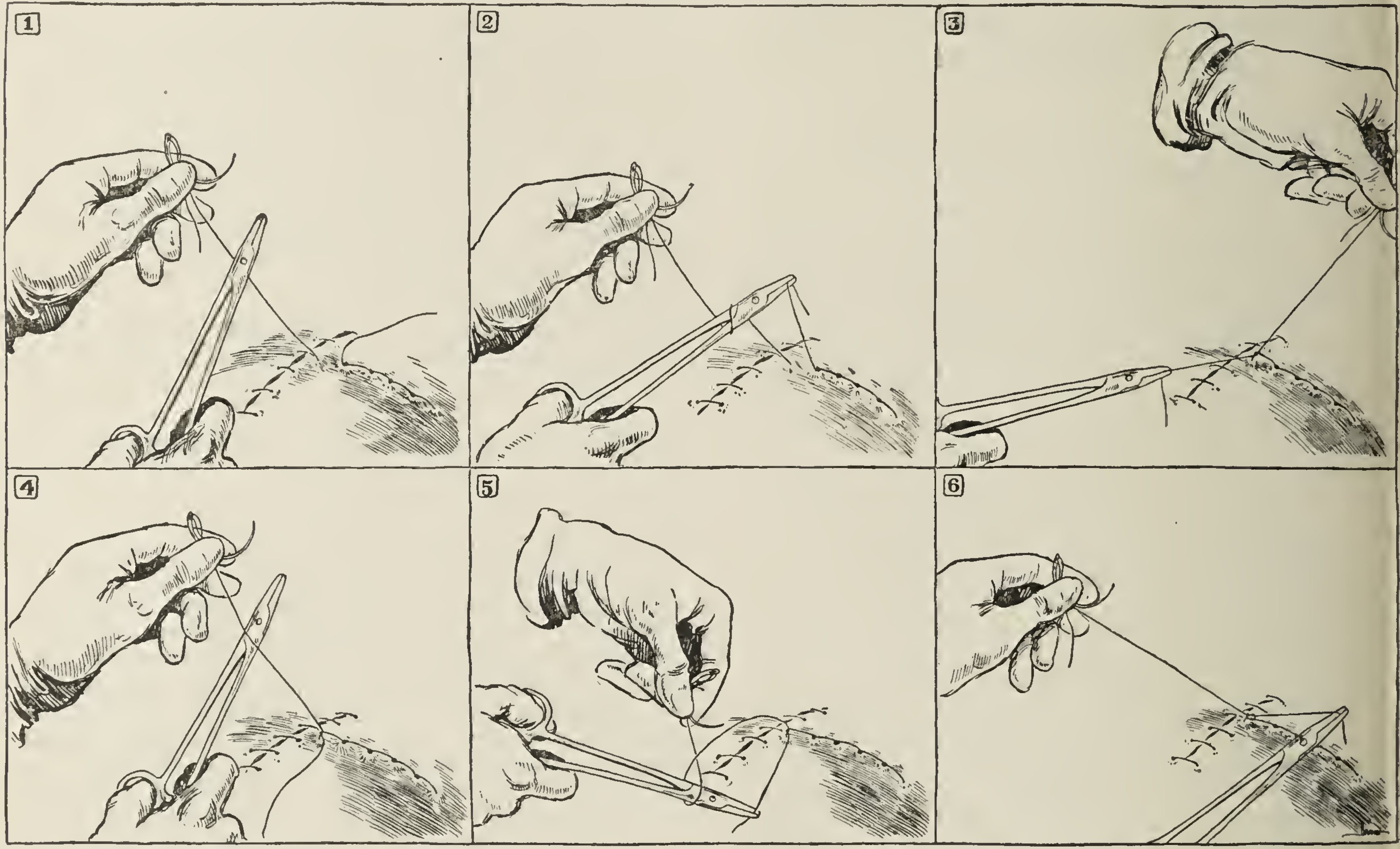
THE CONTINUOUS KNOTTED SUTURE

Arthur Rogers Grant, M.D., Utica, N. Y.

After some experiments, we began using the Eastman[1] suture in every case recommended by its author, and I am convinced that a substantial contribution has been made to our technic.

I have applied my method of tying the knots with a needle-holder, which makes it easier and more rapid.

For the ordinary continuous knotted suture, I use a strand of 15 inches, allowing about 4 inches for the short end after the first knot is tied.



Application as a relaxation suture: It is carried across any wound where the skin is under tension. 1, forceps in right hand laid over ligature, tip pointing upward; if tip points downward, no loop is possible; 2, loop completed; forceps grasping short end firmly; left hand pulling long end over tips of forceps in right hand; 3, first half of knot completed; 4, right hand forceps placed beneath thread, tip pointing upward; this loop completes a square knot; 5, left hand drawing down second loop; 6, square knot completed.

The knots are about 1 cm. apart, and the short end of 4 inches will make eight knots easily. The accompanying drawings make a detailed description unnecessary.

I employ this continuous knotted suture as a hemostatic in various conditions, such as sewing the broad ligaments in hysterectomy; as a posterior through and through suture in gastro-intestinal anastomosis in place of Crile's cobbler's stitch; as a ligature of a broad area of great omentum, and as a suture of the capsule in Freeman's method of thyroidectomy. The other use is for relaxation, and is efficient in cleft palate operations as well as anywhere on the skin where the apposition skin sutures are under tension.

Dr. Eastman has been extremely modest in his presentation of a new method that I can emphatically endorse and recommend as a great improvement over older procedures for similar applications.

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[1] Eastman, J. R.: A Continuous Knotted Loop Suture, J. A. M. A. 78:268 (Jan. 28) 1922.

FRACTURE OF THE BASE OF THE SKULL, WITH LOSS OF BRAIN SUBSTANCE, FOLLOWED BY RECOVERY

George H. Hyslop, A.M., M.D., New York

While loss of brain substance is relatively common in fractures of the vault of the skull, its occurrence is quite rare with basal fractures. Rawling[1] observed two cases of such nature. One patient, with escape of brain substance from the right nostril, died a few hours after the injury. The second case was thus described by Rawling:[2]

"A lad, 11 years of age, fell some distance out of a window on to his head. He was admitted under the care of my colleague, Mr. Lockwood. On admission he was unconscious, and was bleeding freely from the right ear and nose. Shortly afterward it was noticed that brain matter was issuing from the right external auditory meatus, sufficient brain matter being obtained to fill a teaspoon. The extensive nature of the brain injury was confirmed by the fact that the left arm and leg were paralyzed for some days. On the fourth day the boy regained consciousness and recognized his relations. From this period onward he made an uninterrupted recovery. I have seen the lad on various occasions, the last time one year after the accident. At that time he was an exceedingly bright and intellectual boy."

Except for this instance, I have found no other case similar to the one here reported, in which the patient recovered.

REPORT OF CASE

L. K., a man, aged 50, admitted to the Second Surgical Division of Bellevue Hospital, Aug. 3, 1921, had been injured a few hours previously in a runaway accident. He was conscious on admission to the hospital, but could give no details of the accident. There was a laceration of the scalp, 2 inches long and extending down to the pericranium, on the left parietal region. Palpation revealed a fissure fracture of the left parietal bone, about 3 inches long. Its direction was diagonally forward and downward, the lowest point being just above the left pinna. Blood and cerebrospinal fluid escaped in quantities from the left external auditory meatus. The canal was filled with brain substance. About 2 drams of brain substance was removed by forceps in cleaning the canal.

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[1] Rawling, L. B.: The Surgery of the Skull and Brain, Oxford Publications, Frowde, 1912, p. 93.

[2] Rawling, L. B.: The Surgery of the Skull and Brain, p. 101.

The patient was stuporous, but irritable when aroused. His pulse was 60, and full in quality. There was definite weakness of the right side of the face. The right abdominal reflexes were diminished, and the right plantar response was extensor in type. There was no paralysis of the right arm or leg. Astereognosis was present in the right hand. Sensation was normal, except for moderate deafness in the left ear. The patient had a definite sensory aphasia. He misnamed objects, and did not recognize his errors, even when corrected. He could read and write.

The roentgen ray revealed a fissure fracture of the left parietal bone, as found by palpation on admission, and also a fissure fracture of the petrous portion of the left temporal bone.

The patient had a generalized convulsion a few hours after admission, and fundus examination disclosed congestion of the optic disks. As there seemed to be free escape of blood and spinal fluid from the left ear, decompression was deemed inadvisable.

Spinal fluid continued to drain for eight days. The patient was quite irritable, but the aphasia improved rapidly. After twelve days in the hospital, he refused to stay longer. Indeed, it was the patient's opinion that his injury was of little moment and he informed the physicians that, in altercations with his wife, he had often received much harder blows on the head.

A recent examination of the patient (February, 1922) revealed the following: The patient complained of tinnitus in the left ear, vertigo with a tendency to fall backward on assuming the standing position, insomnia and forgetfulness. This forgetfulness was confined to new associations, and particularly to the names of people and places. There were no headaches or constipation. There were still traces of the aphasia, demonstrated in hesitancy in naming objects presented, with occasional errors, corrected after help of the examiner. Physically, there was slight nerve deafness on the left side, and diminution of the right abdominal reflexes.

Summary.—(1) Fracture of vault and base, with extravasation of about 2 drams of brain substance through the basal fracture into the left external auditory canal; (2) sensory aphasia, weakness of the right side of the face, and reflex changes evidencing involvement of the right pyramidal tract; (3) recovery sufficient to leave the hospital by the twelfth day; (4) slight focal residual phenomena six months after the injury.

COMMENT

A point of practical importance is worthy of note. The presence of definite signs of localized injury to brain substance following skull trauma is in itself not adequate reason for an immediate decompression operation.

141 West Seventy-Fifth Street.

Accidents in Mineral Industry.—Accidents in all branches of the mineral industry in the United States, including coal mines, metal mines, quarries, coke ovens, and metallurgical plants (except iron-blast furnaces) resulted in the death of 2,367 men in 1921. In 1920, fatal accidents in the same industries amounted to 2,984. Accidents at coal mines killed 1,973 men as compared with 2,271 in 1920; at metal mines 230 men were killed and 18,604 injured, as against 425 killed and 32,562 injured the year before; at stone quarries 120 men were killed and 10,465 injured, as compared with 178 killed and 11,217 injured in 1920. While these figures indicate a reduction in fatal and nonfatal accidents as compared with 1920, there was an increase in the number of accidents per thousand men employed. The fatality rate for all workings combined was 3.59 per thousand employees as against 3.29 the year before; while the injury rate for all plants (except coal mines) was 192.69 per thousand employees as compared with 184.12 in 1920.

New and Nonofficial Remedies

BARIUM SULPHATE FOR ROENTGEN-RAY WORK

Abstracted from a Report of the Council on Pharmacy and Chemistry *

In consideration of the increasing use of barium sulphate in roentgen-ray work, the Council decided to describe barium sulphate for roentgen-ray work in New and Nonofficial Remedies. The description which appears in New and Nonofficial Remedies, 1917, was prepared after consulting interested manufacturers. This description has appeared in subsequent editions of New and Nonofficial Remedies with but minor changes.

A firm which manufactures barium sulphate for roentgen-ray work criticized the test for this substance, which limits the amount of permissible phosphate.

The firm stated that in the manufacture of barium sulphate for roentgen-ray work it has been the aim to supply an article of as high a degree of purity as is commercially obtainable and that the test which it employs to limit the amount of soluble barium salts is more stringent than that prescribed in New and Nonofficial Remedies. The firm stated that, though its product was free from objectionable impurities and equal to that of other brands on the market, it was confronted with the difficulty that its product, when tested by the New and Nonofficial Remedies standards, appears to contain acid-soluble barium salts. The firm urged that the phosphate test be omitted, in that it shows a noticeable reaction for phosphate when barium phosphate is totally absent, but when nonpoisonous and unobjectionable phosphates, such as calcium phosphate, were present.

The manufacturer submitted the tests which were used for the control of barium sulphate for roentgen-ray work. This included the test for soluble barium salts and also a test for the fineness (fluffiness) of the product.

The objection to the phosphate test appeared well founded, and the proposed revision of the text for soluble barium salts and the "fluffiness" test worthy of consideration; therefore, the A. M. A. Chemical Laboratory drew up a tentative revision of the N. N. R. standards which omitted the phosphate test and included the more sensitive barium test and the "fluffiness" test. It submitted this revision to those firms whose brands of barium sulphate for roentgen-ray work had been admitted to New and Nonofficial Remedies.

In general, the replies which were received indicated that the firms were ready to accept the more stringent test for barium salts, other than barium sulphate, and also the "fluffiness" test. One firm, however, definitely objected to the latter test on the ground that users of barium sulphate in roentgen-ray laboratories had found difficulty in preparing suspensions with a too "fluffy" product. Some of the firms did not favor omission of the phosphate test on the ground that appreciable amounts of insoluble phosphate, such as calcium phosphate, should not be permitted in barium sulphate, and two firms recommended the adoption of a test limiting the water and acid soluble material in barium sulphate. For the latter test, the argument was advanced that, under the present N. N. R. standards, large quantities of foreign salts are permitted.

Since one firm held that a "fluffy" barium sulphate had proved unsatisfactory, inquiry was made of a representative group of roentgenologists as to whether they considered it desirable that barium sulphate be required to be in a finely divided physical condition. Inquiry was also made as to the brands which had been found satisfactory.

In general, the twenty-eight replies which were received held that barium sulphate should be in as fine a state of subdivision as possible. However, many of the replies held that extreme fineness was not essential. This was emphasized by the enumeration of the brands that had been used with satisfaction. One correspondent stated that a medium fineness was to be preferred and that difficulty had been experienced in the use of a very fine powder. Another correspondent stated that a powder passing a forty mesh sieve was satisfactory, and another that a product was acceptable so long as it did not clog up an enema tube (containing no particles larger than a grain of wheat). Several objected to the high price charged for some of the very finely divided products.

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* A copy of the complete report will be sent on request. It will also appear in the Annual Reports of the Council on Pharmacy and Chemistry for 1922.

From the replies of the users of barium sulphate, it appears that the fluffiness test is not essential. It has the objection that a powder containing a small proportion of very fine material will respond favorably to the test, even though it contains a relatively large proportion of coarse particles.

The replies also make it clear that the phosphate test (which makes a product containing a negligible amount of calcium phosphate inadmissible) is unnecessary. The adoption, in its place, of a test which shall require reasonable freedom from foreign salts, along with tests which shall guarantee freedom from water soluble and acid soluble barium salts and freedom from heavy metallic salts, such as those of lead, would appear adequately to insure a barium sulphate for roentgen-ray work which is of acceptable quality and which can be produced at a reasonable price.

Accordingly the A. M. A. Chemical Laboratory drew up revised tests and standards on the basis of the available evidence. These were submitted to the firms whose products stood admitted to New and Nonofficial Remedies. After considering the replies which were received, the Laboratory recommended to the Council that the revised tests and standards be adopted. The Council adopted this recommendation and directed that the description of barium sulphate for roentgen-ray work be revised and that the revised monograph be included in New and Nonofficial Remedies, 1923.

DISCUSSION ON RADIUM IN UROLOGY

(Concluded from page 1657)

PAPERS OF DRS. HERBST AND THOMPSON, AND BARRINGER

Dr. Henry G. Bugbee, New York: In the treatment of cancer of the prostate the first question to settle is the presence of metastasis, by a complete roentgen-ray examination and study of body functions. If metastases are present, one's effort should be devoted to making the patient as comfortable as possible. This is best accomplished in the majority of cases by establishing permanent suprapubic drainage. In the slow growing type of cancer, patients will often live for years in comparative comfort. If metastases are not present, the bladder should be opened suprapubically. Radium needles may be inserted in the gland under sight, controlled by a finger in the rectum. The portion of the gland immediately surrounding the vesical orifice is the one most intimately connected with the production of retention and cannot be reached through the perineum. A Pezzer catheter is sutured into the bladder and the needles withdrawn alongside the tube at the expiration of the desired length of time. The maintenance of suprapubic drainage relieves the bladder of its function, reduces congestion in the vesical neck and prevents absorption from infection. Subsequent applications of radium with needles may be made by removing the drainage tube, dilating the sinus and inserting the needles into the prostate under guidance of one finger in the bladder. The finger of an assistant placed in the rectum is a guide to this surface of the prostate. When the intravesical enlargement in no longer palpable by a finger introduced into the bladder, and bladder function (which is tested by clamping off the tube and voiding) is satisfactory, the drainage tube may be removed. Further application of radium should be made by introducing needles into the prostate through the perineum, under the guidance of a finger in the rectum, and continuing at intervals so long as areas of induration may be detected. Surface applications of radium by means of special rectal applicators clamped in position are beneficial in checking invasion, by the growth, of the seminal vesicles and immediately surrounding area. If these surface applications are not made carefully, the same area being covered too often, irritation of the rectum will surely take place. During the past year I have removed one prostate the seat of early cancer with a satisfactory result. At the present time, our best methods of attack in carcinoma of the prostate are surgery and radium, carefully selecting the cases and paying particular attention to details and systemic treatment. Of nineteen cases of bladder cancer, two were treated by suprapubic drainage, cautery and radium. They were extensive cases with metastases but the patients were young. Six with extensive infiltrating type were freed of growth. Two patients have died of metastasis. Two with limited infiltrating growths treated by radium only are free of growth. The remaining patients were treated by resection and radium implantation about the line of resection. They are all free of growth at the present time. I can see no reason why cancer of the bladder, as elsewhere, when limited, should not be removed. Fortification of the line of resection with radium may help in preventing recurrence. Radium alone will destroy many growths if applied cautiously, giving bladder drainage during the process and promoting body elimination to thwart toxemia.

Dr. Herman L. Kretschmer, Chicago: The most important thing in discussing carcinoma of the prostate is the question of diagnosis, and the part of the diagnosis that has most interested me concerns the presence or absence of bone metastases. In 20 per cent. of our cases of carcinoma of the prostate, we have been able to demonstrate metastases in the osseous system, and when bone metastases have been demonstrated we have not used radium in the prostate. In carcinoma of the bladder, as well as in carcinoma of the prostate, careful study of the osseous system must be made before treatment, either radium or surgery, is carried out. The same statement holds true regarding extension to the lymphatics. We have always used the long needles in order to reach the upper margin of the growth. I have had some extra long needles made to reach the region of the seminal vesicles should this be necessary. Unless there are some definite indications for opening the bladder, these patients should be treated with needles through the perineum rather than by opening the bladder. We reach the whole prostate when we do perineal prostatectomy; and why should we not do it with radium and save the long continued wearing of the catheter? One point Dr. Herbst brought up was the formation of scar tissue after irradiation. This occurs not only in the bladder but in the uterus in cases of women who have had extensive irradiation for carcinoma of the uterus and for fibroids. This should be borne in mind when women have been treated by this agent. I have seen obstruction to the urinary outflow produced by this scar tissue in the pelvis, with resulting stricture of the ureter and hydronephrosis, infected and noninfected. I wish Dr. Barringer would tell us something about the rapid dissemination of carcinoma after treatment. We have had several cases in which there seemed to be a rapid dissemination following treatment.

Dr. B. A. Thomas, Philadelphia: Sufficient has been said, I think, to show that in all probability there is something of value in the radium treatment of prostate and bladder carcinoma. I feel that it is too early to come to any final conclusions relative to the exact place of radium in the treatment of carcinoma. I agree with each essayist and also with Dr. Kretschmer that the fundamental point is to determine whether there are metastases, either glandular or of the skeleton. I must confess that with many cancers it is difficult to determine this point, but it is certainly essential to differentiate the cases in which metastases have occurred in order to be in a position to decide what shall be the appropriate treatment of the case. Our series has covered about thirty cases of carcinoma of the prostate and bladder, mostly of the bladder. I was much discouraged as to the results of treatment by fulguration and radium, which, though somewhat better than "watchful waiting," are not as gratifying as originally hoped nor have they measured up to expectations in many instances. Our technic consists primarily in performing a cystotomy, exposing the growth and destroying as much as possible by intense fulguration; and then implanting short, not long, needles (this, however, is not a matter of great moment). In some instances I have supplemented the suprapubic exposure of the prostate after two or three weeks by a perineal incision and implanted the radium needles from elow. I have not used the long needles, guided by the finger n the rectum. We have been able to benefit only a few of hese patients so far as alleviation of symptoms and prolongation of life are concerned. I know of two patients who were made worse by radium implantation; that is, the disease was aggravated and metastasis invited, passing in one case to the lymphatic system and in the other to the skeleton.

Dr. **Hermon C. Bumpus, Jr.**, Rochester, Minn.: In order o be successful, the exposures must come from multiple reas, and if the needles are placed in the gland alone, and he periphery of the growth is not irradiated, all the cells will not be reached. When the growth can be cross-fired, very position of the needle is a new method of combating he disease. Dr. Herbst's method of putting the needles in he bladder is still another method. The offensive must all e put over in one wave. To give one treatment and then ave the patient return for further treatment does not give he most successful results. The men working with other ypes of malignancy believe that the best results from irradiaion must come from the first treatment. I believe that insufcient radium stimulates. If the periphery is treated through he rectum and the center of the growth with needles, and hrough the urethra, and sufficient dosage is given, stimulaion will not occur. Since 1915, we have treated 217 cases of arcinoma of the prostate with radium. The early cases were reated with radium applications in the urethra and rectum, he center of the gland being neglected, and the results were ot much better than in the untreated cases. We, therefore, hanged from this form of treatment to the use of needles, nd the results were still poorer, because the periphery, where he greatest cell activity occurs, was neglected. So for three ears we have given the radium from all possible points of pplication, and the results are much better. We have found hat the average maximal dose is 2,500 to 3,000 mg. hours. Ve have tried to give higher dosage, but distressing sloughs ad resulted. The dosage is given approximately as follows: rom 500 to 1,000 in the urethra by means of bare tubes; rom 400 to 600 in the rectum, and from 1,500 to 2,000 with he needles through the perineum. We use four needles conaining 12.5 mg. and allow them to remain in position for four ours; they are then pulled out 1 cm. and remain a second our hours; thus eight areas, approximately 1 cm., have een rayed. If this dosage is repeated after the urethral and ectal treatments have been given, approximately eight more reas are exposed.

Dr. **Budd C. Corbus**, Chicago: Primarily, success in the reatment of carcinoma of the bladder and prostate depends n the absence of metastases. The management of these ases is very unsatisfactory, no matter what method is used. n 1917, Dr. Kolischer of Chicago pointed out a method of reating carcinoma of the bladder with diathermy. He was he first in this country to advocate the teachings of Eugene Duyon. Recently, before the American Urological Associaion, I called attention to the difference between desiccation r fulguration and thermic electrocoagulation. Desiccation r fulguration is not new to urologists, and "sparking" with he d'Arsonval current has come to be very helpful to many f us in the treatment of benign growth of the bladder, but we do not realize that the carbonization which follows the monopolar current defeats our efforts to produce heat in the epths of the tissue. When surface carbonization is present, he current will go to the edge of the burnt area and not to he center of the diseased tissue. Recently, in following the work of the Dr. J. F. Percy with the use of his cold iron, we have been informed that the cancer cells are destroyed t a temperature of 113 F. in vitro, and that it is possible, o use heat up to 140 F., without destroying normal cells. his was verified in work on dogs. In working with diathrmy, we have two ways to destroy the growth, either the scharring or the slow coagulation with low degrees of heat. t present, we have found that, by opening the bladder and sing low degrees of heat, thereby slowly coagulating the ssue, our results have been much better. As we know that eat will destroy the cancer cells, we have not deemed it dvisable to apply radium as an adjunct.

Dr. **A. J. Crowell**, Charlotte, N. C.: A very simple, easy nd effective way of applying radium needles in carcinoma of the prostate is to expose the gland under sacral anesthesia and insert the needles under vision. This can be done without pain; and by means of a tractor, such as the one designed by Dr. Cecil or the one I had made up several years ago, the gland can be fixed and the needles inserted very accurately.

Dr. **Arthur L. Chute**, Boston: Two things must be considered in these cases: the malignancy of the gland and its obstructing element. Too many operators seem to have forgotten all about the obstructive element in these cases. The people I see come in not because of referred pain but because of the difficulty with urination, due to obstruction. We often give these people tremendous relief from their obstruction by removing what we can of the growth perineally. We can remove a considerable amount of the malignant tissue and then the radium has just so much less malignant tissue to destroy. It seems to me self-evident that the less tissue a given amount of radium has to act on, the more marked will that action be. Therefore, I feel it is of great advantage to remove as much of the diseased prostate as possible before using the radium. In this way, we accomplish two things: relief of urinary back pressure and the destruction of as much malignant tissue as possible. In several instances, I have been able to remove enough of a prostatic growth to give a very fair measure of relief, for from one to three years. In one case, not so long ago, a man who had considerable retention and was in rather a bad condition was able to take up his business and golf for more than a year, which I am sure he could not have done if he had worn a suprapubic drainage tube. I think we should make these men as nearly normal as possible for as long time as possible, and then if we have to, at the end, resort to suprapubic drainage. I believe also that we should not use radium until we have removed as much of the malignant tissue as we can. There are two reasons for this: first, the less the amount of malignant tissue, the more complete its destruction by a given amount of radium; second, the use of radium has a devitalizing action on surrounding tissues and induces slow healing. I saw this last year a man with carcinoma of the prostate who had been given fifty hours of irradiation before his malignant prostate was removed. The prostate was then removed, but the lesion never healed. He had a recto-urethroperineal fistula as long as he lived. I think that, in this instance, the use of the radium was a great mistake—that it so devitalized the tissues that they could not heal. We should remove what tissue we can and then put in the radium. This, I believe, is only sound surgical judgment.

Dr. **Robert H. Herbst**, Chicago: It seems to me that we temporize when we begin the treatment of cancer of the prostate by introducing radium through the closed perineum. There are a number of excellent reasons for beginning this treatment through a suprapubic opening in the bladder. By this approach, we are able accurately to embed radium in the area above the prostate and under the trigon. It is through this region that most of these cancers spread and get beyond our reach. The radium needles should be passed through the trigon into the tissues behind the bladder, as well as into the prostate and the region of the seminal vesicles. I am satisfied from our experience that these areas cannot be accuately irradiated through the perineum. The supraprostatic region must be controlled early if we hope to prevent the progress of the disease. We use the perineal route for irradiating the lower posterior part of the gland. Another reason for opening the bladder is to relieve the retention of urine from which these patients suffer. Most of them have impaired function when they seek relief, and drainage of the bladder not only protects the upper urinary tract but also gives them comfort during the time that irradiation is carried out. We believe that bladder drainage is as necessary in the treatment of prostatic cancer as in benign hypertrophy of this gland. Toxic reactions seen following the introduction of radium will rarely occur if bladder drainage is instituted in the early part of the treatment. I question the safety of Dr. Crowell's method of opening the perineum and pulling the prostate down by means of a tractor. The prostate gland becomes fixed very early in the course of the disease, and the use of a tractor under these conditions would traumatize without improving the exposure.

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SATURDAY, NOVEMBER 11, 1922

THE NATURE OF BACTERIOPHAGY

Thwort, and a little later d'Herelle, observed that when Berkefeld filtrates of the cultures of certain bacteria obtained from stools and other bacteria are added to cultures of dysentery or other bacteria, a solution of the micro-organisms often occurs. This reaction is referred to as the d'Herelle phenomenon or bacteriophagy. The nature of the solvent agent or bacteriophage, that is, the substance in the filtrates which has the power of dissolving bacteria, has not been definitely established. D'Herelle[1] believes it to be a filtrable virus, a parasite of the bacteria themselves, because, when a portion of the dissolved cultures is added to a new culture, it, in turn, may go into solution. Moreover, agar subcultures of the dissolved or partially dissolved cultures reveal, as a rule, colonies of a shaggy, moth-eaten appearance, which have been called "sensitive" colonies, because the bacteriophage or lysant is present on the medium in which the growth occurs, in solutions in which the colonies are washed, and in suspensions of the disintegrated or ground-up bacteria.

Bordet[2] was the first to advocate that the dissolving principle originates from the bacteria themselves, which, when touched by this active substance, are capable of regenerating it, the factor responsible for the phenomenon being thus unceasingly reproduced, on the condition, however, that the bacteria are still living and provided with the nutritive substances necessary to their growth. Bail and Watanabe,[3] who also believe the phenomenon to be one of autolysis, attempt to explain it by an analogy with cell division, as exemplified in spermatogenesis; bacteriophagy is likened to the autolysis of the old nucleus prior to its reconstruction into two nuclei. This comparison is suggested by their belief that the dissolving agent is produced by the generative mass of bacteria rather than by the vegetative mass. Davison[4] has recently made a study of the properties of bacteriosolvents, and his results lead him to believe that they are probably enzymatic in nature. Although he advances no positive proof that the bacteriophage is not a living, ultramicroscopic, filter-passing organism, he has determined many of its characteristics, and they seem to indicate its enzymatic nature. Thus, he found that the bacteriosolvent activity of a bacteriophage is decreased by passage through sterile peptone water and dead dysentery bacilli; that the activity is not changed by heating to from 60 to 67 C. for an hour; that it is more complete in action in low dilutions and at a p_H of from 8.0 to 8.2 and against young cultures; finally, that it is destroyed by the addition of sodium hydroxid and that it is nonpathogenic for rabbits. He observed that filtrates of stools of patients with bacillary dysentery sometimes dissolved more readily foreign strains of dysentery bacilli than cultures from the same case, revealing that the bacteriolysant may not be as active against the strain causing the disease as against other strains of the same bacterium. D'Herelle also observed this variability of lysant power, and he believes that it favors his view that the bacteriolysant is a living thing, because it is similar to the variation in virulence often observed in strains of the same bacterium. He also claims to have increased the solvent power of feeble strains by successive passages.

It has been suggested that this solution of bacteria may play a part in the immunity and defensive mechanisms of the body, and it is perhaps not surprising that a "bacteriophagotherapy" has developed already. A "cure" of pyelonephritis by the administration of a lysant of the colon bacillus has been reported, and the method has been tried in many cases of dysentery. Davison,[5] however, reports the absence of any therapeutic effect whatever in twelve children suffering from bacillary dysentery. The results of further investigations of this interesting reaction will be received with interest.

THE WORK OF THE A. M. A. CHEMICAL LABORATORY

When some seventeen years ago the Council on Pharmacy and Chemistry began its work of turning the light on proprietary medicines, its main concern was to let physicians know the composition of many of the proprietary medicines widely advertised in medical journals. At that time the exposure of false or vague and meaningless declarations of identity was considered of basic importance. This fact is shown by the name of the Council and by the appointment of such men as Harvey W. Wiley, then chief of the U. S. Bureau of Chemistry; his associate, Lyman F. Kebler, an authority on drug analysis; Martin I. Wilbert, noted for his work in scientific pharmacy; Samuel P. Sadtler, then professor of chemistry at the Philadelphia College of Pharmacy, and Professors

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[1] D'Herelle, F.: Nature of Bacteriophage, Brit. M. J. **2**: 289 (Aug. 19) 1922.

[2] Bordet, J.: Concerning the Theories of the So-Called Bacteriophage, Brit. M. J. **2**: 96 (Aug. 19) 1922.

[3] Bail, O., and Watanabe, T.: Experiments on the Specific Activity of the Bacteriophage, Wien. klin. Wchnschr. **35**: 362 (April) 1922.

[4] Davison, W. C.: Observations on the Properties of the Bacteriolysant, J. Bacteriol. **7**: 475 (Sept.) 1922.

[5] Davison, W. C.: The Bacteriolysant Therapy of Bacillary Dysentery in Children, Am. J. Dis. Child. **23**: 531 (June) 1922.

C. S. N. Hallberg and W. A. Puckner, then teachers at the University of Illinois School of Pharmacy. This need for work which would bring home to the medical profession the essential secrecy of the drug preparations which they were asked to prescribe led also to the establishment of the A. M. A. Chemical Laboratory under the directorship of Professor Puckner.

The initial report of the Council gave the medical profession the first definite statement of the composition of some of the acetanilid mixtures then so widely exploited as headache remedies. Following this came reports from the Council which gave the results of chemical analyses of such proprietaries as "Tyree's Antiseptic Powder," "Uron," "Thialion," "Sulpholythin," "Labordine," "Campho-Phenique," "Oxychlorin" and "Saliodin." Though many of these preparations were offered to the profession as new chemical discoveries and endowed with imaginary and bizarre chemical formulas, they were, in fact, simple mixtures of well known chemicals, and their analysis presented little difficulty.

As a result of this work of the Council and the laboratory, most promoters of pharmaceutical specialties today know better than to invest money in the exploitation of mixtures the sale of which could be interfered with when once the inevitable happens and the composition of the nostrum is disclosed. But this does not mean that today the composition of all proprietaries is correctly declared. Through ignorance, incompetence or by design, proprietary medicines are still to be found sailing under false colors with regard to their composition. The work of the Chemical Laboratory, however, has become more difficult with these changed conditions. Instead of analyses of mixtures of well known drugs, the laboratory has to do not with the obvious, but with new compounds of novel composition which possess neither the chemical composition nor the constitution ascribed to them. The report of the Council on Pharmacy and Chemistry on "Galyl" that appears in this issue [1] is an example of the more difficult character of work now required of the laboratory.

When "Galyl" was first put on the market, it was claimed to be—and probably was—a compound consisting of two arsphenamin molecules linked together by phosphorus groups. Its administration, however, required manipulations which made its preparation for injection as difficult as that of arsphenamin. With the growing popularity of neo-arsphenamin, the manufacturer of Galyl felt the need of an improved, easily administered preparation. The result was the "new" Galyl which is now on the market. This is to be had in solution ready for administration or in the form of a powder which is easily prepared for injection. Fortunately for the profession and the public, if unfortunately for the promoter of Galyl, the A. M. A. Chemical Laboratory investigated this preparation and reached the conclusion that giving this product amounts to the administration of arsphenamin (in the form of the sodium compound) with extraneous inorganic material, and that the "new" Galyl is an unessential and useless duplication of the well established arsphenamin.

Involved and difficult as this work was, it is of the greatest value to our profession, for it obviates the need of comparative clinical trials of Galyl with arsphenamin. The work of the A. M. A. Chemical Laboratory makes it almost certain that Galyl is, for all practical purposes, nothing more than sodium arsphenamin.

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[1] Galyl: Propaganda for Reform Department, page 1706.

HUMAN CARRIERS OF TETANUS

The World War gave renewed prominence to tetanus as a menace to man. It served as a reminder of the peculiar behavior of *Bacillus tetani*, giving emphasis to the anaerobic character of this micro-organism. The almost universal distribution of the bacilli in nature has long been known, their occurrence in garden soils and street dirt being attributed to the presence of animal excrement. That feces become distributing agents for the tetanus bacillus is explained by the fact that the bacillus exists in the intestine of many normal animals, especially of the herbivora. According to Noble,[1] experimental evidence discloses that this micro-organism may multiply in the intestine of such animals. In fact, the intestine, or rather the intestinal content of certain individual animals, seems to offer especially favorable conditions for the growth of the tetanus bacillus; such animals are "tetanus carriers," comparable, in regard to the distribution of the organism, with typhoid or cholera carriers, among human beings.

Claims of the occasional presence of tetanus bacilli in the alimentary tract of man have long been on record. The studies of Tulloch were surprising in indicating the possible occurrence of these micro-organisms in a considerable percentage of men who had seen overseas service on fields presumed to abound in the tetanus-producing species. Equally unexpected is the report by Tenbroeck and Bauer [2] from the Peking Union Medical College in China showing that a third of the male population examined in the vicinity of Peking carry tetanus bacilli in the digestive tract, and that the bacilli are probably multiplying there. The Peking bacteriologists aver that man is thus an important factor, in certain vicinities, in the distribution of the bacillus, for it is not uncommon to see human feces deposited on the streets; and such excrement is used to fertilize the fields, so that dust from the streets and fields must contain great numbers of spores that come from man.

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[1] Noble, W.: Experimental Study of the Distribution and Habitat of the Tetanus Bacillus, J. Infect. Dis. **16**: 132, 1915.

[2] Tenbroeck, C., and Bauer, J. H.: The Tetanus Bacillus as an Intestinal Saprophyte in Man, J. Exper. Med. **36**: 261 (Sept.) 1922.

The proof that the tetanus bacillus can grow in the human digestive tract, as is said to be the case also in horses, is found in its presence in persons who, although they have been on a virtually sterile diet for many days, may still eliminate millions of spores of tetanus bacilli in a single stool. Why, under such circumstances, the distribution of human tetanus carriers is not even more universal needs to be explained. Perhaps it is due to a gradual development of immunity; or possibly other bacterial species manage to crowd out that of tetanus or make conditions unfavorable for its growth. These facts explain the frequent occurrence of tetanus neonatorum in certain regions. They also warn that tetanus may occur there after damage to the intestine by mechanical injury or disease, but without the usually necessary external lesion. The Peking examinations were made on Chinese who live in more intimate contact with the soil than does the average man in Europe or America; consequently, one must not expect to duplicate Tenbroeck and Bauer's findings everywhere. Nevertheless, when there are districts in the world where at least one out of three persons among the lower classes is discharging tetanus bacilli in the feces, the entire problem of tetanus as a disease must be considered from certain new angles. Finally, it remains to be determined whether the incidence of tetanus among the Chinese bears any definite relation to the number of intestinal carriers of the bacilli.

Current Comment

ROENTGEN RAYS AND STERILITY

Ever since early in the use of roentgen rays in clinical and experimental work, it has been known that dangers of a subtle sort are connected with them. For instance, it was discovered that unless precautions are taken, the workers may become sterile. In the male, azoospermia has been described, while for the female there have been reports of atrophy of the ovarian follicles, and menstrual disturbances. The details of these deleterious effects have not been ascertained with as much accuracy as have the reactions that are initiated in the phenomena commonly known as roentgen-ray burns. Recent experiments by Hooker[1] are interesting and significant in this connection. His tests on animals show that small doses may stimulate sexual development if they are applied before sexual maturity. Even exposure to larger ones may not affect the subsequent reproductive history of the female. The use of the roentgen rays at a later period of development, however, is liable to result in unsuccessful breeders, as previous experience has shown. There is at least one distinction between the effects of castration and those of exposure to roentgen rays. Sterilization in the latter case, according to Hooker, does not affect the interstitial tissue. Furthermore, the growth curves of animals sterilized by the use of roentgen rays are entirely normal, in contrast with the altered rate of growth well known in the case of castrated individuals.

"PATENT MEDICINE" SECRECY—A TARDY ADMISSION

For years the medical profession has insisted that the real reason that nostrum makers keep the composition of their products secret is (1) for the glamour that such secrecy throws around them and (2) the fact that so long as the public does not know what is in a preparation the advertiser's imagination is given freer play. The unknown is always awe-inspiring. The "patent medicine" makers, on the other hand, have stoutly maintained that their reason for keeping the composition of their product secret is that the formula is personal property and, if it were made known, the market would be flooded with imitations, and their property destroyed. Now comes the mouthpiece of the "patent medicine" people, *Standard Remedies,* with the tardy admission that the medical profession is right and their own constituents wrong. Says this publication in an editorial "Formulae and Secrecy":

> "It should be remembered that while a developed formula has a great value, *it is the trade name, the advertising, the merchandising skill applied in connection with it that creates its valuable good will.* [Italics ours.—Ed.] Ten to one a thorough search through books of formulae will reveal that your own is already known to the medical world. But no one can get the same benefit from it that you have gained unless they spend in merchandising it the same money you have spent."

Elsewhere in the same editorial *Standard Remedies* admits that "the ingredients of some of the biggest selling proprietary medicines are duplicated in one way or another by imitators. Usually without profit." In other words, as The Journal has iterated and reiterated, the composition of the average "patent medicine" is usually the least commercially valuable thing about it. The real thing of commercial value is the *name,* which the manufacturer protects by a perpetual monopoly granted under the trade-mark law. Pink dishwater could be put on the market under some fancy name (trade-marked) and by persistent and insistent advertising built up into a large property. If it were nothing but pink dish-water, only advertising, of course, could keep it alive. Add a stiff dash of spiritus frumenti, or some equally intriguing drug, to the mixture and the composition alone might keep it moving after momentum had been given it by advertising. The claim long made by "patent medicine" makers that they had to keep the composition of their nostrums secret in order to protect themselves is buncombe because every "patent medicine" maker knows what *Standard Remedies* admits, that his preparation can be analyzed by any good chemist and duplicated. Now that the "patent medicine" people themselves acknowledge that the real commercial value of their products lies in the "development" that has been brought about by advertising, there is no longer any reason for our timid lawgivers shying at every "open formula" bill that may be introduced for the purpose of giving the drug-taking public a modicum, at least, of protection.

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[1] Hooker, D. R.: The Effect of X-Ray upon Reproduction in the Rat, Am. J. Hyg. 2:461 (July) 1922.

HOSPITAL FIRES

It is startling to learn that, during 1919 and 1920, 370 fires occurred in institutions classified as hospitals, asylums and sanatoriums—an average of more than one fire a day in that type of institution. If any structures should be properly protected, those in which human beings lie incapable of self-protection should be given first consideration. Among the causes of fire in these institutions were, first, sparks on the roof; second, defective chimneys and flues; third, lightning; fourth, heating installation, and fifth, electricity. These etiologic considerations point the way to prevention, but there are further special considerations which apply to hospitals. The height of hospital buildings is a matter for concern; ambulatory patients should be placed on the higher floors, the lower floors being reserved for those completely bedridden. In every hospital, there should be located fire alarm boxes for prompt notification in case of fire. Volatile liquids which are easily inflammable should be handled with caution. Chemical extinguishers should be easily available, and a fire drill for the employees should be a regular experience. "When it is realized," says the National Board of Fire Underwriters, "that most fires are preventable, and that there are none too many hospitals, it seems a pity that large sums must go annually toward replacing what might have been conserved for further usefulness."

AN APHORISM FROM CELSUS FOR CANCER WEEK

After Hippocrates came the writings of Celsus, who lived in the reign of Tiberius Caesar. It was the period just preceding and following the coming of Christ. The great work of Celsus, "De re medicina," was one of the first medical books printed (1478), afterward passing through more separate editions than almost any other scientific treatise. Among the writings of this great observer and scientific student of disease is the following aphorism:

> ONLY THE BEGINNING OF A CANCER ADMITS OF A CURE; BUT WHEN IT IS ONCE SETTLED OR CONFIRMED, IT IS INCURABLE, AND (THE PATIENT) MUST DIE UNDER A COLD SWEAT.

AGAIN "PROPRIETARY MEDICINES AND THE DOCTOR"

Twice recently we have called attention to the way in which the mails of physicians, and both medical and lay editors have been flooded with reprints of a paper by one Irwin G. Jennings, who was giving "Vital Reasons Why the Medical Profession and the Medicine Man Should Pool Their Ideals and Work Together to Benefit Humanity." The paper in question appeared originally in the official organ of the Glass Container Association which, of course, is interested in the bottle business. The author of the paper was described as a "judge" and a "lawyer," although the fact was not brought out that he was the editor of *The Glass Container*. In THE JOURNAL's previous comments, it was pointed out that, while the Glass Container Association has its headquarters in New York City, and the envelops in which this reprint was sent out bore the New York address, the postmark showed that the mailing was done in Chicago to various parts of the United States. The envelops did not bear a stamp, but bore the post office imprint reading; "U. S. Postage Paid 1 Cent, Permit 2492." THE JOURNAL is advised that "Permit 2492" is held by the Standard Remedies Publishing Company of Chicago! *Standard Remedies*, as mentioned elsewhere in these pages, is the mouthpiece of the "patent medicine" interests. "We are advertised by our loving friends."

COLORADO DEFEATS ANTIVIVISECTION

As THE JOURNAL goes to press, word comes that the antivivisection measure on the Colorado ballot under the initiative was defeated by the people of the state on November 7 by a vote of about six to one. The contest has been well fought and the people of Colorado, especially the medical profession, are entitled to congratulations and the gratitude of the nation on the victory they have won on behalf of science and the welfare of mankind and of domestic animals.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Health Officer Wins Suit.—After a deliberation of only five minutes, a jury in Judge Aird's court, October 20, returned a verdict in favor of Dr. Judson D. Dowling, city health officer of Birmingham, defendant in a suit for $10,000 brought by Dora Glass. She sued Dr. Dowling, alleging false imprisonment for eleven days in August, 1920, when she refused to be examined for venereal disease.

ARKANSAS

Appointment for Dr. Holt.—Dr. William L. Holt, Knoxville, Tenn., has been appointed epidemiologist for the Arkansas State Board of Health.

University News.—"Founders' Day" was observed by the University of Arkansas School of Medicine, Little Rock, October 7. Dr. Morgan Smith, the mayor of the city and Ex-Governor Brough gave addresses.

CALIFORNIA

Hospital News.—After a delay of more than a year, actual construction work will be started immediately on the new Hollywood Hospital, to be erected by the Hollywood Hospital Association. The estimated cost of erection is $500,000.——The Seymour Sanatorium, Banning, will in future be known as the Mary Henderson Sanatorium. Dr. Charles E. Atkinson will continue as medical director.——One hundred and seventy-eight disabled veterans were moved from the government hospital at Arrow Head Springs, October 23, when a forest fire which had been raging for two days menaced the hospital.——The Celite Hospital, Lompoc, which was recently destroyed by fire, will soon be rebuilt.——Pasadena will have a preventorium conducted under the same management as the Pasadena Dispensary. Construction work on the building will soon be started. The structure is to cost $35,000. A new training school for nurses will be organized at the Fresno County Hospital, in charge of Miss Carey Eppley, superintendent of nurses at Noepming Sanatorium, Minn. The training school and hospital will be affiliated with the Fresno State College. Dr. Herbert O. Collins is director of the hospital.——Work will be started in the near future on the new wards for the care of tuberculous patients at the Los Angeles County Hospital. The wards will have a capacity of 200 beds.

COLORADO

New Tuberculosis Association.—The Boulder County Tuberculosis Association was recently reorganized, with Dr. Severance Burrage, Boulder, as chairman and Dr. John F. Andrew, Longmont, vice chairman.

CONNECTICUT

Personal.—Dr. Joseph E. Stroebel, superintendent of the Hartford State Tuberculosis Sanatorium, has been appointed in charge of the tuberculosis division of Grasslands Hospital, Valhalla, N. Y.——Dr. Edward H. Truex, formerly of East Hartford, has recently returned from abroad and will practice in Hartford.

Name of Health Bulletin Changed.—Volume 1, No. 1, of *Bridgeport's Health,* has just been received. This is the title by which the monthly bulletin of the department of health of Bridgeport, *Community News,* will in future be known. The first number of the new issue gives a brief sketch of the growth of the department and an outline of its present organization.

Medical Association News.—At the annual meeting of the Meriden Medical Association, Dr. David P. Smith was elected president, Dr. Raymond V. Quinlan, vice president, and Dr. Cole B. Gibson, secretary-treasurer. Arrangements were made for a course of several lectures by prominent physicians and surgeons to be held during the winter.——The one hundred and first semiannual meeting of the Hartford County Medical Association was held at the Hunt Memorial, Hartford, October 31.

DISTRICT OF COLUMBIA

Study in Physical Training.—Physical training methods in District of Columbia high and junior high schools will be studied by a committee appointed by Supt. Frank W. Ballou, superintendent of the public Schools. The members are: Charles Hart, Robert A. Maurer and Capt. A. C. Newman.

Contracts Let for Gallinger Hospital.—Major E. W. Patterson has begun the letting of contracts for furnishings for the $2,000,000 Gallinger Memorial Hospital. The institution will be ready for occupancy by January 1. More than $30,000 will be spent in equipping the hospital. The old psychopathic building is being renovated and will be used as a nurses' annex to the hospital proper.

Decision on Medical Practice Act.—An important decision was rendered by Judge Robert Hardison of Washington to the effect that practitioners of osteopathy, chiropractic and other kindred treatments do not come under the medical practice act of Congress regulating the practice of medicine and surgery in the District of Columbia. According to the decision practitioners must take an examination before the medical supervisors and be registered and licensed before they are permitted to treat patients by the practice of surgery. The case in question was a complaint against Thomas J. Howerton, an osteopath of Washington, who was charged with violating the medical practice act when in his professional capacity he treated the foot of Norman C. Glover by the use of a mechanical device.

GEORGIA

Tuberculosis Organization Formed.—The Glynn County Tuberculosis Association was recently formed at Brunswick with Dr. John W. Simmons, president, and Dr. Richard L. DeSaussaure, secretary.

County Society Holds Free Clinic.—The Randolph County Medical Society held a free tuberculosis clinic in Cuthbert recently. This was the first clinic preliminary to an intensive campaign which will be carried on against tuberculosis by physicians in their respective communities. This is the second free clinic of its kind ever held in the state, it is reported. Drs. Carl C. Aven, Atlanta; Elmore C. Trash, president of the Georgia Tuberculosis Association, and Charles M. Stephens, Waycross, were among those present.

IDAHO

Child Health Institute.—Under the auspices of the Idaho Bureau of Child Hygiene, a children's health conference was held in Nampa, October 25-26. Examinations were made, and lectures were given on the proper care, and the diet and sleep routine for children.

ILLINOIS

Physician Fined.—It is reported that Dr. James E. Inskeep, Mount Carmel, was sentenced to thirty days in prison and fined $100 and costs at Cairo, recently. He pleaded guilty to violation of the Harrison Narcotic Law.

Physician Convicted.—The jury in the trial of Dr. Preston O. Carrico, Ashmore, returned a verdict of guilty, October 25, it is reported. Dr. Carrico was charged with manslaughter in causing the death of Mrs. Hutson by an illegal operation. Motion was made for a new trial.

Personal.—Drs. Charles E. Wilkinson, Danville, and H. N. Rafferty, Robinson, were elected president and secretary, respectively, of the Wabash Valley Aesculapian Society, recently at the annual meeting in Paris.——Dr. Walter E. Kittler, Rochelle, was recently reelected president of the Ogle County Medical Society at Dixon.——Dr. Leo B. Couch, Prairie du Rocher, is in a hospital in St. Louis, recovering from the effects of coming in contact with a live wire when fixing a radio aerial wire. The first finger of his left hand was burned entirely off.

Society News.—At the annual meeting of the Fulton Medical Society in Canton, Dr. Elden M. Price, Astoria, was elected president, and Dr. William E. Schallenberger was reelected secretary. State Senator Jewell addressed the meeting on the subject: "Why Should the Public Be Interested in Scientific Medicine and Medical Legislation?"——At a meeting of the Iowa and Illinois Central District Medical Association, held in Davenport, Iowa, Dr. James Dunn read a paper on "Some Points in Infant Feeding," and Dr. Rollin T. Woodyatt, associate professor of medicine at Rush Medical College, Chicago, read a paper on "The Management of Diabetes Mellitus."——At the thirteenth meeting of the Illinois Tuberculosis Association in Springfield, October 23-24, Dr. George T. Palmer, Springfield, was elected president, and Anna Bowles, Joliet, secretary.

Chicago

Chicago Abolishes Sirens.—Stating that they are a detriment to public health, Health Commission Bundesen announced, October 21, that all shrieking exhaust whistles and sirens carried by motor trucks are to be silenced as nuisances. The chief of police promised his cooperation.

Society News.—The Chicago Physicians' Club, the Chicago Surgical Society, the Chicago Gynecological Society and the Chicago Chapter of the American College of Surgeons entertained at dinner, November 4, the following distinguished foreign surgeons now visiting this country: Prof. Raffaele Bastianelli, Rome; Prof. Einar Key, Stockholm; Dr. Edwin Felling, Mora, Sweden; Dr. Enrique Pouey, Uruguay; Dr. Guillermo Munnich, Chile, and Dr. José Arce, Argentina. Following the dinner, the guests gave addresses.

Dental Clinic for Children.—Following the examination of 141,811 schoolchildren in the city, health officials found that 88,343 had defective teeth, or oral conditions that needed treatment. The commissioner of health, with the cooperation of Dr. Arthur D. Black, dean of the Northwestern Dental College, has made arrangements by which certain groups of schoolchildren will be given dental treatment at that institution. It is planned to take care of at least twenty children daily. A charge of from 15 to 25 cents will be made for those whose parents are able to pay.

Institute of Medicine Entertains Two Nobel Prize Winners.—At a meeting of the Institute of Medicine of Chicago held, October 27, Dr. August Krogh, winner of the Nobel prize, read a paper entitled "The Exchange of Substances Through the Capillary Walls, with Some Applications to Pathological Problems." At the same meeting the presiding officer presented Dr. Bárány, also a Nobel prize winner in medicine, who stated his pleasure at meeting Dr. Krogh in Chicago. "Although I live but one hour's ride from him," said Dr. Bárány, "it was necessary that I come to Chicago to hear his lecture."

Formation of Health Department Advisory Staff.—Dr. Bundesen, health commissioner, announced, November 4, the formation of a health department advisory staff composed of physicians who are considered authorities in various branches of health work. The advisory staff is composed of the following: laboratory advisory committee, Dr. Ludvig Hektoen, director of the McCormick Institute for Infectious Diseases; Arthur I. Kendal, Ph.D., dean of Northwestern University Medical School, and Dr. David J. Davis, head of the department of bacteriology of the University of Illinois. On the consulting staff of pediatricians are: Drs. Julius H. Hess, Jniversity of Illinois; Clifford G. Grulee, professor of pediatrics, Rush Medical College, and Isaac A. Abt, Northwestern Jniversity Medical School. Departmental advisers on prenatal care are: Drs. Joseph B. DeLee, head of the Chicago Lying-In Hospital and professor of obstetrics, Northwestern Jniversity Medical School, and Davis S. Hillis, associate of Dr. DeLee at the Lying-In Hospital. The departmental adviser on venereal disease is Dr. Louis E. Schmidt, professor of genito-urinary surgery, Northwestern University Medical School; and lecturer and adviser on infant welfare, Dr. Walter H. O. Hoffmann, attending physician of the Children's Memorial Hospital.

INDIANA

Personal.—Dr. Paul T. Hurt, Indianapolis, recently won he annual physicians' and dentists' golf tournament, held at he Highland links, turning in an 83 gross score.——Dr. Clifford L. Bartlett, medical director of St. Joseph's Hospital, Mishawaka, has been appointed professor of pathology at the Jnion Medical College of Peking, China. He sailed from Seattle, September 16.

Hospital News.—Dr. H. N. Oliphant has purchased the Palmer Hospital, Frankfort, and has also been appointed chief surgeon of the Toledo, St. Louis and Western Railroad. Dr. R. F. Palmer, formerly owner of the hospital, died recently.——A hospital to be known as the Mercy Hospital and Nurses' Training School will be opened this month in Cincinnati, it is announced. Colored physicians and nurses will comprise the staff, and the training school will be for colored nurses only.——A nurses' home will be erected at St. Mary's Mercy Hospital, Gary, in the near future, at a cost of $100,000.——Structural work on the new Remy factory hospital building at Anderson has been completed.——A new children's ward is under construction at the Indiana State Sanatorium at Rockville. The new building will contain eighty beds, bringing the capacity of the hospital up to 200 beds.——The twenty-two room addition to the Methodist home at Warren was dedicated, November 1, with appropriate exercises.

LOUISIANA

Illegal Practitioners Found Guilty.—The New Orleans *Times* reports that Joseph B. and Walter W. Fife of Lake Charles were found guilty, October 21, of practicing medicine without licenses.

Bureau of Professions Organized.—At a meeting attended by physicians, attorneys, engineers, chemists, educators, architects, ministers and accountants, at the Association of Commerce, in New Orleans, October 26, a bureau of professions was organized, with Dr. William A. Lurie as first chairman. The bureau was organized to give professional men an opportunity to participate in the activities of the Association of Commerce, as a whole, and to function as a class so as to obtain the advantages of membership.

Fund for Education Established.—Dr. Luther Sexton, New Orleans, who some years ago established the Sexton Education and Benefit Fund with a donation of $100,000, has recently announced a further contribution of $225,000, as a perpetual endowment fund for the education of any member of the Sexton family. Dr. Sexton's purpose is to guard them against the hardships of his own youth, when, it is said, he followed the plow for some time in order to attend college. He has also contributed the sum of $10,000 each to the Methodist Orphanage, Jackson, Miss., the Methodist Orphanage, Tuston, and the Protestant Orphanage, New Orleans. Dr. Sexton is clinical professor of minor surgery at Tulane University School of Medicine.

MAINE

Woman Physician Goes as Missionary.—Dr. Mary F. Cushman, Farmington, has resigned from the board of registration of Maine. She will go to Central Africa as a missionary.

Construction on New Hospital Started.—Work has been started on the erection of the new hospital for the Sisters of Charity of Waterville. The institution will be four stories high and will be built at a cost of $500,000.

MARYLAND

Meetings.—A joint meeting of the Baltimore City Medical Society and the Maryland Cancer Committee was held, November 3, in Osler Hall, Baltimore, as an introduction to Cancer Week. A symposium on "Cancer as a Preventable Disease" was participated in by Drs. William H. Welch, Raymond Pearl, William T. Howard and A. W. Freeman, from the School of Hygiene and Public Health.

MASSACHUSETTS

Cambridge Tuberculosis Association.—At the annual meeting of the association held, October 10, Dr. Eugene A. Darling was elected president and Miss Louise W. Jackson, secretary.

Farewell Dinner to Dr. Faxon.—A dinner was given to Dr. Nathaniel W. Faxon, October 11, by his friends at the Massachusetts General Hospital, Boston, at the St. Botolph Club. He has given up his position as assistant administrator of the hospital to accept the position of director of the new Strong Memorial Hospital to be connected with the School of Medicine and Dentistry of the University of Rochester, N. Y. Dr. Faxon was presented with a cigaret case.

Warren Triennial Prize.—At a meeting of the trustees of the Massachusetts General Hospital, October 13, it was voted that two prizes instead of one be awarded this year, the first prize to be $500 and the second $250. This will not establish a precedent. There were twenty-two essays submitted from the United States and foreign countries. The first prize was awarded for the essay on "The Circulation in the Mammalian Bone-Marrow," written by Drs. Cecil K. Drinker, Katherine R. Drinker and Charles C. Lund, all of Boston. The second prize was awarded to Dr. James Mott Mavor of Union College, Schenectady, N. Y., for his essay on "The Effect of Roentgen Rays on the Nuclear Division.

Harvard University Appointments.—The following physicians have been appointed members of the administrative board, 1922-1923, of the Harvard University Medical School: Dean David Linn Edsall, chairman; Drs. Algernon Coolidge, Milton Joseph Rosenau, Harvey Cushing, Reid Hunt, John Lewis Bremer, Walter Bradford Cannon, Charles Macfie Campbell, Worth Hale, Simeon Burt Wolbach, Oscar Menderson Schloss and Francis Weld Peabody.——The following elections and appointments of the president and fellows of Harvard University have been consented to by the board of overseers: professor of orthopedic surgery, Dr. Robert Gayler Osgood; clinical professor of oral surgery, Dr. Leroy Matthew Simpson Miner, and therapeutics, Dr. John William O'Connell.

MICHIGAN

Chiropractor Convicted.—It is reported that F. O. Logie, chiropractor, Iron Mountain, was recently convicted of practicing medicine without a license. He was instructed to stop practicing, and sentence was suspended until the next term of court, in January.

Detroit Academy of Medicine.—The academy was entertained at dinner in the Athletic Club, October 10, by Dr. Guy L. Kiefer, the retiring president. Following the dinner, he read a paper on "Industrial Medicine." Dr. Burt R. Shurley was elected president, Dr. William H. Morley, vice president, and Dr. H. Lee Simpson, secretary-treasurer.

Gifts to Wayne County Medical Society.—During the last year, the library of the county society has received 1,243 bound volumes and about 300 unbound numbers of valuable journals from Dr. W. P. Manton; 200 books from Mrs. H. W. Longyear; 400 from Dr. G. B. Lowrie; 300 volumes from Mrs. A. H. Steinbrecher, and 160 volumes from Dr. Ray Connor. Twenty physicians and ten institutions have also donated other books to the library. At the present time, the library contains approximately 15,000 volumes.——Dr. George Dock, St. Louis, recently presented the Wayne County Medical Society with two portraits, one of Dr. William Beaumont and one of Sir William Osler.

MINNESOTA

Health Committee Appointed.—The Minneapolis Medical Association has appointed the following physicians members of a committee of fifty whose purpose it will be to direct public health and public welfare work in the state: president, Dr. E. Starr Judd, Rochester; vice presidents, Drs. Theodore Bratrud, Warren, H. P. Ritchie, St. Paul, and G. H. Mesker, Oliver; secretary, Dr. Carl B. Drake, St. Paul, and treasurer, Dr. F. L. Beckley, St. Paul.

Personal.—Mr. Andrew Fullerton, surgeon to the Royal Victoria Hospital and clinical lecturer at Queen's University, Belfast, Ireland, delivered a Mayo Foundation lecture on "Experiences in the Practice of Urology," October 15.——

William G. Swann, D.Sc., spoke on "Structure of the Atom" before a meeting of the Hennepin County Medical Society, October 18.——Prof. August Krogh, professor of zoophysiology in the University of Copenhagen, delivered three lectures for the Mayo Foundation, Rochester, October 19, 20 and 21.——Dr. Benjamin F. Simon, city health officer of St. Paul, has been authorized by the city council to visit eastern cities, to inspect their health systems.——Dr. Oscar E. Locken, Crookston, has been appointed chairman of the committee on public health of the League of Minnesota Municipalities.

Hospital News.—The new hospital of the Northwestern Medical and Surgical Association at Brainerd was formally opened with a big musical program, October 14-15. The old hospital building is being remodeled into the administration building and nurses' home, and will also contain the clinical laboratory and roentgen-ray equipment. Dr. Joseph Nicholson is president of the association, and Miss Mildred Lund will serve as superintendent of the institution.——Plans have been completed by architects in Bemidji for the new Methodist Hospital at Wadena to be erected by the Methodist Hospital Association of that city.——The contract has been awarded for the erection of a new cottage for women at the State Hospital at St. Peters. It will be erected at an approximate cost of $58,000.——The American Legion Hospital Association was incorporated in September. The incorporators are two Minneapolis and two St. Paul business men, and one Duluth and one Rochester man. They will erect a Legion hospital at Rochester.

MISSISSIPPI

Jury Frees Dr. Copeland.—Dr. Edward A. Copeland, Shaw, was recently freed on a charge of killing S. M. Wilkins, a dentist, at his office. The report of the grand jury, failing to return a true bill in the case, is regarded as a vindication of Dr. Copeland's part in the shooting. He maintained that he could give no reason for the attack which he says the dentist made on him, and pleaded that he was forced to kill him in self-defense.

MISSOURI

New Property for Medical Society.—The Jackson County Medical Society has entered into an agreement with the owners of a proposed office building at Hunter and Baltimore streets, Kansas City, by which the society will be given auditorium and library space free of rental for ten years, the society to endorse the building as a physicians' office building and approve the tenants. The property now owned by the society is to be rented, the income to be used for the maintenance of the auditorium and the library.

Missouri to Commemorate Mendel and Pasteur.—St. Louis University will hold exercises commemorative of the centenaries of Mendel and Pasteur on the evening of December 14, in the university auditorium. President Robison will preside at the ceremonies. The address on Mendel will be delivered by Prof. H. S. Jennings, Johns Hopkins University, and the address on Pasteur by Prof. Victor C. Vaughan, emeritus professor of hygiene, University of Michigan, and chairman, division of medical sciences, National Research Council.

Obstetrical and Gynecological Society.—The annual dinner of the Kansas City Obstetrical and Gynecological Society was recently held at the Hotel Lucerne, Kansas City. Dr. Roland E. Skeel, Los Angeles, president of the American Association of Obstetricians and Gynecologists, was the guest of honor. In addition to the fellows of the society, there were present: Drs. Caryl Potter and John I. Byrne, of St. Joseph, Linn B. Schofield and Oscar B. Hall, of Warrensburg, and Leslie Leverich and A. Elam Reeves, of Kansas City. Dr. Skeel delivered an address on "Premature Publication of Methods of Surgical Operations."

NEW HAMPSHIRE

Honor for Dr. Walker.—Dr. Charles S. Walker, Keene, was recently elected commander of the New Hampshire department of the American Legion.

Health Campaign.—It was recently announced by the city health officer of Manchester that a general committee of citizens will be appointed early in 1923 to conduct an intensive health program. This institute will include lectures, motion pictures and health exhibits.

New Hampshire Tuberculosis Conference.—At the annual meeting of the State Tuberculosis Association, held in Nashua, October 26, Dr. Arthur L. Wallace, Nashua, was elected president, and Dr. Robert B. Kerr, Manchester, executive secretary. Drs. Patrick J. McLaughlin, Nashua, and Charles Duncan, Concord, are on the executive committee. Governor Brown, the mayor of Nashua and Dr. Eugene R. Kelly, Boston, gave addresses at the meeting.

NEW JERSEY

School Children Poisoned by Sweets.—The poisoning of several schoolchildren in Jersey City, October 17, was found to have been caused by gelatin in candy, which had coagulated. Health Officer Hagen made a personal tour of all confectionery shops in the downtown section of the city, accompanied by several health board physicians, and sampled and analyzed the various confections. The children, it is stated, were able to return to school within a week.

NEW YORK

Personal.—Dr. William A. Groat, professor of laboratory diagnosis of Syracuse University, College of Medicine, was elected president of the Medical and Surgical Society of Western and Central New York, at the annual meeting held in Auburn, October 19.——Dr. Charles S. Prest, Brooklyn, was recently appointed secretary of the tuberculosis committee of the Brooklyn Bureau of Charities. Dr. Prest was formerly director of the health service, Atlantic Division of the American Red Cross.——Dr. Elias P. Lyon, dean of the University of Minnesota Medical School, spoke at the fifty-eighth annnal convocation of the University of the State of New York at Albany, recently.——Dr. Edward M. Bell, Troy, has been elected president of the Cohoes Medical Society, to succeed Dr. Henry B. Gillen.

Hospital News.—The New York Orthopedic Hospital and Dispensary has purchased a large house and grounds in White Plains. It is understood that this purchase is a step in carrying out the plans for the future expansion of the institution.——The contract has been let for the erection of a $200,000 addition to the Lawrence Hospital, Bronxville.——A campaign to raise $100,000 for the erection of a four-story building is being conducted by the Brooklyn Hebrew Maternity Hospital. The present hospital grounds have sufficient area to build a modern structure with accommodations for 300 patients, and this site will be utilized.——The Rochester Rotary Club has entered into a contract with the Infants' Summer Hospital, Rochester, for use of the hospital as a winter sunshine camp for crippled children convalescing from operations.——The Rochester General, the Highland and the Homeopathic hospitals were recently surveyed by Mr. S. S. Goldwater of New York, with a view to extension of their services. He submitted his report at a dinner, November 4, to which the clinical staffs, managers, directors and trustees of all three hospitals were invited. A campaign for funds to cover extensions of services will be conducted.

University News.—The first building for the new University of Rochester Medical School, a stow-story laboratory building, will be completed, November 15. Temporary offices of administration will be established in it. An appropriation of $1,000,000 has been made by the city government for the new municipal hospital, which will adjoin the Strong Memorial Hospital. They will have a combined capacity of 460 beds. The university is to furnish the professional staff and the city the nonprofessional employees, under a contract recently approved. Dr. Stanhope Bayne-Jones, associate professor of bacteriology at Johns Hopkins University, Baltimore, has been appointed professor of bacteriology at the new university, and Dr. George Washington Corner has been appointed professor of anatomy. They will assume their duties in September, 1923.——Foster Hall, the chemical laboratory of the University of Buffalo, designed to meet the needs of the electro-chemical, hydro-electric, iron and steel industries on the Niagara frontier, was dedicated, October 27, in connection with the installation of Prof. Samuel P. Capen of Washington as a chancellor of the university. Dr. Edgar F. Smith, president of the American Chemical Society, and Dr. Edwin E. Slosson, were speakers at the ceremony. The laboratory, erected at a cost of $1,000,000, was the gift of O. E. Foster of Buffalo.

New York City

New York Academy of Medicine.—The speakers who are expected at the Pasteur celebration of the New York Academy of Medicine are: Prof. Russell H. Chittenden and Drs. William H. Welch, Erwin Smith, Simon Flexner, Herman Biggs and W. W. Keen. The exhibition of books, photographs, medallions, manuscripts and other articles referring to the life work of Pasteur will be open to the public at ie New York Academy of Medicine for two weeks, commencing December 27. Public addresses will be given at the cademy, Jan. 10, 1923. The library committee of the academy will be glad to receive material relating to the life of ouis Pasteur to be used for the celebration. Communications should be addressed to Mr. J. S. Browne, librarian. —The anniversary discourse of the New York Academy of ledicine was delivered on the evening of November 2 by rof. E. G. Conklin of Princeton University. His subject as "Problems of Organic Adaptation."——Dr. August rogh, professor of physiology, University of Copenhagen, elivered the second Harvey Society Lecture at the New ork Academy of Medicine, November 11, on the subject of Nervous and Hormonal Control of Capillary Contractility."

Sale of Veronal and Analogues Regulated.—At a recent ieeting of the board of health, a resolution was adopted mending Article 8 of the Sanitary Code by the addition of new section, numbered 126, which reads as follows:

> No Veronal (Diethyl-barbituric Acid). Veronal Sodium (Sodium imethyl barbiturate), Luminal (Phenly-ethyl-barbituric Acid), Luminal odium (the sodium salt of Luminal), Sulphonal (Diethyl-sulphone-imethyl-methane), Trional (Diethyl-sulphone-methyl-ethyl-methane), or eronal (Diethyl-sulphone-diethyl-methane), shall be sold at retail to any erson in the City of New York, except upon the written prescription f a duly licensed physician.
>
> The provisions of this Section shall apply to the sale at retail of any f the above mentioned drugs whatever may be the name under or by hich the same may be called or known.

Site for Medical Center Secured.—The Joint Administraive Board of Columbia University and the Presbyterian Hospital has announced that the site for the new medical enter has been transferred to the university and the hosital. The land site extends between One Hundred and Sixty-Fifth and One-Hundred and Sixty-Eighth streets from Broadway to the Hudson River. It is in excess of twenty cres, and is valued at $4,000,000. It is the gift of Mrs. Stephen V. Harkness and Edward S. Harkness. It was also nnounced that an agreement has been confirmed between he Presbyterian Hospital, Columbia University and Mrs. Harkness, as donor, for the transfer of a fund of $1,300,000 o Columbia University, for the endowment of educational nd scientific work in the School of Medicine and the Presyterian Hospital. An additional $1,000,000 has been given y Mr. Harkness toward the construction of the new Presyterian Hospital, and $1,000,000 for the school of medicine. The Joint Administrative Board is preparing preliminary plans for a new Vanderbilt Clinic and a new Sloane Hospital for Women, which it is hoped will become a part of the medical center.

NORTH CAROLINA

Graduate Courses Planned.—Under the direction of the University of North Carolina Extension Division, plans for a graduate medical course to be offered next summer, were outlined before a meeting of the Buncombe County Medical Society, October 2. It is proposed to have six centers in which the course will be given, with headquarters at Asheville. Twelve lectures and twelve clinics will be given in each of the six places selected, covering a period of twelve weeks, and beginning in June, 1923.

District Medical Meeting. — The Ninth District Medical Society met in Morganton, October 11. Dr. J. W. Long, Greensboro, Dr. W. S. Rankin, secretary of the state board of health, Dr. L. H. McBrayer, in charge of the state's tuberculosis work at Sanatorium, and Dr. J. K. Hall, of the Westbrook Sanatorium, were among the visitors. This society embraces the counties of Davidson, Davie, Rowan, Iredell, Alexander, Catawba, Caldwell, Watauga, Mitchell and Burke. Since the meeting last year in Salisbury, both the president, Dr. A. G. Ramsauer, and the secretary, Dr. I. M. Taylor, have died. Dr. Harold H. Newman, Salisbury, was elected president and Dr. Vernon, secretary.

OHIO

Personal.—Dr. F. U. McQuillan, Toledo, has been appointed chief of the employment service of the U. S. Veterans' Bureau which has charge of obtaining positions for disabled ex-service men who have finished vocational training.——Dr. Earl H. Baxter, Columbus, has been appointed instructor in pediatrics in the College of Medicine of Ohio State University.——Dr. Lester L. Taylor, Yellow Springs, has been appointed on a committee of the Ohio State Medical Association to make arrangements for an Ohio special train to the annual convention of the American Medical Association to be held in San Francisco in 1923.——Dr. George F. Thomas, Cleveland, recently returned from a trip to Europe. ——Dr. George W. Crile and Dr. Charles Hoover, both of Cleveland, were among the speakers at the Tri-State Medical Association in Peoria, recently.

OKLAHOMA

Personal.—Dr. Thomas W. Stallings spoke on "Removal of Infected Tonsils in Early Life" before the Tulsa County Medical Society, recently.——Dr. William E. Dicken, Oklahoma City, is reported seriously ill at a hospital in Pasadena, Calif.——Dr. Alexander S. Graydon, Idabel, while en route to Sulphur, October 7, was stricken with paralysis, affecting his entire left side.

Hospital News.—Miss Lela J. Martin has been appointed superintendent of the Mabel Dale Hospital, Yale. —— Dr. John B. Leisure has recently opened a new hospital at Watonga. —— The Sulphur Soldier Hospital was formally opened recently, with appropriate exercises. It will be operated by the U. S. Veterans' Bureau. It was erected at a cost of $180,000, and has accommodations for seventy-five patients. There are seven buildings in the group, including the administration building, the dining hall, quarters for the personnel, cottages, wards, home of the medical superintendent, nurses' home, and power and laundry plant. Dr. Barton H. Watkins, formerly connected with the U. S. Public Health Service in Arizona, is medical superintendent of the new institution.

OREGON

University Receives Rockefeller Endowment.—The sum of $50,000 has been received by the University of Oregon Medical School, Portland, from the General Education Board. This sum completes the first appropriation made by the foundation. The first instalment, made one year ago, was $113,000, which matched an equal sum appropriated by the legislature to build the main body of MacKenzie Hall, which has just been completed. This second appropriation is to add scientific equipment and apparatus for research and instruction. The new structure on Marquant Hill is already in use and will be formally dedicated in January.

PENNSYLVANIA

Health Board Employees with Colds Must Mask.—Health Commissioner Martin has ordered all employees of the state health department suffering from colds to wear masks over their faces and white gloves while on duty at the Capital, it was announced, October 24. The order stated that the movement was begun to break up the epidemic of colds among the departmental employees.

Hospital News.—The cornerstone of the new Homestead Hospital was recently laid, with appropriate exercises. It will be a three-story and basement building erected at an approximate cost of $200,000.——Dr. D. S. Newell will establish a hospital at Melcroft, to be erected at a cost of $40,000. ——Plans are being prepared for a million dollar building program for the Homeopathic Medical and Surgical Hospital and Dispensary at Pittsburgh.——Plans have been completed for an addition to the White Haven Sanatorium.——The third main building of the $1,000,000 plant of the Abington Memorial Hospital, created by a bequest of the late G. W. Elkins, founder of the institution, was thrown open for inspection at a tea, November 1. The building will be used as a nurses' home. The building formerly used for that purpose has been transformed for hospital uses and will be a private room section, while wards and additional private room facilities will remain in the original main building. The new building increases the capacity of the institution from eighty to 132 beds.

Philadelphia

Mütter Lecture.—Dr. James Ewing, professor of pathology at Cornell University Medical College, New York, delivered the 1922 Mütter lecture on surgical pathology, before the College of Physicians of Philadelphia, November 1. His subject was "The Principles of the Radiation Treatment of Cancer."

Medical Club Invites President Harding. — Drs. Ernest LaPlace, G. Oran Ring and L. Webster Fox went to Washington, October 25, to present an invitation to President Harding to be the guest of the Medical Club of Philadelphia on a date to be fixed by him. The President indicated his desire to attend the dinner and said his acceptance would depend on the progress of Mrs. Harding's convalescence.

Hospital News.—About 5,000 persons attended the laying of the cornerstone of the Lipkin Memorial Dispensary of Mount Sinai Hospital, October 22. This building was made possible by the gift of $30,000 by William Lipkin, one of the directors of the hospital, in memory of his parents. The trustees of the hospital announce that they have accepted the proffer of a memorial operating room pavilion from Mr. Jacob Biberman. This will be known as the Fannie Biberman Memorial Operating Pavilion, in memory of the donor's wife, and will consist of operating and sterilizing rooms, physicians' and nurses' wash and work rooms, and instrument and etherizing rooms, with accompanying facilities. It will occupy the entire fifth floor in the Fifth Street hospital building of the Mount Sinai Hospital. Dr. Albert S. Hyman is superintendent of the institution.

TENNESSEE

Health Officer Takes Over Sanitation Bureau.—Dr. Reese Q. Lillard, secretary of the state board of health, has taken over the work formerly handled by Dr. E. L. Bishop, head of the bureau of rural sanitation. Dr. Bishop was recently granted leave of absence in order that he might take advantage of a fellowship at Johns Hopkins University in the school of public health and hygiene.

TEXAS

Dallas Health Show.—The first exhibition of the kind held south of St. Louis will be the health show to be staged in Dallas, March 13-18, 1923, it has been announced by Dr. W. T. Davidson, director of public health. More than 100 exhibits, including moving mechanical models, illustrating the cause and prevention of disease as well as the laws of sanitation, will be shown. The show was one of the leading features at the recent Pageant of Progress at Chicago. William J. Keily of Chicago, vice president of the National Health Shows, Inc., who will give the exhibition in Dallas, has been to Texas to confer with Dr. Davidson in regard to the project.

VERMONT

County Medical Meeting.—At the annual meeting of the Windham County Medical Society, held in Brattleboro, November 2, Dr. John B. Adams, Boston, held a clinic at the Memorial Hospital, and gave an address on "Backache." Dr. Frederick L. Osgood, Saxtons River, was elected president, and Dr. Winifred H. Lane, Brattleboro, secretary-treasurer of the society.

VIRGINIA

Chiropractors Convicted.—K. W. and J. R. Adams, chiropractors of Winchester, were each fined $50 and costs, it is reported, October 9, for practicing medicine without licenses. They will appeal to the corporation court.

Physician Sentenced to Penitentiary.—Dr. A. J. Osborne, Blackwater, was sentenced in the district court at Big Stone Gap, recently, to one year and one month in the federal penitentiary. Dr. Osborne, it is reported, was charged with violation of the Harrison Narcotic Law. Three other physicians were arrested on the same charge, but none of them were convicted.

WASHINGTON

School Medical Inspection Measure Opposed.—At the monthly dinner of the Spokane Chamber of Commerce, October 25, the trustees unanimously went on record as opposing the enactment into law of referendum No. 13, the so-called school medical inspection measure which would make the examination of schoolchildren by school physicians optional with the parents.

WISCONSIN

Hospital News.—Work has been started on the new home for the Mauston Hospital. The institution will be a two-story and basement structure to be erected at a cost of $75,000.——The contract has been let for a hospital building to be erected at the Wisconsin School for Deaf at Delavan. It will be a two-story structure, costing $75,000.——The new building of the Lakeside Hospital, Rice Lake, which has been under construction for the last two years, will be dedicated in the near future, it is announced.——A modern school of nursing was recently opened at the Theda Clark Hospital, Neenah, under the direction of Miss Stewart, hospital superintendent.

CANADA

Public Health News.—On account of the large number of smallpox cases which have been discovered in the towns of Mimico and New Toronto, Ont., the public schools have been closed, and compulsory vaccination of all pupils has been ordered.——Increases in the number of smallpox, scarlet fever, measles and whooping cough cases are noted in the October health report just issued by the provincial department of health. As compared with October of last year, scarlet fever cases are double in number, while measles cases are ten times the number. More deaths are also noted from influenzal pneumonia.

University News.—The department of public health nursing is the latest to be added to the continually increasing number of departments and faculties at the University of Toronto. Three years ago, the Ontario branch of the Red Cross Society arranged with the University of Toronto to meet the expenses of this new department for three years. That period expires June 20, 1923, and at their meeting last week the board of governors decided, subject to the approval of the provincial government, to take over the department of public health nursing, July 1, 1923, as a regular university department. The course comprises eight months' work and is open only to graduate nurses. It is limited to fifty.

Hospital News.—A new maternity wing was dedicated last month at the General Hospital at Oshawa. It will be known as the Robert McLaughlin Memorial Wing and contains twenty-five rooms.——Construction work will soon be started on an addition to the St. Joseph Orphanage, Halifax, N. S., at a cost of $100,000.——Dr. J. J. Walter has been appointed superintendent of the Kitchener-Waterloo Hospital at Waterloo, Ont.——The Irish Protestant Benevolent Society is planning a campaign in connection with the proposed erection of a million dollar Protestant hospital in Hamilton, Ont.——The mayor of Kingston, Ont., recently laid the cornerstone of the new Kingston Isolation Hospital, in connection with the Kingston General Hospital. This building will be one of the most modern on the continent and will cost about $200,000.

Personal.—Dr. C. J. O. Hastings, medical officer of health for Toronto, recently addressed the Ontario Ice Association convention at Toronto, Ont., taking for his subject, "The Value of Ice to General Public Health."——Dr. Joseph Daly, Belleville, Ont., was honored by the Belleville Medical Association on the eve of his departure for Rochester, Minn., to take a position with the Mayo Clinic.——Sixty-three Canadian surgeons were made fellows of the American College of Surgeons at the conclusion of the annual Surgeons' Congress at Boston, last week. Among this number, twenty were from the Province of Ontario.——Dr. Sidney Russ, professor of physics in the Middlesex Hospital, London, England, recently addressed a meeting held in Montreal, Que., under the joint auspices of the Medicochirurgical Society and the McGill University Chapter of the Research Society of Sigma Xi. Dr. Russ described laboratory experiments in the Middlesex Hospital, particularly in the treating of tumor tissues with roentgen rays and radium.

GENERAL

Federation for Child Study.—The annual meeting of the federation was held in New York, November 1. Dr. Constance E. Long of London, England, former president of the Medical Women's Association, delivered an address on "Mary Rose: A Study of the Infantile Personality."

Conservation of Vision Convention.—The eighth annual meeting of the National Committee for the Prevention of Blindness will be held in the Russell Sage Foundation Building, New York, November 23. Stephen S. Wise will give the annual address: "What Is and Ought to Be the Attitude of the Public Toward the Blindness Prevention Movement?" Miss Helen Keller, honorary vice president of the committee, will attend the meeting.

Rockefeller Institute Winter Program.—The hospital of the Rockefeller Institute for Medical Research, New York, confines its work to selected cases that bear on a limited number of subjects chosen for investigation. Bulletins are published from time to time giving notice of subjects chosen, in order that physicians may refer suitable patients to the hospital. No charge is made for treatment, room, board or other services. The following conditions will be the subject of study in the hospital this winter: acute rheumatic fever, nephritis, chickenpox, acute pulmonary infections and cardiac disease.

Office Administration Bulletin Issued.—The federal children's bureau of the Department of Labor recently issued a report on office administration for organizations supervising the health of mothers, infants and children of preschool age. It was prepared in answer to requests for information on such organizations, and comprises the summary of observation of 200 agencies in both large and small communities. The report deals with selection of and training of staff, methods of organization, office equipment, planning case records, filing, financial administration and publicity methods, and has a bibliography and record forms appended.

Personal.—Prof. Frederick Belding Power, U. S. Bureau of Chemistry, has been awarded the Flueckinger gold medal by the Society of Swiss Chemists for "invaluable work on alkaloids and ethereal oil."——Dr. Andre Majewski, a laryngologist of Warsaw, arrived in New York, October 22, on his way to Boston.——Dr. John Emil Cox, formerly of Memphis, sailed on the White Star liner *Celtic,* October 21, for Liverpool. He is going to Moscow to work with the American Relief Administration in the distribution of $7,600,000 worth of medical supplies in the famine districts of Russia. With him are Dr. John F. Stack, Boston, and Dr. W. E. Hurley of Brooklyn.

Child Welfare Work. — The Children's Bureau of the Department of Labor issued a directory this week, stating that there are 861 local child health agencies in the United States. These agencies, the bureau announced, are engaged in the promotion of child health through maternity care, infant care and the care of the child of preschool age. Greater New York leads the nation with ninety such institutions. Other cities included in the list with more than one agency are: Los Angeles, 2; Oakland, Calif., 3; San Francisco, 5; Washington, D. C., 4; Chicago, 11; Boston, 18; Detroit, 4; Minneapolis, 6; Rochester, N. Y., 4; Syracuse, N. Y., 4, and Milwaukee, 6.

American Red Cross Activities.—Recent calculations have estimated that the American Red Cross will have to spend between $3,000,000 and $5,000,000 for relief of the Near East war victims. The budget for the fiscal year 1922-1923 reads:

Assistance to disabled ex-service men and women	$3,030,692
Assistance to 3,600 Red Cross chapters	1,293,240
Disaster relief	750,000
Service to Army and Navy	306,300
Assistance to other organizations	200,000
Other activities in the United States	180,406
Medical and hospital supplies for the American Relief Administration in Russia	1,884,044
Completion of relief operations abroad	1,452,032
Assistance to League of Red Cross Societies	200,000
Management	493,154
Total	$9,789,868

LATIN AMERICA

Tribute to Coni.—A public subscription has been opened in honor of Dr. Emilio R. Coni, of Buenos Aires, the hygienist, sociologist and eugenist, and long a leader in all movements for public health and welfare. The fiftieth anniversary of his entering on his professional career is approaching, and it is proposed to present him with an endowment on that occasion. The appeal for subscriptions is signed by the president of the Argentine senate as vice president, and a number of the senators, nearly all the professors in the universities of Argentina, hospital physicians and pharmacists. The appeal states that Dr. Coni's entire life has been consecrated to the welfare of others, and he is now at an advanced age and in restricted circumstances, which are the more distressing on account of an eye affection that prevents his continuing his usual activities. It is simple justice to render this public tribute to his half century of effort to place Argentina in the lead in public welfare work. His attendance at international gatherings has made him friends in the United States also.

Personal.—Prof. M. Chiray, of Paris, who was one of the representatives of France at the Brazilian Centennial celebration, is now in Buenos Aires, where he is to speak on deficiency diseases and intoxications.——Dr. C. Heuser, of Buenos Aires, has been elected corresponding member of the British Association for the Advancement of Radiology and Physiotherapy.——A bust of the late Prof. J. J. Naón was recently unveiled in the medical school at Buenos Aires.——Prof. M. de Medeiros has been appointed to the chair of general pathology at the University of Rio de Janeiro. The *Folha medica* quotes his remark that, by the irony of fate, he was appointed by the system which he has been striving to abolish.——Prof. A. Bianchi, of Parma, is lecturing at Buenos Aires, his main theme being "The Physical Methods of Diagnosis." He is said to have originated the phonendoscopic method of outlining and examining internal organs.——Prof. M. R. Castex, of Buenos Aires, one of the three directors of the *Prensa Médica Argentina,* left for Europe on the *Avon.*——The *Repertorio* of Bogota relates that Dr. Daniel Molano has returned to that city, after an extended trip to the United States. Dr. V. Peñuela Rodriguez has also returned after a trip to Europe and the United States.——Dr. G. E. Munnich, of Chile, arrived recently in New York on the *Santa Luisa.*——The *Anales* of Guayaquil mentions the appointment of Dr. F. Barbotó to the chair of forensic medicine left vacant by the resignation of Dr. W. Pareja, who retired from the position on account of his duties as director of the national public health service. Dr. M. H. Alcívar has been appointed rector of the university for a five-year term. He is one of the editors of the *Anales.*

FOREIGN

Chesterfield Lectures.—The Chesterfield Lectures, founded in 1895 to promote the study of dermatology, are given every Thursday at St. John's Hospital for Diseases of the Skin, London. They are free to medical practitioners.

Alfred Simonini Prize.—Prof. R. Simonini has founded an annual prize, in memory of his son, at the University of Modena. It is to be awarded to the medical student who distinguishes himself by special research during the course in pediatrics.

Medical Exhibition.—The London Medical Exhibition, the thirteenth of its kind, was held October 2-6, in London, England. Some 150 stands displayed drugs, chemicals, medical and surgical instruments and appliances, furniture and other adjuvants to treatment. The *Lancet* states that the exhibition was noteworthy for the successful efforts of British manufacturers to meet the progressive needs of medicine.

Research on Endemic Pellagra in Italy.—Question blanks have been sent out to all health officers in Italy to collect data in regard to the number and condition of the pellagrins in the country, Dec. 31, 1922, and the deaths from this cause or from intercurrent disease during the year. There are fourteen items to be reported on, including the measures for prophylaxis and treatment.

Increase in Venereal Disease.—The *Münchener medizinische Wochenschrift* quotes the statistics published by the Berlin sickness insurance office to the effect that disability from venereal diseases was recorded in 1918 for 659 men and 6,782 women; but, in 1921, the respective figures were 2,055 men and 14,757 women. Those treated as private patients and those whose earning capacity was not impaired are not included in these figures.

Personal.—On the occasion of the celebration of the 150th anniversary of its foundation, the Danish Medical Society elected to honorary membership Prof. A. Eiselsberg of Vienna, Prof. M. Rubner of Berlin, Prof. H. Sahli of Berne, and Professor Kümmel of Hamburg.——An album was recently presented to Professor Vicini of Rimini, containing congratulations on the completion of the surgical pavilion at the hospital, signed by the members of the chamber of commerce, merchants and others, with a tribute to his initiative and efforts.

Dermatology and Syphilology Congress.—Notices are being sent out to call attention to the second Congress of French-Speaking Dermatologists and Syphilologists. It is to be held at Strasbourg, July 25-27, 1923, in connection with the Pasteur centennial celebration in July. It will be preceded by a cancer congress and be followed by a leprosy congress. For particulars, apply to Professor Pautrier, 2 Quai St. Nicolas, Strasbourg. Four topics have been appointed for discussion, "Desensitization in Skin Diseases"; "Nevus Cancers"; "Principles for Treatment of Syphilis in the Prehumoral Stage," and "Comparative Study of Modes of Administration of Drugs in Treatment of Syphilis."

Albert Neisser Prize. — The *Münchener medizinische Wochenschrift* relates that the German Society to Repress the Spread of Venereal Diseases announces the foundation of a prize of 2,000 marks to be awarded every second year for the best work during the preceding two years on some aspect of the fight against venereal diseases, either from the medical, medicolegal, economic or ethical standpoint. The years 1919 and 1920 are to be considered in awarding the first prize; it is to be conferred on the birthday of Albert Neisser. Further details can be obtained from the secretary of the Deutsche Gesellschaft zur Bekämpfung der Geschlechtskrankheiten, Wilhelmstrasse 45, Berlin W. 66.

Society News.—The Italian Society of Urology held a congress in Florence, October 24. Professors Gardina and

Lasio discussed the remote results of prostatectomy.——The nineteenth Italian Congress of Surgery was held in Florence, October 21-25. Professors Alessandri, De Gaetana and Zabelloni were the speakers.——The Lettsonian Lectures on Carcinoma of the Rectum will be delivered before the Medical Society of London, in February and March, 1923, by Dr. William E. Miles.——Dr. A. G. Wells has been elected president of the West London Medico-Chirurgical Society, to succeed Sir Lenthal Cheatle. The Keetly medal was presented to Sir Lenthal Cheatle in commemoration of his year of office.

Zwaardemaker's Silver Jubilee.—The close of twenty-five years of teaching and research in physiology by Prof. H. Zwaardemaker was celebrated by friends and students at the physiology institute of the University of Utrecht. His contributions to science include additions to our knowledge of the organs of sense, of the transformations of energy, and of the importance of potassium for the automatism of the organs. He is now studying, in particular, physiologic radioactivity, and how to help the deaf. He was presented with a *feestbundel* of ninety-five scientific articles from international sources, which, with an introductory article describing his life work, form a volume of 591 pages of the Netherlands *Archives of Exact and Natural Sciences.* His portrait was also presented, to be installed in the institute.

The Netherlands Council on Pharmacy and Chemistry.—The *Nederlandsch Tijdschrift voor Geneeskunde* remarks that the Netherlands "Pharmacotherapeutisch institut," which is modeled on the Council of the American Medical Association, is "facing the guillotine of governmental economy." Our exchange urges physicians to contribute to its support by subscribing for the bulletins it issues. It adds a summary of the article by Prof. W. A. Puckner in the *Deutsche medizinische Wochenschrift,* No. 40, in which he describes the aims and the work of the Council on Pharmacy and Chemistry of the American Medical Association. It comments on the effort of the Council to have a few drugs taught thoroughly instead of a large number taught superficially, and states that the book "Useful Drugs" is in use as a textbook in a number of medical schools.

Tributes to Pasteur.—The Netherlands Medical Association appointed a committee to plan the celebration of the Pasteur centennial, and arrangements have been made for a memorial meeting at Amsterdam in the opera house, November 25. Addresses will be made by specialists in medicine, chemistry and microbiologic technic. Dr. A. Calmette of the Pasteur Institute at Paris is also to deliver an address. In addition to this main meeting, different localities are planning scattered local meetings, on or near that date, to pay tribute to Pasteur's work and its import for the various sciences and public health. Our exchanges from all over the world bring similar notices of scientific gatherings planned in tribute to Pasteur. Calmette delivered by request an address at Copenhagen recently, speaking from the same desk at which Pasteur stood in 1884 at the international medical congress when he made his epochal announcement in regard to rabies.

The International Research Council.—The *Nederlandsch Tijdschrift* brings an account of the recent conference at Brussels of the International Research Council. Five new "unions" were organized as constituent parts of the Council. One is for biology and one for the medical sciences. Some wished to combine these two in a single union, but it was finally decided to keep them separate, restricting the biology union to pure physiology, while the medical sciences union is for applied physiology. The Union internationale des sciences médicales, thus organized, has its legal seat at Brussels, and the officers include Widal of Paris and Gibson of Baltimore, with Nolf of Liége as the secretary. The American representatives in the Council urged modification of the by-laws so that the triennial meetings of the Council could be held in different countries, while retaining Brussels as the legal seat. But this was voted down for the present.

Deaths in Other Countries

Dr. **Richard F. Williamson,** formerly a resident of San Diego, Calif., at Tonbridge, England.——Dr. **J. W. Gómez,** formerly professor in the University of Córdoba and member of the legislature.——Dr. **R. de Persiis,** chief of the hospital at the capital of Somalia since 1911. The white residents in the colony have raised a fund for a new pavilion for the hospital as a memorial to him. His colleague in the work, Dr. **L. Doglia,** has died also.——Dr. **P. A. Bossers** of Breda, Holland.——Dr. **J. Neuberger,** a laryngologist and otologist of Frankfort on the Main, member of the board of health, aged 50.——The *Anales* de la Sociedad Médico-Quirúrgica del Guayas mentions the death of Dr. **Rosa E. Salcedo,** formerly professor of obstetrics at the University of Guayaquil, at an advanced age.

Government Services

Hospital Aeroplane in Service

A new white hospital aeroplane, designed and built at McCook Field, has been received at the primary flying school at Brooks Field, Texas. This aeroplane is a remodeled Curtiss J.N-6 equipped with a Wright motor, 180 horsepower. The fuselage is enlarged to accommodate a recumbent patient. A seat facing the patient, between the patient and the pilot, has been installed for an attendant. The areoplane with full load has been given several test flights by pilots from the field, and it is reported that, although it is an ideal ambulance aeroplane so far as the patient's comfort is concerned, it is loggy, nose heavy and slightly overpowered.

Red Cross Activities

Approximately $9,000,000 will be expended by the American Red Cross for the relief of former service men disabled during the World War, according to an announcement made by John Barton Payne, national chairman of the Red Cross. On Armistice Day, November 11, when the American Red Cross opens its annual roll call for membership, there will be under treatment in government hospitals more than 25,000 veterans. In the opinion of the Surgeon-General of the Army, the peak of disabled men under reconstruction will not be reached until 1926.

Antivivisection and the Chemical Warfare Service

Officials of the War Department's Chemical Warfare Service have started a campaign of opposition against the bill recently introduced in Congress, prohibiting officers of the Army and Navy from using living animals for experimental work. Col. Harry L. Gilchrist, chief medical officer of the Chemical Warfare Service, in explaining the stand of the service against the measure, declared that it would practically end the research work done by his bureau. He said: "Under that measure we could not even send canary birds down into the mines to determine what effect gas would have upon them. In the recent disaster in California where forty-seven miners died, the authorities would have been helpless if they had not been permitted to use canaries in advance of the rescue parties. Instead of canaries it would have been necessary to send persons into the mines and the danger of death to them would have been great." According to the proposed bill, the use of live animals to test gases is forbidden, and a fine of $500 or one year in jail is fixed as the penalty for its violation.

U. S. Veterans' Bureau News

District No. 10 has prepared and issued a booklet on "Training Facilities," giving available information covering opportunities and places for training in that district. Other booklets, on "Trade and Industrial Occupational Analysis"; "Commercial Objectives," and "Agricultural Objectives" have also been distributed in bulletin form by this district.——Brownleigh Park, Goshen, N. Y., has been leased by the U. S. Veterans' Bureau for a vocational school. This property is located in the mountains of Orange County near New York. It will afford training for about 300 ex-service men. Shop training, commercial and agricultural courses will be provided.——Show cards, posters and radio were some of the means used to arouse interest in the work of the bureau at the recent California Industries Exposition in San Francisco. Working exhibits operated by trainees included an art-copper worker busy at his bench, a radio operator and other vocational workers.

Distinguished Service Medal to Pool

Dr. Eugene H. Pool, New York, former lieutenant-colonel, U. S. Army, has been awarded a distinguished service medal for valuable service in the care of wounded in hospitals at the front during the St. Mihiel and Meuse-Argonne offensives in France.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Oct. 16, 1922.

The Dangers of Psychanalysis

In his presidential address to the Medical Society of London, Lord Dawson described psychanalysis as an "exploratory operation on the mind," which, if it did not accomplish good, might be fraught with harm. The mind did not always heal by "first intention"; baneful influences might enter. The treatment should be undertaken only by workers with specialized training which ensured skill, restraint and good judgment. These conditions were often not fulfilled. Too many practitioners were fanatics who had eyes for nothing outside their narrow cult. The duration of the treatment was long and uncertain, extending into months or even years. There was a great strain on the mind of the patient who lived, with a quickening sense of his own abnormality, and, if the treatment did not suit him, the danger of doing him harm was intensified. The analyst could not control with precision the range of his operation; beyond the happenings he wished to induce, others might result which were unsought and detrimental. Psychanalysis induced and aggravated introspection and was liable to produce morbid ideas. The laying bare of the unconscious mind—both the process and the result—injured some sensitive subjects and did harm by debasing them in their own estimation.

The dominant position asserted for the primitive sex impulses in the causation of repressions aggravated the difficulties of the treatment. All physicians knew how difficult was the handling of the sex neuroses and aberrations, and how quickly by introspection sex monopolized attention, distorted judgment and perverted conduct. The difficulties on the educational side where youth was concerned were even greater. The analyst who held the freudian view that the primitive trends of the mind are mostly sexual in origin cannot but be influenced by that bias in the treatment of patients, who likewise would feel its reflected influence. Lastly, there was the factor in treatment termed "transference," which meant that emotions and fantasies awakened by analysis were detached from their original associations and reincarnated in the analyst, who thus became a partner in the life of the patient. Was not such a relation of physician to patient putting too big a strain on human nature, and might not positions of danger be provoked?

The Smallpox Menace

Thanks to the concessions made by parliament to "conscientious objectors," only 40 per cent. of children in this country are now vaccinated. Hence, the anxiety with which outbreaks of smallpox are regarded. In a period of three weeks, fifty-eight cases have been reported, of which twenty-five have occurred in one district of Derbyshire. A few years ago, an outbreak in Nottingham gave rise to 150 cases. So far, prompt isolation and the vaccination of "contacts" have saved us from an epidemic.

Health of Schoolchildren

The annual report for 1921 of Sir George Newman, chief medical officer of the board of education, has just been published. A great reduction in uncleanliness in schoolchildren is reported. In London, the presence of body vermin in children attending school has been reduced almost to the vanishing point, and other cities show a similar change. There has been a corresponding reduction in the number of cases of ringworm, scabies and other skin diseases. On the other hand, the proportion of cases of heart disease remains high. School physicians are urged to look for the existence of rheumatism. All children suffering from or suspected of rheumatism should be noted, for reexamination, and those with functional or organic disease of the heart should be kept under medical observation. The latest number of "exceptional children" of school age is 164,000. Of these, the blind number 58,000, the feebleminded, 31,000, the tuberculous (pulmonary), 2,000, cripples (tuberculous), 13,000, and cripples other than tuberculous, 23,000. With regard to the cost of the school medical service the average cost of inspection and treatment for each child varies from $1 to $1.50 in different areas. During the year, sixty million meals were provided for necessitous children.

A Degree in Pharmacy

In this country, a pharmacist has to go through a prescribed course and pass an examination, but there is no degree in the subject. Mr. H. J. Waring, vice chancellor of the University of London and surgeon to St. Bartholomew's Hospital, at the opening of the eighty-first session of the school of pharmacy, suggested that pharmaceutic chemistry should be made the chief subject of a science degree. This proposal has given rise to discussion in pharmaceutic circles. In a press interview, Prof. H. Greenish, dean of the school of pharmacy, said that the status of the pharmacist would be greatly improved, if opportunity were given for the taking of a degree. Mr. Waring also remarked that the British Pharmacopoeia could be written down to a quarter or even a tenth of its present size without loss to the community, and with gain to the pharmacist and physician. Asked what was wrong with the pharmacopeia, the dean said the volume was very bulky, and many modern physicians were of opinion that it could be materially revised as regards a number of drugs. Many of the drugs contained in it were not much used in modern medicine and could be dispensed with.

Bacteriology of Canned Meat and Fish

The outbreak of botulism, reported in previous letters (The Journal, September 16, p. 782; October 28, p. 1531), and recent outbreaks of other forms of food poisoning (due to members of the Gaertner group), render opportune the publication of a report on the bacteriology of canned meat and fish by Dr. W. G. Savage, Mr. R. F. Hunwicke and Mr. R. B. Calder, which has been issued by the food investigation board of the department of scientific and industrial research. The investigators found that yeasts, though plentiful in tinned milk and fruit, scarcely ever occur in tinned fish or meat. The presence of molds is evidence of air access, but they do not cause "blowing" of tins or extensive decomposition of meat, although they make the food unsalable. Anaerobic bacilli were looked for in every sample tin and were found in twenty-seven—nine meat tins and eighteen fish tins. Seven strains corresponded with *B. sporogenes* and twelve with *B. rauschbrand.* The former type of organism was found capable in pure culture of producing putrefactive decomposition in canned meat, with obtrusive "blowing" of the tin. The latter caused gas development, and, if given time, it led to pronounced decomposition. It appears that obligate anaerobes, if they get a chance to grow, always produce profound changes in the food. Ordinary sporing aerobic bacilli are of much consequence because of their wide distribution in canned foods, their resistance to heat, and the ability of most of them to break down proteins. Most of them were found to be widespread saprophytic bacteria devoid of any pathogenic properties. Their presence, even when proteolytic, was not evidence of unsoundness. Nevertheless, in special circumstances, they may be the cause of unsound condition of the food. Small leaks, permitting access of air might supply the oxygen necessary for their growth and enable them to multiply and decompose food.

The factor of access of air assumed greater importance as the inquiry went on; but, from time to time, strains of aerobes were encountered which grew well under anaerobic conditions. These sporing aerobes were found widely even when the contents of the tins were perfectly good. Although most of them readily decompose proteins, they do not do so in hermetically sealed tins, because the supply of oxygen is inadequate. Some—possibly a majority—can multiply under strict anaerobic conditions, but growth is slight, far less than when oxygen is available. Under these conditions, they do not cause decomposition. Hence, the importance of a leak in a tin. Micrococci were present in about 23 per cent. of the samples. Most of them were diplococci, but staphylococci and streptococci were also isolated. Micrococci played no part in causing unsoundness.

Throughout the investigation, no bacteria of the food-poisoning types were detected. The view is expressed that minute leaks in tins act rather as sources of oxygen which light up and set into activity dormant germs already present than as sources of infection. Sound samples were comparatively unsterile. Of seventy-six perfectly sound shop samples, forty-seven were not sterile, but this was almost wholly due to sporing aerobic bacilli, thermophilic bacilli and micrococci. These seem to be survivors of bacteria originally present and not invaders through leaks. They do not injure the food because they multiply under the conditions. The moral for the manufacturer who wishes to secure a minimum of spoilage is that he must do five things: obtain his food products as fresh as possible; tin them as speedily as possible under conditions of great cleanliness; treat his products so as to secure the presence of a vacuum; employ the right "processing" temperatures, and use good quality tinplate and efficient tin-closing methods.

PARIS

(From Our Regular Correspondent)

Oct. 20, 1922.

The Sixteenth French Congress of Medicine

Among the topics on the program of the sixteenth French congress of medicine, there are two that would seem to be of particular interest to American readers. These are: (1) the differential diagnosis of gastric and duodenal ulcer, and (2) preventive and curative treatment of deficiency diseases.

THE DIFFERENTIAL DIAGNOSIS OF GASTRIC AND DUODENAL ULCER

Dr. E. Enriquez and Dr. Gaston-Durand assigned a very important place to the progress made in America, especially, in roentgenologic equipment and technic, whereby the problem of the diagnosis of duodenal ulcer has been transformed. Duodenal ulcer is more frequent than gastric ulcer. "Hypersthenic dyspepsia" often conceals an ulcer; but all cases of prolonged and recurring hypersthenic dyspepsia are not associated with ulcers. A certain proportion of such cases are of a purely reflex nature and point to a distant lesion, most frequently cholecystitis or appendicitis. Contrary to current opinion, hemorrhages (hematemesis, melena) are late and inconstant signs of ulcer. The authors agree with Moynihan in considering these symptoms as complications. Likewise, occult hemorrhages have only a very restricted diagnostic value in ulcer. In fact, for the diagnosis of ulcer in the incipient stage, the clinical elements and their various modes of expression have only a presumptive value, not only as regards the affirmation of its existence but also with respect to its localization. A roentgenologic examination makes it possible to change to probabilities—sometimes to absolute certainties—the presumptions as to the existence and as to the seat of an ulcer. But, while for the diagnosis of gastric and pyloric ulcers roentgenography continues to be the most practical, the most complete and the least burdensome method, the method of serial roentgenography affords now the possibility of securing precise information. This method of exploration gives, furthermore, precise information in regard to the anatomic relations of the duodenum with the neighboring organs. Thus it throws new light on the diagnosis, so often difficult, of such affections as cholelithiasis, cholecystitis, periduodenitis and epiploitis.

Drs. C. Saloz, A. Cramer and G. G. Moppert compared the clinical pictures of the three kinds of ulcer: of the lesser curvature, the pylorus and the duodenum. They hold that, with respect to their habitual chronic form, we may group together ulcers of the lesser curvature and true duodenal ulcers, on the one hand, and set over against them ulcers of the pyloric region. The first group have in common a quiet evolution in the incipient stage, a large proportion of callous types, the tendency toward hemorrhage, the original size of the stomach bordering on the normal, pain at onset sometimes with very violent paroxysms, and the possibility of being diagnosed by roentgen rays by direct signs. They may be divided also into hidden and masked ulcers. Ulcers of the pyloric region, however, manifest themselves at once, are seldom hemorrhagic, the size of the stomach is much increased, pain appears late, and they are revealed by roentgenography only by indirect signs. Their symptomatology is generally frank, even in the very young and the aged, for which reason they are not often wrongly diagnosed. Pyloric spasm creates in all these varieties of ulcer a common symptomatic relationship, which manifests itself in the form of hypersecretion and retarded evacuation. Stasis and antiperistalsis are alone peculiar to the pylorus.

Duodenal ulcer is distinguished from ulcer of the lesser curvature by less prolonged tolerance on the part of patients, a painful spot at the right, more marked hyperacidity and hypersecretion, less tendency to profuse hemorrhages, direct roentgenographic signs in the duodenum, and indirect roentgenographic signs in the stomach. In considering the diagnostic value of these two syndromes that help to fix the localization, the clinical signs furnish only presumptive evidence; the element of certainty is introduced by roentgenography.

There are three important symptoms that will aid greatly, before any general examination is made, in diagnosing the site of an ulcer: Hematemesis points rather to an ulcer of the lesser curvature; melena indicates a duodenal ulcer, and vomiting in association with stasis is evidence for an ulcer of the pyloric region.

The diagnosis of the nature of certain ulcerations (tuberculosis, syphilis and traumatism) can be only hypothetic. It is impossible to differentiate the two stages of an ulcer-cancer. The first stage, in which the ulcer evolves, is confounded very frequently, in its clinical aspects, with the second stage, in which the ulcer becomes malignant.

Dr. René Gaultier (Paris) held that the diagnosis of duodenal ulcer should not be confined to the findings elicited by serial roentgenography. The duodenum, he explained, has a semeiology all its own: no loss of appetite (sometimes an abnormal appetite), pain about the umbilicus and on the right side just below the umbilicus, sense of heaviness, a paroxysmal colic arising three or four hours after meals, the rare occurrence of vomiting, the frequency of regurgitations of a thready, viscous fluid, and abdominal tympanism sometimes localized in the duodenal region constitute a dyspeptic syndrome sufficiently significant to be easily differentiated in certain cases.

Dr. Feissly (Lausanne) took Enriquez and Durand to task for underestimating the diagnostic value of occult hemorrhages, in view of their great frequency in active ulcers. If these cases are examined by the Dnapper method, which consists in the spectroscopic determination of hemochromogen and is very sensitive—the presence of 1.5 c.c. of blood mixed with the feces during the twenty-four period can be discovered—a very valuable factor is added to the objective signs. Serial roentgenography marks great progress, but only on the condition that the position in which the ulcer is most likely to be found in a given case is determined in advance. The position will vary quite materially in different subjects. While it is true that ventral decubitus, with a slight inclination to the right, offers the maximum of results, it must be recalled, nevertheless, that right lateral decubitus with laterolateral application of roentgenography is indispensable to bring the duodenum into view in numerous cases of hypertonic stomach.

According to Dr. Cade (Lyons), the finding of a painful point in the diaphragm or in the right side of the neck will point toward cholecystitis, while gastroduodenal ulcerous lesions give rise quite frequently to a painful point in the left side of the neck.

Dr. Roch (Geneva) called attention to two substances that can be conveniently utilized to aid in the diagnosis of gastralgia: colloidal aluminum hydrate, which "adsorbs" hydrochloric acid and is efficacious in treating patients with hyperacidity, and benzyl benzoate, which acts as an antispasmodic and improves the condition of spasmophilic nervous subjects without ulcer or disturbances of secretion.

According to Dr. Roger Glénard (Vichy), the differential action of diathermy on duodenal ulcer pains and on the pains associated with cholelithiasis will sometimes aid greatly in their diagnosis. Diathermy has seldom any effect on duodenal ulcer, but in complicating biliary colic the results are extremely favorable, as appears from the observations of Aimard, the champion of the method, who has applied it in Vichy on more then 500 patients.

Drs. Chiray (Paris) and Blum (Paris) emphasized the value of duodenal intubation for the differential diagnosis of duodenal ulcer and cholelithiasis. The green color of the returned liquid, its appearance like "purée de pois" (mashed pease), and the presence of numerous shreds of mucus are frequent signs of cholecystitis from gallstones. Either in suspension in the liquid or enveloped by mucus, many small black grains are found which they term calculins. Studied from a chemical and a histologic point of view, these calculins seem to be formed of a central core of cholesterin, together with a slight amount of pigment (calcium bilirubinate chiefly) and certain other elements (bile salts, epithelial cells, etc.).

According to Dr. Verhoogen (Brussels), examination of the stomach contents (previous fasting) with the Einhorn tube, is an excellent means of localizing an ulcer. When the tube brings up blood almost unmixed, which is seen to change gradually, and when, after the pylorus is passed, a golden yellow fluid emerges, a gastric localization may be assumed. Inversely, the presence of gastric secretion, unmixed with blood, in the stomach and the presence of blood in the duodenum will incriminate an ulcer of the latter region.

Dr. Gaston-Durand replied that the Einhorn stomach tube had not given Enriquez and himself conclusive results in investigating hemorrhage. In fact, hemorrhage in gastric and duodenal ulcer is not sufficiently frequent to permit reliance on this means of localization. Then, again, there may be hemorrhage in both the stomach and the duodenum in subjects suffering from duodenal ulcer or in patients with periduodenitis without ulcer.

DEFICIENCY DISEASES

Maladies de carence (from *carere,* to lack)—the deficiency diseases of American and English writers—constitute today a vast chapter of medicine, although it is one that has been only partially investigated. There is no general agreement as yet on the definition of these diseases. The definition given by two essayists, Profs. E. Weill and G. Mouriquand (Lyons), was strongly criticized by the third essayist, Dr. F. Rathery, assistant professor of the Faculté de médecine of Paris.

As Weill and Mouriquand conceive of them, deficiency diseases are affections due not to an infection, an intoxication or autointoxication, as ordinarily understood, nor to a genuine inanition or to a simple exclusive or restricted diet, but to the lack *(carence)* in the food of a substance or of a group of substances (possibly even of a certain special physicochemical condition in the food, referred to sometimes as a "living" condition) which are necessary in minimal portions for healthy nutrition. The vitamins belong to this group of indispensable substances, but the avitaminoses are not, as commonly supposed, the only deficiency diseases.

Rathery takes a wider point of view. It seems to him impossible to separate into two distinct groups the indispensable elements of a normal diet, the absence of which would produce different affections—placing in one group the albuminoids, the fats and the carbohydrates, and in the other, the "mineral substances" referred to by Weill and Mouriquand. There is a solidarity in the elements of a normal diet, and the content in carbohydrates, protein and fats is closely related to the quantity of vitamins furnished. As regards the vitamins, man requires the three varieties: A, B and C. The vitamins play with respect to each other, to a certain extent, a supplementary rôle; that is, superabundance of one has the effect of counteracting the insufficiency of another and preventing the manifestation of signs of a specific avitaminosis. There are morbid conditions occasioned by the lack or insufficiency of all three or even of two types of vitamins.

Besides the simple deficiencies, which result from the lack of one of the accessory alimentary factors, there are "mixed" deficiencies, and these are probably the more numerous. Rachitis, in which avitaminosis and a deficiency of minerals are concurrent, is the more important affection of this group. All the foods rich in vitamin A exert either a prophylactic or a curative effect on rachitis. Cod liver oil, which is rich in vitamin A, should be regarded as a specific antirachitic food. The treatment should be supplemented by a diet rich in calcium and phosphorus, and by appropriate hygienic measures (air, light and exercise).

Dr. G. Linossier (Vichy) criticized sharply the mystical interpretations of the rôle of vitamins considered as *substances vivantes* (living substances), *substances-ferments* (fermentative substances), etc. As he views the matter, the pathologic effects of *"la carence"* (deficiency) may be clearly understood if we regard vitamins as simple foods possessing the double quality of being required only in infinitesimal doses much the same as other simple substances, such as arsenic, iodin and zinc, and of not being producible by the human organism, as certain amino-acids. On the other hand, Linossier called attention to the relative character of the need of vitamins. Of a group of persons subjected to a diet deprived of vitamins, only a certain number contract scurvy or beriberi. Not all children brought up on sterilized milk fall victims of scurvy. It is highly probable that after having established the pathogenic rôle of *la carence,* investigations will have to establish the cause of sensitiveness to such deficiency. There will be repeated here what we have observed in the realm of infection, where, after dealing exclusively with the virulence of the microbe, we were compelled to recognize the importance of the receptivity and the resistance of the organism in question.

The Voronoff Incident

Dr. Serge Voronoff was to present to the Congress of Surgery a communication on the implantation of genital glands. But as the Paris edition of an American daily journal had published that very morning a résumé of the communication, Professor Hartmann, president of the congress, decided that Voronoff could not be allowed to give his report, since its premature publication was contrary to the rules of the Congress of Surgery, which require that no communication shall have been previously published. Voronoff protested against this decision, but his protests raised such a storm of whistling and stamping that the unfortunate "renovator of corporeal vigor" felt compelled to leave the room.

BERLIN

(From Our Regular Correspondent)

Oct. 19, 1922.

Economic Distress Among Physicians

If one reads in the foreign press the statements of foreigners who have led, for a short space of time, a luxurious life in the hotels and restaurants of Germany, it becomes at once clear why we note so frequently the view expressed by foreigners that economic conditions in Germany are by no means as bad as they are portrayed in the German press. However, if one will examine more closely into the matter one will get an entirely different impression, and will find that the situation of certain industrial and professional classes, especially, is very bad. The economic distress of German physicians, particularly in the large cities, is increasing day by day. Their bad economic situation is occasioned not only by the rapidly increasing sum of money required for ordinary living expenses, but also by the growing cost of medical practice and the decrease in the number of patients, which, in turn, is due to the fact that many persons in need of a physician are unable to pay the seemingly high medical fees.

Another disturbing factor is that private medical practice is becoming more and more restricted by the spread of social insurance. What havoc the health insurance system plays with the physician's income, under the present unstable economic conditions, may be learned from the fact that four weeks' treatment of a patient carrying public health insurance brings the attending physician in the now insignificant sum of 39 marks. The transactions of the Berlin *Aerztekammer* of October 14 give an insight into the appalling conditions. The government feels compelled, in view of the wage conditions existing among laborers and other employees entitled to social insurance under the law, to grant to an ever increasing number the privilege of receiving medical treatment and medicines through the health insurance societies or sick benefits associations *(Krankenkassen)*. The significance of the recent increase in the cost of living will be seen from the fact that the augmentation for September as compared with August amounts to 80 per cent. Before the war, a kilogram of beef cost in Berlin about 4 marks—now, 500 marks. A kilogram of margarin cost formerly 1.50 marks—now 720 marks. We used to pay 3 marks for a kilogram of butter—the price now is more than 1,000 marks; an egg was 0.10 mark—now one costs 35 marks, while a liter of milk is 61 marks. The price of men's ordinary suits is at least 25,000 marks. Provisions and foodstuffs, as a whole, have increased in price 450 fold, as over against the prewar period. These facts tell a different story from the accounts of carousing and feasting indulged in by foreigners in Berlin restaurants. The most meager equipment of a physician requires today an expenditure of 500,000 marks, while a roentgen-ray outfit costs from 1,500,000 to 2,000,000 marks. Under present conditions, the upkeep of hospitals is becoming increasingly difficult. The financial stress of the cities makes it impossible for them to continue to grant, as formerly, the necessary appropriations for public hospitals, and so it happens that needy patients, who in consequence of their own financial plight are obliged to seek, more often than before, admission to public hospitals, do not find there the hoped-for assistance. Not only the equipment in instruments but also the supply of linen is falling below the standard, as the means for procuring the necessary renewals, not to speak of the newer instruments, are not forthcoming. In most hospitals the linen has to be washed twice daily. According to a memorial of the federation of private care-taking institutions operating on a social welfare basis, 318 of such institutions had, at the end of 1921, a deficit of 50 million marks. Since patients, these days, receive very often inadequate care and treatment at home, they have to be retained, in accordance with their request, much longer than usual in the public hospitals, which tends to overcrowd these institutions. The bad economic situation has also the effect of increasing the number of commitments to the hospitals for the insane. The mental worries connected with the struggle for existence are inclined, as will be readily understood, to accentuate any psychic tendencies to mental disease.

Therefore, in view of these conditions as described, it would be extremely laudable if German physicians living abroad, and likewise foreign physicians who received their training, wholly or in part, at our universities, would come to the assistance of the physicians of Germany in this their hour of distress.

Drafting of Law to Combat Venereal Disease

The Reichstag has taken up again its deliberations on the bill to which I referred in a former letter. The committee has again approved of Section 2, which has caused so much agitation. Section 2 provides that the treatment of venereal patients must be restricted to physicians licensed to practice in Germany. The endeavors of so-called nature doctors and quacks to be conceded the right of treating in venereal cases have, therefore, proved unavailing. It remains to be seen whether the plenary assembly of the Reichstag will endorse the action of the drafting committee.

The Seventieth Birthday of Professor Binswanger

Prof. O. Binswanger, the former director of the Nerve and Psychiatric Clinic in Jena, celebrated, October 14, his seventieth birthday. He was a pupil of the psychiatrists Ludwig Meyer in Göttingen and Karl Westphal in Berlin. He presented in 1882 his inaugural dissertation and, that same year, he was called to Jena as head professor and director of the Landes-Irrenanstalt. Among his numerous writings on affections of the central nervous system and on the clinical manifestations of mental diseases, I will mention more particularly "Studies on the Finer Changes in the Cerebral Cortex in Progressive Paralysis," and "Experiments on the Motor Areas of the Cerebral Cortex," especially on the psychomotor portions. His works on "The Acute and the Early Forms of Progressive Paralysis" and on "The Relationship Between Moral Insanity and Hereditary Degenerative Mental Disease" are worthy of note. His smaller works on "Public Care of the Insane" and "Zur Fürsorge für geistig minderwertige und geistig abwegige Kinder" present considerable interest. It is worthy of mention that Friedrich Nietzsche was admitted as a private patient to his institution. With regard to the mooted question whether or not Nietzsche suffered from genuine progressive paralysis (paresis), Binswanger once told me personally, in response to my query, that his condition represented probably an atypical form of that disease.

Marriages

Ward Stanley Wells, Major, M. C., U. S. Army, to Miss Elinor Dudley, both of San Francisco, October 18.

Carl St. Clair Ratigan, Detroit, to Miss Adeline M. Page of Windsor, Ont., Canada, September 26.

Santos Bellini Lucent, Mineola, N. Y., to Miss Thea Edith Burnam of Delhi, N. Y., recently.

George Huntington Williams to Miss Mary Camilla McKim, both of Baltimore, October 21.

Walter Evan Lee, Darby, Pa., to Miss Ruth Wilks Freeman, at San Francisco, August 7.

Walter Walker Palmer to Miss Francesca de Kay Gilder, both of New York, October 12.

Ernest Stanley V. Laub to Miss Dorothy F. Wilder, both of Detroit, September 26.

Henry Hager Martin to Miss Lena Inez Bishop both of Savannah, Ga., October 19.

Raymond John Sprowl to Miss Jean Porter, both of Spokane, Wash., October 7.

Ivar Ellsworth Reed to Miss Catherine I. Ensley, both of Detroit, September 20.

William Rush Goff to Miss Iva DePue, both of Kyger, W. Va., October 11.

Patrick Liam Ledwidge to Miss Mary J. Hooley, both of Detroit, August 31.

O. S. Wyatt to Miss Ann French, both of Minneapolis, in September.

Deaths

Gustav A. Futterer ⊕ Chicago; University of Würzburg, Germany, 1883; professor of gastro-enterology at the Chicago Polyclinic; formerly served with the M. C., U. S. Army; consulting physician to the former Marion Sims Sanatorium; member of the Chicago Pathological Society, Society of Medical History of Chicago, and the German Congress of Internal Medicine; aged 66; consulting physician at the Columbus Hospital, where he died, November 3, from heart disease.

Karl von Ruck ⊕ Asheville, N. C.; University of Tübingen, Germany, 1878; University of Michigan Medical School, Ann Arbor, 1879; died, November 5, from chronic nephritis. Dr. von Ruck was born in Constantinople in 1849 and shortly after his graduation in Germany went to England and from there to the United States. Following some years' practice in Ohio, he settled in Asheville, where he founded the Winyah Sanatorium in 1888.

Wadsworth Warren ⊕ Detroit; University of Michigan Medical School, Ann Arbor, 1889; associate professor of otology at Detroit College of Medicine and Surgery; member of the Detroit Oto-Laryngological Society and the Detroit Society of Neurology and Psychiatry; on the staffs of the Detroit Receiving, and Providence hospitals; died, October 22, aged 57, from heart disease.

John M. Wilcox, Clinton, Ill.; Northwestern University Medical School, Chicago, 1879; member of the Illinois State Medical Society; former president of the county medical society and of the pension board; surgeon to the John Warner Hospital; member of the school board and local surgeon for the Illinois Central Railroad; died, October 23, aged 76, from chronic nephritis.

William Harvey Harrison, Santa Ana, Calif.; Kentucky School of Medicine, Louisville, 1898; member of the Medical Society of the State of California and of the Medical Association of Montana; formerly ophthalmologist, otologist, laryngologist and rhinologist in the U. S. Indian Service; died, October 15, aged 52, from arteriosclerosis and uremia.

George Crosier Whitney ⊕ Rochester, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1908; served in the M. C., U. S. Army, with rank of captain during the World War; died, October 7, aged 45, at the Highland Hospital, following an operation for duodenal ulcer.

George Henry Chaffee, Binghampton, N. Y.; University of Michigan Medical School, Ann Arbor, 1881; member of the Medical Society of the State of New York; founder, and for five years chief surgeon, of the Bay Ridge Hospital, Brooklyn; aged 67; died of heart disease, October 26.

Angus Wylie Kenning, Victoria, B. C., Canada; Detroit College of Medicine and Surgery, Detroit, Mich., 1895; president of the Victoria Medical Association; chairman of staff, St. Joseph's Hospital, and surgeon to the Provincial Royal Jubilee Hospital; died, August 21, aged 54.

Fitz William Dalrymple, New Rochelle, N. Y.; Bellevue Hospital Medical College, New York, 1889; visiting physician to the New Rochelle Hospital; member of the Celtic Medical Society of New York; at one time city health officer; died, October 25, aged 60.

Albert Otto Zwick, Cincinnati; Medical Department of the University of Cincinnati, 1902; for several years instructor at the Cincinnati College of Pharmacy; associated with several hospitals in the city; died suddenly, October 21, aged 56, from heart disease.

E. S. Stuart, Fairview, Ky.; Washington University, Medical School, St. Louis, 1851; founder of the Jennie Stuart Hospital, Hopkinsville, Ky., to which he gave $50,000 in memory of his wife; aged 99; died, October 18, from senility, at Hopkinsville.

James McMillin, Goodwell, Okla.; University of the South Medical Department, Sewanee, Tenn., 1900; member of the Tennessee State Medical Association; aged 72; died, September 7, from a gunshot wound in the heart, presumably self-inflicted.

Louis Rosenthal, New York; New York University Medical College, 1898; assistant genito-urinary surgeon at the Gouverneur Hospital Out-Patient Department, and to the Stuyvesant Polyclinic; died, October 19, aged 46, from heart disease.

William H. Byerly, Franklin, Neb.; Medical College of Virginia, Richmond, 1869; member of the Nebraska State Medical Association; for several terms mayor of Franklin; retired in 1920 on account of ill health; died, October 18, aged 82.

Thomas Jefferson Johns, Tallapoosa, Ga.; Medical College of Alabama, Tuscaloosa, Ala., 1888; member of the Medical Association of Georgia and the Southern Medical Association; died suddenly, October 14, aged 69, from heart disease.

Charles Strong Dickinson, Lockport, N. Y.; Niagara University, Medical Department, Buffalo, 1892; county jail physician; aged 58; was killed instantly, October 19, when the automobile in which he was driving was struck by a train.

Henry J. Minthorn, Metlakatla, Alaska; State University of Iowa College of Medicine, Iowa City, Iowa, 1874; Jefferson Medical College, Philadelphia, 1877; died, October 11, at Portland, Ore., aged 76, from obstruction of the gallduct.

Charles C. Bernard, Chicago; Chicago Homeopathic Medical College, 1882; member of the Illinois State Medical Society; attending eye and ear surgeon to the Illinois Masonic Hospital; died, October 29, aged 66, from pneumonia.

Octavius Weld, Vancouver, B. C.; University of Toronto, Faculty of Medicine, Toronto, Ont., Canada, 1886; L.R.C.P. and L.M.S.A., London, 1889; died, September 11, aged 60, at the Vancouver General Hospital, from pneumonia.

George H. Colville, Circleville, Ohio; Columbus Medical College, 1879; member of the Ohio State Medical Association; president of the city council; aged 67; died at the Grant Hospital, Columbus, October 25, from septicemia.

Mary Imogene Bassett ⊕ Cooperstown, N. Y.; Woman's Medical College of Pennsylvania, Philadelphia, 1887; chief of staff of the Imogene Bassett Hospital; died suddenly, October 22, aged 66, from cerebral hemorrhage.

Elias H. Etchison, Gaithersburg, Md.; University of Vermont, College of Medicine, Burlington, 1885; aged 66; died suddenly, October 19, from heart disease, at the bedside of a woman he had just delivered of a child.

Ralph Charles Kendig ⊕ Akron, Ohio; Miami Medical College, Cincinnati, 1902; former county coroner; aged 46; on the staff of the City Hospital, where he died, October 19, following an operation for peritonitis.

F. Milton Friend, Lamar, Colo.; Ohio Medical University, Columbus, Ohio, 1894; member of the Colorado State Medical Society; formerly coroner of Baco County; died, October 23, aged 77, from strangulated hernia.

Edward Blackadder, Bedford, N. S.; Dalhousie University, Faculty of Medicine, Halifax, N. S., 1905; represented Halifax County in the Canadian House of Parliament; aged 50; died, October 22, in Halifax.

Edwin Field ⊕ Red Bank, N. J.; Medical Department of Columbia College, 1873; on the staff of the Monmouth

Memorial Hospital, Long Branch, N. J.; died, October 27, aged 73, from encephalitis.

Walter Carl Troutman, Tennville, Ga.; Atlanta College of Physicians and Surgeons, 1911; member of the Medical Association of Georgia; aged 37; died suddenly, September 26, from acute indigestion.

Henry C. Aldrich, Minneapolis; Hahnemann Medical College of Philadelphia, 1881; acted as surgeon to the Minneapolis City Hospital, 1897-1905; died in September, aged 65, at Santa Monica, Calif.

Charles Thomas Cooper, San Angelo, Texas; Vanderbilt University, Medical Department, Nashville, Tenn., 1880; member of the State Medical Association of Texas; died, October 22, aged 68.

William Patrick Slattery ⊕ Dubuque, Iowa; Bellevue Hospital Medical College, New York, 1893; member of the staff of the Mercy Hospital; aged 53; died, October 20, from chronic nephritis.

John Calhoun Thompson, New York; Medical Department of the University of the City of New York, 1882; demonstrator of anatomy at his alma mater, 1881-1883; died, October 17, aged 66.

William Douglas Haight, Johnstown, Pa.; Rush Medical College, Chicago, 1883; on the staff of the Conemaugh Valley Memorial Hospital; specialized in roentgenology; died, October 23, aged 63.

Addison B. G. Reader, Camden, N. J.; Baltimore Medical College, 1898; on the staff of the Sunny Rest Sanitarium, Ancora; aged 46; died suddenly, October 18, from heart disease.

Walter G. Kimbrough, Denton, Texas; Vanderbilt University, Medical Department, Nashville, Tenn., 1891; member of the State Medical Association of Texas; died, October 19, aged 52.

Frederick Homer Brewer ⊕ Utica, N. Y.; Albany Medical College, Albany, N. Y., 1878; on the staff of the Faxton Hospital for twenty years; died, October 24, aged 68, from heart disease.

Leslie Edmund Thompson, Woodcliff, Ga.; Atlanta School of Medicine, 1921; died, October 1, at Colorado Springs, Colo., aged 38, from pulmonary tuberculosis.

Francois X. R. Lafleche, Warwick, Quebec, Canada; Victoria University, Medical Department, Toronto, 1879; died, September 10, aged 67, from paralysis.

Frederick A. Dantzler, Heidelberg, Miss.; Kentucky School of Medicine, Louisville, 1891; county health officer of Jasper County; died, October 16, aged 63.

Herbert Edward Shepherd, Toronto, Ont., Canada; Victoria University, Medical Department, Toronto, 1872; died, October 3, aged 77, from senility.

Benjamin F. Baker, St. Paris, Ohio; Starling Medical College, Columbus, Ohio, 1865; Civil War veteran; died, October 23, aged 78, from paralysis.

Warren Augustus Miner ⊕ Ossining, N. Y.; Medical Department of the University of the City of New York, 1882; died, October 21, aged 69.

Loron Whitney Howk ⊕ Rochester, N. Y.; University of Michigan, Medical School, Ann Arbor, 1891; died, October 23, aged 56.

D. C. Damron, Sheridan, W. Va. (licensed, West Virginia, years of practice); died, October 1, aged 78, from tuberculous peritonitis.

James M. Townes, Joshua, Texas; Medical Department, Vanderbilt University, Nashville, Tenn., 1875; died, October 1, aged 76.

John A. Beall, Detroit; Columbus Medical College, Columbus, Ohio, 1889; died, October 23, aged 61 following a long illness.

John P. Cook, Colquitt, Ga.; Atlanta Medical College, Atlanta, Ga., 1895; died, October 9, aged 56, from peritonitis.

Alford B. Sullivan, Liberty, N. Y.; Bellevue Hospital Medical College, New York, 1898; died, October 26, aged 56.

Asa L. Payne, Danielsville, Ga.; Atlanta Medical College, 1887; aged 65; died, September 23, at a local hospital.

Stephen J. Hubbell, Fort Lupton, Colo.; Jefferson Medical College, Philadelphia, 1856; died, October 16, aged 88.

S. Bowers, Brenham, Texas; New Orleans School of Medicine, 1870; died recently, aged 77.

F. Andrews, Alicia, Ark. (licensed, Arkansas, 1903); died, October 20, aged 47.

The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other General Material of an Informative Nature

GALYL NOT ADMISSIBLE TO N. N. R.

Abstract of a Report of the Council on Pharmacy and Chemistry *

In 1918, Geo. J. Wallau, Inc., acting as U. S. distributor for Galyl (which is manufactured by A. Naline, Garenne, France) requested the Council to consider the product.

At that time, Galyl was stated to be tetra-hydroxy-diphospho-amino diarseno-benzene and its molecule was said to be made up of two arsphenamin molecules linked by means of two phosphorus groups. It contained 35.3 per cent. arsenic and 7.5 per cent. phosphorus. The product was insoluble in water and for use had to be dissolved by means of sodium carbonate. Galyl was claimed to be less toxic than arsphenamin, quicker in its action on spirilla and of equal therapeutic value.

Wallau, Inc., did not supply the Council with the information which it required to determine the identity, purity and strength of Galyl, and hence the Council postponed consideration of the product to await the submission of this information. Later, Wallau, Inc., advised the Council that the composition of Galyl had been changed. The "new" Galyl, it is claimed, contains only about 18 per cent. of arsenic and is a sodium salt of the "old" Galyl obtained by precipitating a solution of the old Galyl "by means of a solution of sodium hydrosulphite"; this compound, according to information submitted, is presumed to be linked with five molecules of sodium sulphite.

It was admitted that the laboratory work on Galyl had all been done with the old product, but it was stated that the toxicity of the new was lower than that of the old Galyl and that "hundreds of thousands of injections were given in the French and British armies, without a recorded fatality, and the clinical and serological results were so satisfactory that it was adopted as one of the standard treatments."

As no tests of a satisfactory nature were furnished whereby the composition and uniformity of the product might be determined, the A. M. A. Chemical Laboratory was asked to investigate the "new" Galyl with the idea of devising suitable tests if the product seemed to be what it was claimed. At this time the U. S. Patent Office had issued a patent for the manufacture of old Galyl base; also the U. S. Public Health Service, on the basis of animal experiments, had authorized the importation of the "new" Galyl.

The investigation made in the Association's chemical laboratory indicated that either the new Galyl did not have the composition ascribed to it in the advertising issued by Wallau, Inc., or that it would not have this composition at the time it is administered.

The A. M. A. Chemical Laboratory submitted the new Galyl (which was claimed to have the advantage over the old Galyl of use without alkalization) to a study for the purpose of determining whether or not it had the chemical composition claimed for it. The laboratory found that a solution of this new Galyl responds to practically all the tests in New and Nonofficial Remedies for sodium arsphenamin, except that there is present both sulphite and phosphate. The study indicated that the sodium salt of diphospho-diarsphenamid ("galyl sodium base"), if present as claimed, is easily hydrolized into sodium phosphate and sodium arsphenamin and that there is no evidence of a linking between the sulphite groups and the arsphenamin compound, as claimed by the manufacturer. When the new Galyl is dissolved in water, either it is partly decomposed into sodium phosphate and sodium arsphenamin or else the original product contains sodium arsphenamin and sodium phosphate. In either case the injection will probably amount to the administration of a mixture of phospharsphenamin (if any is present), sodium arsphenamin, sodium phosphate, sodium sulphite and sugar.

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* A copy of the complete report will be sent on receipt of a stamped directed envelop. It will appear in the Annual Reports of the Council on Pharmacy and Chemistry for 1922.

In December, 1921, the complete report of the Association's laboratory was sent to the Galyl agent in duplicate, to facilitate its transmission to the French manufacturer. In transmitting the report, it was pointed out that if, as the report indicates (1) Galyl is a mixture containing diphosphodiarsphenamide ("old" galyl), sodium sulphite and sugar which decomposes in solution yielding sodium arsphenamine or (2) Galyl does contain the sodium salt of diphosphodiarsphenamide (mixed with sodium sulphite) which in solution decomposes by hydrolysis into sodium arsphenamine and sodium phosphate, then a radical revision of the advertising claims for Galyl is in order. It was further explained that in such instance the Council might also require evidence that the administration of Galyl possesses advantages over the administration of sodium arsphenamine.

Nothing has been received from the agent of the manufacturer to offset the findings of the chemical report. On the contrary, the work has been essentially confirmed by other investigators.

On June 20, 1922, Wallau, Inc., in reply to an inquiry from the Council, advised that no reply to the report had been received from the manufacturer, although this had been asked for repeatedly. Wallau stated that this information would be sent the Council when received and that pending final action of Galyl by the Council no new advertising material was being put out but that orders for Galyl are being filled.

The failure of the manufacturer of Galyl to present evidence controverting the findings of the A. M. A. Chemical Laboratory is presumptive evidence that Galyl does not have the composition claimed for it. This conclusion is supported by the evidence of independent investigators.

In the absence of evidence to the contrary, it must be concluded that (1) the composition of Galyl has not been correctly declared, and (2) the therapeutic claims are unwarranted since they ascribe to Galyl a composition which it does not appear to possess. Further, since the evidence indicates that the administration of Galyl amounts to the administration of sodium arsphenamine, its use under another name than sodium arsphenamine and with deceptive claims for its composition is irrational and a detriment to rational therapy.

Accordingly the Council declared Galyl inadmissible to New and Nonofficial Remedies.

Correspondence

"SOCIALISTIC TENDENCIES IN MEDICINE"

To the Editor:—In The Journal, September 23, Dr. Haven Emerson, who during the spring of 1922 conducted a six weeks' survey of the Department of Hospitals and Dispensaries of Buffalo, takes up the cudgels in defense of that department and criticizes certain statements made by me in my chairman's address "Socialistic Tendencies in Medicine" (The Journal, August 12).

I appreciate with Dr. Emerson all that is "unique" in the hospital and dispensary service of Buffalo but I cannot agree with him that the difficulties, inconsistencies or partial failures are minor in character and easy to remedy.

That any hospital or dispensary can be conducted without some bad features and results would be asking the impossible, but the findings of the survey in question present conditions which while hoped for would seem incredibly "too good to be true."

Dr. Emerson states that I put "up a straw man to knock him down" and that I am afraid of socialistic tendencies in medicine. I will quote from a paper by the superintendent of the Department of Hospitals and Dispensaries which appeared in the *New York State Health News:*

> That the Health Center plan as adopted by Erie County is a forerunner of free health by which is meant that rich and poor alike will some day enjoy the highest degree of medical skill with the cost spread on the general tax rate.

Does this forecast socialistic tendencies in medicine?

Dr. Emerson says:

> The hospital plan of Buffalo, including the free dispensary system, is comprehensive and adequate, but not too elaborate or in any way superfluous.

Mr. Graves, commissioner of finance, in a speech before the common council on June 1, stated:

> The City Hospital on its completion will care for 864 patients, and in an emergency 1,100 patients. The census showed 464 patients on April 28th, 1922; 273 were either tuberculous or infectious and would not be welcome in private hospitals; 191, practically 200 patients, could be taken care of in private institutions where they would get equally as good care as in the City Hospital, at a cost to the city of $12.00 per week, while the cost to the city in the City Hospital was $28.35. It must be kept in mind, while discussing the $28.35 cost, that this is merely *comparable* cost and not the *actual* cost. The *actual* cost, which would include interest and depreciation had all the patients been kept in the completed institution during 1920-21, would have been nearer $42 per week.

The public accountants in their report to Mr. Graves state:

> Were the new hospital with its 864 beds open for receiving patients during the influenza year 1918-1919, it would have been filled throughout the year an average of 60 per cent., and that the average occupation for 1920-1921 would have been 57 per cent. The maximum number of patients for the three hospitals on any single day in 1920-1921 filled the present beds only 87 per cent. On the basis of the new capacity (864) this maximum would have filled only 73 per cent. of the beds. Considering a normal prospect they may hope to fill it only to 57 per cent. capacity. And this assuming that the past policy of welcoming any and all patients whether able to pay or not is continued.

Bear in mind that over $3,500,000 has been spent on this hospital plan and the work is not yet finished. Will the taxpayer consider this scheme "not too elaborate or in any way superfluous?"

According to figures furnished by the Department of Public Welfare, the private hospitals in Buffalo cared for city patients as follows:

1916..................	160,000 patient days
1921..................	69,000 patient days
	91,000 patient days

The difference between $4.05, the cost in the City Hospital, and $1.71, the cost in the private hospital, is $2.34 per day. The city, therefore, lost over $200,000 a year by caring for these patients. One of the doctors who had charge of a district testified at the investigation that only two out of every thousand indigents who applied for hospital care asked to go to the City Hospital. Practically every patient, when the preference was expressed by the attending physician, wished to go to a private hospital. Why were the private hospitals drained at a cost to the city of over $200,000 a year if it was not in the attempt to make it appear that there was need of more building and equipment to care for them, and, therefore, more money to spend and more doctors to place on the city payroll?

Patients from outside the city were taken, and are still taken, at a fee of $12 per week by the City Hospital, although it costs the city $28.35 per week. A conservative estimate shows that the city has lost a quarter of a million in the last five years from this class of patients. Is this economy?

Dr. Emerson quotes me as stating:

> There is no official dividing line between those whom they (public dispensaries) care for as free patients and those who are refused because of their ability to pay.

Dr. Emerson says:

> As to there being inadequate protection of the public and the medical profession against abuse, by those able to pay, of facilities intended for the indigent, this, too, is a matter which comes within the scope of the admirable dispensary law of the state of New York. Can Dr. Gardner point to an instance in Buffalo in which medical services are rendered by public or private health or treatment agencies except as expressly authorized by law?

In regard to dispensary patients Commissioner Graves states:

> Now what do we find with relation to pauperism. This material was all compiled and gathered at considerable expense. The report shows 30 per cent. treated as indigents were owners of real property, and approximately two-thirds of those treated as indigent patients were able to pay for treatment.

Dr. Emerson says:

> Dr. Gardner complains of the lack of adequate individual clinical and laboratory care for the patients accepted at the public urological clinic. With the single exception that the open funnel instead of the single or twin glass cylinder method of administering arsphenamin was in use, it is my opinion that the methods, technic and thoroughness of care at the public urologic clinic at Buffalo will be found to compare favorably with the best hospital dispensary services for venereal diseases operating in our large cities.

My statement of the situation was as follows:

> One of our city urologists stated that he saw from fifty to seventy patients in a two-hour period three times a week. He accounts for the number of cases cared for by the excellent system. Gonorrheal patients irrigated themselves, the orderly massaged them and a nurse prepared the arsphenamin, so the urologist's only job was to insert the needle. There was no laboratory attached, and no smears or urine were examined. If the physicians wished these examinations made, the specimens were sent to the city laboratory and reports made at a later date.

My statement has been badly distorted and most of it amputated. If the treatment I have quoted from one of our city urologists "compares favorably with the best hospital dispensary service for venereal diseases operating in our large cities," then there certainly is a need for greater house cleaning and less whitewashing.

James A. Gardner, M.D., Buffalo.

[The letter of Dr. Gardner was referred to Dr. Emerson, who replies:]

To the Editor:—Neither Dr. Brunet, who lived in Buffalo for six weeks during the investigation and made repeated observations of the operation of the dispensaries, nor I, by careful personal observation, on a number of visits to the free public clinics conducted by the department of hospitals and dispensaries of Buffalo, found any evidence of neglect in the clinical or laboratory procedures regularly employed for diagnosis of syphilis and gonorrhea; nor did we find that the essentials of treatment were omitted.

Orderliness, system, method and reasonable regard for privacy prevailed at the venereal disease clinic, and adequate record of the number of patients, the diagnosis, the treatment given and other pertinent facts was made in each case. Dr. Gardner's complaint of an undesirable routine, rapidity and neglect of medical service leaves me unconvinced.

That the statement of the public accountants in the matter of dependency of applicants for free hospital and dispensary care was not taken seriously by the mayor and prosecuting counsel in the case against the board of trustees of the department of hospitals and dispensaries was evident from the fact that the records of the commissioner of public welfare frankly controverted their testimony. I still think it reasonable to ask Dr. Gardner if he has any evidence of violation in Buffalo of the State Dispensary Law and if so, whether he has asked the proper city officer to take appropriate action in the case.

Dr. Gardner points to an inconsistency in the city policy of Buffalo to which I took pains to call attention in my report; namely, that the privately controlled hospitals were paid by the city a rate for bed care of the indigent patients far below actual cost of the service rendered in these hospitals. My study did not include an analysis of the per capita cost of bed care in these private hospitals, but no responsible hospital administrator in Buffalo or any other of our large cities will accept the figure of $1.71 a day as representing even half of the true cost of hospital care for general medical and surgical patients, when such care is analyzed and reported with the completeness characteristic of the accounting of the Buffalo City Hospital.

That the city maintains its quite unjustifiable contract with the supervisors of Erie County to care for patients from outside the city at $12 a week, when such care costs Buffalo $28.35 a week, is to be deplored from the point of view of the tax-payer, but does not in any way serve as an argument against the continuation of the high-grade hospital and dispensary services which Buffalo City supplies for its own indigent sick. On page 28, and in Recommendation No. 40 of the report, for which I was responsible, both of these matters were dealt with.

The public accountants and the commissioner of finance were shown to be grossly in error at the hearings in their attempts to prove waste and extravagance in the department of hospitals and dispensaries, and the charges which they attempted to sustain were dismissed by the court; the board of trustees was wholly exonerated, was continued in office by the mayor, and its budget, including a continuation of all the activities which had been criticized, was approved in June by the city council for the next fiscal year.

All of which seems to me far from the main question at issue which, as I understand it, is whether anything in the provision of adequate, high-grade diagnosis and treatment of the indigent sick by physicians and surgeons nominated by the faculty of the medical school of the University of Buffalo and serving in the City Hospital and branch dispensaries (many of these physicians taking an active part on the teaching staff of the medical school) is antisocial or "socialistic"; or whether these physicians and surgeons are carrying out the best traditions of the profession in medical practice and education, and thereby earning our approval and respect.

For my part, I can see nothing of the so-called "socialistic tendency in medicine" in Buffalo that cannot be found to an equal degree in the services provided by hospitals and dispensaries used in the teaching of medical students and serving the public in Boston, New Haven, New York City, Philadelphia, Cleveland, Cincinnati, Pittsburgh, Chicago and St. Louis. I remain of the impression that Dr. Gardner, in his chairman's address, indulged in generalities without substantial evidence to support his criticisms, and that the result of his attack on the care of the sick poor in his home town, if unanswered, would be to discredit an excellent public service now trusted to the hands of his competent fellow practitioners.

As I was invited to study the activities of the public department of hospitals and dispensaries, not by the physicians of Buffalo, nor by the department concerned, but by a committee of more than 100 public-spirited laymen interested in obtaining, as nearly as practicable, an impartial professional statement of the character of services and their value to the community, I could not refrain from opposing publicly the attack which Dr. Gardner directed particularly against the care of the sick poor in Buffalo.

Haven Emerson, M.D., New York.

USE OF SOLUTION OF HYPOPHYSIS IN ECLAMPSIA

To the Editor:—On the theory that pituitary substance or principle is of great value in stimulating unstriped muscle fibers throughout the body, I was first led to use it several years ago in a case of eclampsia, which occurred a few hours after a normal delivery, when death seemed imminent. Large doses of cathartics had been given, including two or three drops of croton oil, with no effect, as is usual in severe toxemias. A full ampule of a pituitary extract was then given hypodermically, and within a few minutes there was a copious involuntary bowel movement; and the patient made a complete recovery. I have since used this treatment in similar cases, with gratifying results. It may be given cautiously ante partum also.

In a recent case, this substance was used to increase eristalsis following renal colic. A large amount of morphin vas used over a period of forty-eight hours before the calulus passed through into the bladder, as was shown by oentgen ray. Large doses of cathartic were taken but were neffective, and the patient was in great distress until one mpule of pituitary substance was administered, which gave he desired results in a few minutes.

Any good extract of the posterior pituitary body may be ised: the secret of its successful use as an aid in elimination is to have plenty of cathartic in the bowel before using t. A full ampule may be given hypodermically every thirty ninutes until the desired result is obtained; however, I have ever found it necessary to use more than two doses.

Findley D. John, M.D., Chicago.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not e noticed. Every letter must contain the writer's name and address, ut these will be omitted, on request.

HABITUAL USE OF BARBITAL

To the Editor:—Will you please let me know what the effects of eronal are after months of using it? I have a friend—a nurse—who ells me that she cannot sleep without it, and has taken from 5 to 12 rains (0.3 to 0.8 gm.) every night for more than six months.

A. J. K., Florida.

Answer.—The constant use of even small doses of barbital veronal) affects the central nervous system. Those taking he drug habitually become much debilitated and seem less ble to stand moderate doses. Death has occurred from a gm. dose in addicts. The gradual substitution of antipyrin alicylate for barbital has been reported in the treatment of n addict (The Journal, Feb. 21, 1920, p. 544). Because of requent reports of accidents and habit formation, the Privy Council of Great Britain has classified veronal (barbital) as poison (The Journal, March 30, 1918, p. 953). Many ases of poisoning, some fatal, occur from its indiscriminate se by the laity. The condition is attended by long-continued tupor, sometimes interrupted by excitement. It has been onfused with uremia, epidemic (lethargic) encephalitis and pium poisoning. Skin rashes are of frequent occurrence Useful Drugs, Ed. 5, p. 38).

PEMPHIGUS NEONATORUM — CORN SYRUP IN INFANT FEEDING — ALTITUDE AND NERVOUS SYSTEM

To the Editor:—1. In a recent book pemphigus is given a good prog-osis. Please discuss. 2. Please give the indications, approximate mounts and methods of preparation for feeding of corn syrup. 3. Does unshine have any definite effect on the nervous system in high altitudes? lease omit my name.

Inquirer, Kansas.

Answer.—1. The prognosis is favorable if the process connes itself to the superficial layers of the skin. If the deeper ayers are attacked, abscesses and general sepsis result.

2. Marriott in 1919 advocated the use of corn syrup conaining dextrose in combination with lactic acid milk on the round that such combination would allow absorption before he carbohydrate could be attacked by the intestinal bacteria nd broken down. He used commercial corn syrup, and nixed 45 volumes of the syrup with 55 volumes of water; 00 c.c. of this mixture contains approximately 50 grams of arbohydrate. This was added to lactic acid milk in some ases so that the total carbohydrate in the mixture was as igh as 10 to 15 per cent. Marriott recommended this method f feeding for severe cases of malnutrition.

3. This subject is discussed in the following journals:

Hingston, R. W. G.: Physiological Changes at High Altitudes, *Indian J. M. Res.* **9**: 173 (July) 1921.
Schneider, E. C.: Physiological Effects of Altitude, *Physiol. Rev.* **1**: 631 (Oct.) 1921.
Heber, A. R.: Some Effects of Altitude on Human Body, *Lancet* **1**: 1148 (May 28) 1921.
Laquer, F.: Effect of Mountain Climate on Blood and Exchange of Fluids Between Blood and Tissues, *Klin. Wchnschr.* **1**: 163 (Jan. 21) 1922.
Feer, E.: Action of Mountain Climate on Sick Children, *Schweiz. med. Wchnschr.* **51**: 437 (May 12) 1921; abstr., The Journal, July 2, 1921, p. 73.
Frenkel-Tissot, H. C.: Blood at High Altitudes, *Schweiz. med. Wchnschr.* **52**: 613 (July 15) 1922; abstr., The Journal, Sept. 2, 1922, p. 856.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Arkansas: Little Rock, Nov. 14-15. Sec., Reg. Bd., Dr. J. W. Walker, Fayetteville; Sec., Eclec Bd., Dr. C. E. Laws, 803½ Garrison Ave., Fort Smith; Sec., Homeo. Bd., Dr. George M. Love, Rogers.

Connecticut: Hartford, Nov. 14-15. Sec., Reg. Bd., Dr. Robert L. Rowley, 79 Elm St., Hartford.

Connecticut: New Haven, Nov. 14-15. Sec., Eclec. Bd., Dr. James E. Hair, 730 State St., Bridgeport; Sec., Homeo. Bd., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

Delaware: Wilmington, Dec. 12-14. Sec., Dr. P. S. Downs, Dover.

Louisiana: New Orleans, Dec. 7-9. Sec., Dr. Roy B. Harrison, 1507 Hibernia Bank Bldg., New Orleans.

Maine: Portland, Nov. 14-15. Act. Sec'y., Dr. Adam P. Leighton, Jr., 192 State St., Portland.

Maryland: Baltimore, Dec. 12. Sec., Dr. J. McP. Scott, 141 W. Washington St., Hagerstown.

Massachusetts: Boston, Nov. 14-16. Sec., Dr. Samuel H. Calderwood, 144 State House, Boston.

Missouri: Kansas City, Nov. 20-23. Sec., Dr. Cortez F. Enloe, State House, Jefferson City.

North Carolina: Durham, Dec. 12. Sec., Dr. Kemp P. B. Bonner, Raleigh.

Ohio: Columbus, Dec. 6-8. Sec., Dr. H. M. Platter, Hartman Hotel Bldg., Columbus.

South Carolina: Columbia, Nov. 14. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

Texas: Waco, Nov. 28-30. Sec., Dr. T. J. Crowe, Dallas County Bank Bldg., Dallas.

Virginia: Richmond, Dec. 5-8. Sec., Dr. J. W. Preston, McBain Bldg., Roanoke.

REPORT OF THE THIRTEENTH EXAMINATION OF THE NATIONAL BOARD OF MEDICAL EXAMINERS

The thirteenth examination of the National Board of Medical Examiners was held in twenty-three Class A medical schools, June 19, 20 and 21, 1922, in Part I, which comprises written examinations in each of the six fundamental medical sciences. The subjects of the examination and the relative value of each were: anatomy, 100; physiology, 75; materia medica and pharmacology, 75; pathology, 75; physiologic chemistry, 50, and bacteriology, 50, making a total of 425 counts for this part.

A candidate taking Part I must earn at least 75 per cent. of this total. The number of counts earned in any subject depends directly on the ratings of the answered papers. Falling below 65 per cent. in two subjects or below 50 in one subject constitutes a failure.

Under the new plan of examination, a candidate is allowed to take an incomplete examination, omitting one of the subjects, if the instruction in this subject is not completed in the medical school of attendance by the end of the second year. One hundred and forty-two candidates appeared for examination in Part I; of these, eighty-eight passed, thirty-one took an incomplete examination, and twenty-three failed to pass the examination.*

EXAMINATION, PART I

ANATOMY

Answer eight questions out of the ten: 1. Discuss the development of the male and female genital organs. 2. Discuss the structural elements of blood and their development. 3. Make a diagram of the lymph glands of the neck, naming regions drained. 4. Describe the parotid gland. 5. Describe the wrist joint. 6. Make a diagram showing the topography of the normal heart and its valves. 7. Make a diagram showing the topography of the stomach when full and empty. 8. Draw section of the thigh through the adductor canal (Hunter's canal); label all structures. 9. Draw a medial sagittal section of the pelvis in the female; label all structures. 10. Describe the nervous mechanism involved in moving; make diagram of cortical motor centers.

PHYSIOLOGY

Answer any five of the following questions: 1. Outline the present knowledge of the cause of the heart-beat. 2. On what factors does the acid-base equilibrium of the blood depend? 3. Discuss the respiratory gases in blood and lymph. 4. Describe the digestion and absorption of fat. 5. Describe direct and indirect calorimetry. 6. Describe the results of removing the cerebral cortex from dogs.

PHYSIOLOGIC CHEMISTRY

Five of these questions to be answered: 1. Give in detail the chemistry of the gastric juice and the products which result from its action on proteins. 2. Give the chemistry of the pancreatic juice and the results of its action on proteins, carbohydrates and fats. 3. Give the origin, chemical composition and destination of the red blood corpuscles. 4. Give the chemical constituents of the cerebrospinal fluid and the significance of increase or decrease in any of these constituents in disease. 5. Give the origin, chemical composition and destination of both bile pigments and bile acids. 6. Describe the urinary deposits that may occur in pathologic urines, and give the clinical significance of such deposits. 7. Give the physical characteristics and chemical constituents of normal blood plasma. 8. What are vitamins, and tell what diseases develop when one or more vitamins are lacking in the food. 9. What is cystin, and tell what you can about its formation in the body, both in health and in disease. 10. Tell what you know about the chemistry of bone.

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* The list of those passing and failing in Part I and the averages obtained appears in a reprint which may be secured from the secretary of the Board, or from The Journal on receipt of a stamped directed envelop.

PATHOLOGY

Answer five questions from the following: 1. Describe the resolution of an inflammatory exudate. 2. Describe three types of acute diffuse nephritis. 3. Discuss the etiology of acute poliomyelitis, and describe the lesions associated with it. 4. Discuss the etiology of amyloid degeneration, the nature of the change and the technic of its recognition. 5. What factors may interfere with the normal return of the blood to the heart? 6. Discuss the pathology of fever. 7. Discuss malignancy of tumors. Name ten benign tumors.

BACTERIOLOGY

Answer any five of these six questions: 1. (*a*) What organisms are concerned in the etiology of bacillary dysentery? (*b*) How would you differentiate dysentery bacilli (1) from colon bacilli; (2) from typhoid bacilli? (*c*) What other forms of dysentery are recognized clinically, and how are they differentiated by laboratory methods? 2. (*a*) What is typhoid-paratyphoid vaccine? (*b*) What are the general principles underlying its use for prophylactic purposes? (*c*) What is your opinion as to its usefulness as a protective measure in the prevention of the typhoid-paratyphoid fevers? 3. (*a*) What is the diphtheria antitoxin unit? Explain it in terms of the experiment by which it is ascertained. (*b*) Indicate the dosage and method of administration of diphtheria antitoxin that you would carry out if called in to treat the following types of cases: (1) mild attack of diphtheria, in a ten-year-old child, seen early in the course of the disease; (2) very severe attack of diphtheria, in an adult, seen late in the course of the disease. 4. (*a*) Given a case requiring blood transfusion, why is it important to ascertain the blood group of the donor and recipient? (*b*) What is the most commonly used classification for grouping the blood of human beings, and how would you carry out the grouping of blood specimens? 5. (*a*) If you were called in to see a child who had been bitten by a pet dog that apparently was in a normal condition, what precautionary steps would you take with reference to the dog? (*b*) If the dog referred to in 5*a* should die within a period of four or five days of an illness suggestive of rabies, what steps would you take to ascertain whether the dog had rabies? (*c*) Under the conditions outlined in 5*b*, what treatment would you advise for the patient bitten by the dog? 6. (*a*) What criteria would influence the diagnosis of gonococci in a smear of pus? (*b*) How may this diagnosis be further confirmed?

MATERIA MEDICA AND PHARMACOLOGY

Answer all questions: 1. (*a*) Give the physical properties of chloroform. (*b*) Give three actions and uses of chloroform. (*c*) Define delayed chloroform poisoning, describing the changes produced in the principal organ affected, as well as the effect on the general system. 2. Give the physical properties, action and uses, and dosage of the following: (*a*) Hydrargyri chloridum mite. (*b*) Hydrargyri oxidum flavum. (*c*) Hydrargyri salicylas. 3. (*a*) Describe three forms of digitalis used for therapeutic administration. (*b*) Describe one method of standardizing digitalis. (*c*) Discuss the emetic action of digitalis. 4. (*a*) Discuss the action of opium and morphine on the gastro-intestinal tract. (*b*) Discuss the effect of opium and morphine on the pupil. (*c*) Describe Dover's powder, and give its principal uses. 5. (*a*) Describe two organic preparations of arsenic. (*b*) Give the dosage, action and uses of each. 6. Give the incompatibilities of the following drugs: (*a*) Atropin. (*b*) Iron. (*c*) Bismuth. (*d*) Potassium iodide. (*e*) Sodium salicylate.

PART II

Part II of the examination was held in sixteen medical schools, June 22 and 23. This was also a written examination in the following subjects and with the relative values assigned: medicine, 75; surgery, 75; obstetrics and gynecology, 50; public health, 25, making a total of 225 counts for this part. A candidate taking Part II must earn at least 75 per cent. of this total. The number of counts earned in any subject depends directly on the ratings of the answered papers. Falling below 65 per cent. in two subjects or below 50 in one subject constitutes a failure.

Sixty-one candidates appeared for examination in Part II. Of these, fifty-one passed and ten failed.

PASSED, PART II

Names and Colleges	Year of Graduation
Halbert Louis Dunn, University of Minnesota Medical School	1920
Wilfred Pickles, Harvard Medical School	1922
Donald Covil Gordon, Harvard Medical School	1922
Charles R. L. Halley, Jr., Johns Hopkins Medical School	1922
Chester Scott Keefer, Johns Hopkins Medical School	1922
William A. Campbell, Jr., Johns Hopkins Medical School	1922
Mary Bailey Sloan, Woman's Medical College	1922
Tinsley Randolph Harrison, Johns Hopkins Medical School	1922
Roy Wilmot Benton, University of Virginia Medical College	1923
Neslen K. Forster, University of Illinois College of Medicine	1919
Margaret G. Smith, Johns Hopkins Medical School	1922
Thomas Minot Dudley, Harvard Medical School	1922
Ruth L. Carpenter, Woman's Medical College	1922
Mary A. Hipple, Woman's Medical College	1922
Tyree C. Wyatt, Syracuse University Medical School	1922
William John Scott, Johns Hopkins Medical School	1923
Curtis Henry Lohr, Washington University Medical School	1922
Roland Nickolaus Klemmer, Univ. of Pennsylvania Med. School	1922
Louis E. Mahoney, University of Colorado Medical School	1922
Merritt Paul Starr, Rush Medical College	1920
Thomas Banford Jones, Johns Hopkins Medical School	1922
Ralph Kable Collins, Johns Hopkins Medical School	1922
Merlin T-R. Maynard, Washington University Medical School	1922
William Eyre Sisson, Johns Hopkins Medical School	1922
Sverre Quisling, Rush Medical College	1922
G. Daniel Delprat, Jr., Univ. of California Medical School	1921
Irwin Miller Walker, Johns Hopkins Medical School	19
Aloysius P. Rieman, Univ. of N. Y. and Bellevue Hosp. Med. Coll.	19
Justus Bulkley Rice, Washington University Medical School	19
Emily Gardner, Woman's Medical College	19
Thomas Cook Smith, Johns Hopkins Medical School	19
Mon-Fah Chung, Harvard Medical School	19
Paul Myron Hamilton, Johns Hopkins Medical School	19
Dorothea May Moore, Johns Hopkins Medical School	19
Paul William Vestal, Harvard Medical School	19
Matilde Luise Maerz, Woman's Medical College	19
Francis Emily Shields, Woman's Medical College	19
Walter Boyd Hoover, Washington University Medical School	19
Charles Sziklas, Harvard Medical School	19
Mildred Rogers, Woman's Medical College	19
Robert Glenn Craig, Johns Hopkins Medical School	19
Miriam Bell, Woman's Medical College	19
Bertram Louis Bersche, Washington University Medical School	19
Charles E. Buell, Jr., Johns Hopkins Medical School	19
Frederick William Marx, Harvard Medical School	19
John Throckmorton Bate, Univ. of Virginia Medical College	19
Beulah Wells, Johns Hopkins Medical School	19
Archibald Sweetland Dean, Johns Hopkins Medical School	19
Woodruff Smith, Johns Hopkins Medical School	191
Lillian E. Shaw, Woman's Medical College	192
Isla Gertrude De Pree, Univ. of Michigan Medical School	192

FAILED

University of Buffalo Medical College	192
Woman's Medical College	192
University of Kansas Medical School	192
Johns Hopkins Medical School	192
University of Pennsylvania	192
Johns Hopkins Medical School	192
Johns Hopkins Medical School	192
University of Buffalo Medical College	192
Harvard Medical School	192
Johns Hopkins Medical School	192

AVERAGES OBTAINED IN PART II*

Candidate's Number	Medicine, Value, 75	Surgery, Value, 75	Obstetrics and Gynecology, Value, 50	Public Health, Value, 25	Final Averages
4	80	91	70	89.6	185.
8	79	85	70	92	181.
13	75	90	75	70	178.
19	83.5	88	85	87.5	193.
20	84	90	76.5	80	188.
28	86	83	92	86.5	194.
31	77	75	70.5	94.5	173.1
35	75	87	75	90.5	181.
37	76	93	81	79.5	187.2
39	89	85	89.5	87	197.2
43	84	68	80	90.5	176.7
44	83	82	86.6	91	189.9
45	71	84	76.6	86	176.1
46	75	51	66	75	146.7
50	80	76	87	85.2	181.8
51	68.5	58	73	72	149.4
52	77	83	75	82.8	178.3
54	86.5	52	84	80	165.9
56	82	62	80	89	170.3
57	75	77	80	75	172.5
61	68.5	86	82.6	90.8	179.9
66	75.5	72	87.6	90.8	179.9
71	70	85	89	86.5	182.5
81	70	79	79	54	164.8
82	78	68	80	57	163.8
86	82	81	85	83.5	185.7
88	69.5	75	79	86	169.5
92	67	68	77.5	58.5	154.8
98	84	90	72	90.5	189.2
100	75	92	84	88	189.3
102	83	87	80	84	188.8
114	75.5	90	80	59	179
115	75	85	75	70.5	175.3
118	82	90	85	83.5	192.4
119	88	87	80	81	191.6
134	79.5	86	80	65.5	180.6
138	84	82	75	81	182.3
155	75	50	80	79.5	153.7
166	79	90	80	85.5	188.2
179	85	90	95	83.5	199.7
196	80.5	86	85	95	191.2
199	80.5	88	75	86.5	181.5
205	88.5	92	90	96	204.4
227	88	94	90	93.5	204.9
235	79	82	75	88.5	180.5
266	89	75	80	90	185.6
271	83	76	80	93	182.6
287	67	76	85	52	167.8
302	77.5	91	85	77	188.3
316	84	67	80	92.5	176.5
329	90	70	75	88.5	179.7
336	83	80	85	84.5	186
348	71.5	80	78	83.5	173.6
368	59.5	65	85	84	157
373	86	87	95	85	198.6
408	79.5	96	90	90.5	199.4
414	75	88	85	86.5	186.5
428	75	88	85	86.5	183
461	60	84	80	79	167.8
469	75.5	75	85	73	173.8
546	78.5	99	80	83.5	194.1

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* The general average of the candidates is based on subject values as rated by the board. The averages in each subject are on a basis of 100; 1,000 is the total perfect mark as rated by the board for the entire examination; 225 is the maximum mark on this basis for Part II.

EXAMINATION, PART II

MEDICINE

Answer all seven questions. No credit will be allowed on questions t answered. Read the questions carefully, and answer concisely just at is asked. In the marking of your answers, quality will count more in quantity, and an intelligent understanding of the disease more than nere array of memorized facts.

The time allowance is three hours. Counting subdivisions, there are een short questions to answer; if you allow ten minutes, on the aver- e, to answer each subdivision, you will have thirty minutes left for view and corrections.

It is unnecessary to repeat the questions in writing.

1. (*a*) What combination of symptoms and physical signs warrants a gnosis of pericarditis with effusion? (*b*) Discuss the question of racentesis of the pericardium in a case of pericarditis complicating eumatic fever. 2. (*a*) Define gout. (*b*) Describe a typical acute ack of gout. (*c*) How would you differentiate the chronic form of ut affecting a number of joints from other chronic forms of arthritis? A woman of 34 years complains of an acute attack of severe griping in in the right lower quadrant of the abdomen: (*a*) Name the affections iich you would consider in making a diagnosis. (*b*) In the case of ch affection named, mention the *one* other symptom or sign which, mbined with this pain, you consider most characteristic. (Note.—You y, if you wish, describe any peculiarities of this pain characteristie any of the affections mentioned, and you may describe the one other n you have chosen, provided you do not in your description introduce er symptoms or physical signs. The object of this question is not to tain a complete differential diagnosis, but rather to test your judgment to the relative value of diagnostic signs. 4. (*a*) What conditions, ide from the blood picture, would strongly suggest the diagnosis of rnicious anemia in a relatively early stage in a man of 35 years?) What would you expect to find in the blood picture at this stage of e disease? 5. In the case of a healthy child, 3 months old, the mother's pply of breast milk is noticeably diminishing, and it is also desirable om the point of view of the mother's health to wean the baby promptly. tificial feeding is necessary. (*a*) State, with sufficient detail, the rections you would give (for both mother and child) to accomplish is result. (*b*) Outline briefly your plans for feeding this child up to e age of 1 year. 6. A man of 68, in good health and with a urine at is essentially normal, undergoes a prostatectomy by the suprapubic utc. The healing of the wound and the functional results are satis- ctory; but a slight fever, which began a few days after the operation, ll persists at the end of four weeks and reaches about 100 daily. No gns of local infection outside the genito-urinary tract can be found, d the physical signs are negative. He passes a moderate amount of oudy urine, which shows a moderate amount of pus under the micro- ope; it is faintly acid and of normal specific gravity. In a culture om a catheterized specimen of urine the colon bacillus is the predom- ating organism. (*a*) What evidence in the urine would indicate the volvement of the pelvis of the kidney? (*b*) Of the kidney itself?) What would be your treatment of this case? (Give your reasons iefly.) 7. What combination of symptoms and physical signs would rongly suggest the existence of epidemic encephalitis (encephalitis thargica)?

SURGERY

Answer any five of these questions: 1. Discuss the symptoms and gns produced by various types and grades of thyroid toxemia. 2. Dis- iss the differential diagnosis of pyloric obstruction due to: (*a*) callous ccr of the stomach; (*b*) carcinoma of the stomach; (*c*) adhesions from llbladder disease. 3. Discuss the differential diagnosis, pathology and eatment of Colles' fracture. 4. Discuss symptoms, treatment and pos- ble sequelae of fracture of the base of the skull. 5. Discuss the sur- cal conditions of the testicle, giving diagnosis and treatment. 6. Dis- iss the surgical indications for the removal of the spleen and state the fect on the respective diseases.

OBSTETRICS

Answer all questions. 1. What are the diagnostic signs by physical amination of a pregnancy at the fifth or sixth month: (*a*) Complicated uterine myomata? (*b*) Complicated by an ovarian cyst? 2. Describe detail the mechanical causes for the following movements in the echanism of labor: (*a*) Flexion of the head, vertex L. O. A. (*b*) iternal rotation of the head, vertex L. O. A. (*c*) Internal rotation of e head, vertex R. O. P. 2. Give the clinical history of a mild toxemia about the eighth month of pregnancy and the management of such a se. 4. Define, and give the indications for each of the following opera- ons: (*a*) High forceps operation. (*b*) Mid forceps operation. (*c*) Low rceps operation. (*d*) Internal podalic version.

GYNECOLOGY

Answer all questions. 1. Diagnosis and treatment of a chronie gonor- ieal endocervicitis. Diagnosis of cure in such a patient. 2. What mea- ires should be employed in the prevention and treatment of "gas pains" llowing operations. Differentiate from ileus. 3. Describe the technique r operation for cystocele, omitting repair of the pelvic floor. 4. Name e various causes of vesical irritation in the female and give the differ- itial diagnosis. 5. (*a*) What is subinvolution of the uterus? (*b*) What e the causes and results of this condition? (*c*) What is the treatment?

Public Health

HYGIENE

Answer all questions. 1. Name the diseases caused by dietary defi- ency and describe the prevention and cure of one of them. 2. Discuss e medical factors in the control of syphilis and gonorrhea. 3. Discuss e place of gaseous and liquid disinfectants in aiding in the control of sease. 4. What acute infectious diseases are carried by milk, and hat are the characteristic features of milk-borne outbreaks of these seases? 5. Discuss the significance of colon bacilli in a water supply. Discuss the definitely useful fields of preventive vaccination or oculation.

MEDICAL JURISPRUDENCE

Answer all questions. 1. How would you determine whether death as due to drowning, or to other causes, in a body removed from a river lake? 2. Give antidotes and treatment for poisoning by arsenic, chloride of mercury and carbolic acid. 3. How would you distinguish tween antemortem and postmortem wounds? 4. Discuss the manifesta- ons of wood-alcohol poisoning. 5. Technique in delivery of the shoulders id after-coming head in a breech presentation.

Miscellany

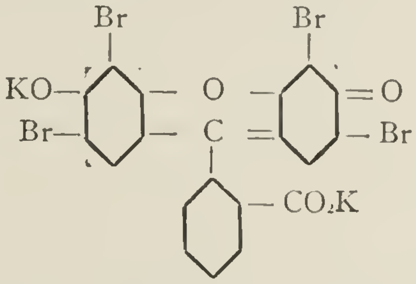
AMERICAN EOSINS

S. I. Kornhauser, F. W. Mallory, F. G. Novy, L. W. Sharp and H. J. Conn, Chairman

Committee on Standardization of Biological Stains,
National Research Council

In a recent report of this committee,[1] it was mentioned that a number of satisfactory samples of eosin had been obtained from American sources. At the time this early report was published, no very definite data were at hand to show how these compared with samples of Grübler's eosin. At the present time, however, data have begun to accumulate giving a more satisfactory survey of the whole situation, and it seems opportune to publish them.

Eosin is a compound of the phthalein series, with a formula essentially as follows:



There are almost innumerable eosins on the market, varying slightly in chemical composition and having quite different staining properties and solubilities. They are usually classed in three or four groups, denoted in Schultz's Farbstofftabellen, fifth edition, under the numbers 587, 588, 589 and 590.

Eosin 587 is the stain best known to the biologist. It is typically the same as the formula given above; namely, the potassium salt of tetrabromfluorescein; but the monobrom and dibrom derivatives are also known, and as they sometimes occur mixed with the tetrabrom compound, the composition of this dye varies somewhat. Its color varies accordingly, because the more bromin atoms, the bluer the shade. This dye is specified in the trade by such terms as eosin, yellowish eosin, eosin Y, and eosin G, water-soluble eosin, eosin W, eosin Y extra and eosin S extra.

Eosin 588 and 589 are both known as alcohol-soluble eosin, being but slightly soluble in water; but they differ from each other in that 588 contains a methyl group in the place of one of the potassium atoms in the foregoing formula, while 589 contains an ethyl group in the same position. Number 588 is more correctly called methyl eosin, while 589 is called eosin S or primrose.

Eosin 590 is a compound in which two of the bromin atoms have been replaced by NO_2 groups. This compound, like 587, is readily soluble in water, but differs from it in its bluish color. It is known as bluish eosin, eosin B or eosin BN.

It must be understood that with such great variation in the possible composition, every manufacturer puts on the market a product slightly different from that of any other, and, as these compounds differ in shade, each different product is generally known by its own trade designation. This gives the very confusing list of designations applied to eosin, of which those mentioned above are merely the commoner ones. It simplifies matters, however, if it is remembered that the terms eosin, yellowish eosin or water-soluble eosin refer to 587, while alcohol-soluble eosin refers to 588 or 589, and bluish eosin to 590.

No attempt was made in this work to get uniformity in the technic that was used, each collaborator being asked to use the samples for any purpose and according to any technic with which he was familiar. One of the investigators, in fact, reports five different tests to which he submitted the samples. As a result, these samples have been tested in a great variety of ways, and although it is hardly to be expected that the reports would be uniform under such conditions, it is felt, nevertheless, that they have considerable value on account of the number of different methods by which the samples were tested. One of the collaborators tested the samples by the simple staining of bacteria; two used them for counter-staining in the Gram technic for staining bacteria. In three cases, they have been tested in blood stains, in one case with hematoxylin, in another with methylene blue in the well-known Wright method, and in the third without combination with any other dye. Three of the investigators used the samples in tissue staining as a counter-stain against hematoxylin. One of the investigators, besides using the eosin in blood work and as a counter-stain in the Gram technic, reports results obtained in staining cultures of *Penicillium.* These cultures, after being killed and fixed, were stained in mass, then mounted and examined. Lastly, another collaborator reports using the samples in two indicator mediums, one with brilliant green and the other with methylene blue.

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[1] Committee on Standardization of Biological Stains: Preliminary Report on American Biological Stains, Science, N. S. **56**: 156-160.

The variety of these methods is sufficient, so that there is good reason to feel that any sample which gave good results in all cases can be safely recommended. It was very clearly demonstrated that, in the great variety of purposes for which these samples of eosin have been used, the American samples, almost without exception, are the best. Some may be slightly better than others for certain special purposes, but there seems to be no reason for condemning any of them.

Satisfactory samples were obtained from the following American concerns: Eimer and Amend, Harmer Laboratories Company, Heller and Merz Company, New York Color and Chemical Company, Providence Chemical Company, Darwin Chemical Company, Campbell & Co., Geigy Chemical Laboratory, Coleman and Bell Company, H. S. Laboratories, E. Leitz, National Anilin and Chemical Company, and D. H. Pond.

The chairman of the committee is ready on request to furnish investigators with information as to the apparent merits of each of these samples for particular purposes and as to how any particular one of these lots of eosin may be obtained.

Book Notices

PROTEINS AND THE THEORY OF COLLOIDAL BEHAVIOR. By Jacques Loeb. Cloth. Price, $3. Pp. 292, with 80 illustrations. New York: McGraw-Hill Book Company, Inc., 1922.

The work of Dr. Jacques Loeb, first at the University of Chicago and later at the Rockefeller Institute for Medical Research, has been a constant stimulus to advanced workers in physical and biologic chemistry. Particularly absorbing has been that phase dealing with colloidal chemistry. This volume epitomizes his work on the subject, and includes much heretofore unpublished material; it is written, however, from the point of view of one presenting his case rather than as a textbook. As Loeb points out, colloid chemistry has been developed on the assumption that the ultimate unit in colloidal solutions is not the isolated molecule or ion, but an aggregate of molecules or ions. As it seemed improbable that such aggregates react with acids, alkalis or salt in stoichiometric proportions, the theory advanced, and generally accepted today, was that eletrolytes are adsorbed on the surfaces of colloidal particles according to a purely empiric formula. On this point Loeb takes vigorous issue; he believes that the adsorption hypothesis was adopted, in the main, because of the failure to measure the hydrogen ion concentration of the protein solutions. Hence the postulate is advanced by Loeb that the proteins do obey the stoichiometric laws of chemistry, and that the chemistry of proteins does not differ from the chemistry of crystalloids. His chief proof for the assertion is the behavior of protein salts, particularly gelatin; and approximately the first half of the book is devoted to the stoichiometric arguments in favor of this view. Loeb shows that gelatin forms gelatin chlorid or sodium gelatinate, substances that are ionizable and have mathematical characteristics of salts. At this point, Loeb's critics, as exemplified by Jerome Alexander, point out that the gelatin is not a pure substance, that the molecular weight estimations by various authors vary immensely, and that i is a basic error to use products not thoroughly defined a chemical entities. On the other hand, the proponents, suc as J. A. Wilson, believe that the ionizable form of gelati chlorid is substantiated in a number of quantitative ways therefore, Loeb's school argues, whether or not the gelati used by Loeb was a mixture of proteins of variable molecular weight does not affect the fundamental conceptio The other argument advanced in the book is that colloida behavior is based on Donnan's theory; adapting this theory to his problem, Loeb advances what he is pleased to term a "quantitative mathematical and rationalistic explanation," expressing the influence of hydrogen ion concentratio valency of ions and concentration of electrolytes on colloida behavior, including the effects of electrical charges, osmoti pressure, swelling, viscosity and stability of solution. "Thus," concludes the author, "What was at first believed to be a new type of chemistry, namely, colloid chemistry, with laws different from those of general chemistry now seems to have been only an unrecognized equilibrum condition of classica chemistry, at least as far as proteins are concerned. This does not detract from the importance of colloidal behavio for physical and technical problems, but it completely changes the theoretical treatment of the subject." The book is well printed, and is profusely illustrated with coordinate charts The theory constitutes a bold step, and is presented with the dynamic quality of an enthusiastic researcher. No one interested in the theory of the colloidal state can afford to overlook this contribution.

HEALTH SERVICE IN INDUSTRY. By W. Irving Clark, Jr., M.D., F.A.C.S., Lecturer on Health Administration in Industry, Harvard Medical School. Cloth. Price, $2. Pp. 168, with illustrations. New York: The Macmillan Company, 1922.

To the physician who contemplates entering industrial medicine, Dr. Clark holds forth an abundant opportunity to study disease in its inception, to follow chronic disease throughout its course, and to earn, net, for full time service, from an initial $1,800 a year up to a possible $10,000 a year or more. To the employer, he offers, for an expenditure of six dollars or so a year for each employee, more efficient and contented workmen, a diminished labor turnover, and a larger output or one produced at a lower cost. In the author's experience, flatfoot has been found to be a theoretical rather than a real detriment to good work. Men with even well marked hernias may work for years without trouble, but "it is safe to say that all southern Europeans who have previously done light work are very liable to develop a hernia if put on a heavy job." A worker with unmistakable cardiac murmurs and even irregularities may stand moderate work for a number of years before showing signs of disturbed compensation, but in examination of applicants for employment generally and in all other cases, the author insists, the physician should pay the closest attention to the condition of the myocardium. The directions for the treatment of emergencies—some formulated by the author and others given his approval by incorporation as quotations—call for clarification, and particularly for enlargement with respect to methods for recognizing the nature of the particular injury that presents itself. Physicians, nurses and trained first-aid helpers may be able to recognize the nature of a case, just as they would be able to treat it, without having printed directions before them. But how is a more or less inexperienced employee to determine whether his injured fellow workman is suffering from a sprain, a dislocation or a fracture, so as to know which of the available printed directions apply to the case? How is he to know whether the case before him is one of heat prostration or of shock? What is he to do if he does not know? Aside from the question of the recognition of the nature of the emergency, directions for treatment should in every case come as near being fool-proof as is practicable, and it is not clear that some of those set forth by the author conform to this ideal. The book may well be carefully studied—it is hardly a book to be simply read—by all who are responsible for the organization and management of industrial enterprises, and by physicians connected or desiring to be connected with such enterprises.

Medicolegal

Chiropractors Cannot Give Medical Certificates of Death

tate ex rel. Wentworth v. Fahey et al. (Minn.), 188 N. W. R. 260)

The Supreme Court of Minnesota, in affirming an order staining a demurrer to an alternative writ of mandamus, ys that it was sought to compel the registrar of vital statis- cs of Duluth and the state registrar of vital statisics to file certificate of death given by the relator, a chiropractor. he Minnesota statute requires, in case of death, "a medical rtificate subscribed by the attending physician." The rtificate must give the disease or injury, the contributing use or complication, duration of illness and other particulars. he question was whether a chiropractor is an attending ysician within the meaning of the statute. By Section 2 Chapter 64 of Minnesota Laws of 1919, chiropractic is fined as "the science of adjusting any abnormal articula- ns of the human body, especially those of the spinal lumn, for the purpose of giving freedom of action to pinged nerves that may cause pain or deranged function." y Section 8, chiropractors are subject to the same rules d regulations that govern other licensed doctors or physi- ans in the control of contagious and infectious diseases, d are entitled to the rights and privileges of other doctors d physicians in matters pertaining to the public health; t they may not prescribe internal drugs nor practice rgery or obstetrics; and their practice is declared not to the practice of medicine, surgery or osteopathy. The rtificate of death required is a "medical" certificate. For any years, this has been understood as the certificate of a edical man of general scientific attainments in the profes- on of medicine. The chiropractor can practice only in a nited field. His diagnosis or practice cannot cover the neral field of medicine or surgery. One purpose of the atute, though not the only one, is the preservation of vital atistics. It could not well be claimed that a chiropractor as regarded under the statute as one qualified to furnish medical certificate, were it not for the provisions of ction 8. That section is borrowed from another statute, d is so uncertain of meaning that this court cannot hold at it was intended to qualify a chiropractor to give the rtificate. On the other hand, it can be urged with some rce that the statute recognizing chiropractic and licensing iropractors intends that, when they are attending physi- ans, they may give death certificates. The view of this urt is otherwise, and it holds that a chiropractor cannot ve the required medical certificate.

Requests for Physical Examinations Must Be Timely

(O'Brien v. Sullivan (Neb.), 186 N. W. R. 532)

The Supreme Court of Nebraska, in affirming a judgment favor of the plaintiff for $1,500 damages for assault and ttery, says that, after the case was called for trial and e impaneling of the jury commenced, a motion was made r an order for a physical examination of the plaintiff. e motion was overruled on account of the delay in the ial that would result from such examination at that time d because no reason was shown for the delay in making e application for the examination. There was no abuse discretion in the ruling. In an action for damages for rsonal injuries, it is proper for the trial court to order a ysical examination of the injured party by competent phy- cians and surgeons, to ascertain the character and extent the alleged injuries. In such case, however, the applica- n must be timely. When a request for a physical exam- ation of the injured party is made after the trial has com- nced, it is within the sound discretion of the trial court ether the request be granted. In such case, the ruling of court will not be disturbed unless there appears to be abuse of discretion. If a personal examination is desired, better practice is to make the application before the trial gins, and to have experts agreed on by the parties or pointed by the court.

Society Proceedings

COMING MEETINGS

American Physiological Society, Toronto, Canada, Dec. 28-30. Dr. Chas. W. Greene, University of Missouri, Columbia, Secretary.
Hawaii, Medical Society of, Honolulu, Nov. 19-21. Dr. F. J. Pinkerton, 45-46 Young Building, Honolulu, Secretary.
Isthmian Canal Zone, Medical Association of, Ancon, Dec. 15. Dr. L. S. Chapman, Ancon, Secretary.
Philippine Islands Medical Association, Manila, Dec. 20-22, 1922. Dr. I. Concepcion, College of Medicine and Surgery, Manila, Secretary.
Porto Rico, Medical Association of, Ponce, Dec. 15-17. Dr. Augustin R. Laugier, San Juan, Secretary.
Radiological Society of North America, Detroit, Mich., Dec. 4-8. Dr. M. J. Sandborn, Appleton, Wis., Secretary.
Society of American Bacteriologists, Detroit, Dec. 27-29. Dr. A. P. Hitchens, Army Medical School, Washington, D. C., Secretary.
Southern Medical Association, Chattanooga, Tennessee, Nov. 13-16. Mr. C. P. Loranz, Empire Building, Birmingham, Alabama, Secretary.
Southern Surgical Association, Memphis, Tenn., Dec. 12-14. Dr. H. A. Royster, Raleigh, N. C., Secretary.
Western Surgical Association, Minneapolis, Minn., Dec. 8-9. Dr. Warren A. Dennis, Hamm Building, St. Paul, Secretary.

MINNESOTA STATE MEDICAL ASSOCIATION

Fifty-Fourth Annual Meeting, held at Minneapolis, Oct. 12-14, 1922

The President, Dr. J. Frank Corbett, Minneapolis, in the Chair

Congenital Hypertrophic Pyloric Stenosis

Dr. Arthur C. Strachauer, Minneapolis: Congenital hypertrophic pyloric stenosis consists in a massive hypertrophy of the circular muscles of the pylorus, causing a true stenosis of the pyloric canal and a mechanical obstruction to the outlet of the stomach. This hypertrophy results in the development of a noninflammatory, sharply defined pyloric mass, measuring from three-quarters inch to an inch (1.8 to 2.5 cm.) or more in length, and from five-sixteenths to seven-sixteenths inch (7.8 to 11 mm.) in diameter, of a firm, nearly cartilaginous consistency, covered with smooth, glistening peritoneum, free from adhesions, and having a whitish, pale color as compared with the rest of the stomach and duodenum. The condition occurs most frequently in male, breast-fed infants, the symptoms beginning at the end of the second week of life and becoming alarming by the third week. Cases referred to the pediatrician and surgeon are seen most frequently at the fourth and fifth week. There is no field of surgical endeavor in which close cooperation between the physician and surgeon is more important than in the surgery of infancy. In my cases, the selection of the surgical cases and recommendation for surgery has been made by the pediatrician. The operation should be performed rapidly and delicately, with minimal traumatization to the infant. A trained surgical team is indispensable to smooth and rapid work. The Rammstedt operation is indicated in practically all cases which have not responded to medical management. Preoperative and postoperative treatment is absolutely essential to success.

Diverticulitis of the Colon

Dr. John T. Rogers, St. Paul: In the treatment of diverticulitis, one must be guided by the severity and importance of the symptoms and the history in the case under consideration. Dudley Roberts stresses the importance of medical treatment and advises laxatives, vegetable diet, daily doses of mineral oil and agar, small injections of warm water, large doses of bismuth weekly by enema or by mouth, injection of hot gelatin, 8 ounces (240 c.c.) of a 10 per cent. solution introduced into the sigmoid at a temperature of 120 F., antispasmodics and atropin three times a day. He claims that surgery is only indicated for sequelae. In chronic cases located in the sigmoid, recurrent in character, such a regimen might be advocated when the patient is under constant surveillance. Otherwise, I should hesitate to take the responsibility for medical treatment in any given case, except, perhaps, in cases of very obese subjects, in whom an excision of the colon is an extremely formidable and dangerous undertaking. Recognizing the possibilities of an acutely inflamed diverticulum, my judgment would lead me to operate as soon as the diagnosis is sufficiently certain to justify operation. Excision of a single, or of several diverticuli, can be performed safely. In the hyperplastic inflammatory forms of multiple diverticuli and small abscesses, drainage is all that is necessary. When a vesical fistula has formed, the operation is more formidable and will possibly require resection of the sigmoid, as well as excision of a portion of the bladder wall. In cases of obstruction, if the conditions found justify the attempt, excision and end-to-end anastomosis will be the proper procedure. If conditions are such that the danger of primary resection is too great, a colostomy above the diseased area is advisable, and a resection made later when the infection has subsided. If the disease is so located that a Mikulicz three-stage operation can be performed, it may seem advisable, as the mortality from this operation is much lower than that from primary resection.

Surgery in Infantile Paralysis

Dr. Melvin S. Henderson, Rochester: Surgery is indicated only in the residual paralysis following poliomyelitis, and only about 25 per cent. of such patients can be helped by surgical procedures. As a rule, manipulations precede tenotomies, and manipulations with tenotomies precede osteotomies, the last named being resorted to only for correction of skeletal deformities. Arthrodeses are occasionally indicated, but should be performed only after a careful consideration of the power left, so that the patient may use the fixed point to advantage. Last, but by no means least, the social status and the habits of the patient are to be considered seriously. Plastic operations on tendons are useful, but are applicable in only a small percentage of cases. A weak muscle must not be expected to do the work of a stronger muscle, particularly when it is placed in a new position and is usually at a mechanical disadvantage. Astragalectomy is the operation of choice for calcaneovalgus, and in certain other conditions, but should always be accompanied by a posterior displacement of the foot.

The Tonsil Question: Roentgen Ray and Radium Therapy in Treatment of Pathologic Tonsils

Dr. F. S. Bissell and Dr. Floyd Grave, Minneapolis: A study of more than 30,000 patients from various sources, one to four years after operation, shows permanent results in only about one half of the total number. The tonsil has some function, and greater care should be taken to preserve this, especially in childhood. Roentgen ray and radium offer a safe method of treatment in carefully selected cases. Results have been most striking in children and adults of a decided lymphoid hyperplasia type, also in patients with cervical adenitis associated with a pathologic condition of the tonsil. Longer study is needed to prove the permanent disappearance of all symptoms accompanying tonsil and adenoid diseases, and further investigation on the types of tonsils best suited to this form of therapy.

Heliotherapy in Infectious Diseases of the Bones and Joints

Dr. Emil S. Geist, Minneapolis: There are a number of other chronic infections besides tuberculosis which are advantageously affected by the rays of the sun properly used. There exist few dangers in the application of heliotherapy. Heliotherapy can be used in the home. It is preferable in the institution. I believe the time has come for us to see to it that hospitals use their roofs and porches and surrounding grounds for the application of heliotherapy.

Traumatic Rupture of the Normal Spleen

Dr. Emil C. Robitshek, Minneapolis: Traumatic rupture of the spleen occurs much more frequently in males than in females. One half of the cases occur in children and young adults. No pathognomonic symptoms exist. In general, the symptoms are those of hemorrhage. Splenectomy, performed early, is probably the most reasonable and most efficient treatment.

Cerebral Pneumography as an Aid in the Early Diagnosis of Hydrocephalus

Dr. Oswald S. Wyatt, Minneapolis: Cerebral pneumography or ventriculography is a most valuable aid in the diagnosis of intracranial conditions. It definitely divides hydrocephalus into two types; namely, external hydrocephalus an internal hydrocephalus. It further divides internal hydr cephalus into obstructive and communicating internal hydr cephalus. It definitely localizes the lesion in obstructi hydrocephalus. It is a guide to surgical intervention in thes cases.

Injuries to the Lower Birth Canal

Dr. James R. Manley, Duluth: I use the deep later episiotomy in rather high forceps cases when arrest of th head has taken place before it has reached the floor, an before it has had a chance to distend it. The median epis otomy is used in spontaneous cases when needed, after th perineum is well distended, and when I think a tear wi occur. The median cut is sufficient here, and is much easie to repair. I believe that the lateral cut is much better i cases in which the disproportion is so great as to endange the rectum, as the lateral episiotomy injury to the rectu should never occur. I am not prepared to follow Dr. De Le entirely in his routine use of episiotomy and forceps; no am I prepared to follow Potter in his use of version in a cases; but I have found their methods of protecting the lowe birth canal from permanent injury very satisfactory.

Surgery of Acute Gallbladder Conditions

Dr. Edward S. Judd, Rochester: Gallstones and cholecystitis should no longer be considered separately. Th infection in the gallbladder is merely part of an infectio which involves several other tissues. Acute perforation o the gallbladder, with general soiling of the abdomen, doe not often occur; but chronic perforation and fistula formation into the duodenum, stomach or colon is not rare. It i advisable to remove an acutely inflamed gallbladder if th liver and pancreas are not extensively affected, and if ther are no calculi in the common duct.

Diagnosis and Treatment of Ureteral Calculi

Dr. Gilbert J. Thomas, Minneapolis: Infection is one o the factors in the production of renal and ureteral stone. Th diagnosis may not be easy. Ureteral stone must be though of when considering abdominal pain. Differential functiona tests do not indicate the true functional capacity of a kidne which has been temporarily damaged because of uretera stone. A patient may pass a ureteral stone that is too smal to cast a shadow. A ureteral stone may be silent in its passage through the ureter. A calculus may remain in the urete for months without producing pain or permanent damage t the kidney. From 90 to 95 per cent. of ureteral stones pas spontaneously or can be removed by manipulation. A permanent ureteral catheter produces dilatation, relieves pain an facilitates the easy and quick passage of a ureteral stone Not more than 10 per cent. of ureteral stones require operation. Be sure the patient has a stone before you operate The position of the calculus indicates the type of operation t be performed. After-treatment which includes removal o all foci of infection and lavage of the kidney pelvis i important.

Bladder Stone Removed by Lithotrity

Dr. John L. Crenshaw, Rochester: The mortality o litholapaxy is much lower than that of cystostomy, and th period of hospitalization is shorter. The difference in mortality more than compensates for the moderate increase i recurrences following litholapaxy. The use of caudal anesthesia and permanent urethral drainage renders the lithotrit available to a large group of patients who would formerl have been subjected to the greater risk of cystostomy.

Essentials in the Treatment of Peritonitis

Dr. Donald K. Bacon, St. Paul: The treatment of peritonitis should include: drainage in accordance with the focus and extent of infection, based on the anatomic configuration of the peritoneum; administration of nothing by mouth; morphin at frequent intervals, but not to exceed the point where the respirations are reduced to fourteen per minute; application of large hot stupes or an ice bag to the abdomen; maintenance of Fowler's position, and hypodermoclysis or intravenous injection of 4,000 c.c. of saline every twenty-four hours, and more if the indications arise.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Ophthalmology, Chicago

October, 1922, **5**, No. 10

How to Know Blood Pressure in Vessels of Retina. A. P. Magitot, Paris.—p. 777.
Epidemic Encephalitis From Standpoint of Ophthalmologist. G. F. Libby, Denver, Colo.—p. 785.
Sympathetic Iridocyclitis. D. F. Harbridge, Phoenix, Ariz.—p. 791.
Trachoma and End Results. J. H. Burleson, San Antonio, Tex.—p. 799.
Case of Pulsating Exophthalmos. R. A. Fenton, Portland, Ore.—p. 802.
Changes in Refraction. H. Friedenwald, Baltimore.—p. 802.
Central Scotoma with Pyorrhea. A. G. Hovde, Superior, Wis.—p. 804.

American Journal of Public Health, Chicago

October, 1922, **12**, No. 10

Public Health Education.—p. 815.
School Hygiene Under Boards of Education. T. E. Finegan.—p. 828.
School Hygiene Under Board of Health. S. J. Baker, New York.—p. 832.
Local Health Boards and Medical Milk Commissions. D. W. Horn, Bryn Mawr, Pa.—p. 837.

Annals of Surgery, Philadelphia

October, 1922, **74**, No. 4

Significance of Bacteria in Blood Stream from a Surgical Standpoint. W. Martin, New York.—p. 421.
Peritoneal Manifestations of Chronic Multiple Serositis, Concato's Disease. W. J. Mayo, Kochester, Minn.—p. 432.
Thyroid Surgery and the Dementia praecox Syndrome. J. R. Eastman and N. Eastman, Indianapolis.—p. 438.
Congenital Hypertrophic Stenosis of Pylorus in the Adult. J. C. Oliver, Cincinnati.—p. 444.
Surgical Treatment of Syphilis of the Stomach. E. A. Graham, St. Louis.—p. 449.
Late Results of Gastro-Enterostomy for Gastric and Duodenal Ulcers Including Acute Perforated Ulcers. E. H. Pool and P. A. Dineen, New York.—p. 457.
End Results of Operations for Gastric and Duodenal Ulcer and Cancer. G. W. Crile, Cleveland.—p. 467.
Peptic Ulcer. J. B. Deaver, Philadelphia.—p. 473.
Choice of Operation for Gastric Ulcer in View of Late Results. G. Woolsey, New York.—p. 476.
Bacteriologic Study of Fluid Contents of 100 Gallbladders Removed at Operation. J. G. Drennan, Rochester, Minn.—p. 482.
Traumatic Pancreatitis. E. Drennen, Birmingham, Ala.—p. 488.
Faulty Rotation of Intestine. C. A. Hamann, Cleveland.—p. 491.
Prolapse of Rectum in Children. E. G. Alexander, Philadelphia.—p. 496.
Treatment of Cancer of the Rectum. R. C. Coffey, Portland, Ore.—p. 500.
Surgical Relief of Intestinal Foci of Infection in Cases of Arthritis Deformans. R. Smith, Los Angeles.—p. 515.
Ligation of Aorta. G. T. Vaughan, Washington, D. C.—p. 519.
Ligation of Internal Iliac for Enormous Gluteal Aneurysm. W. D. Haggard, Nashville, Tenn.—p. 520.
Peripheral Nerve Injuries Associated with Fractures. D. Lewis and E. M. Miller, Chicago.—p. 528.
Bone Formation in Operative Wound Cicatrices. W. M. Jones, St. Louis.—p. 539.
Intussusception of Stoma Following Gastro-Enterostomy. R. Lewisohn, New York.—p. 543.

Surgical Treatment of Syphilis of Stomach.—In the study f thirty-four cases (including thirty-two from the literature nd two from his own series) Graham says resection of the ylorus gave uniformly good results in cases of stenosis of hat orifice, while gastro-enterostomy was frequently folowed by only slight or temporary improvement. It would eem, therefore, that pylorectomy is more likely to be folowed by complete relief of symptoms than is simple gastronterostomy, although a study of more cases may show that ne latter operation is sufficient in cases of actual stenosis f the pylorus. There will remain certain cases without rganic obstruction in which surgical measures will probably ot be indicated.

Faulty Rotation of Intestine.—Hamann reports a case of persistent common mesentery of the large and small intesine, the cecum having reached the right iliac fossa but had ot become fixed. After operation there occurred a volvulus rom right to left around the narrow mesentery resulting in bstruction at the lower end of the duodenum causing epiastric distention and vomiting, but no distention of the ower abdomen.

Prolapse of Rectum in Children.—Alexander's patient was 13 months of age. The prolapse of the rectum had been noticed when the child was 3 weeks old and had been gradually increasing. The prolapse was down from 8 to 10 cm., and was ulcerated and edematous. Accompanying symptoms were tenesmus, frequent watery mucus stools and general weakness. The rectum could not be replaced without an anesthetic on account of straining. When replaced under anesthesia the prolapse immediately recurred. After many unsuccessful attempts to keep the rectum in place by means of strapping the buttocks, the prolapse was finally allowed to remain down and kept clean with boric acid ointment and every effort was then directed toward improving the child's general condition, which was so poor that operation could not be attempted. Two months after admission, the general condition having greatly improved, Alexander decided to attempt reduction and fixation of the rectum by means of absolute alcohol, according to D'Espine's technic. The second day after operation the baby had three small constipated bowel movements but the rectum did not come down, nor was there any prolapse after that, in spite of the administration, at various times, of castor oil, calomel and cascara. Roentgen-ray studies of the intestinal tract and spine revealed no abnormalities.

Archives of Internal Medicine, Chicago

October, 1922, **30**, No. 4

*Studies on Visceral Sensory Nervous System: XIV. Reflex Control of Cardia and Lower Esophagus in Mammals. A. J. Carlson, T. E. Boyd and J. F. Pearcy, Chicago.—p. 409.
Electrocardiography and Prognosis: I. Significant T Wave Negativity in Isolated and Combined Derivations of Electrocardiogram. F. A. Willius, Rochester, Minn.—p. 434.
*Clinical Studies of Quinidin: II. Alterations in Cardiac Mechanism After Administration of Quinidin to Patients with Auricular Fibrillation; Certain Toxic Effects of Drug. R. L. Levy, New York.—p. 451.
*Study of Erythrocyte Curve at Various Ages and Its Relationship to Hemoglobin Curve. L. H. Mayers, Chicago.—p. 478.
*Intravitam Bone Marrow Studies: Preliminary Report: Part I. Description of a Marrow Trephine and Experimental Studies. L. M. Morris, and E. H. Falconer, San Francisco.—p. 485.
*Id. Part II. Survey of Clinical Field. L. M. Morris and E. H. Falconer, San Francisco.—p. 490.
*Basal Metabolism in Nontoxic Goiter and in Borderline Thyroid Cases. J. H. Means and H. W. Burgess, Boston.—p. 507.
Alkalimetry of Whole Blood: Second Paper: Acid Fixing Power of Blood in Renal Disease. J. B. Rieger and H. A. Freund, Detroit.—p. 517.

Reflex Control of Cardia and Lower Esophagus.—It is shown by Carlson, Boyd and Pearcy that in normal dogs, not under anesthesia, the tonus of the cardia is temporarily inhibited by stimulation of sensory nerves in the mouth and pharynx and by stimulation of nerves in the gastric mucosa. The tonus of the cardia is increased by sudden distension of the walls of the stomach, by intravenous injection of small quantities of cocain, during gastric digestion by some factor other than the acidity of the gastric contents. The tonus of the cardia runs parallel with the tonus and hunger contractions of the empty stomach. In dogs and cats under light ether anesthesia, ether and curare, or decerebration, it is shown that reflex inhibition or contraction of the cardia and lower esophagus can be initiated by the stimulation of any sensory nerve, skeletal or visceral. When the vagi are intact stimulation of the sensory nerves in the mouth, pharynx, esophageal and gastric mucosa induces on the whole inhibition of the cardia, followed by contraction. Stimulation of the afferents from the abdominal viscera (gallbladder, intestine, urinary bladder, central end of one splanchnic nerve) induces, on the whole, reflex contraction of the cardia and lower esophagus, even when both vagus nerves are sectioned. When the tonus of the cardia is feeble, the motor reflexes into the cardia predominate, when the cardia is hypertonic the inhibitory reflexes prevail. Strong stimulation, particularly of the abdominal viscera or the central end of the splanchnic nerve, may cause strong spasm of the cardia and lower esophagus lasting from ten to thirty minutes. The authors urge that the demonstration of motor and inhibitory innervation of the lower esophagus via the splanchnic nerves, and the confirmation and extension of Openchowski's observations on the reflex control of the cardia and lower esophagus should be noted in clinical cardiospasm.

Quinidin in Auricular Fibrillation.—An electrocardiographic study has been made by Levy of eleven patients with auricular fibrillation who received quinidin sulphate by mouth. In three patients, to whom quinidin was given on twelve occasions, the normal rhythm was restored nine times. In eight patients, to whom the drug was given on eleven occasions, restoration of the normal rhythm was not accomplished. In the cases in which normal rhythm was established, the first effect noted was usually acceleration of ventricular rate; next in order came ectopic ventricular beats. The transitional mechanisms in the common order of appearance were: coarser fibrillation, denoting retardation of auricular rate, impure flutter, flutter and normal rhythm. The occurrence of variations in the form of P waves, ectopic auricular contractions, auricular tachycardia and sino-auricular block after resumption of the sinus rhythm, is adduced as evidence that there is, even at this time, a tendency for the impulse to be initiated at a point other than at the sinus node and to traverse an unusual path in its course through the auricle. Both auricular and ventricular premature beats could, on occasion, be abolished by further exhibition of the drug. In the cases in which restoration of the normal mechanism was not accomplished, evidences of the undesirable action of quinidin were more frequently observed. Tachycardia was troublesome and in one instance was followed by signs and symptoms of heart failure. The close interrelationship of fibrillation, impure flutter and flutter was evident in that rapid change from one of these mechanisms to the other was frequently seen. This observation lends support to the concept that they are all dependent on the same basic disturbance, namely, a circus contraction in the auricles. Ectopic ventricular beats were seen after quinidin in all of the eight cases under discussion. These occurred at times in such fashion as to cause coupled rhythm. After the continued administration of quinidin, paroxysms of ectopic ventricular tachycardia sometimes ensued. This arrhythmia is significant for the clinician; for in dogs injected with digitalis or strophanthin it is not infrequently the precursor of ventricular fibrillation and death. In the three cases in which this mechanism was seen, the paroxysms were fortunately of short duration. In certain patients, quinidin is a toxic substance for heart muscle, even in doses ordinarily regarded as safe for clinical use. Carefully administered, the drug possesses great therapeutic virtue, whereas unintelligently given, it may be expected to cause undesirable effects.

Relation of Erythrocyte and Hemoglobin Curves.—The red blood count made by Mayers in a series of forty-one infants, in thirty-seven of whom it was taken at time of delivery, averaged 7,630,000. The blood count in children, 1 and 2 years of age, is somewhat higher than in the adult, this being in marked contrast to the great drop in hemoglobin which is shown in Williamson's table. Inasmuch as the curves of corpuscles and the hemoglobin do not run parallel to each other, the question is raised as to whether the low hemoglobin values are to be regarded as strictly normal or whether it might be altered by a different plan of infant feeding. The norm employed in determining the color index of adults does not apply in determining the color index of children under 10 years of age.

Intravitam Bone Marrow Studies.—An instrument has been devised by Morris and Falconer for perforating the cortex of the long bones in animals and human beings to obtain specimens of living marrow for histologic study. The specimens of marrow obtained by this method are satisfactory for microscopic study, but occasional dilution with blood makes the specimen difficult to interpret. The smears from the marrow checked up with postmortem preparations fixed and sectioned.

Study of Bone Marrow in Pernicious Anemia.—Marrow puncture was performed by Morris and Falconer in five cases of pernicious anemia. Three of these cases showed a red marrow with few cells and no signs of division. These three cases were of long standing and had been in a state of relapse for several months. Two patients survived the last puncture only about six weeks; one lived for about three months after examination of the marrow. One case presented a pinkish grey marrow, with a moderate amount of cellular activity and very few megaloblasts. Subsequent study and observation of the case cast some doubt on the accuracy of the diagnosis of pernicious anemia. These three cases with inactive marrows would seem to belong to the class of case termed by Minot and Lee the myelotoxic type. The authors do not advocate bone marrow puncture in pernicious and other anemias as a method to supplant blood studies, but merely as an additional source of information in selected cases. Another field of some promise for the application of marrow puncture is that of the polycythemias.

Basal Metabolism in Thyroid Cases.—Means and Burgess assert that patients with an outspoken clinical picture of hyperthyroidism invariably show increased metabolism and those with definite clinical pictures of hypothyroidism invariably show decreased metabolism. Those with goiters, but no signs or symptoms of abnormal thyroid function, for the most part show normal or abnormal metabolism. The majority show normal metabolism. By interference from the indirect evidence the authors believe that in these borderline thyroid cases, provided that in the first place a true basal rate is secured, and, provided that certain well recognized causes for increased metabolism, such as fever, acromegaly, leukemia and severe anemia are excluded, the finding of an increased basal metabolic rate is strong presumptive evidence of hyperthyroidism. In a similar way, provided that such conditions are starvation, hypopitutarism, and hyposuprarenalism are excluded, a low metabolic rate is strong presumptive evidence of hypothyroidism. To that extent, then, the metabolism test is distinctly useful in differential diagnosis. Like all other laboratory tests it should only be interpreted with due regard to all other clinical and laboratory findings, and with due regard for its limitations and pitfalls.

Arkansas Medical Society Journal, Little Rock

October, 1922, **19**, No. 5

Diagnosis of Neurosyphilis. G. M. Eckel, Hot Springs.—p. 81.

Duodenal Tube in Diagnosis and Treatment of Disease of Biliary Passages. L. Thompson, Hot Springs.—p. 89.

Endocrinology, Los Angeles

September, 1922, **6**, No. 5

Principles Underlying Organotherapy and Hormonotherapy. L. F. Barker, Baltimore.—p. 591.

*Chinese Cretin Treated with Native Medicine. W. G. Lennox, Peking, China.—p. 596.

Appraisal of Ovarian Therapy. E. Novak, Baltimore.—p. 599.

Some Recent Work on Internal Secretions. R. G. Hoskins, Columbus. —p. 621.

Concerning Pathogenesis of Thyrotoxicosis. Part I. N. W. Janney, Los Angeles.—p. 633.

Experiences in Testicle Transplantation. H. L. Hunt, New York.—p. 652.

Chinese Cretin.—Cretinism among the Chinese apparently is not common. Annual reports from fourteen hospitals in China, giving diagnoses of 33,000 inpatients, do not record a case of this disease. Lennox records the case of a Chinese cretin, aged 17, who also had a parathyroid deficiency. An old style Chinese practitioner had prescribed a mixture of powdered turtle shell, tiger bones and deer horn.

Indiana State Medical Association Journal, Ft. Wayne

October, 1922, **15**, No. 10

Status of Indiana Medical Profession. W. R. Davidson, Evansville.—p. 337.

Treatment of Carcinoma of Uterine Cervix. S. A. Clark, South Bend. —p. 339.

Disturbances of Carbohydrate Metabolism. J. H. Warvel, Indianapolis. —p. 343.

Constructive Thinking in Our Medical Organizations. A. W. Childs, Madison, Ind.—p. 350.

Johns Hopkins Hospital Bulletin, Baltimore

October, 1922, **33**, No. 380

Excitatory State. W. M. Bayliss.—p. 347.

Study of Frozen Sections Through Cadaver Showing Anatomic Relations of a Large Uterine Myoma. J. W. Williams.—p. 350.

Changes in Para-Ocular Glands Which Follow Administration of Diets Low in Fat Soluble A; Effect of Same Diets on Salivary Glands and Mucosa of Larynx and Trachea. S. Mori.—p. 357.

Modification of Chromaffin Reaction, Occurrence of Abdominal Chromaffin Bodies in Mammals. G. B. Wislocki, Baltimore.—p. 359.

*Cardiac Complications of Gonorrhea. W. S. Thayer, Baltimore.—p. 361.

Postencephalitic Behavior Disorders in Children. L. B. Hohman, Baltimore.—p. 372.
Tolerance and Acquired Tolerance of Mesenchyme Cells in Tissue Cultures for Copper Sulphate and Sodium Arsenite. J. L. Wilson, Baltimore.—p. 375.
Abdominal Chromaffin Body in Dogs. G. B. Wislocki and S. J. Crowe, Baltimore.—p. 377.

Cardiac Complications of Gonorrhea.—Pericarditis and endocarditis of purely gonorrheal origin was noted first in the early sixties. In 1899, Thayer collected thirty-two instances of well described ulcerative and vegetative endocarditis associated with gonococcal infection, with postmortem records, and fifteen in which the purely gonococcal nature of the infection might fairly be accepted. Now he reports three cases seen in the course of the last two years. Cultures from the circulating blood were negative but gonococci were demonstrated in the valvular thrombi at necropsy and in one case from the kidney. In 176 instances of acute endocarditis of determined origin seen in the Johns Hopkins Hospital, twenty, or 11.3 per cent., were gonococcal. Gonococci were cultivated intra vitam or postmortem in fourteen instances; they were demonstrated bacterioscopically following negative cultures intra vitam or postmortem in six instances. But little evidence could be obtained as to the relation of the time of onset of the cardiac involvement to the appearance of the disease or other complications. Arthritis occurred in only 41.1 per cent. of the cases, but in 68.5 per cent. of fifty-four cases collected from other sources. The cardiac involvement is not restricted to the endocardium. Endocarditis, pericarditis and suppurative myocarditis are not unusual. Gonorrheal endocarditis is in general, a malignant process pursuing a progressive and fatal course.

Journal of Bone and Joint Surgery, Boston

October, 1922, **4**, No. 4

Hemorrhagic Osteomyelitis. G. Barrie , New York.—p. 653.
Studies on Experimental Rickets. P. G. Shipley, Baltimore.—p. 672.
*Pathology of Tuberculosis of Joints. A Study from Clinical Standpoint. M. H. Rogers, Boston.—p. 679.
Cervical Rib. Report of Six Cases. S. W. Boorstein, New York.—p. 687.
*Pain Due to Iliocostal Impingement. F. J. Gaenslen, Milwaukee.—p. 705.
*Beef Bone in Stabilizing Operations of Spine. L. T. Brown, Boston.—p. 711.
Pathology of Osteitis Deformans, Paget's Disease. S. M. Cone, Baltimore.—p. 751.
*Mechanics of New Plaster Shell in Treatment of Pott's Disease in Children, with Lateral Roentgen-Ray Control. R. P. Schwartz, Perrysburg, N. Y.—p. 789.
Davis Method of Reduction of Congenital Dislocation of Hip Joint. W. J. Merrill, Philadelphia.—p. 805.
Report of Committee for Investigation of Best Method of Treatment for Congenital Dislocation of Hip. J. E. Goldthwait and Z. B. Adams, Boston, and D. F. P. Willard, Philadelphia.—p. 821.

Pathology of Joint Tuberculosis.—Clinical evidence is presented by Rogers that tuberculosis of joints has its origin in the capsule of the joint and that the involvement of bone is usually a secondary process. A case of early tuberculosis of the hip in a young adult seems to point strongly to the invasion of the capsule as the beginning of the process. The hip joint was explored by an anterior incision. The capsule was found thickened and reddish in color. Most of the head and neck was inspected and no evidence of any bone involvement found. A piece of capsule was excised for pathologic study and showed tuberculosis. Two weeks later an arthrodesis was done, at which time the head was turned out and the cartilage removed and the acetabulum explored. No evidence of bone tuberculosis could be found in the bone.

Pain Due to Iliocostal Impingement.—Impingement of the costal margin on the crest of the ilium as a cause of persistent pain was noted by Gaenslen in five cases. The pain was located definitely at the lowermost portion of the costal margin where this lies closest to the crest of the ilium. Not only was there pain at this point, but also local tenderness, and this pain and tenderness could be produced at will by pressure on the costal margin at the point indicated. In examining for this condition, Gaenslen says, it is best to have the patient sitting as erect as possible, then to crowd the examining fingers under the costal margin, and finally to allow the patient to assume a relaxed position, if necessary, with the trunk inclined slightly forward and to the affected side. If impingement is the important factor, the pain which the patient complains of can be produced at will by this maneuver. While some discomfort is elicited on the sound side as well, it is not so acute or definite as on the affected side.

Beef Bone in Stabilizing Spine.—Observation of cases and two experiments on dogs make Brown feel that immobilization of the spine is better accomplished by fusion of the laminae and articular facets than by immobilization of the spinous processes by means of a beef bone splint, with or without the fusion of the laminae and articular facets on one side of the spinous processes.

New Plaster Shell in Treatment of Pott's Disease.—Schwartz describes the apparatus in use in the Children's Hospital, Boston. It consists of a posterior plaster-of-Paris shell. The posterior shell differs from the original plaster bed in that it is cut transversely at the level of the apex of the kyphos and joined together by hinges on each side, while a long turnbuckle connects the head of the shell to a heavy plaster pedestal beneath the buttock. By shortening the turnbuckle the convexity of the shell is increased and hypertension of the spine is secured. A new shell has been devised by Schwartz consisting of a posterior shell and an anterior lid. It is decidedly less expensive, much more simple in construction, and up to the present time has proved to be mechanically efficient, although its true value is still to be determined.

Journal of Experimental Medicine, New York

October, 1922, **36**, No. 4

*Pure Cultures of Large Mononuclear Leukocytes. A. Carrel and A. H. Ebeling, New York.—p. 365.
*Pure Strain of Cartilage Cells in Vitro. A. Fischer, New York.—p. 379.
Growth Promoting Function, of Leukocytes. A. Carrel, New York.—p. 385.
*Cultures of Organized Tissues. A. Fischer, New York.—p. 393.
Action of Shaken Serum on Homologous Fibroblasts. A. Carrell and A. H. Ebeling, New York.—p. 399.
*Hydrogen Ion Concentration of Joint Exudates in Rheumatic Fever and Other Forms of Arthritis. R. H. Boots and G. E. Cullen, New York.—p. 405.
Alimentary Leukocytosis in Its Relation to "Crisé Hemoclasique" of Widal. W. S. Van Leeuwen, Z. Bien and H. Varekamp, Leiden, Holland.—p. 415.
Experimental Rickets in Rats. VII. Prevention of Rickets by Sunlight, by Rays of Mercury Vapor Lamp, and by Carbon Arc Lamp. A. F. Hess, L. J. Unger and A. M. Pappenheimer, New York.—p. 427.
Experimental Rickets in Rats. VIII. Effect of Roentgen Rays. A. F. Hess, L. J. Unger and J. M. Steiner, New York.—p. 447.
Cow Serum as Substitute for Colostrum in New-Born Calves. T. Smith and R. B. Little, Princeton, N. J.—p. 453.
*Iodin Content of Blood Following Thyroidectomy. W. A. Hudson, St. Louis.—p. 469.

Pure Cultures of Leukocytes.—Pure strains of mononuclear leukocytes were isolated by Carrel and Ebeling from the blood of adult chickens and kept in active condition for nearly three months. The cultures were composed of large mononuclear leukocytes which migrated and proliferated in vitro at a slower rate than fibroblasts. The cells had no tendency to form a tissue, as do fibroblasts and epithelial cells. They were much less resistant than fibroblasts. Differentiation of the large mononuclears into cells assuming the appearance of fibroblasts took place under certain conditions. The activity of the large mononuclears was increased by embryonic tissue juice and inhibited by homologous serum.

Pure Strain of Cartilage Cells.—A strain of cartilage cells, obtained from the pars cartilago sclerae of the eye of chick embryos, has been cultivated by Fischer for more than three months in vitro. The hyalin substance disappeared during cultivation in vitro. The succeeding stages of a transformation from small, lymphocyte-like cells into large, spindle shaped cells were observed. The cartilage cells were spindle shaped and grew in close contact, forming thin membranes. In surface grown cartilage cells, the nucleus, usually containing one large nucleolus, stained less deeply than the cytoplasm.

Cultures of Intestine.—Fragments of small intestine from a twenty-one day old chick embryo, cultivated by Fischer in plasma and tissue juice, became completely surrounded with cylindrical epithelium. After a month's cultivation in plasma and tissue juice, the tissues composing the mass were normal. It would seem that the necessary food material was absorbed by the epithelium from the culture medium. When these masses were cultivated in embryo juice without plasma, the intestinal villi remained normal, while the stroma, connective tissue cells, and their fibrillae progressively disappeared, leaving an epithelial cyst.

Hydrogen Ion Concentration of Rheumatic Joint Exudates.—The hydrogen ion concentration of joint exudates aspirated from patients ill with acute rheumatic fever, arthritis of undetermined origin, and bacterial arthritis was determined by Boots and Cullen. The hydrogen ion concentrations of the joint exudates from patients with acute rheumatic fever approximated the normal reaction of blood, varying from p_H 7.27 to 7.42. Exudates from patients with arthritis of undetermined origin varied in p_H from 7.33 to 7.47. The p_H of a joint effusion occurring in a patient with myocardial insufficiency was 7.34. Bacteriologically, all of these fluids were sterile by ordinary means of cultivation. An exudate aspirated from a knee infected with *Staphylococcus aureus* had a p_H of 6.69, while that from a patient having an arthritis due to *Streptococcus hemolyticus* was also acid, having a p_H of 6.19. Since a definitely acid medium is necessary for the liberation of free salicylic acid and since all of the joint fluids from patients with acute rheumatic fever were slightly alkaline, the authors assert that no free salicylic acid could possibly exist in such joint fluids following the administration of salicylates.

Iodin Content of Blood After Thyroidectomy. — Hudson found that after thyroidectomy in dogs the iodin content of the blood is increased. The administration of fresh thyroid gland of sheep by mouth to thyroidectomized dogs causes the iodin content of the blood to fall so that it returns to the normal preoperative level; when the thyroid feeding is discontinued the iodin content of the blood is again increased.

Journal of Infectious Diseases, Chicago

October, 1922, **31**, No. 4

*Effect of Injection of Active Deposit of Radium Emanation on Rabbits; with Special Reference to Leukocytes and Antibody Formation. L. Hektoen and H. J. Corper, Chicago and Denver.—p. 305.
Antigenic Relations of Bipolaris Septicus Group of Bacteria. L. M. Roderick.—p. 313.
Acid Production of Bacillus Welchii. I. C. Hall and S. B. Randall, Berkeley, Calif.—p. 326.
New Micromanipulator and Methods for Isolation of Single Bacterium and Manipulation of Living Cells. R. Chambers, New York.—p. 334.
Chambers' Micromanipulator for Isolation of Single Bacterium. M. C. Kahn, New York.—p. 344.
Relation Between Fixed and Free Salts of Bacteria. M. Guillemin and W. P. Larson, Mineapolis.—p. 349.
Action of Visible Spectrum on Complement. E. E. Ecker, Cleveland.—p. 356.
*Effect of Hemorrhage on Complement of Blood. E. E. Ecker and H. M. Rees, Cleveland.—p. 361.
Relation of Reduction of Leukocytes and Platelets to Complementing Power of Serum. E. E. Ecker; B. S. Kline and A. DeCaluwe, Cleveland.—p. 368.
Group Specificness of Antibodies in Antistreptococcus Serum. R. Tunnicliff, Chicago.—p. 373.
*Experimental Measles by Inoculation of Monkeys, Guinea-Pigs and Rabbits with Green Producing Diplococcus. R. Tunnicliff and W. B. Moody, Chicago.—p. 382.

Effect of Injection of Active Deposit of Radium Emanation.—Hektoen and Corper assert that active deposit of radium is lethal to rabbits when given intravenously in amounts of approximately from 8 to 10 millicuries per kilogram weight. In lethal amounts given intravenously the active deposit produces an initial leukocytosis with finally a marked diminution in the circulating leukocytes, mainly of the polymorphonuclears. This is associated with changes in the liver, lungs, lymph glands, spleen, suprarenals and kidneys frequently accompanied by capillary hemorrhages. These results are similar to those obtained with active deposit in white rats and dogs by Bagg. Given intravenously, active deposit in nonlethal amounts may have a depressing effect on the formation of lysin and to a less extent on precipitin for sheep blood.

Effect of Hemorrhage on Blood Complement.—Complement which has a regular curve of decrease and regeneration following a single severe hemorrhage, Ecker and Rees found, is unaffected by subsequent dilution of the blood by the body fluids. The curve does not run parallel to that of any of the cellular elements circulating in the blood following hemorrhage, nor is there reason to believe that any of these cells is a factor in the regeneration of complement. The initial decrease is due to dilution of the blood, which decrease is soon overcome and restored to normal by an influx of complement from some, as yet unknown, source. Repeated hemorrhages with extreme degrees of anemia and subsequent recovery do not alter the level of complement.

Experimental Measles in Animals by Inoculation.—The experimental work done by Tunnicliff and Moody showed that monkeys, guinea-pigs and rabbits are susceptible to measles when inoculated with the washings of the nose and throat of patients with measles. The same symptoms and lesions may be produced in these animals by the green producing diplococci isolated from the blood and respiratory passages of human measles. Rabbits successfully inoculated with washings or the diplococcus show no symptoms when reinoculated with fresh virus. Green producing diplococci from the blood and lung of rabbits, successfully inoculated with diplococci from measles, produce Koplik spots and exanthems when injected into other rabbits. Filtrates of the diplococcus cultures generally show abundant growth, but old cultures containing large forms sometimes multiply only after several days' incubation or on subculture into a favorable medium. While the experiments indicate that the reaction is due to the coccus itself and not to a separate virus carried by it, on account of the same symptoms being produced by cultures as late as the seventh generation and the absence of the reaction in rabbits injected with other bacteria, isolated from the same plate as the green producing diplococci, it is possible that the diplococcus possesses the selective power of carrying the specific virus of measles.

Journal of Metabolic Research, Morristown, N. J.

June, 1922, **1**, No. 6

Metabolism Studies in Tetany. F. P. Underhill, W. Tileston and J. Bogert, New Haven, Conn.—p. 723.
*Studies on Vitamins B and D. C. Funk and J. B. Paton, New York.—p. 737.
*Influence of Glands with Internal Secretions on Respiratory Exchange. V. Effect of Suprarenal Insufficiency (by Removal) in Thyroidectomized Rabbits. D. Marine and E. J. Baumann, New York.—p. 777.
Advanced Chronic Nutritional Disturbances in Infancy. K. Utheim, St. Louis.—p. 803.

Studies on Vitamins B and D.—A short procedure is described by Funk and Paton for testing vitamin B on pigeons, and further evidence is presented on the vitamin-sparing action of certain proteins known to be free from vitamin B. Increased carbohydrate feeding did not give a clear result as regards an increased vitamin requirement. Increasing the amount of vitamin B did not increase the intake of a well balanced diet. There is slight evidence that with diminished food intake beriberi symptoms are delayed on a diet free from vitamin B. Alkali very markedly destroys vitamin B but has less action in vitamin D. Autoclaving for three hours at 25 pounds pressure destroys vitamin B, but has less action on vitamin D. Experiments on the effect of alkali and autoclaving were made, for the first time, on pigeons which were already in vitamin B equilibrium. Contrary to existing opinions, growth of yeast or some other fungus takes D vitamin out of solutions but leaves B vitamin behind, as proved by experiments on pigeons and rats. The yeast cells retain the vitamin D very tenaciously after they have taken it out of solution.

Effect of Suprarenal Insufficiency on Thyroidectomized Rabbits.—Nine aditional experiments on rabbits made by Marine and Baumann again show that thyroidectomy prevents or greatly diminishes the rise in the respiratory exchange which usually follows severe bilateral but sublethal injury to the suprarenal glands with intact thyroids. It is apparent that a thyroid-suprarenal cortex interrelationship exists, which is separate from the thyroid chromophil tissue interrelationship. The nature of this relationship is unknown but the evidence suggests that the suprarenal cortex, as one of its functions, exercises an inhibitory or regulatory control over thyroid activity and when this is sufficiently crippled, as by vessel ligation, freezing, or partial removal, the thyroid automatically responds with increased functional activity, resulting in increased heat production if a sufficient amount of the iodin containing hormone is liberated. There is evidence that single doses of iodin (25 mg. potassium iodid), administered by mouth, increase the heat production in suprarenalectomized rabbits with incomplete thyroidectomies. There is also evidence that sufficient but sublethal suprarenal insufficiency in rabbits and in cats causes a rapid loss of iodin from the thyroid. These observations throw light on the thyroid-sex gland interrelationship known since antiquity and probably have an important bearing both on the etiology of simple goiter and of exophthalmic goiter.

Minnesota Medicine, St. Paul

October, 1922, **5**, No. 10

Early Diagnosis of Tuberculosis. F. M. Pottenger, Monrovia, Calif.—p. 571.
Acute Appendicitis. R. Earl, St. Paul.—p. 574.
Conditions Simulating Acute Leukemia. J. G. Cross, Minneapolis.—p. 579.
Experimental Results of Cable Grafts and Tubes of Fascia Lata in Repair of Peripheral Nerve Defects. W. O. Ott, Rochester.—p. 581.
Treatment of Cancer of Breast. F. H. Kuegle, Sioux City, Ia.—p. 588.
Thyroid in Infancy. T. L. Birnberg, St. Paul.—p. 591.
Early Symptoms of Acute Poliomyelitis. W. H. Valentine, Tracy.—p. 594.
Abortions and Curettments. W. G. Strobel, Duluth.—p. 596.
Factors in Longevity. J. E. Crewe, Rochester.—p. 600.
Central Bone Tumors and Their Differential Diagnosis: Latent and Unhealed Bone Cysts in Adults. J. C. Bloodgood, Baltimore.—p. 604.

Missouri State Medical Association Journal, St. Louis

October, 1922, **19**, No. 10

*Permanent Cure for Trigeminal Neuralgia. W. T. Coughlin, St. Louis.—p. 419.
Renal Factor in Diabetes Mellitus. L. H. Fuson, St. Joseph.—p. 423.
Carcinoma of Breast, Its Diagnosis and Treatment. C. F. Sherwin, St. Louis.—p. 425.

Permanent Cure for Trigeminal Neuralgia.—Coughlin operates under local anesthesia. The incision is linear, extending from the zygoma about a thumb's breadth in front of the ear backward and upward to the parietal eminence. This line is infiltrated with 0.5 per cent. procain, all of the issues are flooded, including the periosteum, then on either side of the lower end of this line the tissues are similarly flooded; the incision exposes the fibers of the temporal muscle, the temporal fascia is divided at its attachment to he zygoma, both layers, so that it can be drawn forward and backward with ease. The muscle is split and retracted to expose the underlying bone. The periosteum is scraped back, he bone drilled about an inch above the base line, the openng is enlarged with rongeur, the dura is pushed upward, exposing the floor of the middle fossa. The middle meningeal artery is tied and cut and almost at once the third division s seen entering the foramen ovale; the dura covering it is ncised and the root is traced upward and backward exposing he ganglion. The dura is elevated from the ganglion, coninuing backward and upward and soon the root is seen ntering the ganglion just above the apex of the petrous portion of the temporal bone where it can be easily cut or vulsed. The wound is closed, usually with a small drain. This drain is removed at the end of twenty-four hours. Generally, for the first few hours there is considerable disharge of cerebrospinal fluid. The result is the permanent ure of the disease. Since writing this description Coughlin as been saving the motor root and is surprised to note that o facial nerve palsy has appeared in any case in which the motor root has been preserved.

Philippine Islands Medical Association Journal, Manila

July-August, 1922, **2**, No. 4

Iridectomy in Treatment of Glaucoma. H. Velarde.—p. 167.
*Papillary Carcinoma in an Infant. M. P. Mendoza-Guazon.—p. 169.
Study of Filipino Diet. I. M. L. Roxas and E. G. Collado.—p. 171.

General Carcinosis in an Infant.—The clinical diagnosis in he case reported by Mendoza-Guazon was cerebrospinal meningitis. The child was 5 years of age. The necropsy howed an enlarged abdomen rigid with greenish discolora-on. Small masses were felt inside of it. The intestines and he omentum formed a large mass which was attached to the rgans of the pelvic cavity. In this mass were found round nd oval, soft, deeply congested masses which were very riable, light gray in color, and covered with a thin vascular capsule. Myriads of these nodules, varying in size and shape, were found disseminated all over the serosa of the peritoneum, intestines, spleen, hilum of liver, colon, rectum, bladder, uterus, the right ovary and tube (the left ovary and tube were missing) and in the left broad ligament. None was found in the stomach or duodenum. Even the lungs, mediastinal lymph nodes, the brain and the dura mater contained these masses. Histologic sections showed papillary carcinoma which seemed to have come from the ovary. The vascularity and great power of metastasis of the tumor as well as the youth of the patient make this case iteresting.

Southern Medical Journal, Birmingham, Ala.

October, 1922, **15**, No. 10

Influence of Posture on Physical Signs in Chest. J. B. Guthrie, New Orleans.—p. 771.
Murmur of Mitral Stenosis in Presence of Auricular Fibrillation. N. B. Stern, Memphis, Tenn.—p. 774.
Fat Intolerance. P. F. Barbour, Louisville, Ky.—p. 777.
Evaluation of Mental Tests. J. M. Fletcher, New Orleans.—p. 783.
Case of Hysteria. E. B. Block, Atlanta, Ga.—p. 788.
Progressive Lenticular Degeneration. M. L. Graves, Galveston, Tex.—p. 792.
Hydrochloric Acid in Gastro-intestinal Pathology. J. C. Johnson, Atlanta, Ga.—p. 799.
Clinical Significance of Abdominal Adhesions. J. Friedenwald and T. H. Morrison, Baltimore.—p. 804.
*Malignant Adenoma of Colon and Rectum. J. L. Jelks, Memphis, Tenn.—p. 816.
Intra-Abdominal Gumma. A. L. Levin, New Orleans.—p. 817.
Methods of Getting People to Build Privies. A. T. McCormack, Louisville, Ky.—p. 818.
Bone Atrophy. B. Brooks, St. Louis.—p. 823.
Fractures of Skull. E. Sachs, St. Louis.—p. 825.
Treatment of Puerperal Fever. J. T. Altman, Nashville, Tenn.—p. 829.
Treatment of Fractures Near Shoulder, Elbow and Wrist. W. W. Harper, Selma, Ala.—p. 832.
Infections of Urinary Tract; Report of 400 Cases. E. C. Mitchell, Memphis, Tenn.—p. 836.
Case of Papilloma of Pelvis of Kidney. O. S. McCown, Memphis, Tenn.—p. 841.
*Case of Cornu Cutaneum. F. R. Crawford, Kashing, China.—p. 843.
Special License for Practice of Surgery. J. Darrington, Yazoo City, Miss.—p. 844.
Paranasal Sinus Disease in Infants and Young Children. L. W. Dean, Iowa City, Ia.—p. 846.
Infection of Nasal Accessory Sinuses with Serious Meningeal Complications. J. W. Murphy, Cincinnati.—p. 851.
Control of Earache Through Nasal (Sphenopalatine or Meckel's) Ganglion. G. Sluder, St. Louis.—p. 856.
Control of Mandibular Pain Through Nasal (Sphenopalatine or Meckel's) Ganglion. G. Sluder, St. Louis.—p. 856.
Control of Glossodynia Through Nasal (Sphenopalatine or Meckel's) Ganglion. L. W. Dean, Iowa City, Ia.—p. 856.

Malignant Adenoma of Rectum.—In the case reported by Jelks numerous adenomas were filling the rectum and sigmoid. More than 100 tumors varying from the size of a pea to that of a pecan were removed. The laboratory reported them as being nonmalignant. Roentgen-ray examination of the chest showed that the mediastinum as well as both lungs were filled with metastatic processes. The man died of acute lobar pneumonia. Necropsy was refused.

Cornu Cutaneum.—Crawford's patient had had a tumor on the left side of his face for twenty years. This had grown slowly. About one year previous to admission to the hospital, the skin over the center of the tumor became inflamed and broke, with the discharge of a small amount of thin seropurulent material. This lasted only a few days and was followed by the gradual growth of the tumor. The central portion of the left cheek was occupied by a large tumor mass. Springing from the center of the tumor and with its diameter nearly equal to that of the tumor was a large horn. The tumor was slightly irregular in outline, nodular, but soft. The skin over the tumor just at the base of the horn was somewhat inflamed, and there was a slight sense of fluctuation. The skin was not infiltrated. Just at the base of the horn the mass measured 8¾ inches in circumference. Measuring over the convex surface, from the cheek at the base of the tumor to the tip of the horn, was 6¼ inches. The horn was curved downward, suggesting the action of gravity. The horn was hard, resounding on being tapped with a pencil. It was brown in color and presented a roughened, striated appearance. At the operation the skin fell away from the tumor practically without dissection. Following the line of cleavage the tumor was lifted out very easily.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

Oct. 7, 1922, 2, No. 3223

*Treatment of Neurosyphilis. J. Purves-Stewart.—p. 621.
*Treatment of Neurosyphilis, with Special Reference to Changes in Cerebrospinal Fluid. D. K. Adams.—p. 631.
Wassermann Reaction in Diagnosis and Control of Treatment of Neurosyphilis. E. M. Dunlop.—p. 632.
Element of Contrast in Psychic Mechanism. J. H. Macdonald.—p. 635.
Surgical Treatment of Gastrojejunal and Jejunal Ulceration. G. Wright.—p. 640.
Prostatectomy in Case of Diabetes Insipidus. J. F. Alexander and F. S. Kidd.—p. 642.
*Paralysis of Facial Nerve with Herpes Zoster. C. T. Neve.—p. 643.
*Dystocia Due to Gigantic Fetus. E. L. Moss.—p. 643.

Treatment of Neurosyphilis.—Stewart's experience corroborate the conclusions reached by Schaller and Mehrtens (1) that the most promising cases of neurosyphilis for intraspinal therapy are those of the meningovascular type, (2) that of the parenchymatous group, tabetic cases are relatively the most favorable, whereas paralytic dementia and optic tabes are generally unfavorable. Cases of taboparalysis do badly in contrast with pure tabetics. Stewart urges that in every case of neurosyphilis, antisyphilitic remedies should be administered by the most efficient route, whether by mouth, inunction, fumigation, intramuscular or intravenous injection. In no case should remedies be directed exclusively to the nervous system. Advanced cases of general paralysis with extensive destruction of cortical nerve elements, are hopeless for curative treatment by any method whatever.

Treatment of Neurosyphilis.—The routine adopted in the series of cases of neurosyphilis reported by Adams has been a preliminary course of mercury and iodid for an average of two weeks, followed by a series of from twenty to forty injections of from 0.45 to 0.6 gm. of the novarsenobenzol brand of arsphenamin given at seven day intervals. After every fourth injection two weeks rest was given. Prior to each injection there was no elaborate preparation with starvation, the only departure from the ordinary routine being a saline aperient and slight curtailment of breakfast on the morning of the injection. Cases of tabes dorsalis, taboparesis, general paralysis of the insane, Erb's syphilitic spinal sclerosis, motor neurone disease, and meningovascular syphilis were among those treated.

Herpes Zoster of Geniculate Ganglion Causes Facial Paralysis.—It is Neve's object to show that herpes zoster affecting the geniculate ganglion is a much more frequent cause of facial paralysis than is commonly supposed, and that many, if not all the cases in which exposure to cold is blamed are due in reality to that micro-organism, at present unknown, which, attacking the posterior root ganglia of the spinal nerves, and the homologous ganglia of the cranial nerves, produces the interesting train of symptoms called herpes zoster.

Case of Gigantic Fetus.—In the case cited by Moss, the fetus weighed 24 pounds 2 ounces, and measured 35 inches in length. The child was stillborn. The mother and father were both six feet tall.

Irish Journal of Medical Science, Dublin

September, 1922, 5, No. 7

Principles of Colloid Therapeutics. W. G. Smith.—p. 293.
Some Aspects of Sterility. B. Solomons.—p. 303.
Method of Treating Superficial Lesions of Perineum and Intrapelvic Conditions from Below. M. R. J. Hayes.—p. 314.
*Descent of Spermatic Cord with Imperfect Descent of Testicle. A. K. Henry.—p. 317.
*Case of Tuberculosis of Uterus. B. Solomons and J. H. Pollock.—p. 321.

Descent of Spermatic Cord with Imperfect Descent of Testicle.—Henry has seen four patients in whom the body of the testis had failed to descend beyond the inguinal canal, while a structure giving the characteristic whipcord sensation of the vas deferens could be rolled between finger and thumb within the scrotum. He believes that this condition is not uncommon and that it is often wrongly diagnosed inguinal hernia.

Tuberculosis of Uterus.—Solomons and Pollock record the case of a woman, aged 49, who enjoyed good health until nine years ago when her menstrual periods commenced to become heavy. From that time until the date of operation they varied from two or three days to eight or nine days. She complained of bilateral pain for the past year which had been increasing in severity. During the weeks previous to admission to the hospital there had been continued hemorrhage. She had noticed a loss of flesh. There was nothing significant in the family history. Bimanual examination revealed an enlarged uterus, and the diagnosis was made of myoma undergoing degeneration. The operation consisted of hysterectomy with removal of both tubes and ovaries. On hemisection, the uterus was found to be increased in size, but the cavity to be diminished. At first sight the appearance suggested an interstitial fibromyoma, with small areas of necrosis. The necrotic areas, however, contained an unusually fluid material, which left small suggestive cavities on evacuation. Smears were made from this fluid and stained for tubercle bacilli; two were found after prolonged examination. Paraffin sections from the solid area showed giant cell formation, epithelial cell proliferation and lymphocytic immigration. The entire cut surface of the uterus shows a marbled appearance due to areas of necrosis alternating with nonnecrotic portions.

Lancet, London

Oct. 7, 1922, 2, No. 5171

Scope and Technic of Myomectomy. V. Bonney.—p. 745.
Radiology: Use and Abuse. R. A. Morrell.—p. 748.
Action of Vaccines. J. Pratt-Johnson.—p. 751.
Improvements in Methods of Blood Counting. A. C. Alport.—p. 756.
*Effect of Position in Family on Health of Child. R. H. Vercoe.—p. 758.
*Study in Diagnosis of Cancer by Means of Serum Reactions. J. A. Shaw-Mackenzie.—p. 759.
*Detection of Malignant Cells in Body Fluids. P. N. Panton.—p. 762.
*Case of Combined Littré's and Richter's Hernia. N. F. Sinclair.—p. 762.
Direct and Indirect Inguinal Hernia on Same Side. H. E. S. Stiven.—p. 763.

Effect of Position in Family on Health of Child.—A comparison was made by Vercoe between the first, second, third, etc., child in the family as regards relative intelligence, physique and resistance. There is no appreciable difference between any of the children investigated; whereas in incidence of disease, both past and present, the worst child is definitely the eldest, while the best is definitely the eighth child and upward. Therefore, as far as this series has been carried, the conclusions are: (1) That the quality of the average child does not deteriorate in any way with successive pregnancies; (2) that the quality of the family does not deteriorate in any way with increase of quantity in the environment and class herein considered; inasmuch as the eighth children, who are drawn entirely from large families, are inferior to none and superior to the eldest who are drawn largely from small families.

Diagnosis of Cancer by Serum Reactions.—Attention is directed by Shaw-Mackenzie to a new test of cancer by means of a turbidity reaction in the serum. The test consists in adding an ether extract of cancer tissue, with or without saponification, to cancer serum. This is followed by an appearance of turbidity after incubation which does not appear at all, or not to the same extent, with noncancerous serum. It is essential that the serum used should be as clear as possible; if turbid to start with the test becomes difficult, for then one has to judge relative turbidities. This difficulty is especially marked in diabetic cases. Shaw-Mackenzie has tested in this way 136 serums, including fifty-eight normal serums. In forty-one cases a previous positive or negative diagnosis has been confirmed by the test. In thirty-five cases in which no details of the cases had been given or the diagnosis was uncertain, a correct diagnosis was made as determined subsequently. In two further cases positive results were not confirmed in noncancer patients; one was a case of chronic nephritis; the other was a case of neurosis.

Sarcoma Cells in Cerebrospinal Fluid.—Panton relates a case in which the cerebrospinal fluid contained many sarcoma cells. The patient, from whom the fluid was obtained, was a man, aged 55, a syphilitic, with a perforated palate, who had had his left eye removed for sarcoma twelve months before. The patient on admission to the hospital had the physical signs and symptoms associated with multiple lesions of the roots and spinal cord. The Wassermann reactions of the blood and spinal fluids were then negative. The condition was evidently one of diffuse sarcomatosis of the cord involving the thoracic, lumbar and sacral regions, and in diffuse soft growths of this nature it is conceivable that numerous cells may become free in the spinal fluid; moreover, it is probable that the needle traversed a portion of the growth in making the puncture.

Combined Littré's and Richter's Hernia.—In Sinclair's case these two rare forms of hernia coexisted in a single femoral sac.

Oct. 14, 1922, **2**, No. 5172

- *Mental Hygiene in Relation to Insanity and Its Treatment. F. W. Mott.—p. 793.
- Chronic Endocervicitis and Its Treatment. J. W. Burns.—p. 796.
- *Outbreak of Trichiniasis. D. A. Rice and H. O. Williams.—p. 799.
- Normal Infant's Chest. J. H. P. Paton and A. Rowand.—p. 801.
- *Radium as Curative Agent for Tuberculous Glands. E. S. Molyneux.—p. 804.
- *Pfeiffer's Bacillus and Influenza. S. W. Patterson and F. E. Williams.—p. 806.
- Cysts of Epididymis. R. O. Ward.—p. 807.
- Smallpox and "Amaas" in South Africa. J. A. Mitchell.—p. 808.
- *Two Cases of Gallstone Ileus. F. C. Pybus.—p. 812.
- *Differential Diagnosis of Acute Appendicitis and Acute Right Salpingitis. M. Marcus.—p. 813.
- Two Cases of Epileptiform Convulsions During Anesthesia. H. H. L. Patch.—p. 813.

Mental Hygiene in Relation to Insanity.—Mott urges reforms in provision of separate hospitals for the treatment of acute curable cases and that by spending the appropriations more wisely on the principle that the first duty of the authorities is to prevent disease; failing that, to cure disease, and failing that, to prolong life and relieve suffering, these hospitals will not be a public burden. This can be done as follows: (1) By endeavoring to prevent disease—that is, by mental hygiene on the lines adopted by the National Committee of Mental Hygiene of the United States of America. (2) By adequate provision of separate properly equipped buildings for the treatment on modern hospital and scientific lines of early curable and borderline cases, uncertified for a period of time, with legal provision against their improper detention, thus avoiding the stigma of asylum detention. (3) All incurable and chronic cases to be segregated, but classified in such a way that adequate and proper treatment can be afforded them. Other important items are: Expenditure on intensive scientifically conducted research in hospitals and laboratories into the causes, prevention and treatment of insanity by skilled, properly paid medical officers and social workers, is likely to be of more use and more economical in the end than expenditure on magnificent and costly buildings. There is great need of systematic teaching of psychologic medicine as part of the medical curriculum. Successful diagnosis is the first step to efficient treatment. A central research laboratory, properly manned and equipped, should be provided for a group of mental hospitals. Among the other measures of treatment that call for urgent reform is a more liberal diet. Occupation is of great value in treatment, but the occupation must be desired by the patient, and he must be interested in it; otherwise it will have no therapeutic value.

Trichiniasis.—The authors report thirteen cases of trichiniasis which followed the eating of sausages made from trichina infested pork. Trichinae were found in the patients' feces. The consistent and outstanding feature of the series was the high eosinophilic count [the large lymphocytes also tend to be increased], varying from 15.7 to 39.6 per cent.

Radium Therapy for Tuberculous Glands. — Molyneux extols the advantages of radium treatment of tuberculous lymph glands over other methods of treatment. It is quick in effect, is painless, leaves no scar and is permanent in results. In treating carcinoma a destructive dose of radium is given. In treating tuberculous glands a stimulating dose is given, which stimulates the tissues weakened by tuberculous infection to increased vitality, and enables the vitalized phagocytes to consume the tubercle bacilli, and—the active infection having been removed—to help absorption of the caseating material.

Pfeiffer's Bacillus and Influenza.—Bacteriologic examination of lungs made by Patterson and Williams at necropsies over a period of twelve months, during which three distinct prevalences of influenzal attack were noted, yielded information which they assert supports the view that the incidence fluctuations of *B. influenzae* as a lung parasite are independent of the particular pulmonary condition associated with it.

Gallstone Ileus.—Of the two patients whose cases are cited by Pybus, the first had a large stone removed from the ileum, relieving the obstruction. Four days later she again developed symptoms of intestinal obstruction, thought to be due to peritonitis, and no further operation was performed. Necropsy revealed two further stones impacted in the ileum. There was a fistula between the gallbladder and duodenum, but the former had completely discharged its contents, three stones in all. In the second patient a stone was removed from the lower end of the ileum; examination of the gallbladder showed that it was adherent to the duodenum, and still contained calculi. To prevent the possibility of a further obstruction the gallbladder and duodenum were separated. The fistula in the duodenum was closed and the stones removed from the gallbladder.

Differential Diagnosis of Appendicitis and Salpingitis.—Marcus emphasizes the point that in acute right salpingitis, pain is felt almost invariably, and from the first, on the right side, and the pain is usually referred down the right thigh, anteriorly, sometimes as far down as the knee. In acute appendicitis pain is usually felt first in the region of the umbilicus, and only later in the right iliac fossa.

Medical Journal of South Africa, Johannesburg

September, 1922, **18**, No. 2

- Case of Megacolon (Hirschsprung's Disease); Colectomy. R. A. Ross.—p. 25.
- *Operative Treatment of Chronic Intestinal Stasis. G. A. Casalis du Pury.—p. 27.
- New Developments in Roentgen-Ray Deep Therapy. P. J. Olivier.—p. 33.
- *Case of Hemopericardium Successfully Operated On. J. J. Levin. Johannesburg.—p. 37.

Operative Treatment of Chronic Intestinal Stasis.—C. du Pury is satisfied that when the cecum and ascending colon are dilated, prolapsed and unduly mobile, they can effectively be reduced in size and made to resume their physiologic function by the operation of cecorrhaphy, which consists in plating together or invaginating into longitudinal folds the bulbous, phlyctenular and overdistended organs, until they are no larger than the terminal portion of the ileum. Previous to the invagination, the whole colon from cecal head right up to and well beyond the hepatic bend should be freed of adhesions and the appendix removed. Cecorrhaphy, however, should be limited strictly to cases of typhlatony and when the symptoms of stasis are distinctly located to the right side; further, the adhesions blocking the hepatic bend should not be extensive or too firmly organized. Should they prove to be so and the liberation of the bowel appear a hazardous experiment, especially should it become apparent that some other obstruction exists lower down, then for the cecorrhaphy should be substituted a cecosigmoidostomy, in du Pury's opinion the best operation for drainage of the big bowel. Both operations are conservative—are devoid of undue risks to the patient's life and give permanent results.

Operation in Case of Hemopericardium.—Three days after a piece of steel struck the front of his chest, entering the precordial region, Levin's patient was admitted to the hospital, suffering from hemopericardium. On the following day Levin operated. He cut through the left fourth, fifth and sixth ribs at their junction with the sternum and about 2½ or 3 inches from this junction. Exposing the pericardial sac he made an incision about 2½ inches long. The heart then did some considerable splashing in blood. He immediately started a flow of physiologic solution of sodium chlorid into the pericardial sac; then he passed his hand into the pericardial sac and felt over the surface of the heart for the bit steel alleged to have caused the injury. It could not be found. The pericardial sac was emptied of blood clot and closed with continuous catgut sutures. The patient recovered.

Annales de Médecine, Paris

September, 1922, **12**, No. 3

*Respiration in Exophthalmic Goiter. P. Sainton and E. Schulmann.—p. 173.
*Research on Melanomas of the Skin. H. Halkin.—p. 189.
*Recovery from Tuberculous Meningitis. A. Cramer and G. Bickel.—p. 226.
Classification of Exotic Diseases. G. Delamare.—p. 245.

Respiration in Exophthalmic Goiter.—Sainton and Schulmann record the spirometer, radioscopy and valve-controlled respiration findings in fifteen patients with exophthalmic goiter. The oculocardiac reflex was also tested, the chest expansion, etc. The tabulated findings confirm the permanent acceleration of the respiration. These subjects were unable to hold their breath for more than eighteen seconds on an average. This testifies to the special need for oxygen.

Melanomas of the Skin.—Halkin precedes his study of six cases of melanomas with a study of fourteen cases of pigmented nevi, as the melanomas always develop from these. His conclusion is that a nevus is a potential sarcoma, whether or not it is pigmented. The melanic pigmentation seems to be an agent of proliferation and an element of malignancy. The melanosarcomas studied developed under the influence of some substance brought by the blood and deposited in the form of melanin.

Cure of Tuberculous Meningitis.—Cramer and Bickel report a case of recovery. The patient was a young man of 19, and they have found records of forty-four other cases of recovery; 30 per cent. were over 20 and 2.5 per cent. were under 2½ years. The youngest child seemed to be cured but succumbed to a recurrence ten months later. Their review of all this material shows that in treatment only one agent is capable of conquering the invading bacilli. This agent is the patient's own organism. When this offers a vigorous resistance and the bacilli are not especially virulent, a cure may be anticipated in a hygienic environment.

Archives des Maladies de l'App. Digestif, Paris

September 1922, **12**, No. 5

*Chronic Cirrhosis of Liver. M. Villaret et al.—p. 305.
*Motor Functioning of the Stomach. C. Saloz and R. Gilbert.—p. 317.

Chronic Cirrhosis of Liver.—Villaret argues that not alcohol alone but alcohol plus syphilis is often responsible for chronic cirrhosis of the liver. This suggests another point of attack. In thirteen cases tested, the Wassermann reaction was positive in nine.

Tests for Motor Functioning of the Stomach.—Saloz and Gilbert give twenty pages of tables showing the behavior of the contrast suspension and the response to the test meal in 12 normal subjects, in 24 with gastric cancer, 41 with gastric and 8 duodenal ulcer, 38 with gastritis or ptosis, 32 with dyspepsia—a total of 155 cases. Whenever there is organic disease of the pylorus, the Mathieu method of estimating the motor functioning corresponds perfectly to the findings with the contrast suspension, as also in normal subjects. In all others they may or may not harmonize.

Médecine, Paris

September, 1922, **3**, No. 12

*Recent Progress in Biology. J. Gautrelet.—p. 885.
*Internal Functions of the Lungs. H. Roger.—p. 900.
Production of Cholesterin by the Spleen. J. E. Abelous.—p. **907**.
*Carbon Monoxid Poisoning. M. Nicloux.—p. 913.
*Experimental Research on Multiple Sclerosis. A. Pettit.—p. 918.
Food Value of Fats and Use in Therapeutics. Maignon.—p. 925.
Peripheral Venous Tension in Cardiovascular Disease. M. Villaret et al.—p. 930.
Aptitude for Pigmentation of Skin. A. Sézary.—p. 935.
Mechanism of Respiration in Emphysema. Crcyx.—p. 938.
*Metaphosphoric Acid in Testing the Blood. A. Grigaut and P. Zizine.—p. 943.
On Suspicion of Typhoid. Aynaud.—p. 947.
Treatment of Vagotonia and Sympatheticotonia. E. Schulmann.—p. 950.
Ouabain by the Mouth. C. Dimitrakoff.—p. 954.

Recent Progress in Biology.—Gautrelet's summary review of works on basal metabolism, respiratory capacity, modification of the bleeding time by various drugs, chronaxia, etc., fills fifteen pages. He cites in particular Moureu's demonstration of antioxygens, substances checking auto-oxidations. This is a property of the phenols. Mauriac has noticed that blood has a greater glycolytic action on an isotonic solution of glucose than on normal blood. This fact serves for a simple clinical test for sugar in the blood. The blood is added to two solutions of glucose: In the hypotonic solution hemolysis occurs at once but there is no glycolysis, while in the isotonic solution, glycolysis occurs. He mentions further Bierry's statement that when the elements of the antidiabetic diet are in a certain proportion, the effect on the acidosis is as pronounced as during fasting.

Internal Functions of the Lungs.—Roger explains that the new knowledge on the multiple internal functions of the lungs throws light on the metabolism of fats. In tests on the lungs of a man just executed, he was able to confirm the function of modifying the fats which he had found evident in the lungs of dogs. He has coined the term lipodieresis for this function, and lipodierase for the ferment involved. Lung tissue also destroys glucose and various toxic alkaloids. The lung acts like the liver in this respect. If 0.15 mg. of a 1 : 100,000 solution of strychnin per kilogram is injected at the origin of the aorta, it kills the animal, while it takes four times this amount for the lethal dose when injected into a peripheral vein. The lung acts by a biochemical process; oxygen alone has no such effect. The experimental research described establishes much closer relations between the lungs and the liver. The physiology of the lungs is undergoing an evolution like that which has transformed the physiology of the liver. We are only beginning to appreciate their complex internal functions. The action of the lungs on fats seems to be analogous to that of the liver on sugar, and both some day may have important clinical applications.

Carbon Monoxid Poisoning.—Nicloux reiterates that the blood corpuscle is not injured irreparably by carbon monoxid displacing the oxygen in the hemoglobin, provided oxygen can be supplied promptly to drive out the carbon monoxid in turn. The corpuscle asks nothing better than to resume its normal functioning with oxygen.

Experimental Multiple Sclerosis.—Pettit urges research in this line, saying that micro-organisms have been found in some cases of sclerosis in patches, but not in all. No cultures have ever been obtained, but the disease has seemingly been reproduced in some animals by inoculation with the "S spirochetes" found inconstantly in clinical cases.

Metaphosphoric Acid in Testing the Blood.—Grigaut and Zizine explain that metaphosphoric acid reveals the presence in the blood of a whole category of nitrogenous substances, mostly polypeptids. They mix 10 c.c. of serum with 6 c.c. of water and 2 c.c. of a 20 per cent. solution of metaphosphoric acid. Then 2 c.c. of binormal solution of hydrochloric acid is added and the whole is agitated and filtered. The filtrate can be used for estimation of the sugar in the blood, and this method has other advantages.

Presse Médicale, Paris

Sept. 2, 1922, **30**, No. 70

Quinidin in Absolute Arrhythmia. Clerc and Noel-Deschamps.—p. 753.
*Angina Pectoris plus Syncope. L. Gallavardin.—p. 755.
Amebic Abscess of Liver. E. Bressot.—p. 757.

Syncopal Form of Angina Pectoris.—Six cases are analyzed in which the acute Adams-Stokes syndrome accompanied the angina pectoris. The pulse jumped suddenly from 44 to 70 in one woman of 54: there has been only one recurring attack in the five years since. One man of 60 is still in fairly good condition although he has had eighty attacks, with fall in syncope, during the last twelve years. Only one of the six patients, a man of 72, has died; the acute Adams-Stokes proved fatal the fifteenth day.

Sept. 6, 1922, **30**, No. 71

*Posture Reflexes. C. Foix and A. Thévenard.—p. 765.
Babinski Sign in the Fingers. A. Radovici.—p. 767.
*Access to Elbow. Blanchard.—p. 768.

Posture Reflexes.—This term is used as better descriptive for what Westphal called paradoxic contraction of the muscles when a joint is passively moved. The relation with the tonus, with contracture, and with hypotonia is discussed in health and in disease.

Access to Elbow.—Blanchard explains the advantages of vering the olecranon at the base (wire saw), to reach and rrect old backward luxation of the elbow, irreducible herwise. In a case described, the olecranon was held in ace afterward with a longitudinal screw. The operation as completed in twenty minutes, and restoration of function as prompt.

Sept. 9, 1922, **30**, No. 72

ortitis with Trigeminal Neuralgia. J. Minet and Legrand.—p. 773.
ure Pituitary Dwarf Growth. A. Léri.—p. 774.
uff for Oscillometer Sphygmomanometry. L. Gallavardin.—p. 776.
rsenicals in Treatment of Epilepsy. M. Page.—p. 777.
buses of Organotherapy. L. Cheinisse.—p. 777.

Aortitis with Complicating Trigeminal Neuralgia.—In five t of ten recent cases of incoercible trigeminal neuralgia in e last five years, the paroxysmal neuralgia coincided with sions in the aorta. The cause inducing the aortitis had obably induced arteritis of the central nuclei of the triminal nerve. There was nothing to suggest syphilis in ree of the five cases, but treatment as for syphilis should ways be given a trial with this combination. In the young, is alone may cure promptly. In the elderly, the vascular stem is often so pathologic otherwise that other measures e required, and the prognosis is less favorable.

Abuses of Organotherapy.—Cheinisse reviews the discuson on organotherapy at the last annual meeting of the merican Medical Association. He remarks that in the nited States "commercial interests have seized the vast omain of endocrinology, and nowhere else has the credulity the public, and, alas, of a large number of physicians been xploited to such an extent as in the United States. Nowhere se have complex questions such as those of endocrinology een presented in a more apparently simple while at the same me most fantastic form."

Sept. 13, 1922, **30**, No. 73

pastic Torticollis. H. Roger and L. Pourtal.—p. 785.
ntraspinal Anesthesia. Abadie and Montero.—p. 786.
bscess in Tongue; Two Cases. V. Combier and J. Murard.—p. 789.
uscultation of Pleural Culdesacs. C. Mantoux.—p. 790.

Spastic Torticollis.—Radioscopy revealed vertebral lesions the neck in seven of the eight cases of spastic torticollis scribed. The coincidence of these vertebral lesions with gns of organic central lesions—which were manifest in arly all—suggests that the vertebral lesions were seconry to the affection of the midbrain. The vertebral lesions ere of the rheumatismal type, the spastic torticollis inducing nditions in the cervical vertebrae affording a point of ssened resistance.

Intraspinal Anesthesia.—In order to reduce the by-effects intraspinal injection of an anesthetic, Abadie injected forehand some drug that usually raises the blood pressure. e hoped thus to ward off the drop in the blood pressure herwise inevitable, but he found that all the drugs injected traspinally reduced the blood pressure, even those which, jected subcutaneously, had a pronounced pressure-raising fluence. The only means to combat the bulbar anemia esumably responsible for the hypotension is by lowering the ead. A number of charts are given showing the effects of rious experiments.

Sept. 16, 1922, **30**, No. 74

alories and Energy. A. Gigon.—p. 797.
ascularization of Emphysematous Lung. Pissavy and Saidman.—p. 799.
eep Radiotherapy. C. Chambacher and P. Descoust.—p. 800.

Need of the Organism in Calories and Energy.—Gigon dissses conditions in which the basal ration is below or above e physiologic standard. He explains that evaluation of the ork of the organism in calories is misleading in many cases not in all. The fats and proteins and carbohydrates have ecific properties beyond the merely thermodynamic.

Deep Radiotherapy.—Chambacher and Descoust give the etails of eleven cases of mammary cancer and others of ncer of other organs and the skin to a total of twenty-five, nd two cases of sarcoma—all apparently testify to the nmeasurably superior efficacy of massive doses of very hard entgen rays in treatment of malignant disease.

Sept. 20, 1922, **30**, No. 75

atent Tuberculous Appendicitis. E. Perrin and C. Dunet.—p. 809.
urpura from Arsphenamin. R. Rabut and P. Oury.—p. 810.

Purpura from Arsphenamin Poisoning.—Rabut and Oury encountered two cases of acute hemorrhagic purpura under arsphenamin treatment within a few weeks, both fatal. Their retrospective analysis of these cases and a similar one reported by Labbé emphasizes the importance of testing the coagulation time, bleeding time, and changes in the globulins whenever a patient taking arsphenamin shows the least symptoms of intolerance. Any hemorrhagic tendency, no matter how slight and transient, should positively forbid continuing with the arsenical. In two of the three cases, minute ecchymoses had been noted in the mucous membrane of the mouth, before the epistaxis. In the other case there was nothing to warn of the impending purpura, but the man complained of lassitude, and there was fever after the dose had been increased to 0.6 gm. In both the cases reported in detail, the leukocytes dropped to 1,000 or 1,200. The benzol element in arsphenamin may be responsible for the leukopenia in such cases.

Sept. 23, 1922, **30**, No. 76

*Pulmonary Tuberculosis. M. Letulle and F. Bezançon.—p. 817.
*Painful Pseudarthrosis of a Rib. Guimbellot and Braine.—p. 821.
Dyspepsia Conditions. Léon-Meunier.—p. 822.

Tuberculous Granulation and Miliary Tuberculosis in the Lung.—Seven photomicrograms are reproduced to sustain the assumption that these two are independent processes. The tuberculous granulation is a precursor of sclerosis, while the miliary tubercle is the chief agent in chronic tuberculosis of the lung.

Pseudarthrosis of a Rib.—The stumps of the fractured rib overlapped and occasionally nipped the pleura between them. Conditions were corrected by resecting the overlapping portions and suturing the stumps end to end.

Sept. 27, 1922, **30**, No. 77

*Epidemic of Botulism. C. Morel and R. de St. Martin.—p. 829.
*Rats as Reservoirs of Plague. Bordas, Dubief and Tanon.—p. 831.
Plastic Dacryorhinostomy. Dupuy-Dutemps and Bourguet.—p. 833.

Epidemic of Botulism.—Morel and St. Martin reiterate the importance of the ocular symptoms from botulinus poisoning. In a recent small epidemic 7 persons were affected of the 11 who had eaten the canned salmon in which the botulinus bacillus was found afterward. In this group of 7, 2 had gastro-intestinal symptoms; 2 complained merely of dryness of the throat and difficulty in swallowing, and in the others the disturbances were mostly in the eyes. There was complete paralysis of accommodation, amblyopia, restriction of the visual field and congestion in the retina; 2 presented mydriasis and one slight ptosis of one eye. There was extreme lassitude and depression with the visual disturbances; the latter developed about five days after eating the salmon. Under strychnin, restriction to water and then to milk, the symptoms had subsided in all by the end of the second month. There were no deaths. The odor and taste had been distasteful to some of the party. The canned salmon was of American origin, and the bacillus coagulated milk.

Plague and Rats.—Bordas and his co-workers found plague bacilli in twenty-nine of the more than 5,000 rats examined July to December, 1921, at Paris. The rats affected seemed normal in every particular. They are not casual healthy carriers but must be regarded, they say, as reservoirs of the plague virus. This virus may pass from rat to rat without anything suggesting their infection until some day the virus may grow more virulent, and the rats then will sicken and the human epidemic may follow. A rat enzootic follows the epizootic when plague has once prevailed in a place, and the plague may reappear at any moment without any new importation of virus from without.

Sept. 30, 1922, **30**, No. 78

*The Basal Metabolism. M. Labbé and H. Stévenin.—p. 841.
*Meningeal Symptoms in Ascaridiasis. H. Turcan.—p. 844.
*Hematotherapy in Measles. L. Cheinisse.—p. 846.

Research on the Basal Metabolism.—Labbé gives an illustrated description of the apparatus he uses, claiming that it is as reliable and exact as Benedict's apparatus while it is much simpler and easier to manage.

Meningeal Symptoms from Ascaridiasis.—Turcan reports a case of what seemed to be acute meningitis in the young man for seven days. Then after a dose of calomel and evacuation of forty-six ascarids the convulsions, etc., subsided. He warns, however, that the appearance of helminths in stool or vomit does not prove that they are responsible for the meningeal symptoms. When the meningitis is of the tuberculous type, it is well to bear in mind the possibility of a toxic meningitic reaction to helminths. The spinal puncture fluid may resemble that of tuberculous meningitis.

Injection of Convalescent's Blood in Treatment and Prevention of Measles.—Instead of using the serum only, Ruelle injected intramuscularly citrated whole blood from measles patients at the seventh day, and reports encouraging results in prevention in child contacts. Maniel has recently reported the curative action of convalescents' blood in a grave case of measles pneumonia in a soldier. Cheinisse cites some other instances of a curative effect from injection of blood in grave or malignant measles.

Progrès Médical, Paris

Sept. 9, 1922, **37**, No. 36

The Choice of Climate in Heliotherapy of Surgical Tuberculosis. Bufnoir.—p. 419.
*Latent Gonorrhea. Roussille and Trabaud.—p. 422.
Non-Tuberculous Vesiculitis. Legueu.—p. 423.
Ovarian Organotherapy. M. Dalché.—p. 425.

Latent Gonococcus Infection.—Roussille and Trabaud report a case of ascending pyelonephritis as a rare complication of latent gonococcus infection, and they emphasize the importance of vaccine therapy in such cases. This observation shows the remarkable latency of the gonorrhea which seemed cured and behaved as such for sixteen years. The disturbances appeared with influenza, and its virus may have helped the flaring up of the latent gonococcus infection. They advise making cultures from the semen when urinary disturbances appear with influenza in patients with a history of gonorrhea, no matter how far back the infection had occurred.

Schweizerische medizinische Wochenschrift, Basel

Aug. 24, 1922, **52**, No. 34

Fatal Compression Cyanosis from Brief Physical Exertion. E. Hedinger.—p. 833.
*Calcium as Experimental Antidote for Cocain. K. Mayer.—p. 835.
Case of Dissociation of Mental Faculties. M. Tramer.—p. 838.
Dermographism in Diagnosis. L. Schwartz.—p. 842. Conc'n.

Calcium to Combat Cocain Poisoning.—Mayer reports the results of extensive research in a quest for an antidote for cocain. He found that the toxic action of cocain could be attenuated in animals by administration of calcium salts. The action of cocain seems to be checked by calcium and enhanced by potassium, hence he concludes that the action of cocain is dependent on the balance between the ions of calcium and potassium. Cocain and calcium seem to have a reciprocal inhibiting action in respect to lipoids, especially suspensions of lecithin. He declares that his research has established that the action of cocain depends on physical-chemical colloid processes, not on chemical processes. The potassium ion is an antagonist of calcium, and the theoretical assumption that an excess of potassium would enhance the toxicity of cocain was proved to be the actual fact in experiments on the frog heart.

Sept. 21, 1922, **52**, No. 38

*Respiratory Gas Interchanges with Goiter. F. de Quervain.—p. 925.
Idem. F. H'Doubler.—p. 926.
Postencephalitic Parkinsonism. A. Secrétan and E. Hedinger.—p. 937.
*The "Eight Diseases of Basel." A. Martin.—p. 939.

Respiratory Gas Interchanges with Goiter in Children.—De Quervain emphasizes the importance of the respiratory basal metabolism for estimation of goiter and the effects of treatment. H'Doubler analyzes four cases from this point of view, and also three other cases in which the gas interchange control was recorded before and after thyroid grafting in cretins. Extensive resection of the vascular goiter of the prepuberty stage reduced the basal metabolism by an average of 17 per cent. Resection of the goiter in one of the cretins did not reduce the basal metabolism, thus confirming the functional inferiority of the cretin thyroid. The respiratory basal metabolism in the cretins was low, and there was no change or it grew still lower after the thyroid grafting. The implant was not the best adapted for the purpose or the children were too old.

Prophylaxis of Contagion in the Fourteenth Century.—Some municipal regulations regarding eight diseases are quoted from the Basel records. Martin ascribes to the Church the rigorous isolation of lepers, enforcing the biblica ban.

Annali d'Igiene, Rome

July, 1922, **32**, No. 7

Types of Pneumococci Predominant in Italy. T. Pontano.—p. 525.
Significance of Much's Granules in Surgical Tuberculosis. F. M Marras.—p. 544.
Scientific Bases for Prevention of Tuberculosis. F. Neri.—p. 550.

Archivio Italiano di Chirurgia, Bologna

October, 1921, **4**, No. 2

*Motor Functioning of the Intestine. G. C. Segale.—p. 101.
Bases for Correction of Visceral Ptosis. G. Parlavecchio.—p. 165.
Sarcoma of the Hand. M. Bufalini.—p. 189.
Peptic Jejunal Ulcer. C. Bortolotti.—p. 210.

Motor Functioning of the Intestine.—Segale tabulates the results and findings later after all or a portion of the small intestine had been resected, turned around, and sutured in place again. He operated in various ways on twelve dogs and one monkey to realize conditions for antiperistalsis, and reports the roentgenographic findings.

Pediatria, Naples

Sept. 15, 1922, **30**, No. 18

*Purulent Pleurisy in Children. I. Nasso.—p. 841.
*Primary Diphtheria of the Vulva. V. Tripputi.—p. 853.
Ferments in Cerebrospinal Fluid. L. Sabatini.—p. 863.
Thoracotomy in Purulent Pleurisy in Children. N. Caprioli.—p. 877.

Purulent Pleurisy in Children.—In the 180 cases at the children's clinic at Naples in the last seven years, 74 per cent. were in infants. Repeated aspiration was applied in 28 cases, with 15 complete cures. In the last series of 15 cases this aspiration treatment was supplemented with autogenous vaccine therapy by intravenous or intramuscular injection. Two of the 15 had to be sent finally to the surgeon, but 10 recovered and only one died. The recovery was complete in 66.6 per cent., roentgen examination later confirming the complete cure. The reaction to the vaccine became more intense each time as the condition improved. The vaccine was made by sowing a drop of pus in culture mediums containing rabbit blood. The culture was emulsioned in physiologic saline (0.5 per cent. phenol), and inactivated at 60 C. for an hour; each dose corresponded to 2 millions of the pneumococci. The injections were made on alternate days. The 15 cases are described in detail. All were infants except 3 children under 5. The one that died was a 13 months infant with purulent pleurisy on both sides after a month of fever and convulsions.

Primary Diphtheria of the Vulva.—In the first of Tripputi's two cases, an older brother had diphtheria of the throat when the child of 3 developed the primary diphtheric vulvovaginitis with fatal toxic myocarditis. The second child was an infant of 20 months, and acute paralysis of the heart was the cause of death here also, both children showing fatty degeneration of the myocardium. Antitoxin treatment was not begun till too late, as the nature of the vulvovaginitis was not suspected for a long time. The cases teach the necessity for taking smears when a vulvar affection suggests even remotely a diphtheric affection.

Memorias do Instituto Oswaldo Cruz, Rio de Janeiro

1922, **14**, No. 1

*Cardiac Form of Trypanosomiasis. C. Chagas and E. Villela.—p. 5.
Rare Type of Necrosis of Liver. C. Magarinos Torres.—p. 62.
Certain Helminths of Fishes. A. L. de B. Barreto.—p. 68.
Certain Helminths of Brazilian Fauna. Lauro Travassos.—p. 88.
Biology of Certain Brazilian Trematodes. A. Lutz.—p. 95.
*The Bacteriophagum. J. da Costa Cruz.—p. 104.
The Serodiagnosis of Syphilis. A. E. de Arêa Leão.—p. 117.

Cardiac Form of American Trypanosomiasis.—Chagas and Villela give the details of sixty-three cases of Chagas' disease, endemic trypanosomiasis or trypanosome thyroiditis, as it is variously called, with the tracings showing the extreme derangement of the heart action. The symptoms of cardiac sufficiency differed in the different cases, but paroxysmal chycardia was frequent. The ages ranged from 20 to 55, ith two children of 11 and 17. This cardiac form of the sease is the most fatal type. They state that they do not now of any other disease in which sudden death occurs in uch a large proportion of the cases.

Transmissible Bacteriolysis.—Da Costa Cruz concludes om his experimental and clinical experience with d'Herelle's acteriophagum that it is a ferment or, rather, a catalyzer. belongs to the bacterium, and is employed by it in its ormal metabolism to disintegrate certain substances composing its membrane. This catalyzer must be a colloid, as does not dialyze. It seems to be a kind of endocomplement, ot secretable. Specific antiserums inhibit the bacteriophagic ction, and he declares that an antibody differs from the acteriophagum only by its albuminoid substratum. This ubstratum is, besides, the only difference between antibodies or a given antigen, when derived from different species of nimals.

Semana Médica, Buenos Aires

July 20, 1922, **2**, No. 29

Preferable Technic for Craniotomy. G. Zorraquin.—p. 113.
Suggestions for the Academy of Medicine. G. Aráoz Alfaro.—p. 131.
Physical Symptoms in Central Pneumonia. O. E. Adorni.—p. 137.
Index of the Bacterial Count in Milk. Enrique Fynn.—p. 141.
Radiotherapy in Pulmonary Tuberculosis. A. Cetrángolo.—p. 143.
Acid Reaction of Decoctions of Organs. Soler and Tedeschi.—p. 144.
The Posture as Aid in Diagnosis. A. Vitón.—p. 147.
Ovarian Abscess Suture Without Drainage. J. G. Ruiz.—p. 149.
Bacterial Proteins in Relation to Immunity. R. Cárcamo.—p. 150.
Serotherapy in Tuberculosis. J. A. López.—p. 155.
Venesection in Eclampsia. A. Borton.—p. 159.

Universal Craniotomy.—Zorraquin argues that we must ollow Nature's method for relieving intracranial pressure. Nature does this on the region where pressure is most dangerous, namely, by dehiscence of the sutures in the bregma r by an opening in the top of the skull. He explains that a arge horse-shoe craniotomy here gives exceptionally ample ccess to the more important parts of the membranes and ortex while the danger of hemorrhage is least. Seventeen llustrations show the technic and the findings. A similar rticle by Zorraquin, in French, was reviewed, May 13, 1922, . 1495.

Central Pneumonia.—Adorni describes two cases in which he onset of the pneumonia in the central portion of the ung was not accompanied with pain. In other cases lescribed, the pneumonia process beginning in the central ortion rapidly spread toward the surface, but still without ain. The central process may not induce dyspnea, but there s always a zone of greater resonance over the lobe affected, nd the vocal vibration is reduced in this zone, as also the esicular murmur.

Irradiation of Spleen in Treatment of Tuberculosis.—This ndirect radiotherapy was applied by Cetrángolo in fifteen ases, and in all there was an increase in weight ranging rom 200 gm. to 3.1 kg. The appetite improved in nearly ll, and the temperature and cough were reduced.

Acidity of Decoctions of Organs.—This research reported vas undertaken to explain the mechanism of the intense cidity which develops in extracts of certain organs under ong boiling.

Mechanism of Immunity.—Carcamo analyzes the influence n the phenomena of immunity of the amino-acids resulting rom dissociation of bacterial proteins.

Venesection in Eclampsia.—Borton adds two more cases o those on record in which drawing 1,000 gm. of blood, supplemented by promptly evacuating the uterus, arrested he grave eclampsia at or near term. Both his patients were rimiparae.

July 27, 1922, **2**, No. 30

Pedunculated Hydatid Cyst in Mesentery. Castex and Lorenzo.—p. 169.
Ocular Localization of "Rheumatism." O. Wernicke.—p. 176.
Present Status of Surgery in France. R. Nicolini.—p. 185.
Teaching of Psychiatry. Merzbacher.—p. 194. Reply. Sierra.—p. 197.
Deep Radiotherapy. Carlos Heuser.—p. 201. Cont'n.
The Facies as Element in the Diagnosis. A. Vitón.—p. 205.

Ocular Localizations of "Rheumatism."—Wernicke's assertions in regard to multiple sclerosis as a manifestation of heumatismal intoxication were mentioned in THE JOURNAL, Oct. 7, 1922, p. 1278. He here gives nineteen illustrations of the various ocular lesions for which the rheumatismal intoxication may be responsible. The focus or foci may be in any of the tissues of the eye.

Beiträge zur klinischen Chirurgie, Tübingen

1922, **127**, No. 1

*Sensitivity of Blood Vessels. W. Odermatt.—p. 1.
*Operations for Goiter. H. Flörcken.—p. 85.
*Treatment of Empyema. V. H. v. Csákányi.—p. 98.
*Purpura of the Bladder. I. Szabó.—p. 116.
Cholesteatoma in Urinary Passages. W. J. Klug.—p. 123.
Adenoma in Small Intestine. O. Wiedhopf.—p. 132.
The Biology of Wound Processes. E. Melchior.—p. 138.
Cholangitis in Relation to Spleen and Liver. A. Tietze and C. Winkler.—p. 152.
Stomach Functioning with Gallbladder Disease. W. Boss.—p. 163.
Surgery of the Pancreas. A. Cohn.—p. 177.
Volvulus of the Cecum. Harttung.—p. 183.
Results of Operations for Cancer of Intestine. K. Jelaffke.—p. 191.
Pathogenesis of Torsion of the Omentum. G. Wolff.—p. 198.
Surgical Treatment of Peritonitis. R. Reichle.—p. 207.
Steinach's Operation: Four Cases. F. Schreiber.—p. 212.
*Operation on Contracted Finger. H. Rahm.—p. 214.
Injury from Iodin and Anesthetic Fumes. M. Weichert.—p. 218.
*Treatment of Gastroptosis. A. Rudolf.—p. 223.
Intravenous Saline Drip Infusion. Wiedhopf and Hilgenberg.—p. 229.

Sensibility of the Blood Vessels.—Odermatt reviews the history of research in this line, mentioning Kast and Meltzer among the pioneers. He has been studying this subject at operations and intravenous injections for years, and also on dogs and rabbits. He gives tracings, and five pages of bibliographic titles, set solid. He concludes from all these data that there is no sense of pain in the inner wall of arteries and veins, but the capillaries are extremely sensitive. They form the working organ of metabolism, while the arteries and veins, inside, are merely pipes. The network of nerves on the outside of the arteries responds with pain to any chemical, thermal, electric or mechanical stimulus. After removing this periarterial network sheathing the artery—peripheral sympathectomy—the artery can be clamped without pain. The thinner the walls of the blood vessel, the more readily the nerve sheath feels the effect of changes in the blood pressure within. It is important for the surgeon to bear in mind that sensitivity for substances in the blood stream is an attribute of the capillaries. The arteries and arterioles, on the other hand, have the special function of responding to stretching of their walls with local or general reflex changes in the blood flow or with pain or both. The pain from ligation of an artery is not from the artery itself but only from the periarterial tissue; ligation of veins does not directly induce pain.

Goiter Operations.—Flörcken concludes from his 263 goiter operations that rebellious exophthalmic goiter calls for bilateral resection with ligation of the four arteries. With bilateral goiter, bilateral resection is required, but the prevalence of tetany at present warns to be cautious with very radical intervention; perhaps one of the inferior thyroid arteries had better be left unmolested. In eight cases the operation was for recurrence. In one case there was transient air embolism after bilateral resection; the ligature on the severed anterior jugular vein had loosened. In another case the softened wall of the sabre-sheath trachea collapsed as the thyroid was resected. The suffocation was arrested by passing a silk suture thread through each side of the trachea and thus pulling the collapsed walls apart. The ends of the threads were brought out through the wound and fastened to the skin. The threads were removed the seventh day and there was no further disturbance. In two cases of exophthalmic goiter, after futile roentgen-ray treatment, the operation was exceptionally difficult on account of adhesions and hemorrhage.

Treatment of Empyema.—The decision to operate is becoming more prevalent as conservative measures so often fail, and an operation then has far less chance of success. Ninety-seven cases are here reviewed.

Purpura of the Bladder.—The two cases reported were in a young woman, recently married, and a man of 33. Both were given sodium bicarbonate four times a day and meat was prohibited. The subjective symptoms subsided in five and ten days, and the hemorrhagic patches in the bladder walls had nearly all retrogressed in three weeks in the man. The woman did not return for examination. Szabó theorizes that purpura of the bladder and simple ulcer of the bladder are merely two phases of the one affection, and that this affection is the same in both bladder and stomach. The urine has to be kept alkaline. Alkaline mineral waters usefully supplement the sodium bicarbonate by the mouth.

Treatment of Finger Contracture.—Rahm's colored plates explain the technic and the excellent results of Morestin's method of correcting contracture of a finger. The weblike tissue holding the finger flexed is divided lengthwise and then cut across in radiating alternate lines. The finger can then be extended, and the triangular flaps from each side can be fitted together to restore the normal outline of the finger. The finger never regains active movement, but it is easily flexed passively by the finger beyond.

Surgical Treatment of Gastroptosis.—Rudolf reports a complete cure in 61.67 per cent. of sixty-six cases and no benefit in 11.66 per cent., after operative measures. The percentage of failures with the Rovsing method was 15.6 but only 7.1 per cent. when the round ligament of the liver was used to suspend the stomach from the costal arch. Although gastroptosis is merely one manifestation of a general tendency, the excellent results of gastropexy justify its extensive application, especially in girls. Maternal ptosis, he says, can generally be controlled by a proper support.

Deutsche medizinische Wochenschrift, Berlin

Aug. 25, 1922, **48,** No. 34

Alcohol in Vacuum Sterilization. Hahn and Friedmann.—p. 1125.
Mode of Origin of Pulmonary Tuberculosis. W. Baumgarten.—p. 1126.
*Toxicity of Tuberculins. Schwermann.—p. 1127.
Biologic Aspects of Treatment of Surgical Tuberculosis. Drügg.—p. 1128.
Note on Etiology of Arteriosclerosis. C. Froboese.—p. 1129.
*Blood Pressure Findings After Beer Drinking. P. Engelen.—p. 1130.
Organ Extracts in Diagnosis of Syphilis. Klostermann and Weisbach. —p. 1131.
Precipitation Tests in Serodiagnosis of Syphilis. Meinicke.—p. 1132.
Utilization of Albumin Preparations. F. Müller.—p. 1133.
*Hypersensitiveness of Skin to Roentgen Rays. L. Haas.—p. 1134.
Theory of Stimulating Action of Roentgen Rays. M. Fraenkel.—p. 1136.
Relations Between Sagging Kidney and Paralysis of Gastro-Intestinal Tract. Plenz.—p. 1137.
Affections of the Knee in Surgical Practice. Ledderhose.—p. 1141.
Fomentations in Ophthalmologic Practice. K. Steindorff.—p. 1143.

Tuberculins.—Schwermann emphasizes that Neustadt and Stadelmann have given abundant confirmation through their unfortunate experiments of the fact that injections of tuberculin, if not given cautiously, may do great damage. But they have not furnished the slightest proof that diagnostic injections of tuberculin, given properly, cause any injury. Their endeavor to prove that the subcutaneous tuberculin test is unreliable and worthless was unsuccessful; nor were they able to weaken the evidence in favor of the specificity of the tuberculin reaction.

Blood Pressure Findings After Beer Drinking.—Engelen found from experiments on ten subjects that the drinking of one or two bottles of beer exerted no constant effect on either systolic or diastolic blood pressure.

Hypersensitiveness of the Skin to Roentgen Rays.—Haas advances reasons for believing that the hypersensitiveness of the skin to roentgen rays may be connected with endocrine disturbances, for which reason, if such disturbances are suspected, one should begin roentgen irradiation very cautiously. The possibility of hypersensitiveness to irradiation should always be taken into account in therapeutic practice, to prevent unpleasant effects from arising. In one patient the hypersensitiveness may concern one layer of the skin, and in another patient another layer, or two or more layers may be simultaneously affected.

Deutsche Zeitschrift für Chirurgie, Leipzig

August, 1922, **173,** No. 1-6

*Blood-Borne Acute Nephritis. B. Runeberg.—p. 1.
*Ventrifixation and Its Complications. B. Tenckhoff.—p. 26.
Splenectomy for Spontaneous Rupture of Spleen. M. Friesleben.—p. 45.
Angioma in Peripheral Nervous System. R. Sommer.—p. 65.
*Predisposition to Disease. A. Theilhaber and H. Rieger.—p. 78.
Intravenous Ether Anesthesia. W. Dietrich.—p. 110.
Vascular Tumors in Knee Capsule. Haas.—p. 130.
*Rupture of Vertebrae. F. Harbitz.—p. 142.
Injuries of Spine. O. Steiner.—p. 153.
*Stomach Functioning After Gastro-Enterostomy. J. Palugyay.—p. 197.
*Bacteria in Portal Vein Blood. W. Haas.—p. 239.
Resection of Stomach Under Local Anesthesia. O. Orth.—p. 294.
*Plastic Operations on Tendons. E. Schwarz.—p. 301.
*Fat as Filling for Bone Cavities. G. Iseke.—p. 386.
Mechanical Injury by Ascarids. W. Gerlach.—p. 396.

Blood-Borne Acute Nephritis.—Runeberg's address was summarized in The Journal, Dec. 17, 1921, when published elsewhere.

Ventrifixation.—Tenckhoff expatiates on the advantages of the Doléris-Gilliam method of ventral suspension of the uterus by the round ligaments. This is an excellent method also for treating genital prolapse, supplemented by measures to reduce the diameter of the vagina. He reports two cases of ileus from ventrifixation by other methods.

Treatment That Imitates Nature.—Theilhaber argues that the variations in the cellular immunity are an important factor in the development of cancer, tuberculosis, chronic joint and vessel disease, etc. Nature responds to any injury or toxic action by throwing up the barrier of an inflammatory process. This summons to the spot a host of substances to enhance the resisting powers, the immunity, of the tissues involved: red and white corpuscles, platelets, fibrin, sugar, silicic acid, calcium, phosphorus, etc. Immune bodies are produced in the process, and our aim in treatment should be to copy this natural defensive inflammatory process. This can be accomplished with diathermy plus venesection, plus injection of substances to induce lymphocytosis, plus hydrotherapy, heliotherapy, revulsion to the skin, and other measures to stimulate the cells to increased production of immune bodies. In the 44 cases of cancer he has treated on these principles, the patients returning frequently for diathermy, etc., after their operation, 32 have shown no signs of recurrence. The interval since has been over five years in 11.

The diathermy every few months in the region of the cancer increases the cellular immunity, and this checks any tendency for malignant proliferation of the epithelium. In the great majority of his 50 cases of arthritis deformans, great improvement and subsidence of the pains were realized with treatment along these lines, beginning with diathermy supplemented with venesection and injection of thymus and spleen extract. With arteriosclerosis, revulsion to the skin proved a useful adjuvant to the other measures. In fibrous tuberculosis, venesection twice a year, diathermy to spleen and lung, air and sun baths, and friction of the skin were supplemented by injection of thymus extract to induce lymphocytosis. Roentgen ray exposures of the spleen answer a similar purpose, but there is danger of reducing function if the dose is too powerful. Silicic acid and inhalation of substances to irritate the lungs aid the stimulating action desired.

Fracture of the Spine.—Harbitz describes in particular the fracture from indirect force at a typical point in the cervical portion, and the Kümmell fracture of a dorsal vertebra.

Functioning After Gastro-Enterostomy.—Palugyay reports extensive roentgenoscopic research on the functioning of the stomach after various forms of posterior gastro-enterostomy, in sixty-one cases of gastric or duodenal ulcer. It has demonstrated the necessity for considering the size and shape of the stomach in selecting the method to follow, rather than the location of the ulcer. With dilation of the stomach, it may be wise to wait until the organ has returned to normal size under the proper measures. With a cow-horn stomach, the anastomosis had better be near the pylorus.

Bacterial Content of Portal Blood.—Haas reports twenty-two experiments on cats, rabbits and guinea-pigs, and forty cases of abscess in the liver—all testify against the assumption that the portal blood contains bacteria as a rule. Infection of the liver occurs usually by other routes, predominantly by the bile duct system. Four pages of bibliographic titles are appended.

Plastic Operations on Tendons.—This is a long study of the anatomy of the regeneration of tendons.

Fat Filling for Bone Cavities.—Iseke has recently reexamined three cases in which a tuberculous cavity in a bone was plugged with fat tissue more than ten years ago. In se and in twenty-two other cases of filling up a cavity th fat, the outcome was contradictory. In some, the fat emed to prevent the regeneration of the bone to fill up the vity; in others it seemed to have stimulated the repair of e bone so that there was scarcely a trace of the former vity. He ascribes this difference in the result to an inflam- atory reaction. When there is no such reaction to stimulate e regeneration of the bone, it does not occur. This method plugging a bone cavity has proved particularly advan- geous when the focus was near a joint, and even when rts of the joint had been removed.

Münchener medizinische Wochenschrift, Munich

Aug. 11, 1922, **69**, No. 32

he Present Status of Kidney Surgery. v. Kiellcuthner.—p. 1173.
ocal Treatment of Cystitis. Schottmüller.—p. 1174.
lister Test of Tendency to Edema. M. Gänsslen.—p. 1176.
lister Serodiagnosis in Congenital Syphilis. Thomas et al.—p. 1178.
licroscopy of Capillaries in Roentgen Ray Erythema. Schugt.—p. 1178.
he Technic of Albumin Milk. B. Bleyer.—p. 1180.
he Wildbolz Urine Reaction. F. Georgi.—p. 1182.
ssential Nature of Wassermann Reaction. W. Bruck.—p. 1185.
annin in Dyspeptic Conditions in Children. Heidingsfeld.—p. 1185.
'se of Tissues for Various Plastic Purposes. J. F. S. Esser.—p. 1186.
rtificial Arms from Physiologic Standpoint. M. zur Verth.—p. 1187.
luscular Rheumatism. Gaugele.—p. 1189.
lalpractice Suit Against Midwife. A. Döderlein.—p. 1191.
pina Bifida Occulta and Its Sequels. M. Hackenbroch.—p. 1191.
welling of Bronchial Glands After Pharyngitis. A. Bittorf.—p. 1192.
ound Ulcers of Duodenum and Esophagus. E. Schaezler.—p. 1193.
eukemia. P. Morawitz.—p. 1194.

Treatment of Cystitis and Cystopyelitis with Silver Nitrate. Schottmüller gives the results of his treatment of eighty- ne women and eleven men suffering from cystitis or cysto- elitis. After evacuation of the bladder, he injects by means a rubber catheter 100 c.c. of a 2 per cent. silver nitrate lution into the bladder, and leaves it there five minutes, possible. In case the tenesmus is too violent, this time is ortened, lest the silver nitrate solution, through the con- action of the bladder, should be pressed into the urethra. hen the silver nitrate solution has been withdrawn through e catheter, the bladder is rinsed out thoroughly with iysiologic sodium chlorid solution until the returning fluid perfectly clear. He injects the sodium chlorid to split the lver nitrate, lest any traces remaining in the bladder after moval of the catheter should enter the urethra and cause ritation. In very sensitive persons narcotics are sometimes ecessary. Sometimes one injection suffices to effect a cure, it usually from three to four injections are required. Of e 100 patients last treated, 82 per cent. were cured, which chottmüller thinks is a higher percentage than has been ired by other methods, to judge from the reports in the erature.

Aug. 25, 1922, **69**, No. 34

lechanism of Axial Torsion of Internal Organs. Sellheim.—p. 1237.
'he Sympathetic Nervous System. L. R. Müller.—p. 1239.
'sychic Factors in Organic Diseases. G. R. Heyer.—p. 1241.
'an Slyke's Test for Acetone Bodies in Urine and Blood. Lintzel.—p. 1243.
chick Diphtheria Test in Adults. Bogendörfer and Zimmermann.—p. 1245.
iastric Ulcer in Relation to Tabes. Full and L. v. Friedrich.—p. 1246.
'reatment of Pleuritis and Pleural Empyema. A. Baemeister.—p. 1248.
'he Treatment of Abortion. W. Schmitt.—p. 1250.
'rophic Ulcers. E. Seifert.—p. 1253.
o-Called Symptomatic Icterus Neonatorum. F. A. Deluca.—p. 1254.
nversion of Bladder in Cancer of Uterus and Vagina. Haub.—p. 1254.
lydatid Cyst in a Lactating Mamma. W. Burkhardt.—p. 1255.
'reatment of Whitlow. W. Herrlen.—p. 1255.
ligh Blood Pressure During the Climacteric. F. Haub.—p. 1256.
'raumatic Brain Injuries Occurring at Birth. F. Wohlwill.—p. 1256.

Trophic Ulcers.—In the two cases described, the femoral r popliteal artery had been severed in the repair after trau- atic injury. Trophic ulcers developed from the uninten- onal peripheral sympathectomy—thus a reversal of the sual sequence. When trophic ulcers develop after injury nerves, this periarterial sympathectomy may cure the ten- ncy. But here the reverse occurred. This probably is the xplanation of certain cases of gangrene after apparently iccessful operations on vessels: The unintentional sympa- iectomy upsets the trophic balance.

Jaundice in the New-Born the Result of Hemorrhage from irth Trauma.—Deluca's article was summarized in The ournal, March 11, 1922, p. 766, when published in Spanish.

Wiener Archiv für innere Medizin, Vienna

April 5, 1922, **4**, No. 1

*Stenosis of Isthmus of Aorta. A. Edelmann and R. Maron.—p. 1.
*Plethysmography and the Heart. Liebesny and Scheminzky.—p. 11.
Tuberculous Stricture in Duodenum. A. Loew.—p. 19.
*Influence of Phosphoric Acid on Sugar Level. Elias and Weiss.—p. 29.
Phosphorus Content of Serum in Tetany. Idem.—p. 59.
*Erythremia: Polycythemia. F. Högler.—p. 65.
*Spondylarthritis Deformans. R. Hoffmann.—p. 91.
*Nitrogen in Edema Fluid. R. Strisower.—p. 115.
*Action of Amyl Nitrite and Atropin. S. Peller.—p. 121.
*Hyperglycemia with High Blood Pressure. H. Kahler.—p. 129.
*Familial Bronzing. A. V. Frisch.—p. 149.
*The Water Freshet Test. I. Daniel and F. Högler.—p. 167.

Stenosis of Isthmus of Aorta.—Edelmann and Maron give an illustrated description of a case in a man of 25. The symptoms suggested aneurysm of the aorta except for the extreme development of collateral circulation and the great difference between the blood pressure and pulse in the arms and legs. One person with stenosis of the isthmus is known to have reached the age of 92, but these subjects generally succumb to the physical strain of life in the twenties. They should be guarded against physical strain; military service or repeated pregnancies frequently appear in the previous history of the fatal cases.

Plethysmographic Tests of Heart Functioning.—The tracings given show that the plethysmograph record varies in the response to effort and even to the idea of effort. Hence it is not a reliable index of the functional capacity of the heart. It testifies, however, to the instability, irritability and sensitivity of the vasomotor system.

Influence of Phosphoric Acid on Sugar in Blood and Urine.—Elias and Weiss present evidence of the reduction of the sugar content of the blood and urine after injection by the vein of a hypertonic solution of sodium phosphate. This occurs only when the sugar level is above normal.

Erythremia.—Högler remarks that research on the 150 cases of polycythemia on record has failed to explain the etiology, but great progress has been realized in treatment with radiant energy. Five cases are described which confirmed the efficacy of the radium rays applied to the spleen and bone-producing apparatus. The blood returned nearly or quite to normal, and the purpura-like changes in skin and mucosae vanished, but the urticaria disappeared only in the irradiated areas. The radium acts on the constant hyperplasia of the blood-producing apparatus, and there are no general disturbances afterward such as often follow roentgen treatment. He exposed the bones, the thorax, the extremities and the spleen, when it was enlarged, using many fields 4 cm. square, and a highly active radium element. The polycythemia was of several years' standing, up to thirty, and the course of radium treatment took one or two weeks. Notwithstanding this extensive treatment, there was no appreciable general disturbance. The benefit persisted for a year or two, and then symptoms returned, but they yielded anew to another course of radium exposures.

Vertebral Affection Connected with Osteomalacia.—Hoffmann encountered at Vienna between September, 1920, and April, 1921, twenty-three cases of a painful and deforming spondylarthritis in middle-aged persons. He explains it as a manifestation of osteomalacia, and links it with spondylitis deformans which represents a later phase of the same process. Six cases are described in detail. Treatment is that for osteomalacia in general, cod liver oil, phosphorus and calcium. In some cases surprising benefit followed five or ten injections of epinephrin. The recent prevalence of the vertebral affection he ascribes to starvation osteomalacia.

Nitrogen in Edema Fluid.—Strisower found the nonprotein nitrogen of the edema fluid usually higher than in the blood, up to 0.06 per thousand or more with disease in heart or kidneys.

Action of Amyl Nitrite and Atropin.—Peller studies in particular the action during attacks of angina pectoris.

Hyperglycemia with High Blood Pressure.—The findings in 116 cases of high blood pressure are tabulated, as also in numbers of cases of dyspnea, congestion of the liver in heart disease—all with normal blood pressure. The blood sugar, fasting, was within normal range in nearly all. The exceptions were in cases with uremia or eclampsia, or sclerosis of the pancreas vessels, or stasis with high blood pressure. The glycemia response to test injection of epinephrin did not seem to be influenced by the high or normal blood pressure.

Familial Bronzing.—Frisch found the same bronzing in two brothers of his patient with bronzed diabetes. The mother and the eight children had all been unusually dark. The three men looked as if they had Addison's disease, but the brothers had been healthy except for cirrhosis of the large and hard liver, not interfering materially with the general health. The bronzing was congenital, a familial hemochromatosis.

The Water Freshet Test.—After the test ingestion of 1 or 1.5 liter of water in half an hour, fasting, and examining the urine output, every half hour for six hours, Daniel and Högler supplement the findings by the erythrocyte count and the viscosimetric findings at the first and second half hours and the sixth hour. These supplementary data throw light on the actual retention of water after the test, and whether this retained water is in the blood or the tissues. They reveal further any disturbance in the elimination of water by the kidneys, with or without any special predisposition to edema. Six charts are given of the data from some typical cases. They allow remarkably instructive oversight of conditions in pathologic cases.

Wiener klinische Wochenschrift, Vienna

Aug. 10, 1922, **35**, No. 32

Protection Against Injuries from Phototherapy. I. M. Eder and L. Freund.—p. 681.
*Hunger Pains in Diagnosis of Ulcer. H. Schur.—p. 684.
A Peculiar Case of Necrosis of the Pancreas. L. Kraul.—p. 687.
*Griess Test for Infection in Urinary Tract. O. Weltmann.—p. 688.

The Genesis of Hunger Pains and Their Significance for the Diagnosis of Ulcer.—Schur states that in painful gastric ulcer there are found regularly local inflammation and inflammatory swelling of the regional lymph glands. The ulcer pains are associated with these symptoms of inflammation. The precipitating factor is external pressure and contractions of gastric musculature surrounding the site of the inflammation. Hyperacidity of the gastric content and contractions of the musculature he does not regard as sufficient cause for gastric pains. Hunger pains give further reliable evidence for the localization of an inflammatory affection in the pylorus region. As a rule, the affection will be an ulcer. If there is a pronounced periodicity of the symptoms, the diagnosis of ulcer is almost absolutely certain.

Griess Test for Infection in Urinary Tract.—Weltmann has checked the results of the Griess test in a considerable number of cases and reports that positive reactions in urine freshly passed constitute a reliable sign of infection of the urinary tract. A positive reaction indicates in a very simple manner, without microscopic or bacteriologic examination, that there is bacterial activity in the urinary tract, as nitrites are not found in the urine except from bacterial action. In the Griess test as modified by Ylosvay, 0.5 gm. of sulphanilic acid is dissolved in 150 c.c. of diluted acetic acid (Solution 1); 0.2 gm. of solid α-naphthylamin is heated in 20 c.c. of distilled water, the colorless solution poured off from the blue residue is mixed with 150 c.c. of diluted acetic acid (Solution 2). Solutions 1 and 2 are combined and form the reagent as ready for use, which should be kept in a bottle with a tightly fitting glass stopper. The test will demonstrate exceedingly small quantities of nitrites if present. If positive, the urine assumes a cherry-red color on addition of the α-naphthylamin. Weltmann was able to show that fresh urine that did not give the reaction, if inoculated with a drop of positive urine, in about an hour, at a temperature of 37 C., gave a strong nitrite reaction, whereas the control that was not inoculated contained at this time no trace of nitrites.

Zeitschrift für Geburtshülfe und Gynäk., Stuttgart

July 8, 1922, **85**, No. 1

Biology of the Isthmus of the Uterus. L. Nürnberger.—p. 1.
Biology of Edema in the Pregnant. P. Mathes.—p. 26.
Action of Roentgen Rays on Ovarian Secretion. Tsukahara.—p. 36.
Mechanism and Effect of Obstruction of Tube. H. Strüver.—p. 58.
*Statistical Study of Sex of Child. K. Hellmuth.—p. 74.
Organotherapy in Ovarian Hemorrhage. Stickel and Zondek.—p. 83
Statistics of Genital Cancers. Mattmüller.—p. 106.
The Origin of the Genital Flora. R. Salomon and E. Rath.—p. 141
Importance of Greater Omentum for Fate of Extra-Uterine Fet E. Vogt.—p. 152.
Ligament Ventral Fixation for Retroflexion. H. Körner.—p. 164.

Sex of Children.—Hellmuth tabulates various data fro 28,470 childbirths. His figures show that more boys th girls are born to the younger mothers, and after the age 30 the proportion of boys increases progressively to the e of the reproductive period. This progressive excess of bo is particularly notable in primiparae.

Zeitschrift für Kinderheilkunde, Berlin

Aug. 20, 1922, **33**, No. 3-4

*Syphilitic Aortitis in the New-Born. F. Thoenes.—p. 113.
Raising in the Home of the Prematurely Born. Feilchenfeld.—p. 12
*The Build of Children. C. Coerper.—p. 144.
*Static Albuminuria in Children. E. Nassau.—p. 158.
*Digestive Leukopenia in Children. Schippers and de Lange.—p. 16
Cholesterin Balance in Infants and its Regulation. H. Beumer.—p. 18 Reply. C. Beck and L. Wacker.—p. 195.
Permanently Large Liver After Catarrhal Jaundice. Ewstatiew.—p. 19
Surface Tension of Milk. H. Behrendt.—p. 209.
Lipolytic Ferment in Milk. E. Schlossmann.—p. 218.
*Sudden Death in Tetany. T. Iwabuchi.—p. 223.

Syphilitic Aortitis in the New-Born.—Thoenes examine the aorta in ten syphilitic infant cadavers and in three fre from syphilis. In three the aorta showed unmistakable sign of grave aortitis. It had evidently developed during feta life and the fetus had died or the child had survived onl a few days after birth.

The Build of Children.—Coerper discusses the necessity fo classifying children according to their build, their habitus Sigaud groups them as the digestive, the muscular, the respiratory and the cerebral types, and Coerper emphasizes tha the standards of nutrition can be compared only within eac group. He tabulates the findings and declares that this classification by types of build of premorbid schoolchildre has a number of practical advantages in welfare work.

Reaction of Urine in Static Albuminuria in Children.—Nassau reports that in fifteen children with static albuminuria the latter subsided almost invariably under treatment with an alkali. The sodium bicarbonate given seemed to neutralize some acid in the urine stagnating in the kidney in these cases, and when this factor of the albuminuria was done away with, the mechanical factor alone was not enough to induce the albuminuria.

Digestive Leukocytosis and Digestive Leukopenia in Children.—The results of this research on Widal's hemoclastic crisis liver test testify against any practical value for the test in children. See similar abstract on page 1730.

Sudden Death in Tetany.—Iwabuchi found evidence of inflammatory edema in the medulla oblongata of the infant 6 months old, which had succumbed in the last of several attacks of tetany.

Zeitschrift für klinische Medizin, Berlin

Sept. 15, 1922, **95**, No. 1-3

*Harmless Spontaneous Pneumothorax. B. Fischer.—p. 1.
*Purpura Cured by Shock Treatment. H. C. Gram.—p. 51.
New Picric Acid Compounds in Urine. P. Bergell.—p. 63.
Blood and Marrow in Remissions of Pernicious Anemia. Zadek.—p. 66.
Catalase Properties of Blood. E. Bach and W. Levinger.—p. 88.
Influencing Lipase Content of Blood. E. Bach.—p. 103.
Action of Protein Therapy on Blood. Adler and Blumberg.—p. 109.
Plethysmography in Latent Edema. Pfeffer and Rehberg.—p. 126.
Nonprotein Nitrogen in Blood in Heart Disease. O. Klein.—p. 137.
*Bulbar Paralysis with Heart Block. Eisner and Kronfeld.—p. 163.
Foods that Stimulate Purin Metabolism. E. Joël.—p. 170.
Azurophil Cells in Arneth Blood Count. Arneth and Stahl.—p. 201.
Experimental Butyric Acid Poisoning and Coma. Tschun-Nien.—p. 228.

Pneumothorax from Rupture of Apex.—Fischer relates that of the 77 cases of pneumothorax found in 9,548 cadavers, 10 were of traumatic origin, but 52 of the 67 others were due to tuberculosis. Rupture of an apical process induces a typical abrupt and alarming clinical picture at first, but with rapid and complete recovery. It was a necropsy surprise after death from intercurrent disease in 3 of these cases. The condition is not emphysema, but rupture of an air bubble formed in a healed apical process.

Cure of Hemorrhagic Purpura.—Gram's patient was a man of 59, and the idiopathic Werlhof disease was of ır months' standing, severe and rebellious. The bleeding ie was an hour; coagulation time, sixteen minutes, but h returned to normal, and recovery was complete under tein therapy: four parenteral injections of 8, 2, 4 and 4 . of milk in the course of two months.

Bulbar Paralysis with Heart Block.—The bulbar paralysis s of the apoplexy type, and the Adams-Stokes syndrome ompanied the complete heart block in the woman of 72. e paralysis gradually subsided, but the Adams-Stokes and heart block persisted unmodified.

Zeitschrift für Urologie, Leipzig

1922, **16**, No. 9

nervation of Kidney Calyx. H. Haebler.—p. 377.
imary and Secondary Ureter Papillomas. S. Kraft.—p. 385.
lid Tumors in the Kidney. S. P. Fedoroff.—p. 393.
ıse of Cystitis from Paraffin. Monis.—p. 407.
ematuria After Appendicitis. Chrzelitzer.—p. 408.

Solid Tumors in the Kidney.—Fedoroff states that he per-med a radical operation in forty-two of his fifty-three ses of solid kidney tumors, at Petrograd. Functional tests e of little use in diagnosis as the tumor is usually palpable the time it affects the response to the tests. He found at the extraperitoneal lumbar-abdominal incision afforded ple access. He carries the incision from the edge of the ector trunci muscle at the twelfth rib, slanting downward, d then horizontally along the anterior abdominal wall on line with the umbilicus or a little above, according to the ation of the hilus, stopping at the outer margin of the ctus muscle. He shells out the kidney from its fibrous psule, removing the latter afterward, if necessary. The dney is pulled downward and outward, the hand pressing ainst its anterior surface while an assistant draws inward e anterior lip of the wound with a broad kidney hook roduced between the kidney and the fibrous capsule. This ves space for a semicircular incision through the fibrous psule close to the hilus. Through this incision the hilus, e pelvis and the ureter are gently detached with the finger. ıe kidney is then lifted up and pushed inward and upward. ıe assistant applies the retractor to the opposite side, and us draws the lower lip of the lumbar incision outward. ıis allows access to the posterior surface of the hilus, and semicircular incision here completes the circle. Through is the hilus is detached completely and the kidney is thus eed and movable. The chief advantage of this method is at the vessels and the ureter can be ligated separately. ıe mortality in his forty-two cases was 20.6 per cent. but s been only 7 per cent. since 1908. Four have been under servation for nearly three and four years without recur-nce, one for six and two for seven and ten. In one case e hypernephroma recurred three years later. The first mptom was bleeding from the ureter on the nephrectomized de. This was not explained until two years later when a nall hypernephroma was removed from the upper ureter, d there was no further hematuria. He compares his expe-ences with others'; the fatalities were nearly all in cases ith extensive adhesions.

itasato Archives of Experimental Medicine, Tokyo

August, 1922, **5**, No. 1

ature of Precipitate in Serodiagnosis. K. Taoka.—p. 1.
lements in Blood Necessary for Growth of Influenza Bacillus. M. Terada.—p. 34.
he Leukopenia After Inoculation with Influenza. S. Yabe.—p. 67.
uantitative Test for Epinephrin. K. Okamoto.—p. 79.

Nature of Precipitate in Serodiagnosis of Syphilis.—Taoka fers in particular to the Sachs-Georgi serum reaction to ıolesterinized heart extract. He found that the flakes in a ositive reaction can be separated into two substances, one oluable in ether and the other not soluble. The insoluble ıbstance gives a positive Wassermann reaction and also a ositive Sachs-Georgi reaction when mixed with an antigen. o albumin reaction was obtained with it. The soluble ıbstance consists of potent antigen.

Leukopenia After Inoculation with Influenza.—Yabe has ıcceeded in inducing in animals by injection of influenza bacilli the characteristic leukopenia which seems to occur invariably when man contracts influenza. He found further that convalescents' serum annuls this leukopenia-producing faculty of the influenza bacillus. He prepared vaccines on these bases, and reports the findings in about half a million persons inoculated with them during the second epidemic of influenza. The characteristic leukopenia followed the vaccine inoculation the same as with natural inoculation, regardless of whether or not the subject had had influenza. But within the three months after the vaccine therapy the leukopenia was much less, showing a tendency to acquired immunity, the same as was observed during the first three months after an attack of influenza. In both conditions, however, this tendency to immunity had disappeared by the end of the year.

Test for Epinephrin in the Blood.—Okamoto has modified the excellent method devised by Suto and Inouye for quantitative estimation with mercuric chlorid of the epinephrin in the blood. Nearly 100 per cent. of the epinephrin could be recovered from rabbit and horse blood with this improved method, using only 1 c.c. of blood or more.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

Aug. 5, 1922, **2**, No. 6

*Arterial Degeneration. Sir F. W. Andrewes.—p. 528.
*Cholesterin Content of the Blood in Disease. J. W. Koning.—p. 540.
Mendel's Laws from Medical Standpoint. G. P. Frets.—p. 546.
Staphylococcus Sepsis in Acute Articular Rheumatism. Knüppe.—p. 557.
Boerhaave's "Case Book." J. E. Kroon.—p. 559.
Supplement: Report of Netherlands Council on Pharmacy and Chemistry. I. General. II. Digitalis and Its Use.

Arterial Degeneration.—Andrewes explains that the arteries are subject to at least four types of arteriosclerosis: the senile, the diffuse sclerosis of high blood pressure, nodular sclerosis, and syphilitic sclerosis. Arterial changes of somewhat similar kind, though greatly less in degree, may result from infections other than syphilis. He was unable to cultivate any bacteria from the aorta tissue in thirteen cases free from infection, but the findings were frequently positive in thirty-six cases of infectious disease, and the cultures were of the organism responsible for the primary infection. The article is in English.

Cholesterin Content of the Blood in Various Diseases.—Koning tabulates the data from 20 patients with various affections; 14 with symptoms suggesting gallstones; 8 with kidney diease; 5 with migraine, and 10 obese patients. The cholesterin content of the blood was within normal range in all the cholelithiasis patients, and was below normal in the nephritis cases. On the other hand, it was much above normal in all those with migraine and with obesity. These findings are in sharp contrast to those who have reported high cholesterin content as the rule with gallstones. It is possible, he suggests, that the coincidence of obesity or migraine with the gallstones may have been overlooked, and he urges research in this line by those with wider opportunities. In his 10 patients weighing from 75 to 95 kg., the cholesterin was 3 up to 5.5 per thousand in all but 4, and in these it ranged from 2.73 to 2.95. The ages were between 32 and 56. Only 3 were women.

Aug. 19, 1922, **2**, No. 8

*Action of Turpentine Abscess in Sepsis. I. Snapper.—p. 776.
Biology of the Skin and Immunity. P. H. van der Hoog.—p. 785.
Jaundice in Typhoid; Two Cases. A. S. van Heukelom.—p. 801.
*Scurvy in Adult at Utrecht. D. M. Levy.—p. 810.

Fixation Abscess in Sepsis.—Snapper relates that in the six cases of severe sepsis described, a turn for the better followed immediately after incision of the abscess that had developed promptly after subcutaneous injection of 1 or 2 c.c. of turpentine. In two of the cases no abscess developed until about a month after the injection. In refractory cases in future, he intends to repeat the injection a few days later.

Scurvy at Utrecht.—A retired army officer complained of pain and stiffness in walking and the calves were tender. These symptoms promptly subsided on a change from his exclusively cereal diet.

Aug. 26, 1922, **2**, No. 9

*Digestion Leukopenia. J. C. Schippers and C. de Lange.—p. 894.
Cheyne-Stokes Respiration. F. F. Hazelhoff.—p. 910.

*Essential Hematuria. C. P. van Nes.—p. 919.
Fibroma in Stomach Wall plus Ulcer. J. J. Halbertsma.—p. 927.
Case of Acute Aleukemic Lymphadenosis. W. I. Bais.—p. 930.

Digestion Leukocytosis and Digestion Leukopenia.—Schippers and de Lange have been impressed with the number of infants dying from toxicosis in whom degeneration of the liver seemed to be the only pathologic finding. They consequently have been applying functional tests of the liver to young children, and tabulate the findings in regard to digestion leukocytosis and leukopenia in healthy infants and young children. They found such a wide normal range, from 5,400 to 16,000 in the leukocyte count, and such extreme fluctuations up and down during digestion, that no diagnostic import can be ascribed to leukopenia after ingestion of 100 or 200 gm. of milk, fasting. This is Widal's hemoclastic test of insufficiency of the liver, but it is thus shown to be not applicable to young children. Transient leukopenia seems to be the physiologic reaction in infants to intake of food.

Essential Hematuria.—Van Nes reports a case of severe acute hemorrhagic focal glomerular nephritis in a man of 78, previously healthy. The blood was the only pathologic element found in the urine, and the other kidney seemed sound. On suspicion of cancer, the bleeding kidney was removed four weeks after the first appearance of the hematuria, and the patient has been in good condition since. In a second case, in a man of 42, a mechanic, who for ten years had had occasional hematuria from the left kidney, nephrectomy put an end to all disturbances. The changes in the kidney affected the blood vessels; some were so dilated that they suggested varices or angiomas. Nephrotomy may suffice when all other causes for the hematuria can be excluded, but otherwise nephrectomy is indicated with serious losses of blood.

Acta Chirurgica Scandinavica, Stockholm

Sept. 18, 1922, **55**, No. 2

*Treatment of Gastric and Duodenal Ulcer. II. N. A. Nielsen.—p. 105.
*Simple Ulcer of the Colon. S. Lindqvist.—p. 142.
*Blood Transfusion in Cholemia. G. Pallin.—p. 149.
Transactions of Scandinavian Surgical Congress, 1921. W. Gejrot.—p. 156.
*Dissecting Osteochondritis in the Knee. J. Hellström.—p. 190.

Surgical Versus Medical Treatment of Gastric and Duodenal Ulcer.—Nielsen writes from Faber's service at Copenhagen, and relates that in the 10 cases of fatal hemorrhage from these ulcers there had been no hemorrhage before, and the symptoms from the ulcer were so vague and recent that the diagnosis of ulcer had not been even fairly certain. In a total of 55 cases of fatal ulcer hemorrhage at Copenhagen, 25 per cent. had shown no symptoms previously or, at most, some oppression in the stomach for not more than a month, and 50 per cent. had had symptoms for less than a year. The majority of the fatal hemorrhage cases were in the older patients, and the source of the bleeding was often multiple. Two patients have died since from gastric hemorrhage among the 140 ulcer patients treated medically, and cancer developed in 3; 11 others have died from other causes, but none from perforation. The patients have been under observation for from two and a half to nineteen years. In the 88 cases of perforation of an ulcer, the lesion was of recent development and the diagnosis uncertain in the overwhelming majority. The article is in English.

Simple Ulcer of the Colon.—Lindqvist adds 2 new cases to the 35 on record of simple ulcer of the colon. Perforation occurred in 26, and 6 recovered, including 5 saved by a laparotomy. Necropsy revealed hemorrhagic necrosis in both his cases. (In English.)

Blood Transfusion in Cholemia.—Pallin was impressed by the fact that in fifteen out of twenty-five cases of death after a gallstone operation, the fatality was due to postoperative cholemic hemorrhage. He reports a case in which transfusion of blood seemed to aid in arresting the hemorrhage. The coagulating time of the blood had been found normal before the operation, and hence prophylactic transfusion had not seemed necessary. (In English).

Dissecting Osteochrondritis of the Knee. — Hellström describes with the roentgenograms five cases, bilateral in some. The prognosis is bad as a rule without operative treatment, but this cured completely in the two cases recentl reexamined. Trauma is an important factor. If there arthritis deformans, this is usually favorably influenced b the operation, but Neumann and Suter have described a cas in which the arthritis deformans seemed to develop after th operation. The changes may possibly have been overlooked

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*Surgical Treatment of Chronic Colitis. A. Krogius.—p. 333.
*Essential Hypertonia. W. Kerppola.—p. 352.
Roentgen-Ray Diagnosis of Gastric Ulcer. G. Jansson.—p. 364.
Case of Tuberculosis in Horse-Shoe Kidney. Baltscheffsky.—p. 377.

Surgical Treatment of Ulcerative Colitis.—Krogius declares that entero-anastomosis to exclude the chronic ulcerative lesions is the only rational and certain means to cure severe colitis. Local medication through a colostomy is inadequate and wastes time. In a convincing case described, the woman of 46 had had symptoms of ulcerative colitis for eight years. Conditions improved temporarily under local medication, but the symptoms always returned sooner or later, and each time worse. He finally implanted the ileum in the lowest portion of the colon, thus excluding nearly the whole of the large bowel, and the clinical cure was prompt and permanent. He did not fear the backing up of feces in the bowel after this unilateral exclusion, as the old chronic disease in the descending colon had reduced its permeability. The metabolic findings in this case showed satisfactory utilization of the food. The loss of calories was only from 1.5 to 4 per cent. greater than in the controls.

Essential Hypertonia.—Kerppola tabulates the differential blood count and other data from thirty-one persons with essential hypertonia and thirty-one normal controls.

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*Passive Transmission of Anaphylaxis. A. de Besche.—p. 657.
*Blocking the Nerve Plexus. E. Platou.—p. 667.
*Hyperplasia of the Mamma. H. Nitter.—p. 673.
*Hibbs' Operation on the Spine. S. Widerøe.—p. 677.
*Pregnancy Glycosuria and Renal Diabetes. K. Motzfeldt.—p. 689.
*The Use of the Kielland Forceps. C. Kielland (Christiania). Supplement.—pp. 1-32.

Passive Transmission of Anaphylaxis.—De Besche reports that the serum from persons with horse asthma and other forms of anaphylaxis transmitted the same anaphylaxis to the same foreign protein when the serum was injected into guinea-pigs, and also in three of the five similar tests with the serum injected into healthy persons. Only four of the first group of ten persons tested developed the anaphylaxis in the guinea-pigs, the results being negative in the others.

Blocking the Plexus.—Platou has been applying Kulenkampff's method for blocking the nerves from the brachial plexus for operations on the arm. The anesthesia was perfect in twenty-five of his twenty-six cases and no untoward by-effects were observed or seemed to be liable. He thinks the procedure can be regarded as free from danger.

Hyperplasia of the Mamma.—Nitter felt justified in amputating both breasts in the girl of 21. They had been enlarging for eighteen months and weighed, when removed, 6 kg. and 4.7 kg.

Hibbs' Operation on the Spine.—Widerøe has applied Hibbs' operation in seven cases of tuberculous spondylitis and also in a painful traumatic spinal affection, with seemingly good results in all.

Renal Diabetes and Pregnancy Glycosuria.—Motzfeldt thinks one of the three cases he reports is unique, as the man of 38 who had presented a typical renal diabetes for years finally threw it off completely. In another case the diabetes developed after a trauma; and it seems to be halfway between the purely renal and the ordinary type of diabetes. His third patient is a woman of 27 who developed renal diabetes during each of her two pregnancies but was normal otherwise.

The Kielland Forceps.—Kielland gives a number of illustrations to demonstrate the use of his forceps. It was described in The Journal, July 9, 1921, p. 142.

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RETERAL STRICTURE: AN IMPORTANT ETIOLOGIC FACTOR IN THE SO-CALLED ESSENTIAL HEMATURIAS *

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BALTIMORE

One of the most interesting problems in urology, ng recognized as belonging to the border zone tween medicine and surgery, is afforded by the -called essential hematuria, occurring either with in or colic or as a symptomless bleeding.

For our present day views on the subject, we are rgely indebted to James Israel. His monumental ork, published in 1901 and entitled "Surgical Clinic f the Kidney Diseases," has long been a storehouse f knowledge for those interested in kidney surgery d pathology. Chapter 13, "Concerning Renal Hema-rias, Nephralgias and Colics in Apparently Unaltered idneys," is a masterpiece, showing Israel's careful ethods of history taking, and urinalysis, with clinical servation and notation at the bedside, in the operat-g room and in the pathologic laboratory.

This chapter is founded on an experience with four-en cases, extending over a period of ten years, and ese observations were made at a time when the finements of surgery were making exploratory phrotomy a comparatively safe procedure. Israel ade such good use of these kidney necropsies in vivo at his accurate observations and sound deductions d to conclusions which were scarcely questioned in e ensuing twenty years. His chief conclusion was is: "The result of the analysis of my fourteen ses of so-called *néphralgie hématurique,* essential and gioneurotic kidney bleeding, is that there can be own in most of them organic changes in the kidney its capsule, or an abnormal mobility."

Six years later, Kretschmer[1] verified the point of ew so clearly set forth by Israel by a careful micro-opic study of necropsy or operative specimens from xty-one cases of so-called essential hematuria, and by ding in fifty-two cases positive nephritic or nephritic-e changes.

It will be noted that the writers since Israel's con-ibution are agreed that these nephralgias and hema-rias, formerly considered as occurring without any demonstrable cause, have as a background a nephritis, either a focal or a diffuse interstitial nephritis or the parenchymatous form.

To explain the severe attacks of pain and the macroscopic hematurias, they have followed Israel in ascribing these to heightened intrarenal pressure due either to rigidity of the capsule, some form of circulation stasis, some form of inflammatory congestion or to a combination of all of these factors.

The object of this paper is to call attention to the important rôle that ureteral stricture probably assumes in many of these cases. There has been abundant experimental and clinical evidence to show that a slow compression of the ureter often results in dilatation of the tract above the point of compression, with greater or less damage to the kidney substance.

My experience with ureteral stricture cases leaves no room for doubt as to the great importance of this lesion in the causation of hydronephrosis and secondarily of ptosis of the kidney. I also have abundant evidence that stricture, instead of causing dilatation of the tract above, may lead to shrinkage. This evidence consists in finding pelves which hold less fluid than normally, either because of hypersensitiveness or because of actual shrinkage of the kidney owing to nephritis. The evidences of nephritic changes are found in the urinalysis (in a few cases), in the reduction of function, by pyelograms, and by operation and pathologic examination.

That stasis due to stricture often leads to nephritic pain scarcely needs argument. The best evidence on this point is obtained from the fact that, after dilation of the stricture and the establishment of free drainage, the pain generally disappears. In some cases, the hydronephrosis and prolapse of the kidney, caused by the stricture in the lower ureter, lead to a secondary compression or kink of the upper ureter, in the region of the kidney, so that the patient still suffers from these secondary conditions after the stricture has been well dilated. Such cases often call for an operation, such as fixation of the kidney, partial resection of the pelvis or the cutting of bands or aberrant vessels which have fixed the upper ureter and prevented it from prolapsing with the kidney.

Ureteral stricture is usually caused by an inflammation secondary to some distant focus of infection, and it is a well recognized fact that nephritic inflammations (some of them accompanied by hematuria) are caused by focal infections. This being so, it might be argued that when, in the nephralgias and hematurias under discussion, a ureteral stricture is demonstrated, the nephritis which causes the symptoms is due to the focal infection and not to the stricture.

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* From the Gynecological Department of the Johns Hopkins Univer-y Medical Department.

* Read before the Seventy-Fifth Anniversary Meeting of the Wis-nsin Medical Society, September, 1921, Milwaukee.

* Because of lack of space, this article is abbreviated in THE JOUR-L, but will appear in full in the reprint, a copy of which will be sent the author on request.

[1] Kretschmer, H. L.: Ztschr. f. Urol. **1**: 490, 1907.

The answer to this is that in many cases the pain and hematuria cease promptly after dilatation of the stricture, and that, when pain and hematuria return later, investigation reveals that the stricture has again contracted. Experience with stricture has shown that in many cases we treat repeatedly without a permanent cure until after we have found and removed an active focus of infection. Again, my Case 14 seems to demonstrate that the bleeding may persist because of repeated injury to the kidney due to some distant focal infection.[10] In this case the strictures were so well dilated that their presence could be demonstrated only by the use of a very large bulb, and yet the patient continued to bleed even after both kidneys had been split open. The patient has now ceased to show macroscopic blood for six months after removal of the tonsils. Whether she will bleed again remains to be seen.

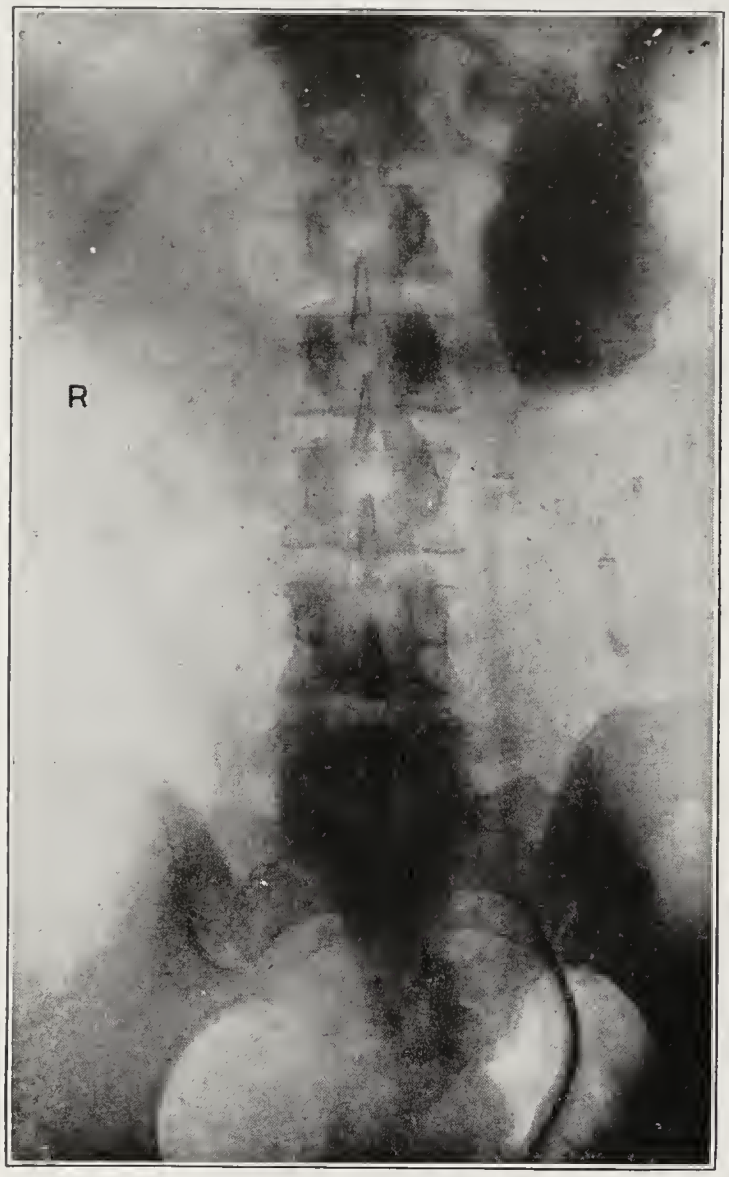

Fig. 1 (Case 1).—Pyelogram of left side, taken June 11, 1920, which is of historical interest because it illustrates the first case reported of ureteral stricture due to focal infection. The pelvis holds 100 c.c.; the ureter is only slightly dilated in spite of a renal colic history of sixteen years' duration. The recent pathologic condition of the kidney was probably due to secondary kinks of, or pressure on, the upper ureter by the enlarged pelvis. There had been intermittent, profuse hematuria for the last few months. The right kidney pelvis held 28 c.c.

Stricture has been demonstrated in eighteen of my cases of so-called essential hematuria. Three of these were former hematuria patients who had returned with bleeding in the last three years, and the other fifteen are my last consecutive cases occurring in the last three years. I have recently been consulted about three cases of hematuria occurring in men, two in the practice of Dr. George Walker, and one under the care of Dr. William Neill. All three of these patients showe the presence of ureteral stricture by the wax bulb an the pyelo-ureterogram tests. Dr. Walker's two patient ceased bleeding promptly after dilation, and Dr. Neill patient, a man, aged 56, who had had hematuria cor tinuously for nine years, improved markedly in weigh and general health after three dilations, but the bleedin persisted moderately after four months.

In a careful analysis of Israel's fourteen cases, fror the histories, physical examinations, findings at opera tion and at necropsy, I am led to the conclusion tha the morbidity in eleven of them was probably due t ureteral stricture.

The four cases in his list which do not appeal to m as instances of stricture are Case 1 which was probabl a case of interstitial nephritis with heart and bloo vessel changes. Case 2 Israel held to be a perinephriti secondary to a perityphlitis or recurring appendi abscess. The history in this case sounds much like on of stricture origin; but the pains totally disappeare after splitting the kidney with its thickened fatty cap sule. Case 4 was that of a woman, 52 years of age with markedly movable kidneys and a history of goo health up to four weeks before coming to the clinic when she had acute left renal colic, followed a fev days later by massive hemorrhage, which continue for twenty-one days.

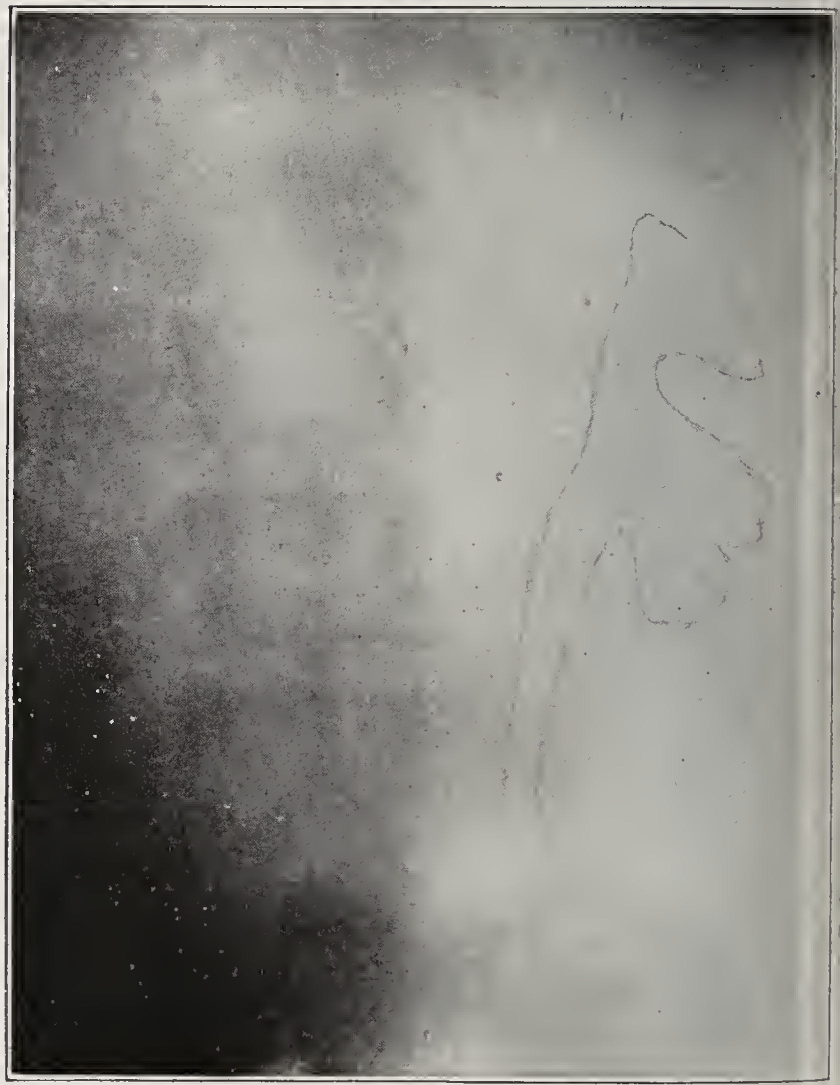

Fig. 2 (Case 2).—Tracings of left kidney pelvis and upper urete shadow on a poor roentgenogram. There was acute kidney colic, with marked hematuria and persistence of pain in the left kidney region together with slight hematuria and albuminuria, for six weeks. Exploratory nephrotomy was performed. Later, pain developed on the right side, and appendectomy was performed. One year later, there was pyelitis on the right side. Bilateral ureteral stricture was discov ered four years after the original hematuria attack.

It must be remembered that Israel was trying to drive home the significance of his discovery that these hitherto obscure cases of hemorrhage and colic were due to a nephritis. I am in entire accord with this main contention, as well as with the following summary of his views which, though revolutionary in his day, have become common knowledge to those interested in kidney work today. My comments on his conclusions are presented in order to establish a new point of view as to the etiology of the nephritis in a large proportion of these hitherto imperfectly understood cases.

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[10] Emerson, C. P.: The Acute Element in the Chronic Nephropathies, J. A. M. A. 77: 745 (Sept. 3) 1921.

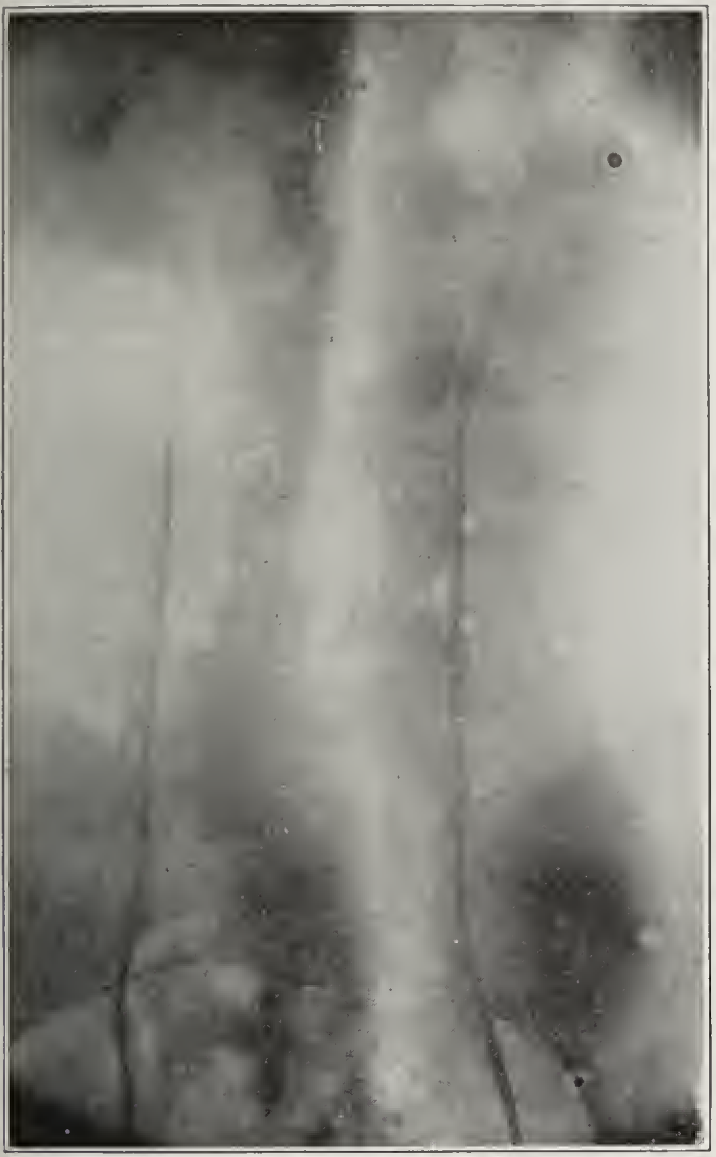

Fig. 3 (Case 3).—Retouched pyelogram showing small pelves but both ureters well dilated, the right side holding 12 c.c. and the left 11 c.c. There had been bilateral intermittent hematuria for nine years, possibly dating back fifteen years, much backache and bladder distress. An appendectomy had been performed three years previously without affecting the symptoms. Several diagnoses of stone in the left kidney were made. Bilateral pyelitis was found.

1. "Nephritis may be monolateral." Of my first 100 cases of stricture,[11] thirty were reported as bilateral and seventy as unilateral, forty-two on the right, and twenty-eight on the left side. Since then in many of the supposedly monolateral cases the patients have returned with symptoms due to stricture on the opposite side. With more accurate knowledge, I now find that in most patients suffering with stricture symptoms on one side, one can easily demonstrate bilateral tenderness on palpation over the ureter at the pelvic brim and in the broad ligament region, and investigation with the wax bulb will demonstrate bilateral stricture.

If the nephritides under discussion are in large measure dependent on ureteral stricture, we are obliged to conclude that Israel greatly overestimated the frequency of monolateral nephritis.

2. "Nephritis may be accompanied by attacks of pain which closely resemble those of renal colic due to obstruction to the outflow." As seen above, Israel and subsequent observers, including Strauss, have ascribed these attacks to a renal congestion due to an unusually dense capsule, plus some cause of heightened intrarenal blood pressure, or to a congestion following the kinking of an abnormally mobile renal pedicle.

That an end may be put to the occurrence of such cases of colic by the simple means of furnishing the kidney pelvis with good drainage through the dilation of a narrowed area in the ureter would seem to be sufficient argument that the symptoms in many of these cases are due primarily, not to the intrinsic kidney changes or to the abnormal mobility of the kidney, but to an actual hindrance to the outflow of urine.

3. "In purely unilateral pains and colic, bilateral nephritis of equal severity may be found." We have seen in the section above that if we limit our investigations for stricture to the side subject to symptoms, we shall find an apparent monolateral involvement in about two thirds of the cases, whereas if we make a more careful physical examination, we shall find bilateral ureteral tenderness in nearly all of these cases, and the wax bulb test will show the presence of stricture on both sides.

One of the most striking facts, which I have demonstrated repeatedly, is that a patient may have complained for months or years of symptoms due to stricture on one side, and may have had no pain or symptoms on the other side; and yet investigation demonstrates that the supposedly good side has suffered far

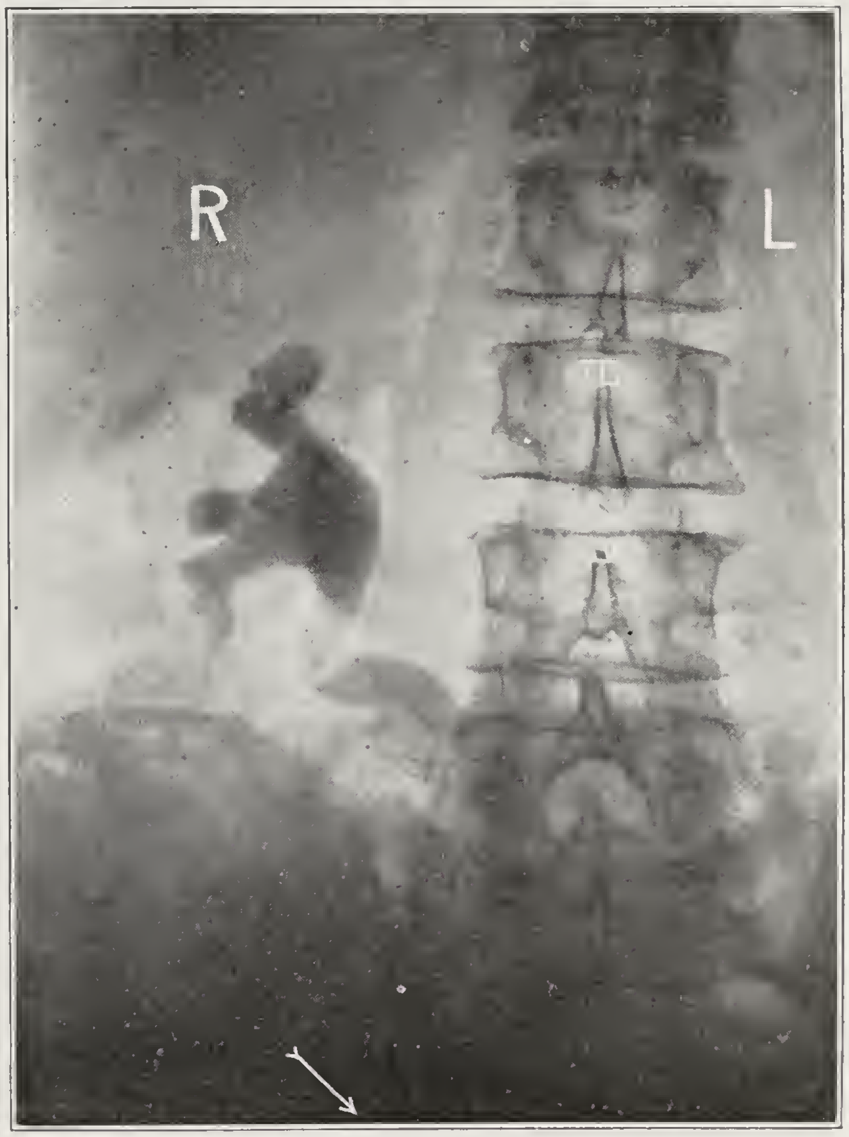

Fig. 4 (Case 4).—Recurring symptomless hematuria, showing the "sagging" kidney, with corresponding prolapse of the upper ureter and apparent "ureteral kink." There had been hematuria for twenty-six years without pain symptoms and with sterile urine. Bilateral hematuria was diagnosed at the first examination in 1913. Right monolateral bleeding had been demonstrated on all subsequent examinations.

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[11] Hunner, G. L.: Ureteral Stricture: Report of One Hundred Cases, Bull. Johns Hopkins Hosp. 29: 1 (Jan.) 1918.

more damage from stricture. The side to which the symptoms are referred may show little or no dilatation of the kidney pelvis, while the supposedly healthy side may have a distinct hydronephrosis, with a decidedly lower phenolsulphonephthalein output than the other.

4. "In nephritis, radiation of the pains may extend to the bladder and urethra." In a study of 100 consecutive cases of ureteral stricture to determine the incidence of bladder symptoms, I found that seventy-one of the patients complained of this symptom.

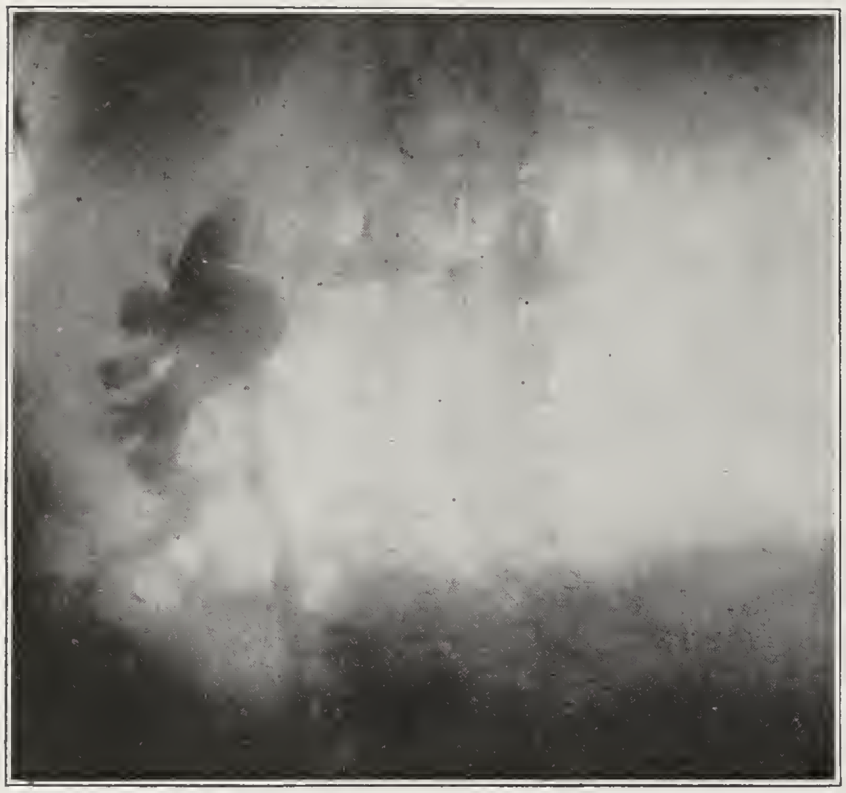

Fig. 5 (Case 5).—Thorium pyelogram of slightly dilated kidney pelvis and upper ureter holding 13 c.c.; no evidence of kidney tumor; four attacks of profuse symptomless hematuria within six weeks, each attack lasting four days.

In thirty-three of these, the bladder disturbances were a marked and more or less constant feature of the complaint; and in the thirty-eight patients classified as having mild bladder symptoms, many had rather severe bladder symptoms during the attacks of renal pain, due to partial or complete closure of the stricture area.[12]

As will be found by a study of the paper just referred to, it is often difficult to decide just which portion of the urinary tract is causing the major part of the bladder symptoms. In some cases of ureteral stricture with intense bladder symptoms, even leading to incontinence, we can find absolutely no other lesion to account for the symptoms, and the treatment of the stricture clears them up. In others, we find an associated cystitis, trigonitis, or urethritis probably provocative of some of the symptoms.

5. "In advanced nephritis, albumin and casts may be constantly absent from the urine." In stricture work, we find evidence repeated that a prolonged interference with the urinary outflow may lead to a severe grade of interstitial nephritis, and yet the urine may appear quite normal on repeated examinations.

With an anamnesis and palpatory signs suggesting the presence of stricture, one feels rather more certain of the diagnosis if slight albumin, a few casts or a few leukocytes or erythrocytes are found in the urine; but the absence of these pathologic elements should not deter us from a further investigation of the urinary tract, as has happened too often in the past. In the 100 consecutive cases just mentioned, the catheterized bladder urine was normal in twenty-eight cases, and in centrifuged specimens showed leukocytes in fifty-five, erythrocytes in seventeen and casts in four. Albumin was found in twenty-six, and cultures were positive in eighteen cases. Cystitis was diagnosed in six cases and ulcer of the bladder in four, while a mild trigonitis was found in forty-seven cases, and an intense trigonitis in eleven cases. Infiltration of the urethra, either local or general, was noted in eighty-five cases; but, of course, this lesion would not influence the catheterized urine.

6. "The urine may show many hyaline, granular and epithelial casts and still remain albumin-free."

7. "There are cases of nephritis with intermittent or continuous massive hemorrhages, which from the standpoint of their volume and duration, the capriciousness of occurrence or the limitation to only one voiding, cannot be differentiated from the hematurias of malignant tumors."

"Nephritic hemorrhages can occur and continue with or without colics. Bleeding is never the cause of colic. Both symptoms are the result of the kidney congestion."

In this report on eighteen cases of so-called essential hematuria occurring in the last three years I have included only those cases showing more or less continuous hemorrhage or those with hematuria showing a persistent tendency to recur.

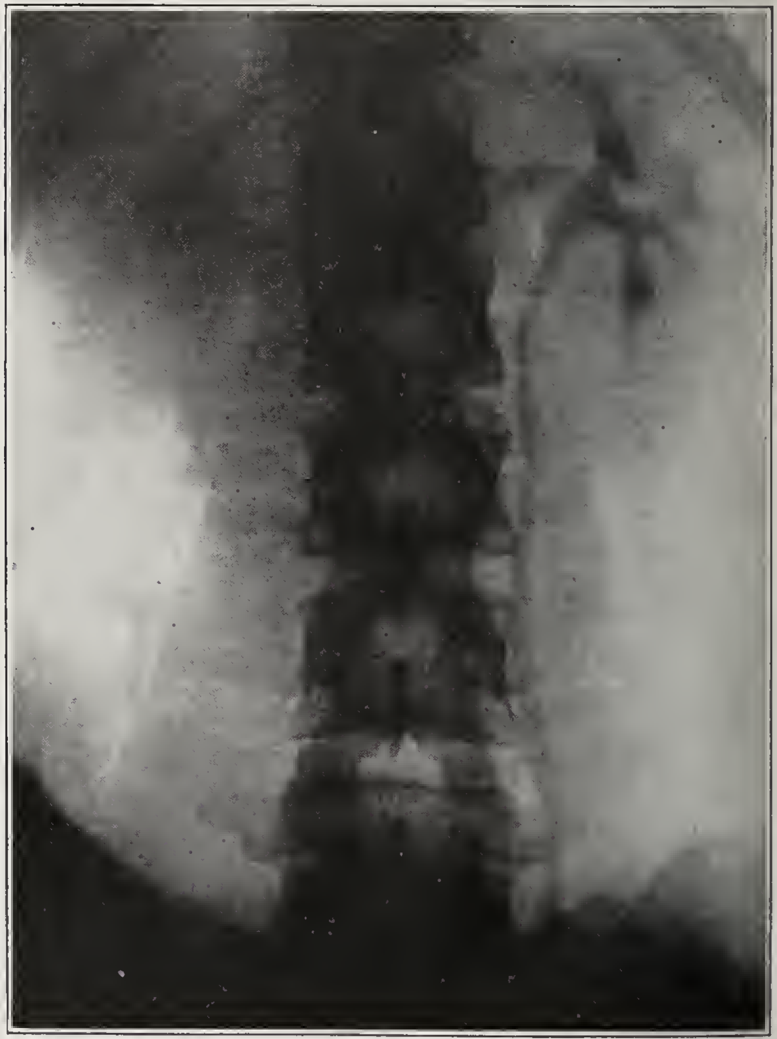

Fig. 6 (Case 6).—Passage of ureteral stone four months previously and profuse painful hematuria for a period of twenty-four hours, two days preceding each of the four menstrual periods since the passage of the stone. The ureteral catheter was blocked permanently just after entering the ureter on the first examination, and this pyelogram was obtained with 6 c.c. of fluid, showing a small pelvis and a slightly dilated ureter.

I have not included many cases with slight hematuria or cases with acute profuse hematuria and severe colic, uggesting the passage of a stone, in which the discovery and treatment of a stricture has promptly elieved the symptoms.

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[12] Hunner, G. L.: Intractable Bladder Symptoms Due to Ureteritis, J. Urol. 4: 503 (Dec.) 1920.

I take issue with Israel's statement that the hemorhage is never the cause of the colic, having seen cases n which the passage of a ureteral clot has been folowed at once by relief of the pain.

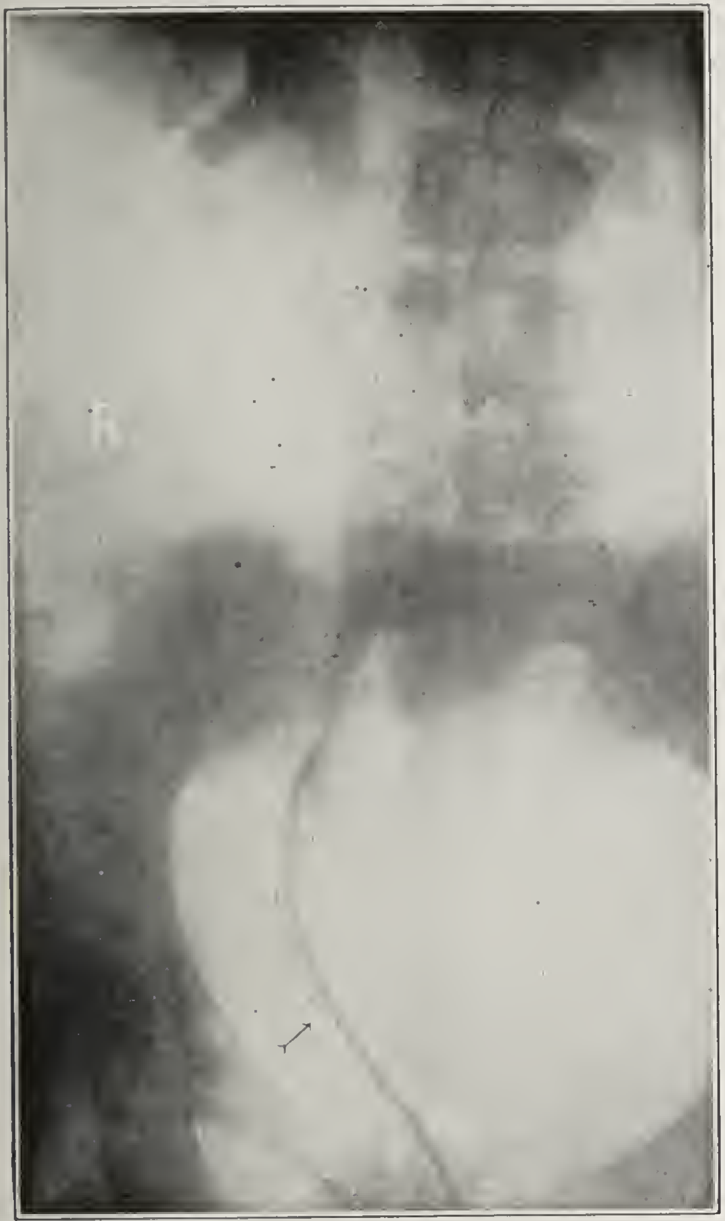

Fig. 7 (Case 7).—Bilateral stricture, bilateral hydronephrosis, hematuria of several years' duration; recurring bilateral hematuria for three years in spite of ureteral treatments. This retouched roentgenogram shows the stricture area and the moderate dilatation of the ureter, and the kidney pelvis holding 21 c.c.

Extra precautions are taken in treating a stricture in a patient who has but one kidney, for if the stricture area is overtraumatized there may follow blockage of the stricture area by a clot and complete anuria until it is passed. One such patient had anuria four days, with every evidence of complete renal blockage until a long ureteral clot was passed, after which the serious symptoms began to clear up at once.

8. "A large number of the cases hitherto designated as nephralgia, *néphralgie hématurique,* and angioneurotic renal hemorrhage are due to nephritic processes." We may add that these nephritic processes are often the result of ureteral stricture.

9. "In many cases the symptoms of the disease are favorably influenced by incision of the kidney." Every surgeon who has handled many of these cases will agree with Israel on this point. It is a common experience also that not a few of these patients, perhaps 50 per cent., after being operated on, will again have bleeding, and a larger percentage again develop pain. Israel's final summary of his own results is as follows: Of fourteen patients, three died, two of these with severe bilateral nephritis. Of the eleven living, six have remained well; three after apparent recovery for varied intervals have had a return of the symptoms, but with lessened intensity and with longer intermission, and in two cases, the operation seemed to relieve for only a short time.

It is difficult to arrive at a logical explanation for certain phenomena observed in the handling of these hematuria cases. Many patients have been reported cured after simple catheterization of the kidney. Others have ceased bleeding after an instillation with epinephrin, or the taking of a pyelogram, or after lavage with silver nitrate. It is possible that the passage of the plain catheter gave enough ureteral dilatation to alter the conditions in these cases. Some patients have ceased to bleed under the excitement of entering the hospital, or after a simple cystoscopy of the bladder. Apparently, it requires very little alteration of the circulatory conditions to effect at least a temporary cure in some cases.

One can easily conceive how a nephrotomy, decapsulation, renal fixation or the mere delivery and examination of a bleeding kidney might so alter the vascular conditions that one or more bleeding points would heal; but it is more difficult to explain why these measures should give relief to nephralgia in any considerable proportion of cases, if the pain is dependent on urinary stasis from a stricture. We have already emphasized the fact that we see some patients complaining of unilateral kidney and ureteral symptoms in whom we demonstrate bilateral stricture and a hydronephrosis or other kidney changes on the symptomless side. This would appear to indicate that symptoms, when present, are not necessarily due to the urinary stasis per se, but may arise from some secondary nephritic changes. The operation may influence these secondary changes in such a manner as to cause cessation of pain even

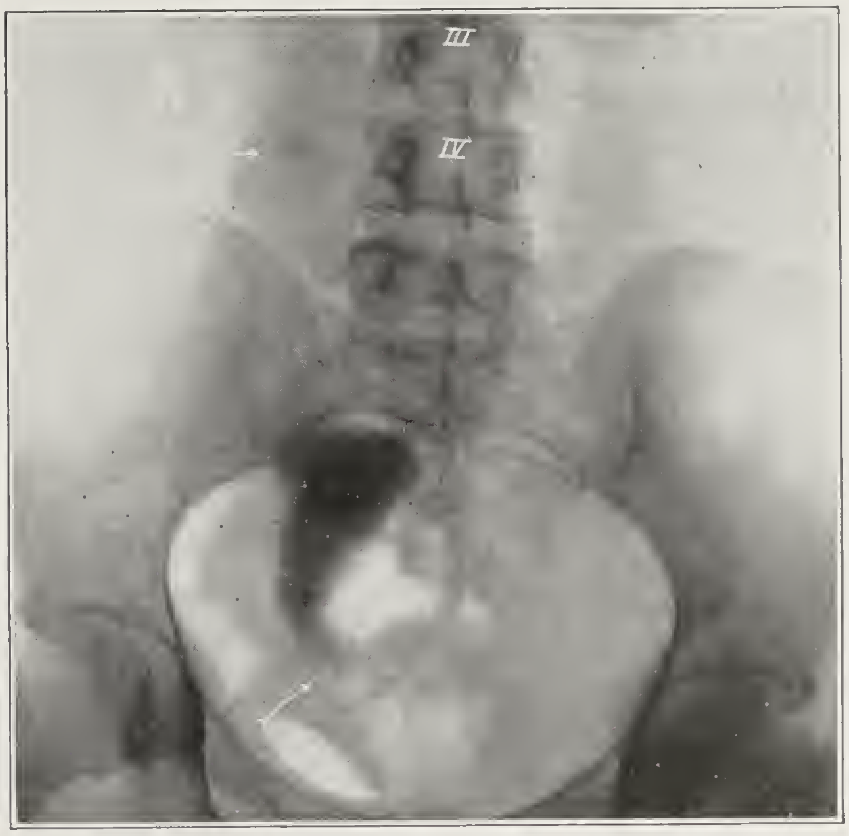

Fig. 8 (Case 11).—The right ureter and kidney originally held 200 c.c. of fluid. When this roentgenogram was made, two and one-half years after the hematuria attack, the right tract held 70 c.c. The roentgenogram was taken after injecting 35 c.c. of sterile water and then 35 c.c. of 20 per cent. sodium bromid. The large ureteral stone displaced from the stricture area and upward into the abdominal ureter may be noted, also the failure of the water and the sodium bromid to mix, the heavier fluid remaining in the pelvic portion of the ureter.

when the stricture with its stasis persists. I have already emphasized the fact that the static dilation of the pelvis may lead to secondary kinks or compressions of the ureter in the kidney region, and it is quite possible that some of the patients relieved by nephrotomy, decapsulation or fixation are relieved because of the better fixation of the kidney and the consequent improved drainage of the upper ureter obtained through these operations. Although we may accept Israel's ninth conclusion, my experience with ureteral stricture warrants the statement that we arrive at better results without operation, provided we pay proper attention to the ureteral stricture present in most of these hitherto obscure cases of nephralgia and hematuria.

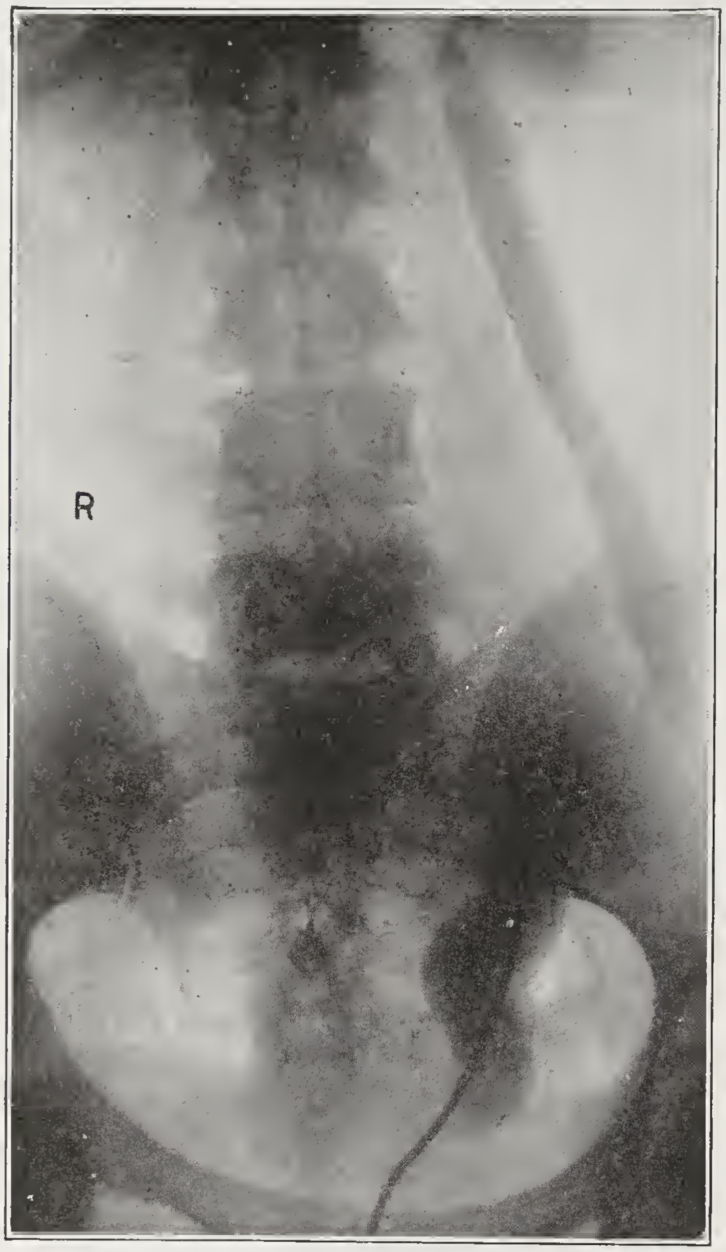

Fig. 9 (Case 11).—Faint outline of a dilated kidney, the dilated abdominal portion of the ureter displaced outward along the outer edge of the psoas iliacus muscle, the absence of shadowgraph material where the ureter swings back to its normal position near the pelvic brim, and the dilated lower ureter down to the stricture area in the bladder wall region may be noted. The first plain roentgenogram with the shadowgraph catheter up to the kidney revealed no stone, and demonstrated a marked outward bend of the catheter near the pelvic brim region, and the catheter lying along the outer border of the psoas iliacus muscle. Two roentgenograms made with the bromid injection were practically identical.

10. "The kidney wound should not be closed by suture." It is significant that Israel found by experience that these patients did better by establishing direct kidney drainage. This is exactly what we should expect if the kidney condition was due to an obstruction in the lower ureter. It is probably the same stricture obstruction that occasionally surprises and disappoints the surgeon, when, after a pyelotomy for stone or a nephrotomy for infection, while expecting prompt healing, an obstinate urinary fistula develops.

It is not within the scope of this paper to enter into a discussion of the causes and differential diagnosis of renal hemorrhage. We have taken the stand, however, that renal exploratory operations for the determination of the cause of hemorrhage should be far less frequent in the future than in the past. For fear that such teaching might lead to a costly delay in some patient whose hemorrhage comes from a tumor of the kidney, I wish to emphasize that in any renal bleeding, particularly in a case of symptomless renal hematuria, one must first prove that the bleeding does not come from a malignant tumor. Fortunately, we have the methods of precision that enable us to determine the source of bleeding in most cases without resort to exploratory operation.

We see an occasional case of acute renal hematuria in which the bleeding is so profuse and the patient has become so debilitated that prolonged investigation seems to be out of the question. If simple cystoscopy demonstrates that the hemorrhage is confined to one side, our better judgment may dictate an immediate exploration as a life-saving measure.

In the usual case, we should not hesitate to explore a bleeding kidney without delay if a reasonable attempt at diagnosis has been futile and if the bleeding fails to respond to the treatment suggested above for cases of supposed idiopathic hematuria. Too often in the past, we have seen patients who have been advised by their physicians to pay no attention to urinary blood because it was unaccompanied by pain or other serious symp-

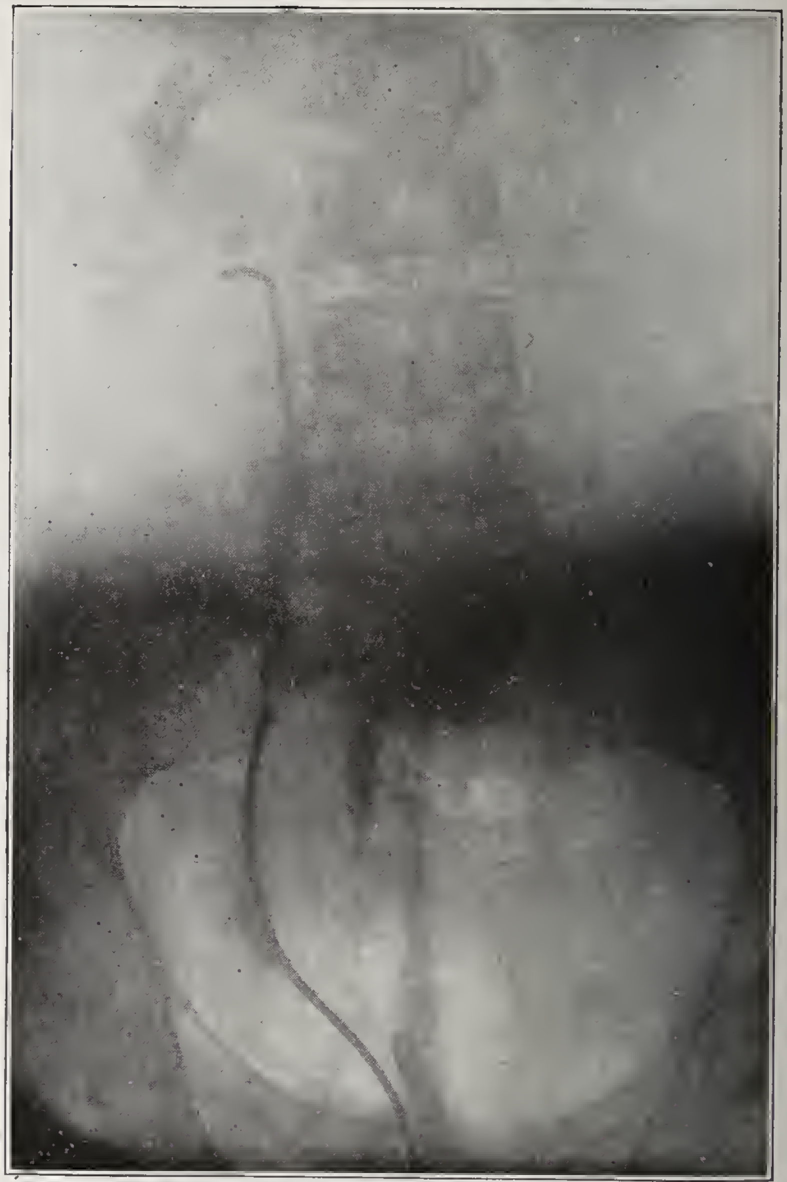

Fig. 10 (Case 12).—Symptomless hematuria of one year's duration; right ureteral stricture; kidney and ureter holding 16 c.c. for this retouched roentgenogram. Stricture area and the irregular dilatation of the ureter may be noted.

toms. Happily the profession is now alive to the possible meaning of hematuria, and the laity has been so well reached by the popular diffusion of knowledge concerning cancer that we are seeing patients with cancer of the bladder and malignant tumors of the kidney in the early stages, when fulguration, irradiation and operation are not infrequently followed by cure.

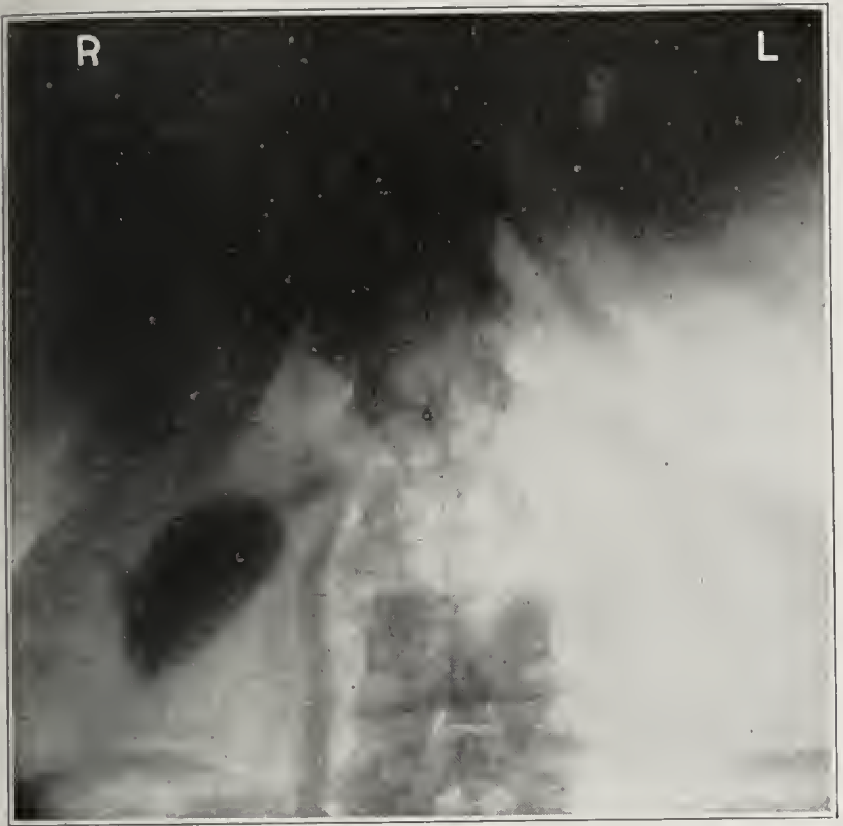

Fig. 11 (Case 13).—Right ureteral stricture, bilateral pyelitis, right hematuria. The prolapsed right kidney with its distorted pelvis of 20 c.c. capacity, an apparent ureteral kink near the kidney and dilatation of the abdominal ureter below the kink may be noted. Another roentgenogram revealed the same uniform dilatation extending to the stricture area near the bladder.

In spite of the perfection of methods of roentgenography and pyelography we shall occasionally miss a small or an early hypernephroma or other malignant tumor of the kidney which can be demonstrated only by operation. Exploratory incision is the only means we now have of demonstrating the early papillomas of the kidney pelvis, the cases of persistent bleeding due to renal varix and those due to aneurysm of the renal vessels. These conditions are all rare, and the chief benefits of exploration will come from finding early malignant tumors which escape other methods of diagnosis.

Ureteral stricture is such a common lesion that one must constantly be on guard for the possible synchronous presence of stricture and some other lesion which may cause hemorrhage. I have diagnosed one case of ureteral stricture and brought about complete temporary relief of symptoms by the first ureteral dilation; and, ten months later, on a return of the symptoms of pain in the right kidney region and microscopic blood in the urine, renal calculus was demonstrated by the roentgen ray. In two cases treated for stricture without a pyelographic examination, hypernephroma was demonstrated later. One of these patients never showed blood in the urine, while in the other case it was the later development of active renal bleeding which led to pyelography and the discovery of a kidney tumor.

If the theories and facts presented in this paper, together with the illustrations and their legends, lead to the investigation for stricture in all cases of so-called idiopathic hematuria, I am sure there will be a great reduction in the shocking record one finds in the literature of nephrectomies performed for bleeding "without sufficient findings." There will also be a great decrease in the exploratory operations and the nephrotomies, nephropexies and decapsulations as therapeutic measures, inasmuch as many of the patients will cease bleeding after dilation of the stricture.

The importance of clearing up possible foci of reinfection has been demonstrated so often in dealing with refractory ureteral strictures, that I wish to emphasize again the wisdom of always considering the possible existence of a focal infection in making our early investigations of any obscure case of hematuria, particularly when ureteral stricture has been demonstrated.

The great tendency to recurrence is a characteristic well recognized by all those familiar with these cases of so-called essential hematuria. Whether this recurrence of hemorrhage after apparent cure is due to a recurrence of kidney injury due to back pressure from a stricture area which has again narrowed (because of shrinkage or because of fresh edema), or whether it is due to a fresh injury to the kidney substance by blood-borne toxic material from a distant focus, the importance of eliminating such possible foci is apparent.

RESULTS OF TREATMENT ON THE HEMATURIA

In Case 10, after eight months of constant hematuria, the patient refused treatments after the first investigation and dilation of the stricture with a 4 mm. bulb on the side from which there was most hemorrhage. This one dilation seemed to bring about a marked improvement for two months. In Case 8 the bleeding kidney had been removed and the patient came merely for symptoms due to stricture on the other side.

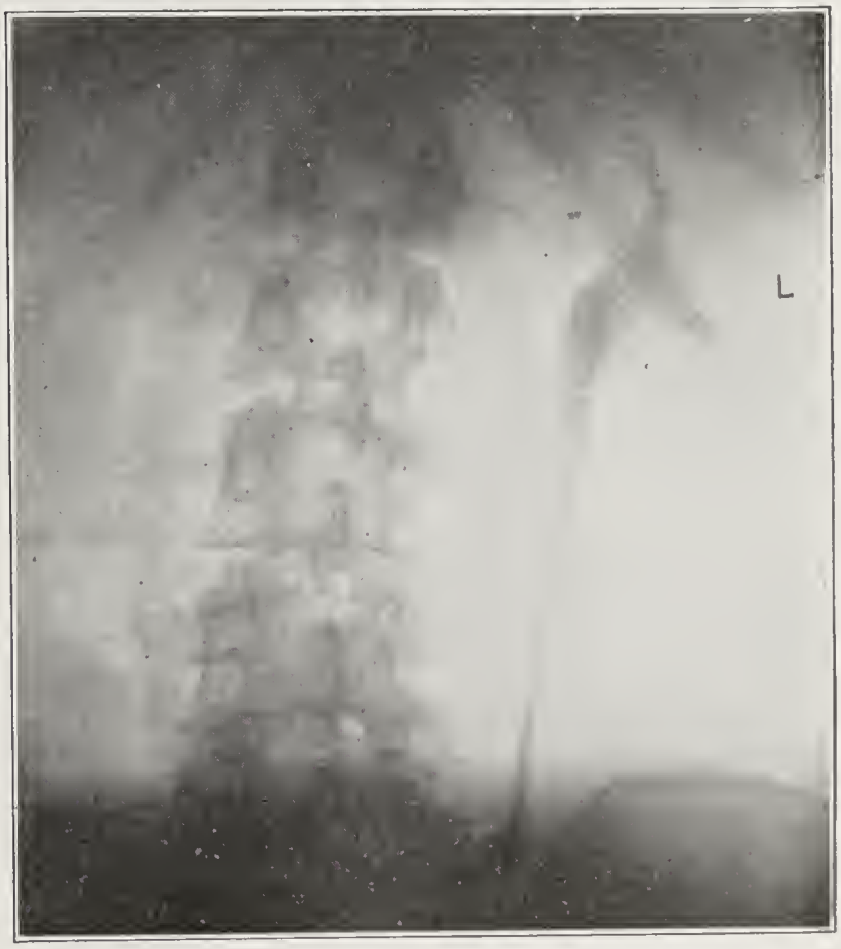

Fig. 12 (Case 14).—Bilateral stricture, bilateral hematuria, left pyelitis. An indefinite shadow of the left kidney with an apparent filling defect of the pelvis may be noted. Pyelograms taken on three different days disclosed the identical picture, suggesting partial obliteration of the calices and pelvis by tumor. At operation a small kidney of interstitial nephritis was found.

This leaves sixteen cases in which I have had a good opportunity to test the value of ureteral dilation in handling these obscure hematurias. In one of these sixteen cases (Case 14) recurrences occurred after dilation of the bilateral strictures and even after bilateral nephrotomy. After the second nephrotomy (left), she had a recurrence of bleeding at the end of four and a half months. The bad tonsils were then removed. After two weeks, she ceased bleeding and saw no further blood for six months, but on her return, at our request, blood was found on microscopic examination. She probably still had some pyelitis following slow healing of the pyelotomy wound and this may have accounted for the microscopic blood. In Case 2 a nephrotomy was performed at a time when we were not looking for stricture. The patient had no further bleeding; but when she returned, four years later, with acute pyelitis on the opposite side, we demonstrated bilateral stricture. In none of the other fourteen cases was a kidney operation performed. Of these fourteen patients treated only by cystoscopic methods and care of focal infections, five have shown recurrences of the bleeding. It is quite possible that all five of these still have a focus of infection. Of these, in Case 1 a tonsillectomy was performed, but the patient still has a considerable amount of tonsil tissue and is troubled with sore throat and bronchial cough. She has only slight recurrences of bleeding and is in excellent general health considering the marked kidney lesions.

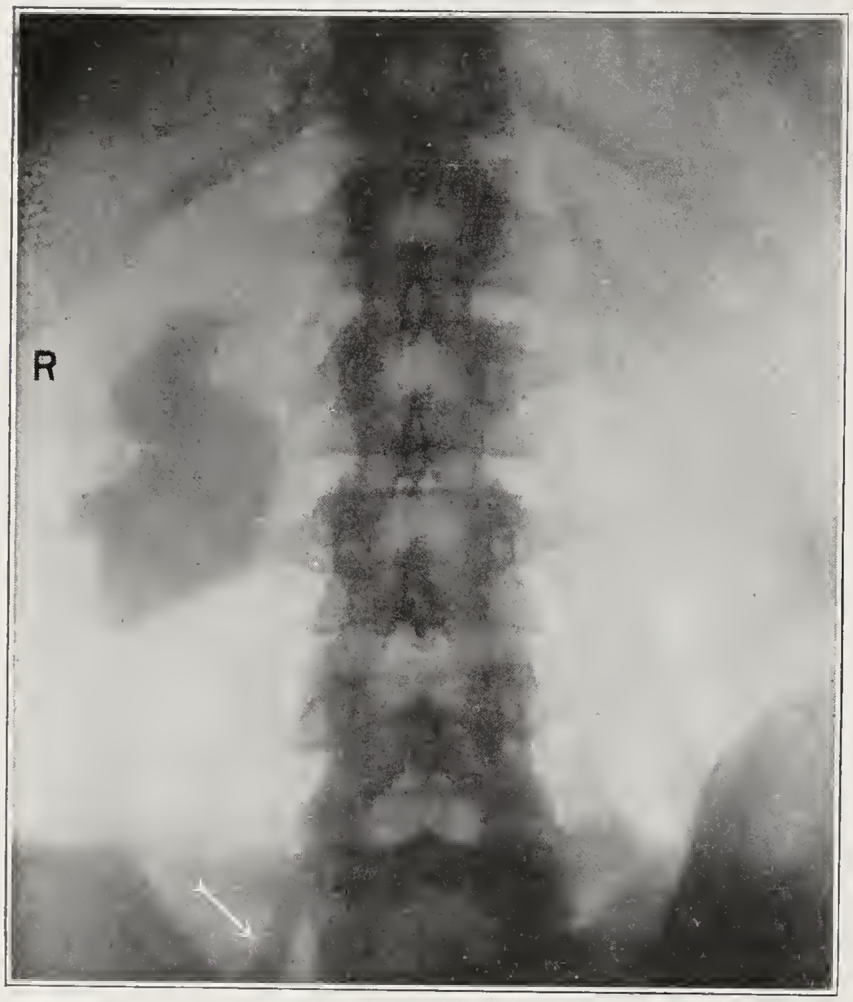

Fig. 13 (Case 15).—Bilateral stricture, bilateral hydronephrosis, bilateral hematuria. This roentgenogram shows the right kidney in fairly good position, but with a considerably distorted pelvis holding 20 c.c. The dilated abdominal spindle of the ureter just above the pelvic brim may be noted. Another lower roentgenogram revealed the stricture area within 3 cm. of the bladder and a slightly dilated pelvic ureter. Compare Figure 14.

Case 3 was one of our early patients whose history contains no note on a tonsil examination, but states that "catching cold" seems to bring on the bleeding. The ureteral dilations always seemed to ameliorate the bleeding; but she had a marked recurrence while pregnant, one year after her last treatment, and is again bleeding after an interval of freedom for two years following childbirth. In Case 4 rheumatism and hematuria seem to have started many years ago when the patient had bad teeth. After complete extraction of the teeth, the arthritis ceased; but she has continued to return intermittently for ureteral dilations since 1913.

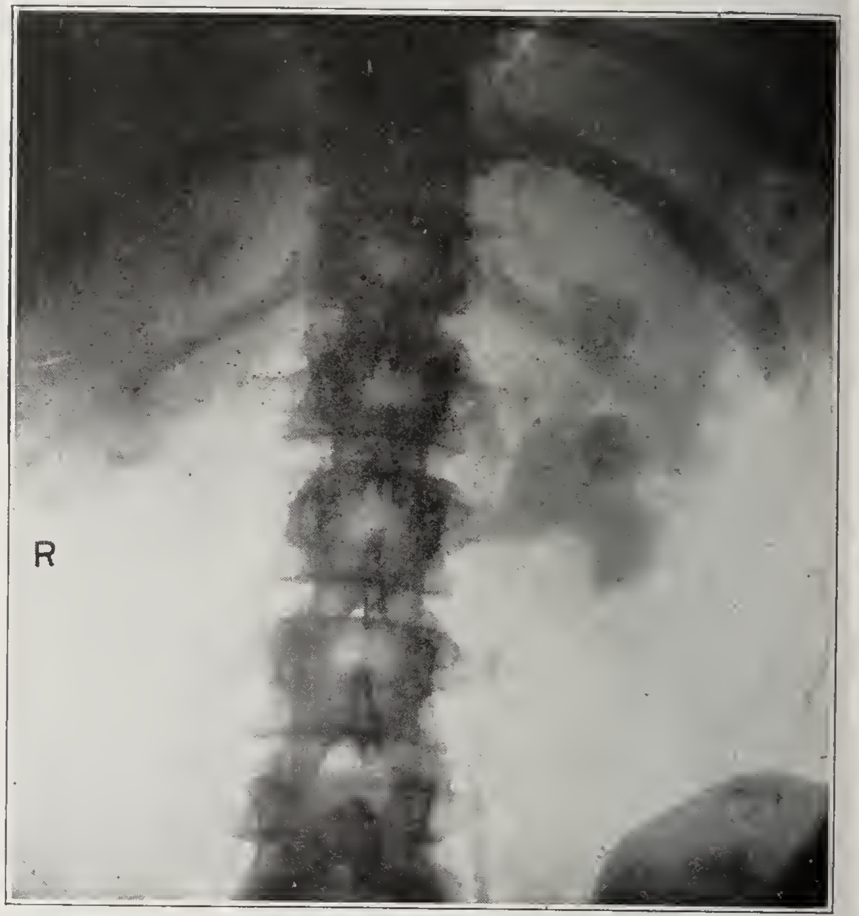

Fig. 14 (Case 15).—Slightly dilated left kidney with a content of 12 c.c. and an approximately normal ureteral lumen. Compare Figure 13.

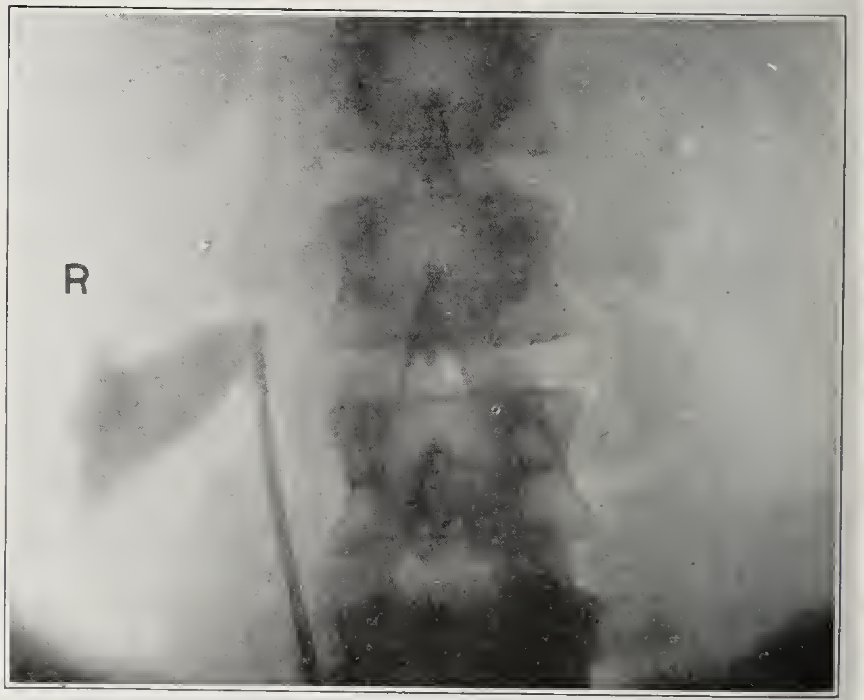

Fig. 15 (Case 16).—Daffodil shaped pelvis, with rather wide calix necks, with a rather acute angled entrance to the ureter. Another roentgenogram taken the same day, with the catheter withdrawn until the bulb hung in the stricture area, demonstrated the same pelvis characteristics with a slightly dilated upper ureter. The kidney content was 10 c.c. to discomfort.

One dilation seemed to result in a cessation of macroscopic bleeding for several months. In Case 7 the patient, after showing blood in the urine for perhaps six or seven years, was seen intermittently over a period of three years for attacks of severe hemorrhage. The ureteral dilations were always followed promptly by cessation of bleeding, but the recurrences threatening her life did not abate until several abscessed teeth had been extracted. She has not been seen for eighteen months but still has mild recurrences. One patient, (Case 16), when last heard from, more than one year after the last of the five ureteral treatments, was still having slight bleeding at times, although her general health was decidedly improved. She had not had some suspicious looking teeth investigated.

So far as I know, ten patients have been free from hematuria for periods varying from eighteen months to seven years. In one case (Case 2) a nephrotomy was performed, and in nine of them only cystoscopic methods were employed. Most of these cases cleared up promptly after ureteral dilation, and, in some of them, there was absolutely no other treatment than the wax bulb dilation until after the cessation of bleeding. In other words, after discovering the association of stricture with these hematuria cases, I made it a practice to defer measuring the pelvis, irrigating and taking roentgenograms until the patient had ceased bleeding, so that we might have a good test of the therapeutic value of the one method of dilation and good kidney drainage.

Our cases are too few in number to warrant dogmatic conclusions; but the results suggest that ureteral dilation and care of focal infections will be the future treatment for most of the so-called essential hematurias.

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THE INTRATRACHEAL INJECTION OF OILS FOR DIAGNOSTIC AND THERAPEUTIC PURPOSES *

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AND
HAROLD FREED, M.D.
DENVER

Too frequently the haste occasioned by apparent clinical necessity leads to the introduction of diagnostic and therapeutic procedures without full scientific knowledge regarding the detailed action of such procedures on the body. It is this failure fully to test such procedures before employing them that leads to an abandonment of many forms of therapy recommended on the basis of strict clinical studies. From the enormous mass of material presented each year, a certain small portion of good may eventually be derived either, though rarely, through the employment of procedures in their complete form, as originally presented, or in a form decidedly restricted or limited by subsequent experience and study. Many attempts have been made to institute intrapulmonary types of therapy; but, thus far, all have led to uncertain success. Such attempts, in which category may be included the introduction of antiseptics into the lungs by inhalation, have uniformly proved not only useless but also dangerous. Thus, the inhalation of iodin fumes was found by Luckhardt and his co-workers [1] to be fraught with grave danger. Even in small quantities, such administration induces dyspnea; and, in large quantities, acute and fatal pulmonary edema ensues within twenty-four hours. When respiratory disorders are present at the time of administration, fatal edema of the lungs supervenes very quickly, and with smaller doses than in healthy animals. Although these authors make no point of it, the skin is apparently much less susceptible to the iodin fumes than the lungs.

The intrapulmonary introduction of antipneumococcus serum was found by Sloboziano [2] to produce grave pathologic-anatomic lesions, even as little as 5 or 6 c.c. inducing hemorrhages, and edematous and congestive conditions in the lungs of dogs.

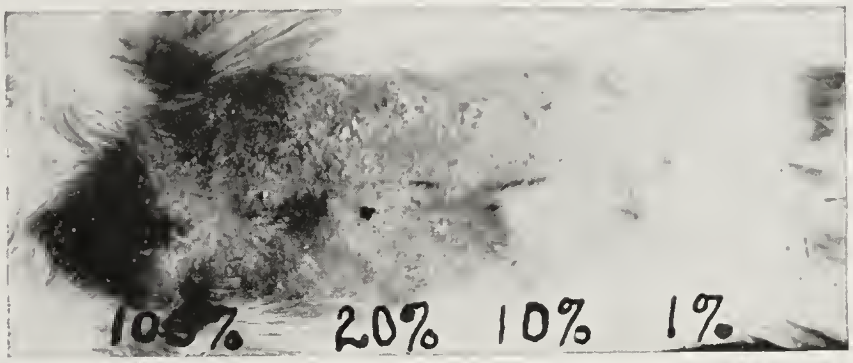

Fig. 1.—Guinea-pig, ten days after the intracutaneous injection of 0.1 c.c. of different concentrations of chaulmoogra oil in olive oil, from 1 per cent. to full strength (100 per cent.).

That caution is necessary in the introducion of any substances into the lungs seems also to be emphasized by the studies on intratracheal pulmonary irrigation by Winternitz and Smith,[3] who found that fluid introduced into the trachea will find its way into the alveoli themselves and that the pulmonary parenchyma can be filled to capacity with physiologic sodium chlorid solution without provoking any untoward symptoms. A considerable period of time may be necessary before fluid introduced into the alveoli of the lung is entirely absorbed. After eighteen hours, much has disappeared, and within four days, it has been absorbed without leaving a trace. Inert foreign material (starch and *B. prodigiosus*) can be washed out by the method of intratracheal pulmonary irrigation; but even after prolonged treatment of this kind, in which many liters of irrigating fluid are employed, there still remains a residue of the material originally introduced. Results of experiments with virulent organisms (pneumococci), however, were in sharp contrast to those with saprophytic bacteria in that one half or a smaller number of organisms, necessary as a minimum lethal dose, after pulmonary irrigation, resulted in a diffuse and fulminating lobar consolidation, indicating conclusively that irrigation of the lung with salt solution not only cannot be utilized to advantage, but is actually a disseminator and an aggravator of the inflammatory process within the lung.

The fact that pulmonary tissue is far more susceptible to the effects of foreign substances, i. e., chemicals and bacteria, than either the skin or nasopharyngeal mucosa is also well brought out by the studies of Wollstein and Meltzer,[4] who report that concentration of chloramin-T solutions, even more dilute than those that are well borne by the nasopharyngeal mucosa, are injurious to the pulmonary tissue when introduced directly into the bronchi in large volume. The lesions are of a bronchopneumonic type, similar to those produced by sodium hypochlorite.

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* From the Research Department of the National Jewish Hospital for Consumptives.

[1] Luckhardt, A. B.; Koch, F. C.; Schroeder, W. F., and Weiland, A. H.: J. Pharmacol. & Exper. Therap. **15**: 1-21 (March) 1920.

[2] Sloboziano, H. C.: Presse méd. **28**: 688 (Sept. 29) 1920.

[3] Winternitz, M. C., and Smith, G. H.: Contributions to Medical and Biological Research, Osler Memorial Volume **2**: 1255-1266, 1919.

[4] Wollstein, Martha, and Meltzer, S. J.: J. Exper. Med. **28**: 547 (Nov.) 1918.

Starch insufflated into the lungs caused consolidations containing much fibrin, as is the case with virulent pneumococci; while egg yolk and lecithin (apparently inert substances) produced lesions with little fibrin, as is the case with avirulent pneumococci. Both series of the latter substances, however, produced lobar pneumonia, in contradistinction to the bronchopneumonia caused by chloramin-T and sodium hypochlorite.

Oils have been injected into the body by the usual routes, but all such studies have demonstrated the difficulty with which these are removed from the sites of introduction. From a study on the subcutaneous absorption of various oils—olive, peanut, coconut, sesame, cottonseed and lard oils, butter fat and lard—given to cats in various forms for the purpose of metabolism studies, Mills [5] concludes that these oils may be given over a considerable period of time without local irritation or constitutional disturbance, provided precautions are used to prevent injection in the blood stream (no histologic observations were made, however, in this study). Oils and fats given subcutaneously are absorbed by means of the lymphatic system and eventually reach the thoracic duct. Lymphatic vessels and glands in contact with, and transmitting, oil for any length of time become hypertrophic. The amount of absorption of plain oil from the subcutaneous tissues after injection is so small as to be negligible. Emulsified oils and fats injected during starvation are absorbed in amounts sufficient to furnish from one half to two thirds of the full caloric requirement of the animals into which they were injected. Corper [6] noted that, after injecting into the peritoneal cavity of guinea-pigs solutions of sudan III in oil or butter, much of the injected oil remained free within the peritoneal cavity, while there was a superficial staining of the abdominal fat, and the lymph glands contained stained oil. Mook and Wander [7] found that camphorated oil injected subcutaneously in man produced tumors resembling paraffinomas, in the peculiar concrete type of infiltration and the length of time required for their development after injection. A case reported indicated a proliferative tendency, continuing for nine months after the injection. They say: "It appears that liquid petrolatum may remain as an inert foreign body in tissue, whether injected as paraffin to correct facial defects or as camphorated oil, when injected in the arms, thighs or breasts as a stimulant during an operation or in any very severe illness. The inflammatory tumors that may result from either are more or less serious and the use of camphorated oil as a stimulant should be discontinued until researches show that it can be made innocuous with a vegetable or an animal oil, or a vehicle that will be absorbed immediately after injection, with no ultimate bad effects." Likewise, Schwartze [8] found that in rats, mice, guinea-pigs, rabbits and cats, from 1 to 10 c.c. of pressed peanut oil injected intraperitoneally was found twenty-four weeks later. After a month, peculiar peritoneal oil cysts were found in all the animals; while cats, rabbits and guinea-pigs reacted acutely by a serous exudation occurring within from twenty-four to forty-eight hours.

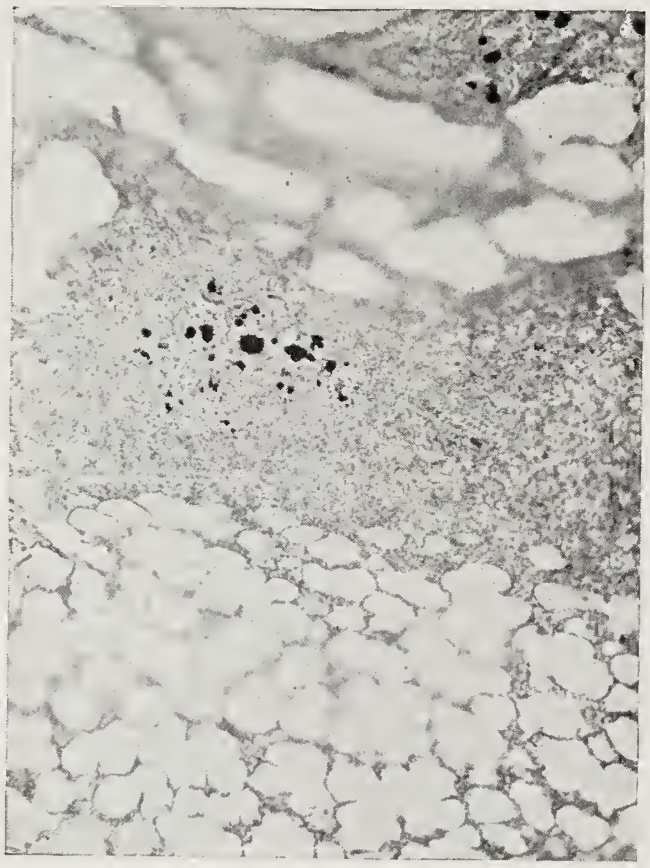

Fig. 2.—Frozen sections, stained with scarlet R and hematoxylin, of lesion in the lung, three days after the intratracheal injection of 0.05 c.c. of pure chaulmoogra oil, which produced lesions in the upper lobes of the lungs of rabbits; the oil appears as black globules in the center of the lesion.

Although, clinically, the intratracheal injection of medicated oils was used thirty-six years ago by Rosenberg,[9] who believed that menthol in olive oil had an antibacillary (to tubercle bacilli) and anesthetic action in phthisis and ulcerative laryngitis, this method has received rather a limited recognition. Campbell [10] in 1895, realizing that oil would not mix with the pulmonary secretions, substituted glycerin in some of his prescriptions, but retained the oil in others for intratracheal injection. He asserts that even large amounts of olive oil and menthol (as high as 100 c.c. in twenty-four hours) were administered without apparent detrimental effect in man. In 1917, Waters, Bayne-Jones and Rowntree [11] undertook studies on animals to acquire a clearer conception of the anatomy and physiology of the lungs in life by means of the roentgen rays. They used forceful intratracheal injections of from 15 to 25 c.c. of a 10 per cent. suspension of iodoform in olive oil in dogs and found the material apparently in the same degree of suspension in the bronchi, bronchioles and smallest air passages. A number of the animals died from the treatment, some from pneumonia directly attributable to the injection. The type of lesion in the lungs of the dogs whose death was considered to be due ultimately to the injected emulsion was that of a proliferative bronchopneumonia. In all cases, the exudate was undergoing organization, while the alveolar and bronchial epithelium was considerably hypertrophied.

During the last few years, chaulmoogra oil has come into prominence as a therapeutic agent in tuberculosis, and, as a natural consequence, it has been tried in the various types of this disease, including tuberculous laryngitis, in which it is asserted remarkable results have been obtained. Lukens [12] found that it relieved pain and dysphagia, and, in contradistinction to cocain, the relief is continuous. According to him, chaulmoogra oil works best when injected intratracheally and intralaryngeally, and, beginning with a 10 per cent. solution in liquid petrolatum, the strength is increased rapidly until the pure drug is used. In the cases in which intratracheal injections were made, sputum was rendered more fluid and was expelled with greater ease. Recently, Lynah [13] injected bismuth mixtures (8 c.c. of a mixture of 1 part of bismuth subcarbonate in 3 parts of pure olive oil) in the living patient for the purpose of lung mapping. It occurred to him that bismuth mixtures injected into the lung of the living patient would probably do no harm, especially in those persons suffering from almost incurable disease of the bronchi and lungs, such as bronchiectasis and pulmonary abscess, and, furthermore, that these areas, which heretofore had never been mapped out, could be definitely localized by the injection of some opaque mixture bronchoscopically which would gravitate into the abscess cavity. He concludes from this work that bismuth mixtures may be injected into the bronchi and lung of the living patient without doing harm. In another report, Lynah and Stewart [14] give in detail the results of a study of five cases in which the patients were injected not only for the purpose of lung mapping but also for the purpose of obtaining the therapeutic effect of the bismuth subcarbonate and oil.

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[5] Mills, L. H.: The Utilization of Fats and Oils Given Subcutaneously, Arch. Int. Med. **7**: 694 (May) 1911.

[6] Corper, H. J.: J. Infect. Dis. **11**: 373, 1912.

[7] Mook, W. H., and Wander, W. G.: Camphorated Oil Tumors, J. A. M. A. **73**: 1340 (Nov. 1) 1919.

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[9] Rosenberg, A.: Berl. klin. Wchnschr. **24**: 466, 1887.

[10] Campbell, Colin: Tr. Med.-Chir. **78**: 39, 1895.

[11] Waters, C. A.; Bayne-Jones, Stanhope, and Rowntree, L. G.: Roentgenography of the Lungs, Arch. Int. Med. **19**: 538 (April) 1917.

[12] Lukens, R. M.: Chaulmoogra Oil in the Treatment of Tuberculous Laryngitis, J. A. M. A. **78**: 274 (Jan. 28) 1922.

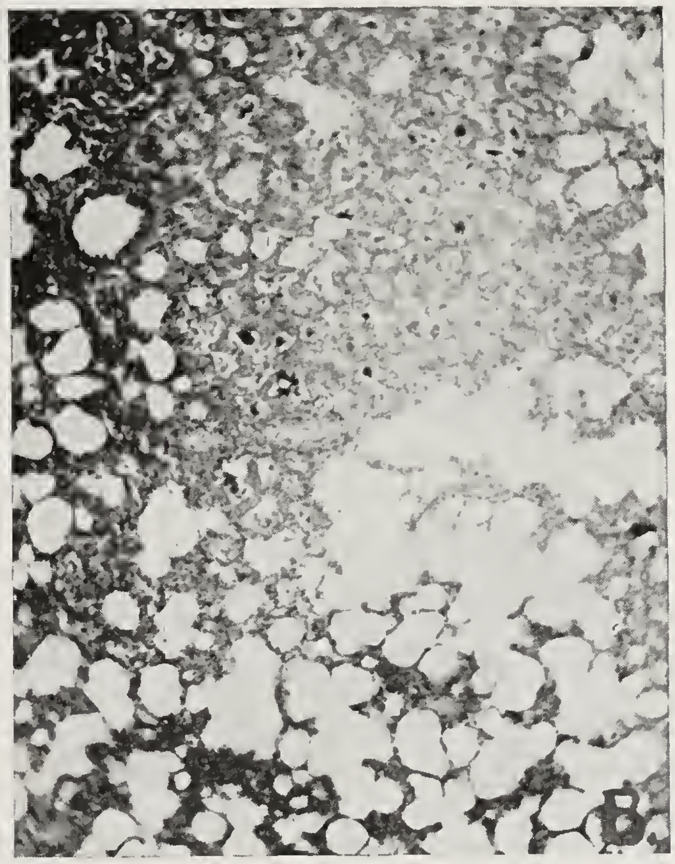

Fig. 3.—Appearance of lesion in the lung of rabbit, four days after the intratracheal injection of 1 c.c. of 10 per cent. chaulmoogra oil in liquid petrolatum, which produced lesions involving mainly one lung; same stain as in Figure 2.

In view of the apparent greater susceptibility of the lung parenchyma to certain foreign substances, as cited above, and in view of the ready entrance of liquids, injected intratracheally, or aspirated into the respiratory tract, into the finer pulmonary divisions — the alveoli — where the insoluble particles may remain for a comparatively long time, as recently reported by one of us (Corper),[15] it seemed advisable to study more fully the effects of chaulmoogra and other oils to note whether they would have any effect on the lungs after intratracheal injection in small amounts, and whether they would behave in general like other liquids, immediately seeking an abode in the finer respiratory divisions of the lung, to remain there for a comparatively long time on account of their relative insolubility in the tissues and their slow rate of removal by way of the air passages. In the main, three oils were included in this study: medicinal liquid petrolatum of highest purity, perfectly clear and white; olive oil of the best grade, and a pure grade of chaulmoogra oil, recommended for injection. Besides these, the mixed esters of chaulmoogra oil obtained from Dean [16] directly, and a suspension of bismuth subcarbonate in olive oil (1 to 3), and separately in saline solution, for comparison, were used.

In order to determine the local tissue toxicity of these oils, individually and in mixtures, they were administered to guinea-pigs in small amounts (0.1 c.c.) intracutaneously, a method previously described by one of us (Corper) [17] for testing copper preparations, and utilized with satisfaction by Wells and Hedenburg.[18]

The skin of the abdomen of a series of guinea-pigs was thus injected intracutaneously with 0.1 c.c. of chaulmoogra oil, the mixed esters of chaulmoogra oil, olive oil and liquid petrolatum. On the seventh day after injection, the chaulmoogra oil had formed a large abscess, which had ruptured and was 0.5 cm. in diameter. In two weeks, the ulcer was healing and after two and one-half weeks it was fairly well healed. The mixed esters after one week had caused a large abscess, 1.5 c.m. in diameter and markedly hyperemic, which ruptured after from two to two and one-half weeks and then healed. The olive oil and liquid petrolatum, after one week, produced a slight induration and hyperemia which receded after about two weeks, leaving a slight area of induration. So far as comparison was possible by this method, olive oil seemed to produce a slightly greater local reaction than the liquid petrolatum.

In like manner, several guinea-pigs were given intracutaneous injections of 0.1 c.c. of different concentrations (100, 20, 10 and 1 per cent.) of chaulmoogra oil in olive oil. Full strength chaulmoogra oil produced a large fluctuating abscess, which ruptured before one week's time and healed after two and one-half weeks; 20 per cent. chaulmoogra oil in olive oil produced an abscess which rupture in about two weeks and then healed; 10 per cent. chaulmoogra oil in olive oil produced a nodule which ruptured after about three weeks; 1 per cent. produced only an induration at the site, which was barely perceptible after two and one-half weeks. Similar results were obtained with the same concentrations of chaulmoogra oil in liquid pertolatum.

The mixed esters of chaulmoogra oil were more toxic locally than the oil itself. After one week, the full strength mixed esters produced an abscess nodule about 1.5 cm. in diameter, which ulcerated in about two weeks and then subsided. Twenty per cent. mixed esters in liquid petrolatum produced a lesion about one-half the size of the lesion produced by the full strength mixed esters, which ulcerated after two and one-half weeks and then subsided. The 10 per cent. concentration produced a lesion about one-half the size of that produced by the 20 per cent. mixture, which did not ulcerate or rupture, but gradually disappeared, and the 1 per cent. concentration produced only a slight induration, which had practically disappeared in about two and one-half weeks.

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[13] Lynah, H. L.: Lung Mapping by Injection of Bismuth Mixtures in the Living, New York M. J. **114**: 82 (July 20) 1921.

[14] Lynah, H. L., and Stewart, W. H.: Roentgenographic Studies of Bronchiectasis and Lung Abscess After Direct Injection of Bismuth Mixture Through Bronchoscope, Am. J. Roentgenol. **8**: 49 (Feb.) 1921.

[15] Corper, H. J.: Pulmonary Aspiration of Particulate Matter, Normally and During Anesthesia, J. A. M. A. **78**: 1858 (June 17) 1922.

[16] Dean, A. L., and Wrenshall, Richard: J. Am. Chem. Soc. **42**: 2626, 1920.

[17] Corper, H. J.: J. Infect. Dis. **15**: 518, 1914.

[18] Wells, H. G., and Hedenburg, O. F.: J. Biol. Chem. **27**: 213 (Oct.) 1916.

In the lungs, following the intratracheal injection of the various oils, the results were even more striking than those found after intracutaneous injection. Full strength chaulmoogra oil injected into rabbits, intratracheally, by means of a tuberculin syringe with attached needle, in amounts varying between 0.05 and 1 c.c. (the smaller amount suspended in 0.5 c.c. of saline), produced varying grades of pulmonary destruction, the larger amounts causing an acute pneumonic inflammation and consolidation of one lung or more. With the smaller amounts, localized pulmonary abscesses or pneumonic consolidations developed. Similar changes were found in the lungs following the administration of 33 and 10 per cent. of chaulmoogra oil in olive oil or liquid petrolatum. The mixed esters of chaulmoogra oil in concentrations of 100 and 20 per cent. in olive oil and liquid petrolatum, injected intratracheally into rabbits in amounts varying between 0.05 and 1 c.c., produced changes in the lungs similar to those produced by chaulmoogra oil; but they seemed to be slightly more severe. Many of the rabbits receiving the larger amounts died as a result of the pulmonary changes produced by the oil or mixed esters within from two to ten days. The changes that occur in the lungs at the site of the oil globules are those of a proliferative pneumonitis with consolidation and subsequent organization. Even at the end of two months, lesions were still present in the lungs, macroscopically.

Olive oil and liquid petrolatum injected intratracheally into rabbits in amounts varying between 0.05 and 1 c.c. were far from being without action on the pulmonary parenchyma. The oil globules were found histologically in the finest pulmonary divisions—the alveoli—where they would set up a mild type of proliferative bronchopneumonia which varied in type, depending on the amount of oil and its state of subdivision, as large or small globules. Some of the animals died, apparently as a consequence of the intratracheal olive oil or liquid petrolatum injections.

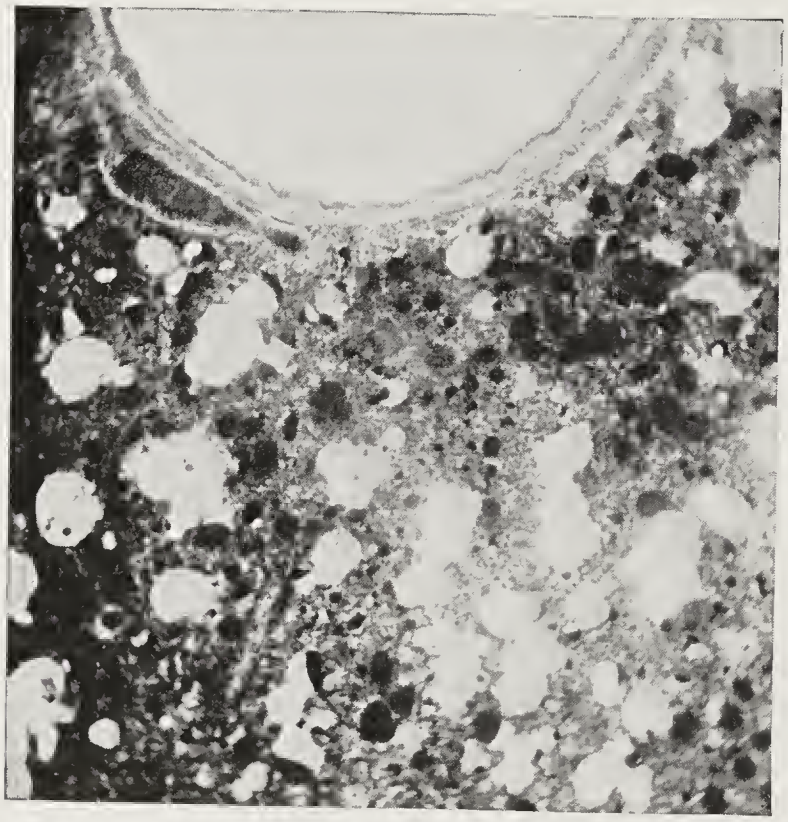

Fig. 4.—Frozen section, stained with scarlet R and hematoxylin, of lung of rabbit, eight days after the intratracheal injection of olive oil; the oil drops appear black.

In considering the results obtained in this study, it is well to bear in mind the chemical distinction between oils, under which may be classed olive and chaulmoogra oils, on the one hand, and the true hydrocarbons, of which liquid petrolatum is an example, on the other. It seems, so far as these studies have gone, however, that the reaction resulting in the lungs, especially to the more inert olive oil and liquid petrolatum, is to be attributed to a reaction which may to a great extent occur toward any foreign insoluble substance. With chaulmoogra oil, however, chemical composition seems to play a distinct part, and only subsequent and more complete studies will elucidate the mechanism of the toxic action of the more complex true oils.

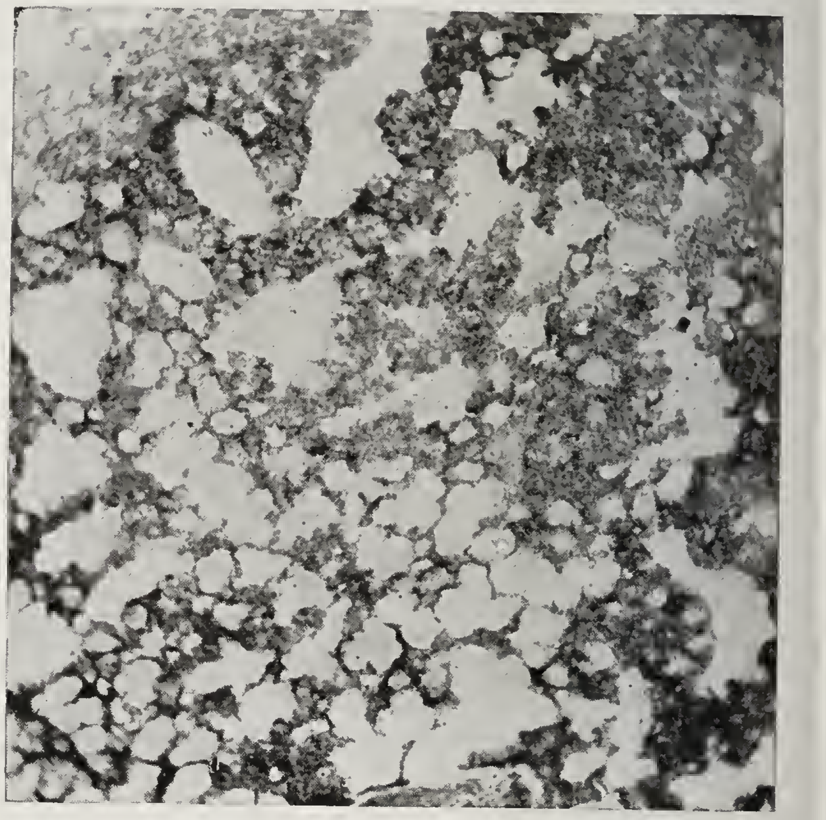

Fig. 5.—Appearance of lung of rabbit, five days after the intratracheal injection of liquid petrolatum; the oil was so finely divided in this lung that it appears as a black speckling.

A series of rabbits were also given intratracheal injections of 0.5 c.c. of bismuth subcarbonate (1 to 3) in sterile olive oil and the same strength of bismuth subcarbonate suspended in sterile saline. Of four rabbits given the oil suspension, three died in from three to thirteen days, while the saline suspension resulted in the death of only one of four rabbits in eight days. In the oil-bismuth series, there were areas of extensive pulmonary consolidation, with a marked bronchopneumonia, histologically. The bismuth subcarbonate suspended in saline also produced a distinct bronchopneumonia; but so far as comparison was possible, the tissue reaction in the lungs toward the bismuth subcarbonate in saline seemed to be slightly less than that obtained with the oil suspension.[19]

SUMMARY AND CONCLUSIONS

It is not the purpose of this paper to discuss the question of the treatment of tuberculous laryngitis by local applications, but merely to point out the possible dangers which may result from the intratracheal injection of foreign oils of apparent inert nature, as recommended by Lukens for therapeutic purposes and by

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[19] Regarding the points made on the intrapulmonary action of apparently inert substances, an article by Heiman and Aschner appeared recently ("The Aspiration of Stearate of Zinc in Infancy," Am. J. Dis. Child. **23**: 503 [June] 1922). The authors found that in infants zinc stearate powder produced a proliferative bronchopneumonia, resembling that reported above for chaulmoogra oil. Insufflated talcum produced a slight interstitial pneumonitis similar in kind but lesser in degree, and resembling that obtained with olive oil and liquid petrolatum in our studies.

Lynah for diagnostic and therapeutic purposes. Chaulmoogra oil and the mixed esters of chaulmoogra oil injected intratracheally into rabbits produces distinct pathologic changes in the lungs which may range from a profound acute pneumonic consolidation with abscess formation to a proliferative bronchopneumonia, depending on the concentration and the localization of these oils in the lungs. A concentration of these oils as low as 10 per cent. in olive or liquid petrolatum, injected intratracheally, still produces a distinct proliferative bronchopneumonia. Olive oil and liquid petrolatum injected intratracheally into rabbits in small amounts (not to exceed 1 c.c.) are readily aspirated into the finest pulmonary divisions—the alveoli—to be retained for a relatively long time (months), where they can produce a mild type of a proliferative bronchopneumonia. This study verifies and emphasizes previous observations by others indicating that great care is necessary in the introduction of any foreign substances into the lungs normally, and especially in pulmonary diseases.[20] It has been suggested, but scientific proof is lacking, that the fibrotic changes subsequent to the injection of certain foreign substances into diseased foci in the lungs may have a beneficial action on the diseased area (lung abscess or bronchiectasis). It is questionable also whether even local application, as is accomplished by use of the bronchoscope, will insure that the foreign substance may not leave the focus of intended localization to exert a deleterious action on normal lung tissue some distance away. These questions require further detailed study.

DEVELOPMENT AND CORRECTION OF EXTENSIVE CYSTS OF THE MAXILLAE

ANATOMIC AND PROSTHETIC FACTORS *

HUGH W. MacMILLAN, D.D.S., M.D.
CINCINNATI

In Black's "Special Dental Pathology," under the heading of chronic osteitis of the maxillae, it is stated that the number of cases of chronic osteitis which have occurred about the roots of upper lateral incisors have each year attracted the attention of the oral surgery department of Northwestern University. Black then gives several reasons why the pulp of the superior lateral incisors is more liable to be destroyed than that of any of the remaining superior teeth. His observations regarding the frequency of chronic osteitis occurring about the roots of superior lateral incisors are equally true of the frequency of radicular cyst formations of infective origin in this particular region. But he does not explain why chronic osteitis or extensive cyst formations involving the antrum and nasal fossae very rarely originate from abscessed centrals, cuspids and bicuspids. Nor does he record any differences in the extent of the bone destruction or any peculiarities in the osteology which might predispose certain teeth to cause extensive destructive bone lesions.

The consideration of the anatomic environment of the superior lateral incisor region affords a further explanation of the phenomenon. The path of discharge of alveolar abscesses depends as a rule on the character of the bone surrounding the apex or apexes of the tooth. For example, alveolar abscesses arising from the ten superior anterior teeth other than the superior lateral and first bicuspid invariably discharge through the external plate, as the apexes are usually covered by a very thin layer of bone, which is easily broken down. Often the bone is entirely absent from over the apexes of these teeth, and apical infection is at once heralded by a parulis which is immediately diagnosed. Unlike the apex of any other superior tooth, that of the superior lateral incisor is usually completely surrounded by cancellous tissue, and is more often situated midway between the outer and inner alveolar plates. Owing to this anatomic arrangement, an alveolar abscess arising from this tooth does not easily discharge, on account of the relatively greater distance to the surface. As this condition usually originates from a chronic periapical infection, the destructive process is very slow and of long standing. If cyst formation occurs, the surrounding part is soon under pressure from the contained fluid. As the cyst takes the line of least resistance, the cancellous tissue is easily destroyed, the alveolar plates are bulged out and the cyst slowly attains enormous proportions. Since there is rarely pain, the patient is not aware of the presence of the cyst until deformity results. The cyst is then usually lanced by the attending physician. I do not recall a case in which the cyst discharged of its own accord.

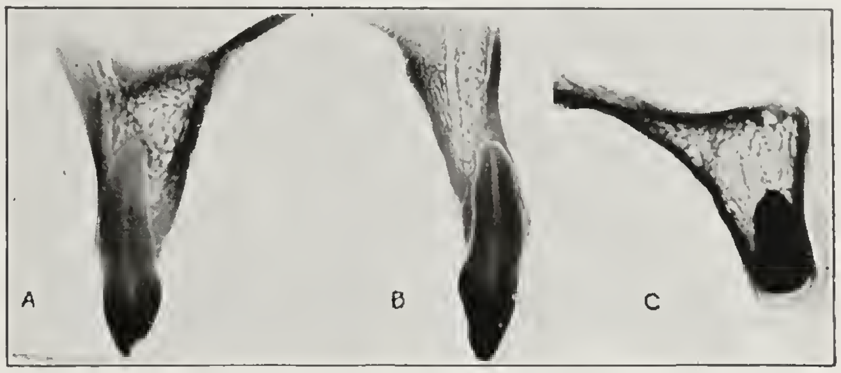

Fig. 1.—*A* and *C* show the typical relations of the superior lateral incisor. The apex is usually completely surrounded by cancellous tissue, which, in turn, is bounded by the dense, compact internal and external alveolar plates. The heavy, dense external plate is shown in *B*. Owing to these relations, this area is predisposed to extensive destructive bone lesions from chronic alveolar abscesses, chronic osteitis and cyst formation, on account of the area which may be affected before the patient has been made aware of the condition by the formation of a parulis or fistulas, or by bulging of the alveolar plates.

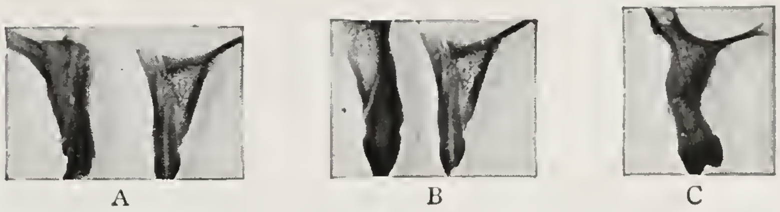

Fig. 2.—*A*, comparison of the periapical region of a superior central incisor (showing result of periapical infection) with that of a superior lateral incisor; *B*, superior cuspid and superior lateral; *C*, superior second bicuspid. The apexes of the superior central incisor, cuspid, buccal root of first bicuspid and second bicuspid are either covered by a very thin external alveolar plate or have no osseous covering. Periapical infections incident to these teeth are immediately diagnosed by the patient from the formation of a subperiosteal abscess.

The lingual root of the superior first bicuspid is situated similarly to that of the superior lateral incisor in its relation to the buccal and lingual alveolar plates. The same mechanical problem presents itself to periapical infections of this root. The same extensive destruction should be expected and does occur. The bone destruction is not usually so extensive or so long standing, as the trouble is usually detected by the simultaneous infection of the buccal root, over which the buccal alveolar process is often absent. These cyst formations from the lingual root are the cause of many mistaken diagnoses and considerable inconvenience to the patient. They usually terminate by breaking through the lingual plate, causing a bulging in the roof of the mouth. The swelling is usually lanced several times before the cause is detected as coming from the lingual root.

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[20] This study must not be misconstrued as a personal criticism of Lukens and Lynah; but it emphasizes the necessity for experimental studies before applying diagnostic or therapeutic procedures clinically. The complete report of this study will appear elsewhere.

* Read before the Section on Stomatology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

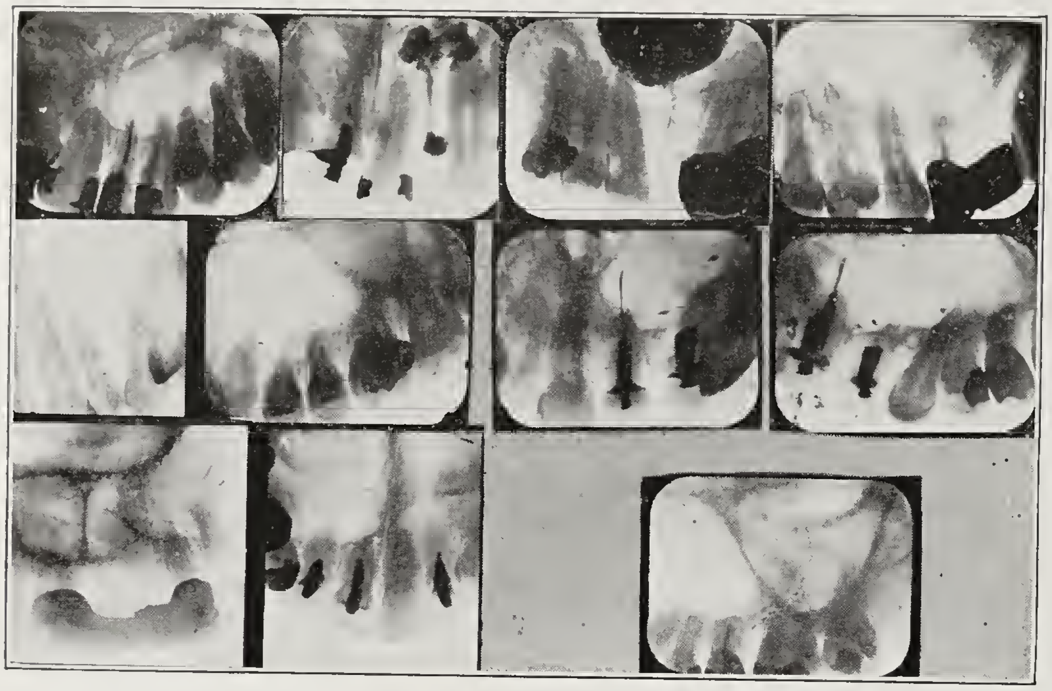

Fig. 3.—Typical extensive bone destruction in upper jaw arising from the superior lateral incisor.

Clinically, radicular cysts of the maxilla vary from those the size of a grain of wheat to those which occupy the whole cancellous tissue of the maxilla, bulging out the external and internal plates, obliterating the roof of the mouth, invading the nasal fossae and completely occupying the maxillary antrum.

The surgical correction of these enormous cysts should be accomplished with the mechanical requirements of the future prosthesis in mind. With some slight modifications, the classic operation of removal of the cyst intra-orally and draining through the inferior meatus is practiced exclusively in the treatment of cysts involving the antrum. The buccal incision is made just above the gum margin, and the mucoperiosteal tissue is carefully raised from the bone up to the attachment of the buccinator muscle. With curved scissors, the mucous and submucous tissues are dissected from the buccal fornix as far as is necessary to secure sufficient tissue for complete closure. It is important that the buccinator muscle be not included in the flap, as bringing it down over the future alveolar crest makes it impossible to secure a proper foundation for a prosthetic restoration, as the denture will be dislodged whenever the muscle contracts. By dissecting the muscle from the flap, it will be found that, eventually, the buccal fornix on the affected side will be the same depth as before. This is of great importance, as the more extensive the area to be covered by the restoration, the better the retention of the denture.

The success of the future restoration will depend to a great extent on the conservative treatment of the alveolar plates. Only as much of the buccal alveolar plate should be removed as is necessary for the complete extirpation of the cyst membrane. By all means, the part of the bone giving attachment to the buccinator should be retained. The crest of the lingual plate should be trimmed back from 2 to 5 mm., in order to prevent a wedge-shaped alveolar ridge.

Following the removal of the cyst membrane, an opening should be made into the inferior meatus, and all drainage maintained through the nose. The buccal and lingual flaps should be brought together, completely closing the cyst cavity from the mouth. If the technic regarding the preparation of the buccal flap is followed, not only may complete closure be obtained, but also a foundation for a future ridge with a buccal fornix of normal depth, which is of inestimable benefit for the future prosthesis.

CONCLUSION

Special emphasis should be placed on the importance of a knowledge of the anatomy of the periapical regions in the successful treatment of diseases arising from dental infections. The peculiar environment of the superior lateral incisor and superior first bicuspid makes the prognosis of alveolar infections decidedly different from that of the remaining anterior superior teeth. In the correction of extensive cysts arising from the superior lateral incisor, a knowledge of the principles of prosthesis, combined with those of plastic surgery, enables the operator to restore the part to its original appearance and function.

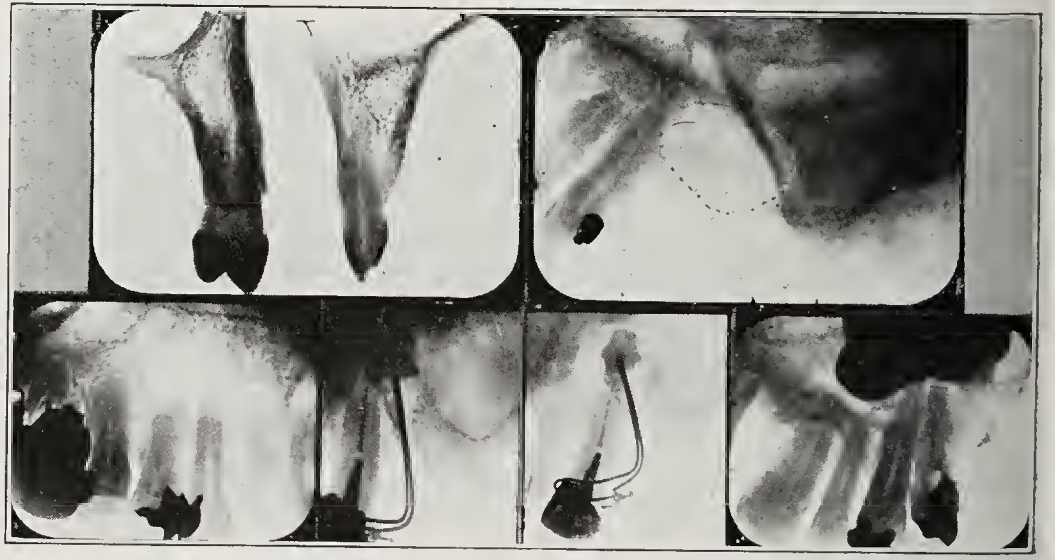

Fig. 4.—Bony relations of the lingual root of the superior first bicuspid are shown above, at left. Remaining films show typical bone destruction resulting from infections of the lingual root.

ABSTRACT OF DISCUSSION

Dr. Arthur D. Black, Chicago: My clinical observation does not agree with the statements made by Dr. MacMillan relative to the penetration of pus in the formation of sinuses in the regions he mentioned. It will be worth while for Dr. MacMillan and others to make the most critical study of the bony structures in relation to the position of the roots of the teeth in a larger number of cases than I imagine he has done up to the present time, in order that we may have more definite ideas than most of us have today. Dr. MacMillan made reference to statements in my father's book on the relationship of the upper lateral incisors to the infective involvements of the bone about the apex of the root. The effort was there made to explain why the pulp of the lateral incisor so frequently died, and to recite the difficulties of making a perfect root filling; both contributing to the frequency of abscess formation about the root apex. It has been my observation that a large number of cases in which the bone is involved about the apex of the root of the upper lateral have produced sinuses discharging through the gum, and I have seen more sinuses discharging through the gum to the buccal side of an upper first bicuspid than I have through the lingual side. My observation does not agree fully with Dr. MacMillan's statement regarding the route of discharge into the antrum or into the nasal fossae. have seen several cases in which a sinus from an upper central incisor discharged into the nasal fossa of the same side.

Dr. R. H. Ivy, Philadelphia: There is considerable room for improvement in our present methods of dealing with dental cysts. It is hoped that Dr. MacMillan will continue his researches along the lines of better operative procedures.

Dr. Theodor Blum, New York: These studies will be quite valuable in our understanding of cysts. Regarding the operative procedure, I disagree with Dr. MacMillan. To open into the antrum and drain into the nasal fossae is an old operation especially performed by the French surgeons, and my objection is that we have no right to open into the healthy maxillary sinus and disturb normal nasal relations to perform an operation which can be accomplished by draining into the mouth. I have in my own practice drained cysts of the maxilla into the nose if the sinus was diseased, because both the sinus and the cyst as well needed attention. The operation which was illustrated by Dr. MacMillan with lantern slides, I personally do not approve of. I find it more advantageous to the dentist who will make a plate later on, if we keep well above the alveolus; even if the teeth have to be removed, they should be retained while operating in cleaning out the cyst, leaving the removal of the teeth as the last part of our operation. In this way we save the alveolus and give the patient as well as the dentist a good foundation for a prosthetic appliance. If the cyst is moderately large the wound can be sutured, and if very large, the flap is replaced in the cyst cavity or sutured to the cyst membrane as indicated.

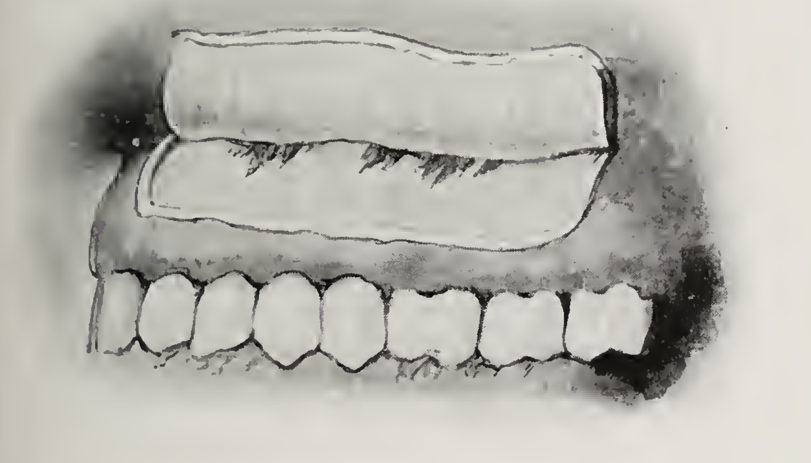

Fig. 5.—The buccal flap should not include the attachments of the muscles.

Dr. Herbert A. Potts, Chicago: When operating in these cases, we should keep in mind the differentiation between cysts and abscesses. The terms as they have been employed in the paper and in the discussion might lead one to think that no clear differentiation was made. Ordinarily the drainage of the cyst is contraindicated; suturing the mucous membrane of the mouth to the membrane of the cyst, I would hardly speak of as a drainage operation. I am in the habit of treating these large cysts as does Dr. Blum. It is a wonderful revelation to see how prone the bones of the face, that is the maxilla and the mandible, are to resume their normal size and contour. After suturing the mucous membrane of the gum to the membrane of the cyst, even though it has fully compressed the antrum, within six or eight months, or a year, the maxilla will be perfectly normal; furthermore, the patient is well in a week, when, if that cyst wall is dissected out, it leaves a suppurating cavity which must be packed for a year or more and then we do not have the restoration as by the other method; furthermore, the replacement is by scar tissue and not by bone. The cyst of the lower jaw acts in the same way, and in the restoration of the alveolar ridge, I have in a few cases simply sutured the cyst wall to the mucous membrane, leaving the denuded teeth in place until a partial restoration had taken place, fearing if I took out those teeth I would take away the bony ridge. After a few weeks there is a new bony formation in the neighborhood; then teeth are extracted, the result being a firm normal ridge.

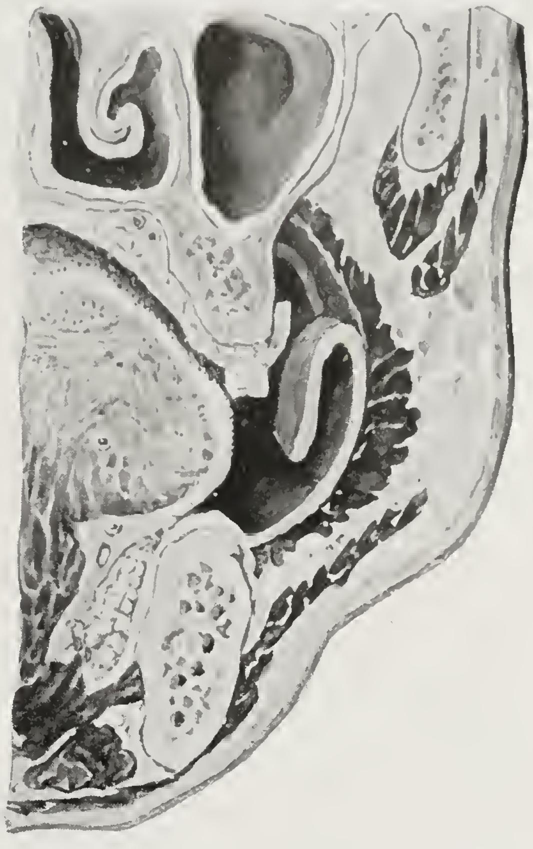

Fig. 6.—Cross section showing the buccinator muscle intact. The flap should not include or interfere with Stenson's duct.

Dr. Hugh W. MacMillan, Cincinnati: I tried to emphasize the fact that only extensive cysts involving the maxillary sinus and nasal fossae were being considered. Also, may I again repeat that these extensive radicular cysts do occur occasionally around teeth other than the superior lateral incisor, but I believe they occur only when the characteristic anatomic environment of the apex of the tooth is changed to resemble that surrounding the apex of the superior lateral incisor. These anatomic relations equally affect the

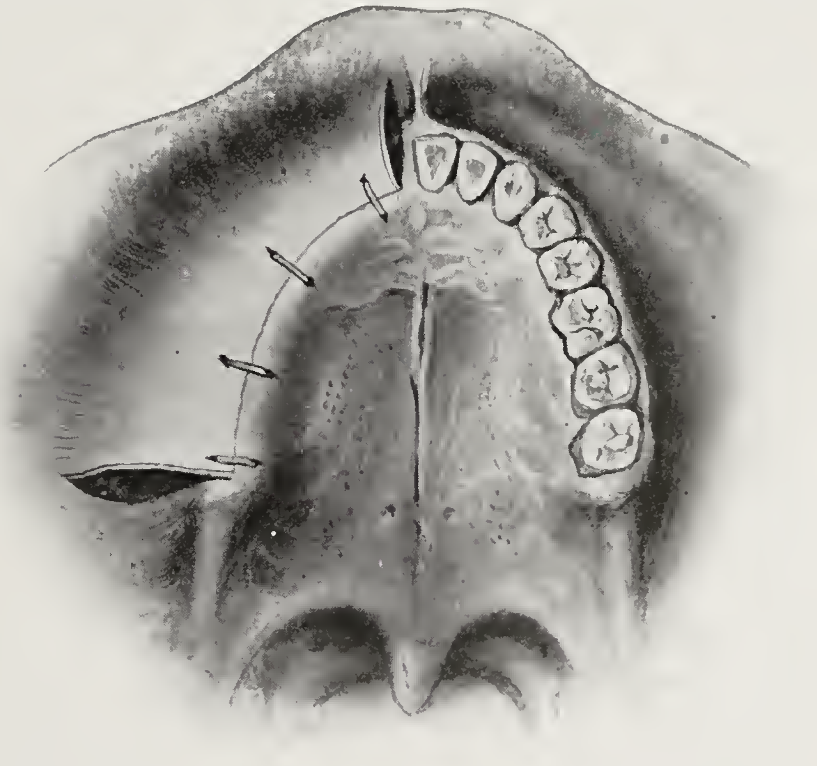

Fig. 7.—The antrum and the cyst cavity are completely separated from the oral cavity by the flap. Drainage is maintained through an opening into the inferior meatus.

pathology of alveolar abscesses, chronic osteitis or cyst formation. In regard to Dr. Theodor Blum's criticism of the operation, this operation is indicated when the cyst has involved the antrum and nasal cavity, causing great destruction of bone. The end-results show it to be conservative rather than radical. The point on which I expected the greatest discussion has apparently been overlooked. By actual measurement of models it can be demonstrated that, by employing the flap as I have outlined, the eventual depth of the buccal vestibule is the same as before. From the esthetic and prosthetic view point this is the criterion of the success of the operation. The etiology and classification of cyst have not been considered in this paper. An attempt has been made to furnish a further explanation for these extensive cyst formations from an anatomic basis and to present some observations which Dr. Arthur Black in his discussion has said were "points evidently heretofore overlooked."

UROGRAPHY AS A METHOD OF DIAGNOSIS *

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NEW YORK

The confusing array of terms used to demonstrate the picturing of the various overlapping areas of the genito-urinary tract has been grouped by Dr. Braasch under the term urography.

Perhaps no branch of scientific medicine embraces such diagnostic value and, yet, diversity of methods as urography. In spite of their slow development, modern standardized methods of gastro-intestinal roentgenography now scarcely vary in the slightest detail from a uniform procedure as regards mediums, time element, etc.; on the other hand, urography presents scarcely one uniform detail. Disapproved by many men, actually feared by some, and utilized with extreme caution by others, the method comprises a variety of procedures, including gravity and syringe methods of injection. An infinite number of mediums are used, varying from simple solutions to elaborate paint pot mixtures, with a similarly unstandardized time element as regards injection, distention, roentgenography, and the like.

A discussion of pyelography cannot but encroach on the domain of those who honestly believe that double pyelograms are distinctly contraindicated and my paper does not discuss this issue. We have not had bad results following double pyelograms, and it is our practice to make them. Many of the plates, however, which are included in this demonstration are single pyelograms. Nor are we insistent on the use of sodium iodid as a medium. Our experience, however, has borne out our preference for the solution.

Careful studies of sodium iodid convinced Cameron in 1914 that it was ideal for pelvic injection, and he demonstrated its relative nontoxicity. Later studies by Lowsley and Muller, recently reported, bore out his observation, to the exclusion of numerous other mediums tried. Injected bladder and kidneys showed only a cloudy urine as the result of injection. This was likewise produced by kidney trauma, and hence could not be adversely interpreted. No relative discrepancy was noted in the effect of the gravity or syringe method of injection, except in the accuracy of the former. Consequently we have adopted, as a medium, 20 per cent. solution of sodium iodid, introduced by spring as our standard procedure.

Thirty-nine urologic services and departments wer questioned as to the routine method of urograph Sixteen were using sodium thorium nitrate as medium, ten were using sodium bromid, eight wer using sodium iodid, and the remainder used variou other solutions.

Indispensable, it would seem, for the proper pe formance of pyelography is the proximity of the roent gen-ray outfit of the cystoscopic table. A review o the methods available for roentgen ray revealed tha only eleven, or 14 per cent., had facilities for roent genographing the patient immediately at the end of th ureteral catheterization. In nineteen hospitals, the tabl was removed or the patient shifted to a hospital truc and transported a varying distance to the roentgen-ra department, the cystoscope having been taken out an catheters left in situ. I believe that loss of time i this procedure is responsible for many of the difficultie of pyelography. Delays of one sort or another in th roentgen-ray room naturally entail further uretera trauma from the continued presence of the catheter with only too frequent reflex inhibition of the kidney which is subsequently less resistant to the introductio of the urographic medium. In this connection standard of procedure would certainly insure mor uniform results. I do not feel that it is fair to credi urography with harmful results obtained under thes conditions.

The arrangement illustrated in Figure 1 is, to m mind, ideal for a cystoscopic and roentgenographi outfit. This is in use at the James B. Brady Foundation of the New York Hospital and was installed at minimum of expense. For a smaller outfit, the entir equipment would obviously cost much less.

CLASSIFICATION OF SYMPTOMS FOR WHICH CYSTOSCOPIES AND PYELOGRAPHY WERE PERFORMED IN SIX HUNDRED AND SIXTY-ONE CASES

No. Chief Symptom	Cystoscopy and Ureteral Catheter	Diagnosis Evident on Routine Examination	Diagnosis Not Evident on Routine Examination	Diagnosis Established on Pyelographic Examination	Pyelogram Not Helpful
1. Pain on right or left side (renal colic cases)	290	44	28	140	78
2. Frequency............	108	23	13	59	13
3. Obstructive symptoms	64	8	42	14*	..
4. Dysuria...............	49	18	21	25 (19 done subsequently)	13
5. Fever with pyuria......	39	32	7	3	..
6. Hematuria............	38	1	2	11†	..
7. Diagnostic............	21	0	0	21	..
8. Lumbosaeral pain......	19	2	15	7	3
9. Nephroptosis..........	17	7	10	8	1
10. Neurotie symptoms....	16	+	+	278	111

* Includes numerous cases of obstruction at vesical neck.
† Includes various cases of bladder tumor.

In this connection, it might be well to state that our three most serious reactions following urologic procedures occurred in instances in which pyelography had not been used and only ureteral catheterization had been performed. Two of these patients developed a complete suppression and subsequently recovered. Numerous observations are at hand that simple observation cystoscopy has been fraught with serious consequences. In other cases, if pyelography has been done, the ill effects are attributed to the pyelography, whereas the catheterization of ureters is equally, if not more greatly, at fault. Yet one would not think of interdicting ureteral catheterization on this account.

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* From the Urological Department (James B. Brady Foundation) of the New York Hospital.

* Read before the Section on Urology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

In the selection of suitable cases for pyelography, it would seem that a uniform standard should prevail. In our practice, contraindication of the procedure has been limited to four conditions: (1) when fever is present; (2) in the aged or infirm; (3) in severe bleeding from either kidney, and (4) when the kidney fails to function after ureteral catheterization.

On the other hand, patients presenting kidney and ureteral symptoms, varying from renal colic and pyelitis to destruction of the kidney, are examined as a routine by means of injecting an opaque fluid, even when examination of specimens or other routine measures can indicate the lesion. We find this preferable to other methods in the following conditions: Kidney: (1) Recognition of stones invisible on account of varying density; (2) early renal tumor; (3) pyelitis; (4) anomalies of the kidney and ureter, and (5) pyelonephritis and pyonephrosis. Ureter: (2) Ureteritis and inflammatory dilatation; (2) stricture of ureter; (3) diverticulum of ureter; (4) ureteral anomaly; (5) kinks of ureter, and (6) tumor of ureter. Bladder: (1) Diverticulum and (2) tabetic bladder.

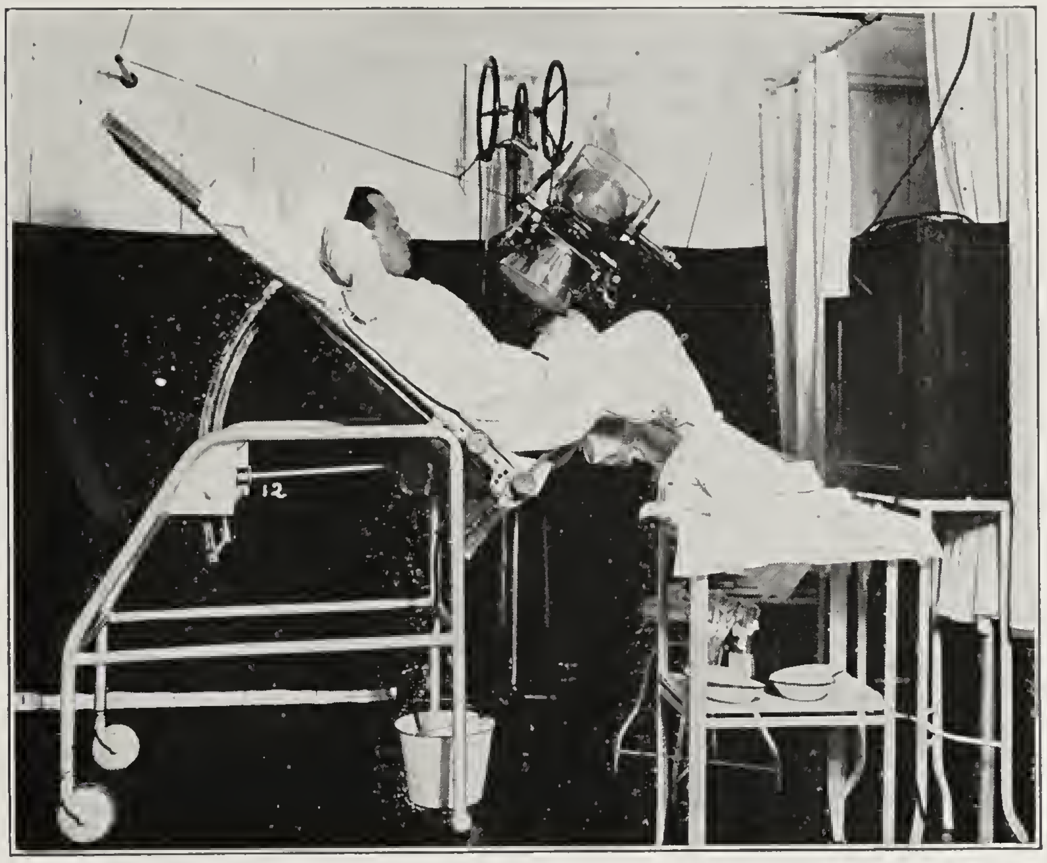

Fig. 1.—One section of a four-room suite of cystoscopic and roentgen-ray rooms. The roentgen-ray stand is moved from one compartment to another, each compartment being separated by heavy curtains. Overhead, electric connections are installed. The illustration shows position of table for roentgenography of ureters and bladder after withdrawal of catheter.

The accompanying table represents a classification of the various chief symptoms for which we have performed cystoscopies and pyelography in a series of 561 cases.

In will be noted that in only 135, or less than 25 per cent., we considered the diagnosis as established by the ureteral catheter specimen. In 278, or almost 50 per cent., the diagnosis was firmly established or concluded by the pyelogram. But in 111, or less than 12 per cent., the urogram did not indicate the lesion in the kidney. On the other hand, it ruled out the kidney and ureter entirely as a cause of symptoms. As stated above, we had a severe reaction in but three cases, and in these cases pyelography was not performed, and the reaction was apparently due to the irritation of the ureter from the catheter.

Our method of cystoscopy and pyelography is as follows: After catheterization of the ureter and the collection of specimens for routine examination, 1 c.c. of phenolsulphonephthalein is given intravenously. The appearance time is carefully noted and, if synchronous and within normal limits, a small amount of urine is collected for a limited period. During this time, the preliminary roentgenograms are made while the appearance and collection of the phenolsulphonephthalein is awaited. A sufficient number of loading screens facilitates the work of the operator and saves valuable time in the procedure. If the usual difficulty of one catheter or the other refusing to flow cannot be overcome, and there is evidence of complete inhibition of kidney function, no injection is made on that side. If this inhibition is due to an obvious pathologic condition, however, pyelography is done. Here judgment must be the guiding factor.

A measured quantity of warm sodium iodid is then introduced with a bulb syringe. Frequent practice soon develops a sense of sufficient pressure; we have devised a simple apparatus for measuring the pressure applied to the column of solution.

I cannot emphasize too strongly the importance of the heated solution. The various mediums are chosen for their high atomic weight, and therefore maintain an even degree of temperature more or less constantly. The introduction of a cold solution into a sensitive kidney already irritated by ureteral catheter and, more so, into a diseased one, is per se quite inadvisable. Our solutions are kept at body temperature continuously, and we feel that this precaution in a large measure obviates some disagreeable after-effects.

The solution is injected until pain is complained of, and then a very small quantity is withdrawn and the catheter pulled out until we feel that it is just below the kidney pelvis, following which an exposure is made. The catheter is then withdrawn from 6 to 8 inches farther, a slight amount of fluid again injected, and another plate made. We find that this brings out ureteral and pelvic contour without the splinting effect of the catheter, which may straighten out kinks and angulations and otherwise disguise the pathologic condition.

With the table in the semierect position, catheters are slowly withdrawn, and the fluid meanwhile injected and the instrument removed. A plate at this moment serves to portray the outline of the lower ureter and also to give an idea of the emptying time of the entire tract. Plates at five, ten, fifteen and twenty minutes are taken of suitable cases, following removal of the instrument to determine the emptying time of the pelvis and ureter in the presence of the existing pathologic condition. By this means, we feel, we have learned much of value regarding kidney and ureteral function in pathologic states, and a summary of our findings will be reported in detail as soon as a sufficiently large series of cases is available.

With this technic developed to an easily attainable degree of efficiency, barring unavoidable difficulties of catheterization and the like, the entire procedure can be completed in twenty minutes. This reduces to a minimum the trauma of the process and is, we believe, responsible for the general absence of reactions.

We occasionally find cases in which it is necessary to perform cystoscopy and pyelography under anesthesia. In these cases, difficulty is universally encountered in getting a pyelogram with the outline not distorted by breathing. Our operator has devised a unique method of making from seven to eight fractional second exposures during the same phase of the respiratory cycle, the roentgen-ray machine being equipped with an automatic time switch, and he is thus able to get the kidney in relatively the same position each time.

It has been noted that hydronephrotic kidneys will retain the injected solution without apparent ill effect for as long a time as two and one-half hours after injection, and in cases of stricture of the ureter there is always a delay in the affected side, the healthy side emptying almost immediately. In no case of stricture has the retained opaque medium been noted at a time later than twenty minutes.

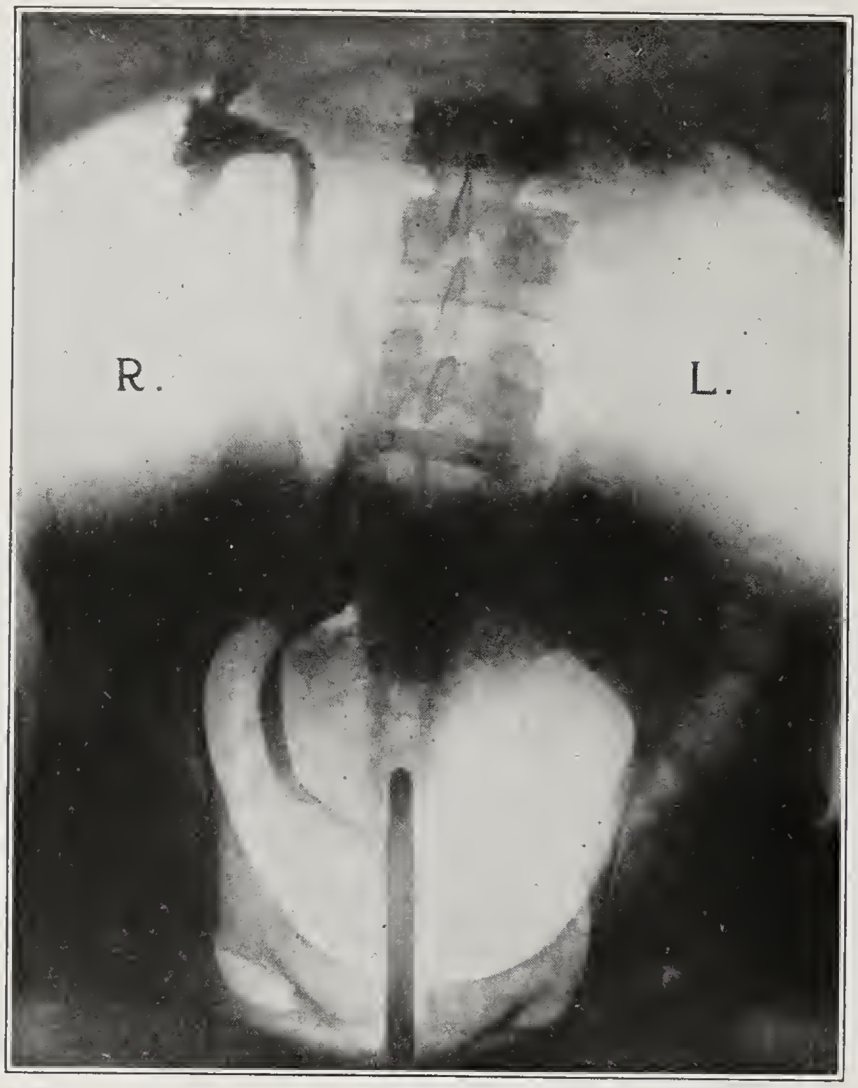

Fig. 2.—Good function on each side with infection. Roentgenogram reveals condition of ureter as result of infection; possibility of obstruction at points of angulation.

There is a great variety in the intensity and the destructiveness of kidney infections. It is impossible to tell how much of the pelvis is damaged from the appearance of the catheterized specimen. A recent case of mine showed typical pyonephrotic urine, one-third pus with a supernatant layer of thin, watery fluid collected from the right side. The patient had every symptom of pus kidney, and it was supposed that there was an extreme infection on that side, although the pyelogram revealed only dilatation of the ureter. On operation, I found only a slightly enlarged kidney with a ureter thickened to the size of the little finger, and nephrectomy was performed with removal of 5 inches of the ureter. Examination of the kidney later revealed an inflammatory process very pronounced in the ureter, right up to the kidney pelvis, where it stopped abruptly. In pyelitis there is usually a greater or less dilatation of the kidney pelvis and ureter. A knowledge of the extent of the infection may greatly guide the vigor of the treatment and otherwise influence the after-care.

A large stone which does not cast a shadow in the roentgenograms will often show a thinning out of the pyelographic shadow at that point, and in this way the pyelogram is helpful in the diagnosis of stone. Hydronephrosis, to be sure, may often be diagnosed by the presence of a steady flow of urine through the catheter. Other methods are at hand for determining the exact amount of solution injected, such as the use of methylene blue coloring and watching for the appearance of overflow into the bladder. Numerous patients with hydronephrosis, however, have been frequently injected without effect, and pyelographic diagnosis is certainly far more desirable and accurate in determining the extent of the position.

In malignant growths of the kidney, a filling defect is usually noted in the pelvis if pyelography is properly done. To one experienced in interpreting pyelograms, diagnosis of small and early tumors can often readily be made, and operative treatment instituted before metastasis has occurred.

We are not convinced of the possibility or practicability of making a diagnosis of ureteral stricture by the "hang" on a ureteral bougie. He have, however, made stricture of the ureter our commonest diagnosis, having noted the condition present in 106 cases to date. This condition can be readily demonstrated by roentgen ray. The studies of Goldstein have brought out the fact that, despite the anatomic points of narrowing of the ureter, the roentgenogram appears as a thin tube without points of narrowing or constriction. We have observed the same condition, and feel justified in making the diagnosis of stricture when distortion of the ureter occurs in varying degree. Our experience has led us to believe that the condition occurs frequently in men, and we are prepared to accept the existence of the condition as due to focal infections. A case in point is as follows:

A man, aged 42, because of frequency of urination and pyuria, was examined cystoscopically. A moderate cystitis was noted, with a small area of erosion in the posttrigonal region. There was a moderate degree of contraction of the bladder neck and, in the belief that this was the cause of the frequency, a V-shaped piece was burned away. Symptoms continued, however, with but slight relief. Specimens from each side showed a few bacilli on the right side. The roentgenogram revealed a series of strictures on the right side, almost occluding the ureter at two points and undoubtedly, we feel, the cause of the trouble. He had also numerous root abscesses of the teeth and an extreme degree of pyorrhea.

In the diagnosis of abnormalities of the bladder, congenital diverticula and abnormalities of the vesical neck due to tabes, cystograms are undoubtedly confirmatory. We have varied our technic here by using silver iodid emulsion, on the suggestion of Dr. Braasch, with good results. This has proved less irritating, and is at the same time therapeutic. In our series of cases there are included also several injections of the seminal vesicles which were made for the purpose of diagnosis.

As to the interpretation of results, just as complete cooperation is essential on the part of the roentgenographer, so too the interpretation of the plate should be based not only on the visual impression but also on supplied data, such as the passage of the catheter, ureteral obstruction, if any, character of flow, amount of sodium iodid injected, as well as a short abstract of the history and symptoms. In this way, the roentgen diagnostician can more perfectly correlate his findings and impressions. Five years ago, the conviction that pyelography should be restricted to those comparatively rare cases in which the correct recognition of a renal lesion by a combination of all other methods of diagnosis is impossible was stated by a prominent urologist and shared in by many others. This may well have applied at a time when the deleterious effects of silver salts were frequently encountered. A review of our cases, showing a wider range of pathologic conditions of the ureter and kidney than was ever before suspected, with a variety and diversity of lesions almost beyond the comprehension of the experienced urologist, has been the actuating factor in the establishment of urography as a routine procedure in selected cases. This has been strengthened by our convictions as to the harmlessness of the procedure. I would recommend, however, the adoption of more uniform and standard methods of technic as necessary in these results, and we feel that the adoption of these methods will record another permanent advance in urology quite in keeping with the strides which have been made up to the present time.

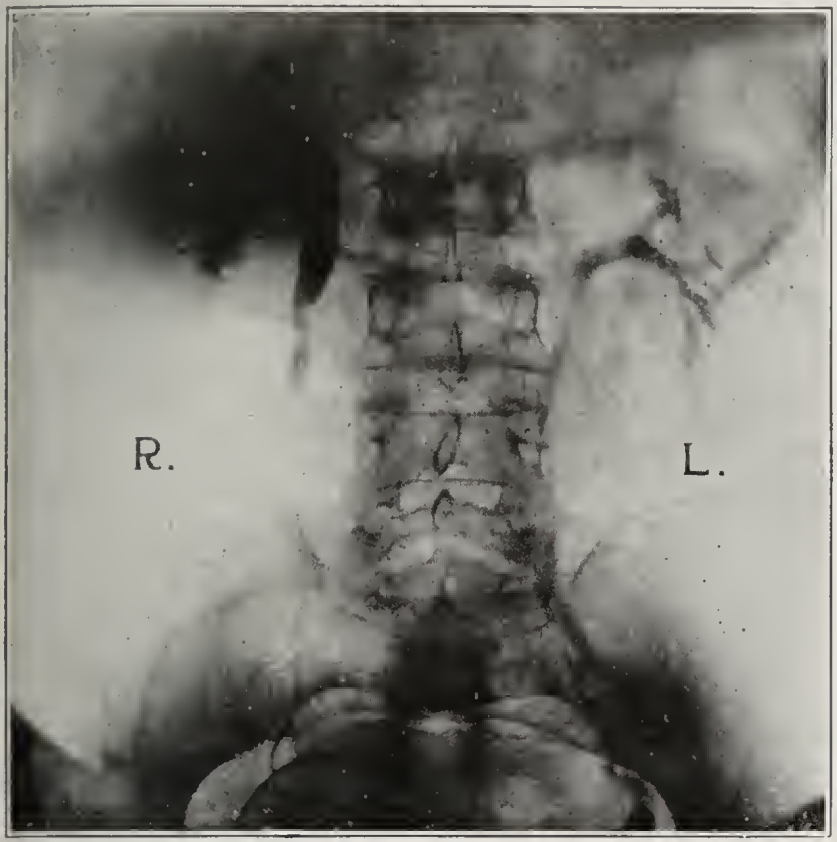

Fig. 3.—Two-minute delay in appearance time of phenolsulphonephthalein only discrepancy in separate kidney specimens; infection on both sides with pus and bacilli. Roentgenogram reveals greater extent on left side with almost obstructive stricture and beginning hydronephrosis; patient free from symptoms under ureteral dilation.

SUMMARY

1. Pyelography is indispensable as a routine urologic procedure in selected cases because: (a) it gives more accurate knowledge of the pathologic condition present; (b) it indicates more frequently the cause of disturbed function when other data are useless; (c) it is a means of information when other methods of diagnosis give no clue to the condition, and (d) it accurately indicates renal anomalies, conditions in which usually a moderate amount of disease is also present.

2. With uniform technic and ideal facilities, pyelography can be performed without harm to the patient and should be utilized more frequently in urologic diagnosis.

8 West Sixteenth Street.

ABSTRACT OF DISCUSSION

Dr. Hermon C. Bumpus, Jr., Rochester, Minn.: I agree that the need of pyelography is apparent in an increasing number of cases, but I cannot agree that it is an entirely harmless procedure. The procedure has not been adopted generally because of the fear of subsequent reaction. It is generally true in medicine that when several methods are recommended no one method is satisfactory; this is true in respect to pyelographic mediums. The fact that certain clinics use various mediums means that the right one has not yet been found. Although the bromid we are using at present is more satisfactory than the thorium we used formerly, there is still ample opportunity for improvement. In an effort to find a satisfactory medium, Scholl injected sodium iodid intravenously in a number of cases, and obtained surprisingly good cystograms. The objection to injecting intravenously what could just as well be run through a urethral catheter is apparent. A drug which will cast a shadow of the renal pelvis when given intravenously will be the ideal pyelographic medium. Sodium iodid performed this function to a limited extent, but the drug has not been found which, when excreted by the kidney, will show the renal pelvis sufficiently clear to be of value.

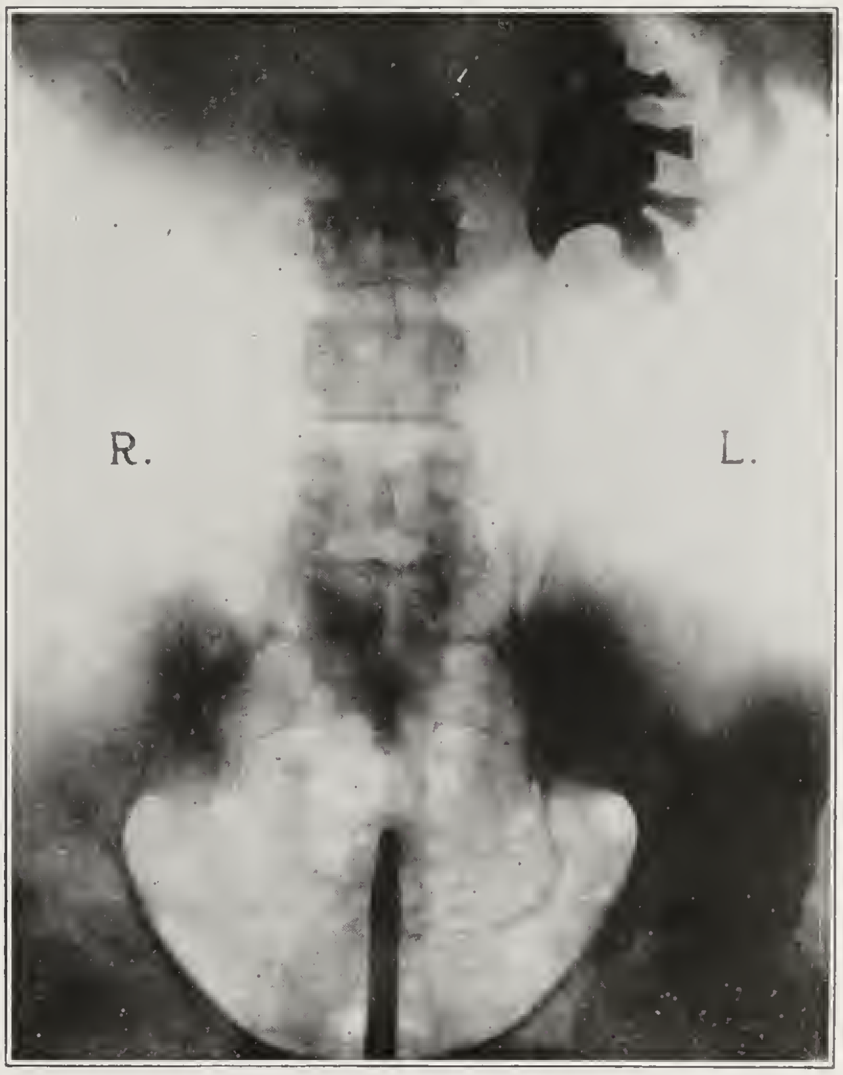

Fig. 4.—Pain on left side for two years with two acute attacks; cloudy urine on left side, with one-minute delay in dye appearance; no obstruction encountered. Roentgenogram revealed, however, a fairly extensive hydronephrosis with a sharp delineation between ureter and pelvic junction; ureter otherwise normal. (Courtesy of Dr. F. C. Steinmetz.)

Dr. L. T. LeWald, New York: I wonder whether any one here has used bismuth and ammonium citrate as advocated by Woodruff. I have tried to make up the solution used by Woodruff, one part of bismuth or ammonium citrate to four parts of hot water. It is listed in the U. S. Phamacopeia, and is a beautiful medium, but in a glass which I have kept on my desk for three months there is a distinct precipitate. Woodruff says that if there is precipitation you should add a little ammonia water to keep it in solution. My experience is that you would have to add a good deal of ammonia water to keep it in proper solution.

Dr. J. H. Morrissey, New York: There is too much fear and hesitancy about resorting to injections of the urinary tract to demonstrate pathologic conditions. It certainly has saved us from many pitfalls when we have used it. To me it is discouraging to know of a good, large urologic clinic, where, if satisfactory pyelograms are obtained, the urologist is not allowed in the operating room for two weeks by way of punishment for distending the renal pelvis.

THE TABETIC BLADDER FROM THE STANDPOINT OF THE UROLOGIST *

BUDD C. CORBUS, M.D.
AND
VINCENT J. O'CONOR, M.D.
CHICAGO

During the last few years, there have appeared a number of excellent contributions dealing with the secondary changes in the lower urinary tract resulting from the more obscure types of central nervous disease. The careful considerations of Plaggemeyer [1] and others [2] in the management of the urinary conditions resulting from spinal injury have prompted us to undertake a more detailed study of a somewhat similar group of cases. We refer to the diagnostic and prognostic problems associated with the so-called "tabetic bladder."

The primary consideration in this class of cases is the earliest possible recognition of any urinary changes which may occur in syphilitic involvement of the nervous system prior to the development of obvious tabetic or ataxic symptoms. The major problem, however, involves an accurate diagnosis is those cases in which the specific tabetic process has become apparently dormant, while the urinary abnormality persists or gradually increases in severity.

The secondary pathologic changes in the urinary tract depend on the extent and character of nerve destruction involved in the paralytic process. Our most recent knowledge of the innervation of the apparatus for urine expulsion comes from de Lisi and Colombino.[3] According to these authors, the bladder receives a triple system of nerves. The most important group proceeds from the sympathetic system by way of the second, third and fourth lateral lumbar ganglions, the mesenteric ganglions, the hypogastric nerves and the hypogastric plexus; the second, by way of the pelvic nerves of the autonomous sacral group. The third system of nerves provides for the external sphincter of the urethra and the perineal muscles which are auxiliary to the expulsion of urine. The latter are represented by the pudendal and belong to the sacral plexus, and therefore to the cerebrospinal system. This system is not usually affected, except in the most advanced stages of the disease.

From a study of the innervation, it is seen that any attempt to correlate the neuropathology of bladder disturbances is extremely difficult. Repeated usage of the terms preclinical or "preataxic," and clinical or "ataxic," has classified the disease into these two stages. It is the former which most concerns the urologist as a diagnostic problem, since the alterations of bladder function are most difficult of interpretation in the earliest stages of nerve fiber involvement.

For the purpose of studying the very earliest urinary changes which might occur, a series of fifty patients with active cerebrospinal syphilis but without tabetic symptoms were investigated. The results of the study are summarized in Table 1.

TABLE 1.—EARLY URINARY CHANGES IN PATIENTS WITH ACTIVE CEREBROSPINAL SYPHILIS, BUT WITHOUT TABETIC SYMPTOMS

Condition	No. of Cases	Patients Examined
Positive blood Wassermann reaction	38	50
Positive spinal fluid Wassermann reaction	50	50
Hyperactive patellar reflex	8	50
Patellar reflex absent	0	50
Rhomberg sign	0	50
Argyll Robertson pupil	5	45
Babinski sign	0	34
Frequency of urination	7	50
Difficulty in starting stream	4	50
Occasional dysuria	3	50
Nocturnal incontinence of urine	2	50
Residual urine	14	50
Relaxed rectal sphincter	3	50

Of the eight patients with hyperactive knee jerks, four complained of some frequency of urination and three of occasional dysuria. None of these patients had any residual urine when tested by catheter. No pathologic condition of the urinary tract was demonstrable, apart from bladder irritability. The urinalysis was normal in all.

TABLE 2.—FINDINGS IN TWENTY PATIENTS WITH DEFINITE ATAXIC SYMPTOMS

Condition	No. of Patients
Positive blood Wassermann reaction	12
Positive spinal fluid Wassermann reaction	20
Hyperactive patellar reflex	2
Patellar reflex absent or sluggish	12
Positive Rhomberg sign	12
Argyll Robertson pupil	16
Frequency of urination	4
Infrequency of urination	6
Difficult in starting stream	3
Dysuria	4
Incontinence	7
Urinary obstruction	2
Stricture of urethra	1
"Median bar" obstruction	1
Loss of sexual power	13
Crises (gastric or vesical)	3
Hematuria	1
Uremia	0
Pyuria	7
Prostatitis	3
Relaxed rectal sphincter	6
Residual urine	18

Of the fourteen patients with residual urine, three had relaxed rectal sphincters, two had nocturnal incontinence, and four had Argyll Robertson pupils. The smallest amount of residual urine was 60 c.c. and the largest 180 c.c. This was tested on two or more occasions. Pyuria was present in four of these cases.

In none of these patients was there sufficient urinary distress to cause them to seek medical advice except in the two cases of nocturnal incontinence. All were

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* Read before the Section on Urology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] Plaggemeyer, H. W.: Shell Fractures of the Spine, with Observations on Kidney and Bladder Function, J. A. M. A. **73**: 1599 (Nov. 22) 1919.

[2] Walker, J. T.: The Bladder in Gunshot and Other Injuries of the Spinal Cord, Lancet **1**: 173 (Feb. 3) 1917.

[3] De Lisi, Lionello, and Colombino, Silvio: General Study of the Innervation of the Bladder, S. Lattes & Co., Genoa, 1920.

under active syphilitic management. In the preataxic stage, there may be definite bladder symptoms, such as frequency and dysuria, with or without urine retention. The patellar reflexes may be absent, but, on the contrary, these may be normal or exaggerated. During this period, the blood Wassermann reaction may or may not be positive, while the spinal fluid Wassermann reaction is invariably positive unless the patient has previously had prolonged syphilitic treatment. The presence of an Argyll Robertson pupil, or Babinski sign, together with a relaxed rectal sphincter, should always suggest cerebrospinal syphilis. In concluding a diagnosis, greater stress should be placed on the spinal fluid analysis than on the cystoscopic picture, unless the patient has previously had intensive antisyphilitic treatment.

There was also a series of twenty patients with definite ataxic symptoms and secondary disturbance of the bladder function. All of these patients had been under observation for more than eighteen months.

DIAGNOSIS

Cystoscopy was indicated to complete the diagnosis in only six cases of this group. In five of these cases cystoscopic examination had been made previously. A diagnosis of obstruction at the bladder neck had been made in four instances and operation advised. In all of these cases, the cystoscopic picture presented the typical appearance of the tabetic bladder, so ably described by Koll,[4] Caulk [5] and others. There existed marked relaxation of the internal sphincter, elevation of the trigon and trabeculation of the bladder wall.

In two of these cases, the source of the previous error in diagnosis was evident. The trigon was so markedly elevated and pushed forward, and the interureteric bar was so prominent, that, on first observation, it appeared as a definite "median bar" formation, with loss of identity of the trigon in the depth of an exaggerated bas fond (Fig. 1). On the other hand, during the last two years, we have seen six patients in whom spinal syphilis was present, and because of the presence of urinary disturbance, a diagnosis of "tabetic bladder" had been made. In each of these instances, the retention was proved by cystoscopy to be due to mechanical obstruction.

In four of these cases, the obstruction was due to a median bar formation, and in one, to a median lobe hypertrophy of the prostate. In the remaining case, the obstruction and incontinence were due to hypertrophy of the trigon, distorting the floor of the bladder, and exerting a mechanical pull on the internal vesical sphincter. In the latter instance, we were unable to explain this anomaly until our attention was called to the true etiology of this condition by the admirable work of Young and Wesson [6] (Figs. 2 and 3).

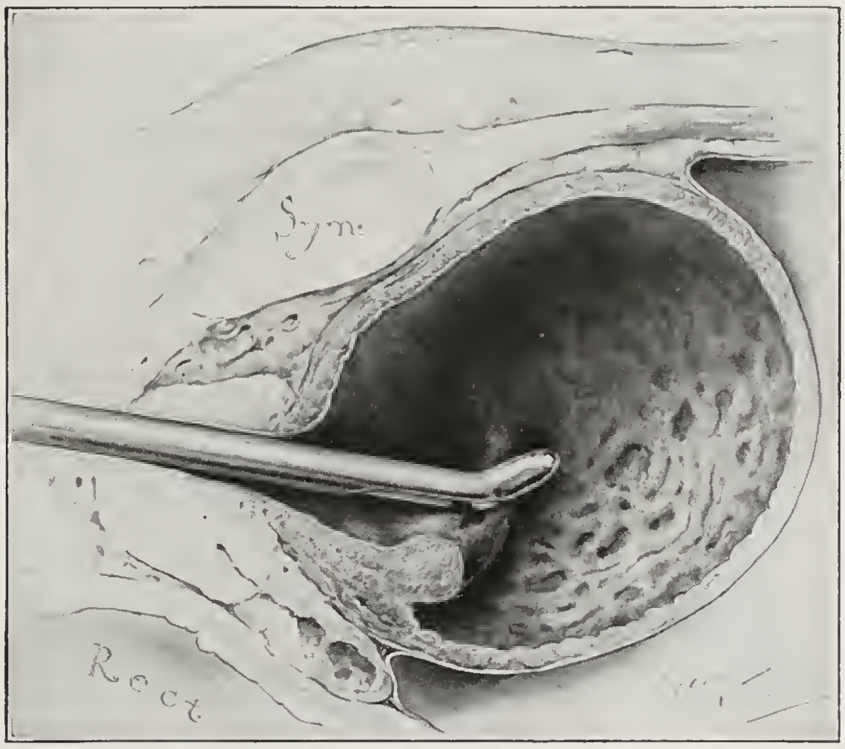

Fig. 1.—Cystoscope in erroneous position, resulting in diagnosis of median bar obstruction. The hypertrophy of the trigon and interureteric muscle, with complete relaxation of the internal sphincter, obliterates the identity of the outline of the neck of the bladder. The interpretation is especially difficult in the presence of severe bladder infection with ulceration.

Five of these patients were permanently relieved of urinary retention by operative removal of the obstructing tissue. The latter case has not as yet come to operation.

UREMIA AND THE TABETIC BLADDER

The fact that many of our patients retained large quantities of residual urine, with fair degrees of general health and comfort, led us to investigate the amount of blood urea nitrogen to assist us in determining the prognosis.

The urea nitrogen estimation of the blood in a limited number of tabetics with appreciable amounts of residual urine has been mainly within normal limits. In no instance did it compare with the nitrogenous retention that accompanies a like quantity of urine retained by mechanical obstruction. We have, therefore, come to believe that this is a helpful diagnostic point in the preliminary distinction of these conditions. In the majority of instances, we believe that the pains and associated toxic condition of the patient are due to a long standing syphilitic process and not to uremia.

The accurate diagnosis of tabetic involvement of the urinary bladder requires a definite routine method of procedure. First, a spinal fluid Wassermann test should be made, then a careful history taken and physical examination and urinary function tests should be made. Palpation and percussion of the lower urinary tract, repeated estimation of residual urine, careful urinalyses, and, lastly, cystoscopic examination when indicated, seem to us a rational plan of procedure.

TABLE 3.—FINDINGS IN CASES OF UREMIA

Patient	Residual Urine, C.c.	Blood Urea Nitrogen in 100 C.c. Mg.
P.	110	22
H.	190	30
W.	300	13.5
L.	325	24
J.	550	13
M.	800	16
B.	900	16.5
M.	1,200	13.5

TREATMENT

Treatment is either systemic or local, or both.

1. In the uncomplicated cases of tabetic bladder treatment should be systemic and not local. We believe

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[4] Koll, I. S.: Study of Twenty-Five Tabetic Bladders, Surg. Gynec. & Obst. **20**: 176. 1915.

[5] Caulk, J. R.; Greditzer, H. G., and Barnes, F. M.: Urologic Findings in Diseases of the Central Nervous System, J. A. M. A. **73**: 1594 (Nov. 22) 1919.

[6] Young, H. H., and Wesson, M. B.: The Anatomy and Surgery of the Trigone, Arch. Surg. **1**: 37 (July) 1921.

the same precautions should be taken in catheterizing a tabetic bladder, as in catheterizing a "spinal injury bladder." The less instrumentation and local manipulation the better.

A case in point follows:

J. J. L., aged 52, came under observation for tabes in January, 1919. At this time, he had a residual urine of 325 c.c.; blood urea nitrogen, 24 mg. for each hundred cubic centimeters; spinal fluid Wassermann reaction, positive; blood Wassermann reaction, negative.

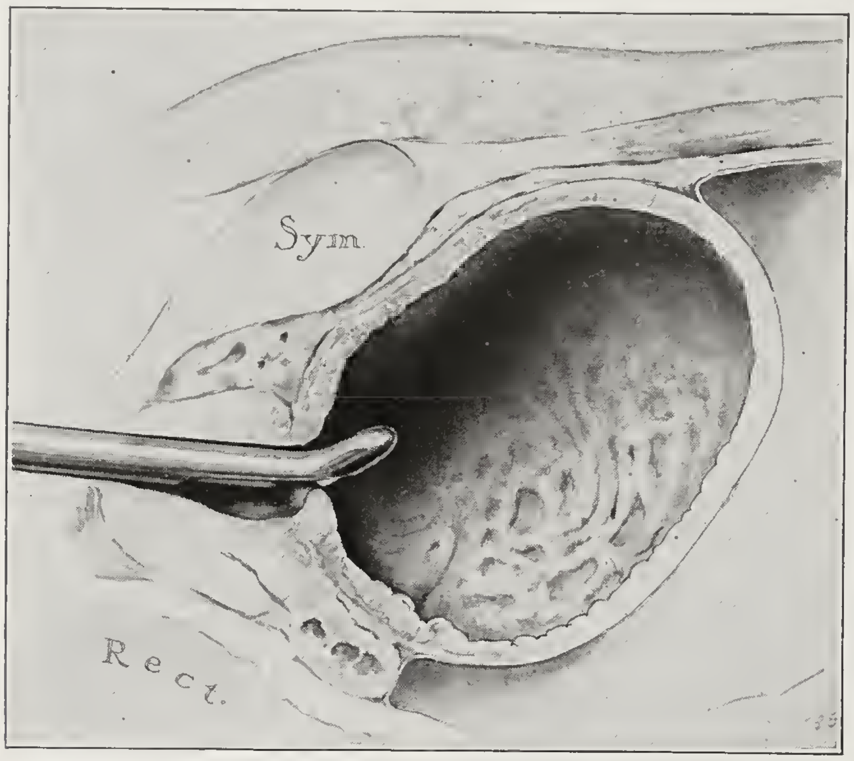

Fig. 2.—Median bar obstruction as the true cause of urinary retention in an active case of tabes.

Vigorous antisyphilitic treatment was instituted. March 12, 1921, the residual urine was 110 c.c.; blood urea nitrogen, 18 mgm. Jan. 2, 1922, the patient was absolutely well, symptomatically. The residual urine was 60 c.c.; blood urea nitrogen, 17 mg. The spinal fluid and blood Wassermann reactions had been negative for more than one year.

In this case, the only bladder symptom was occasional nocturnal incontinence, and this was completely relieved after six months of syphilitic treatment. There was never any bladder instrumentation, other than a careful aseptic estimation of the residual urine. Reversal of the spinal fluid Wassermann reaction and diminution in bladder retention were due entirely to vigorous and continuous antisyphilitic treatment. This case is illustrative of nine others in the previously quoted series of twenty patients.

The forms of treatment that have been the most satisfactory in our experience have been: intensive intravenous neo-arsphenamin injections followed by spinal drainage, continued with mercury injections or inunctions; or the spinal drainage without lumbar puncture by the hypertonic saline method. We have found the latter method superior to all other methods of introducing arsenic into the subarachnoid space.[7]

Our technic for this procedure is as follows:

All patients are put to bed at least two hours before the injections are begun. Patients are admitted generally at 8 o'clock on the morning on which treatment is instituted. Excepting for the general contraindications to the administration of neo-arsphenamin, there are no restrictions in the selection of cases for treatment.

At 10 a. m., 100 c.c. of hypertonic saline solution (15 per cent.) warmed to body temperature is given intravenously by the gravity method. We prefer the gravity method, as it insures a slow, regular diffusion of the saline. Immediately following the injection, the patient is conscious of a "feeling of warmth," which gradually increases, but never to an uncomfortable degree. Slowly the feeling of warmth passes down the back until it reaches the lumbar region, where it seems to be dispersed. The whole sensation lasts about ten minutes.

The pulse is accelerated during the feeling of warmth, but whether this is due to the saline solution or to the apprehension of the patient we are not able to state. At any rate, within ten or fifteen minutes, the patient has regained his equanimity, excepting for an increased thirst and an occasional micturition and defecation, and there is no untoward reaction. No food is permitted at midday. At the end of six hours, 0.9 gm. of neo-arsphenamin is given intravenously.

Nourishment is given four hours after the neo-arsphenamin injection. All patients are kept in bed for thirty-six hours after the puncture. Excepting for a slight rise in temperature (which is easily accounted for by the neo-arsphenamin injection), there are no complications or distressing sequelae following this procedure.

The use of fresh, sterile distilled water for the administration both of the saline solution and the neo-arsphenamin is absolutely essential if one wishes to avoid any complications.

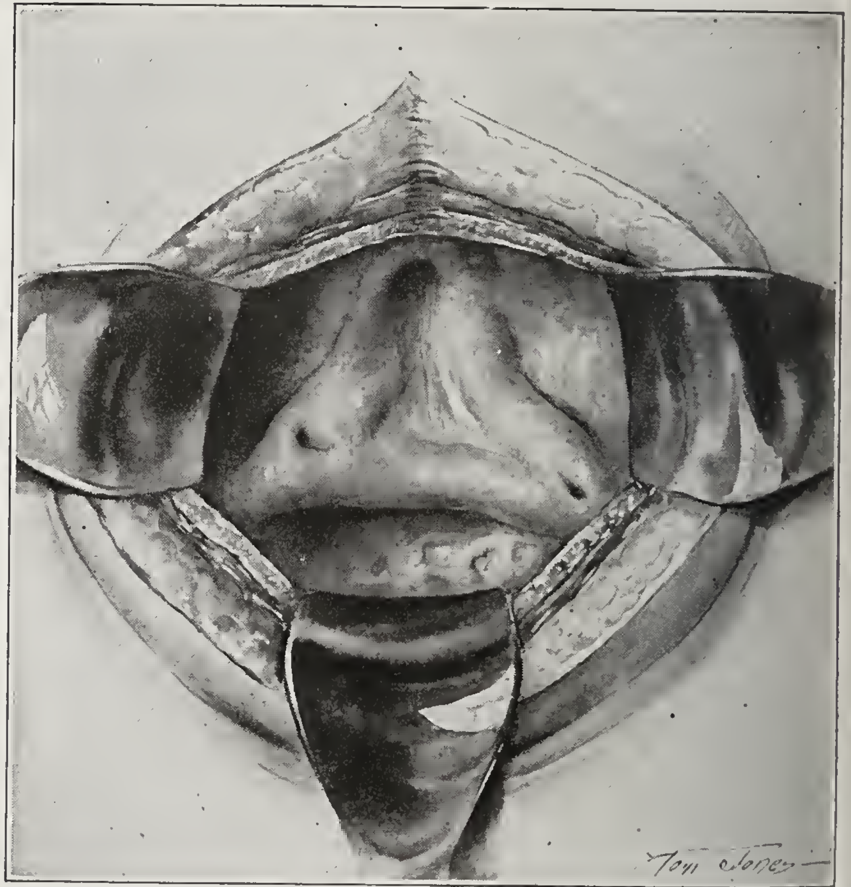

Fig. 3.—Hypertrophy of the trigon, with distortion of the bladder neck and floor. Contraction of the muscle of Bell on the left exerts upward traction on the internal vesical sphincter, causing incompetence of the sphincter, resulting in nocturnal incontinence.

LOCAL TREATMENT

Forced fluids during the day and urinary antiseptics are valuable in the earlier cases. We believe that it is best to avoid all local manipulation of the urinary tract if possible.

In badly infected cases, with dysuria and frequency, interval catheterization and lavage of the bladder may allay the symptoms. Occasionally, they aggravate them. If a considerable quantity of residual urine is present, which is causing nocturnal incontinence and bed wetting, the best course to pursue is to pass a catheter, institute lavage and then empty the bladder when the patient is retiring. This may control the incontinence.

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[7] Corbus, B. C.; O'Conor, V. J.; Lincoln, M. C., and Gardner, S. M.: Spinal Drainage Without Lumbar Puncture, J. A. M. A. **78**: 264 (Jan. 28) 1922.

In the most debilitated patients, we have attained a marked improvement by putting them to bed and inserting an indwelling urethral catheter through which the bladder is lavaged three times daily. Subsequently, interval catheterization will be resorted to.

CONCLUSIONS

1. In the uncomplicated "tabetic bladder" cases, even when a residual urine of from 900 to 1,000 c.c. is present and the blood urea nitrogen is normal, we believe that the bladder should be undisturbed. Treatment in this class of cases should be limited to systemic management.

2. Local treatment must be instituted only to combat imperative complications.

3. The cystoscope is a most valuable aid in differentiating a paralytic condition from a mechanical obstruction. It should be used only after a thorough routine has been followed. The possibilities of error in interpretation of the cystoscopic picture must be borne in mind.

30 North Michigan Avenue.

ABSTRACT OF DISCUSSION

Dr. Harry G. Greditzer, St. Louis: In 1919, I assisted Dr. Caulk in the cystoscopic examination of about 500 nerve cases, and our findings differed quite essentially from those of Dr. Corbus. In the first place, urinary symptoms often occurred before nerve changes were well marked. We found that urinary changes occurred in 93 per cent. of the cases, even before nerve changes could be demonstrated. The rectal sphincter was relaxed in 88 per cent. of the cases. Anything interfering with the function of the internal vesical sphincter will certainly interfere with the rectal sphincter. In examining the patient, we always make a note of the condition of the rectal sphincter. When it was relaxed, we looked out for a neurogenic bladder. It seems to me that in patients with from 900 to 1,000 c.c. of residual urine, the residuum should not be left alone. The paralytic sphincter acts as any obstruction that should be removed, as in a case of enlargement of the prostate. It exerts back pressure on the kidneys, and I am sure that any one who has seen 1,000 c.c. of residual urine in the presence of an enlarged prostate would not hesitate to remove the gland. Local treatment should be directed not only to the nerve condition but also to the relief of the local symptoms. In this series, we had quite a number of patients whose pains and aches improved rapidly under systematic catheterization. When they had a perceptible amount of residual urine, we drained it off systematically. With this we employed massage, and so forth. I am sure that we kept men alive as long as eight, ten or eleven months by catheterizing them. As soon as we stopped this treatment, they became uremic and died. I believe that large amounts of residual urine left in the bladder will certainly dam every kidney and have the same effect as any other obstruction. In proof of this, I have seen a picture, a cystogram, which was made in an attempt to determine what the internal sphincter looked like, whether or not a funnel had formed in one of these tabetic bladders. This patient presented a large hydro-ureter and an immense hydronephrosis. This man retained residual urine and had for a year or so.

Dr. R. E. Cumming, Detroit: Since Dr. Plaggemeyer was to have opened the discussion but is not present, I believe that it is right to say that he has been misinterpreted very widely on his stand regarding catheterization in spinal injuries and in cases of tabetic bladder. He agrees with Dr. Corbus, in spite of the evidence just advanced. We all agree that if the bladder is normal it is wonderfully tolerant to infection from bacteria. So we have no complaint to make against those who catheterize for reflex retention; but when the nerve supply is concerned, when there is myelitis, either transverse or longitudinal myelitis, as in tabes, we object because when the nerve mechanism is damaged, one catheterization may lead to infection. Infection is always the deadly element; and in the cases we have seen at necropsy, there has been a lack of any marked hydronephrosis or hydroureter, and these patients have always died of uremia. During one month, we have seen three patients come to necropsy, all of whom had had a cystoscopy performed, not to make the diagnosis but to check the findings. They were hopeless cases when referred to us. In other tabetic patients, treated for ten or eleven months, if we had continued the catheterization they demanded, I believe they would have succumbed; but by establishing drainage, by massage and by allowing the bladders to spill over, we have emptied them to a point not only compatible with life and comfort, but to the salvation of the kidneys. It is surprising to me, in consulting textbooks, to find how few neurologists speak of bladder trouble in tabes. They say it is very rare and yet the physician says it occurs in 70 per cent. I rather agree with him; I believe that it is a pity that the general practitioner does not recognize this and refer these patients to the urologist, so that by careful and skilful treatment they may live for a certain period, and reestablish bladder function, as they will, before catheterization and infection take place, thus allowing them to live a reasonable period of time after the onset of the disease. Dr. Plaggemeyer does not believe that catheterization is never indicated. The indications for catheterization in a normal bladder are entirely different from those in a bladder in which the nerve supply has been damaged.

Dr. Budd C. Corbus, Chicago: I did not read quite all of the paper in regard to treatment. We have considered the same group of cases that Dr. Greditzer refers to, i. e., preataxic and ataxic. We agree with him in regard to his classification but disagree with him in regard to the management of this condition. I am pleased to note that Dr. Cumming agrees entirely with our method of procedure.

URINARY INCONTINENCE IN THE FEMALE *

EDWARD L. YOUNG, JR., M.D.
BOSTON

The record of attempts to cure urinary incontinence in the female is an interesting illustration of the inability of most men to go straight to the point in working on any problem involving a part of the human body. The real importance of the condition, in its possibilities of discomfort and even disability to the individual, is well shown by the long array of procedures which have been advocated to help this distressing trouble. Until a few years ago, no satisfactory method of cure for incontinence in the female was known; all of the methods were more or less futile, many of them ridiculous, and some of them even dangerous. Contractile collodion has been painted over the meatus. Radial cauterization, as in a redundant rectal mucous membrane, has been used. Paraffin has been injected under the mucous membrane to make a permanent pressure against the canal. A sterile silk suture has been passed around the urethra, under the mucous membrane, and tied as tight as was considered safe. Hydrotherapy in the form of cold foot baths and hot foot baths, cold douches and hot douches has proved unavailing. Lumbar puncture and injection of the sacral nerves have been tried. Tampons and pessaries have failed. Ergot, strychnin, pituitary extract and various other drugs have been invoked in vain. Many ingenious surgical procedures have been tried; permanent artificial channels to the bladder have been opened, and the urethra itself closed, these new passages being in various places, through the abdominal wall, in some cases; by means of a trocar puncture just under the pubes and into the bladder in one case; and one surgeon even made a communication through the bladder to the vagina and then into the rectum and closed the urethra and vagina, leaving the rectal sphincter to do all the work. The urethra has been advanced; it has been dissected free, twisted on itself and resutured. Most commonly, a very tight anterior colporrhaphy has been depended on to do the work.

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* Read before the Section on Urology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

In 1914 Kelly described his method of plicating the neck of the bladder which he had used for twenty patients, sixteen of whom were cured. This consists in making a median incision in the anterior vaginal wall below the meatus down to the urethra and bladder, and, by means of a mattress suture in narrowing the internal meatus. This is then supported by a resuture of the anterior vaginal wall. This operation is simple in technic and sound in principle, and in one of the two types of urinary incontinence, forms a large part of the successful operative treatment.

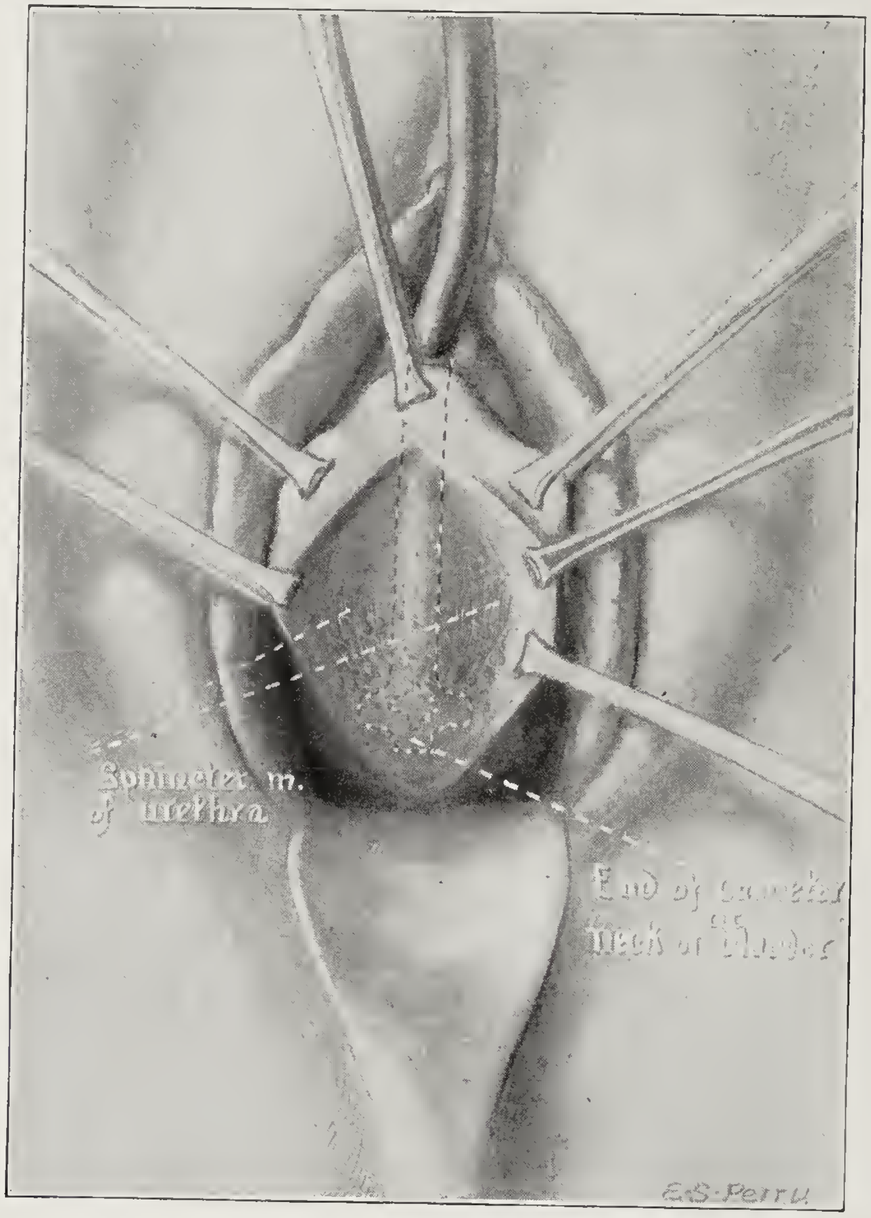

Fig. 1.—Vesical neck as identified by the Pezzer catheter.

I first became acquainted with the essential part of the operation I am about to describe in 1911, when associated with Dr. Cabot, and since then have had a chance to test its efficiency many times. Its success as carried out today depends on two features: first and most important, the isolation on careful dissection of the layer of fascia and muscle forming the external sphincter of the bladder, and its careful resuture, and, second, in one type of case, the plication of the vesical sphincter itself, as the first step. I have used this method in eighteen cases. Of these there are no known failures, and in two of these cases there had been two previous attempts and, in one patient, three attempts to close the leak, all of the patients having had what can be termed gynecologic operations.

The ease or difficulty of recognition of this layer of fascia and extrinsic muscle depends on the age of the patient and the suddenness with which the urinary leak appeared after the trauma of childbirth. This has led to an arbitrary division of this condition into two classes:

CLASSIFICATION

Class 1 is the more definite and less common type. It occurs in young women, coming on from one week to several months after childbirth, which latter does not have to be by instruments or even difficult, and is well marked from the onset. If the onset is delayed several months, the symptoms become worse rapidly, but, in the very early cases, there may be a complete lack of control from the start. The youngest patient of this class was 20 years of age. Examination in these cases may show little if any cystocele, or there may be laceration of any degree. The urethra generally feels snug, but in spite of this there is no control, and even at night, when the bladder holds more than a certain amount, there is a constant leak.

Class 2 includes the less definite, but far commoner, cases of gradual relaxation of all the sphincter muscles. It is generally preceded by the trauma of childbirth, but can occur, according to Kelly, in a nullipara, though I have not seen such a case. It is essentially a disturbance of later years, and is due to the gradual stretching and giving way of the musculature at and near the neck of the bladder.

Since practically all of the cases have their origin in the trauma of childbirth, I believe that the second class of case can be prevented in some degree by careful avoidance after childbirth of any strain on the musculature at and near the bladder neck and base. This would consist not only in sufficient rest in bed but also in frequent voiding for several weeks to prevent the slightest distention of the bladder and consequent strain on the already weakened sphincter muscles. The clinical emphasis on this, of course, lies in the hands of our obstetric brethren; but, except in conversation with Huntington of Boston, I have never heard it mentioned by any of them.

SYMPTOMATOLOGY

The onset of symptoms is always slow, and no definite time can be put down as the beginning of trouble. The first thing that is noticed, as a rule, is the escape of a few drops of urine on a sudden exertion, on coughing or laughing. The condition may go on from this to a state of constant leak so that a napkin has to be worn all the time, or it may remain more or less stationary somewhere between the two extremes. There is often marked accompanying frequency. Examination here will reveal a relaxed and also a loose urethra, that is, one not as firmly fixed under the pubic arch as is the normal. There is generally a cystocele as one part of the relaxation, and thinning out of all the supporting tissues. The thickened muscle bundle at the vesical neck will still be felt by the tip of any instrument passed into the bladder, but it is much less marked than normal.

DIAGNOSIS AND ANATOMY

The diagnosis can be made on the patient's story, provided certain other conditions can be ruled out. Lesions of the central nervous system must be excluded. All surgical conditions of the urinary tract must be considered; for instance, I had one patient referred to me for incontinence who was in reality suffering from late urinary tuberculosis. Patients often confuse, in the telling at least, marked bladder irritability, frequency and the resulting leak, with incontinence as such, and one must be on the lookout.

Then the question of chronic nephritis is always important, as the frequency resulting from that may be the whole story. In fact, any condition which causes frequency must be thought of; as the relatively slight sphincteric control of the female bladder, especially when there is previous trauma, will invariably add a certain degree of incontinence to any amount of frequency.

Cystoscopy does not disclose anything of note. Aside from some slight redness of the trigon in many cases, and a lack of any definite internal meatus, there is no change from the normal.

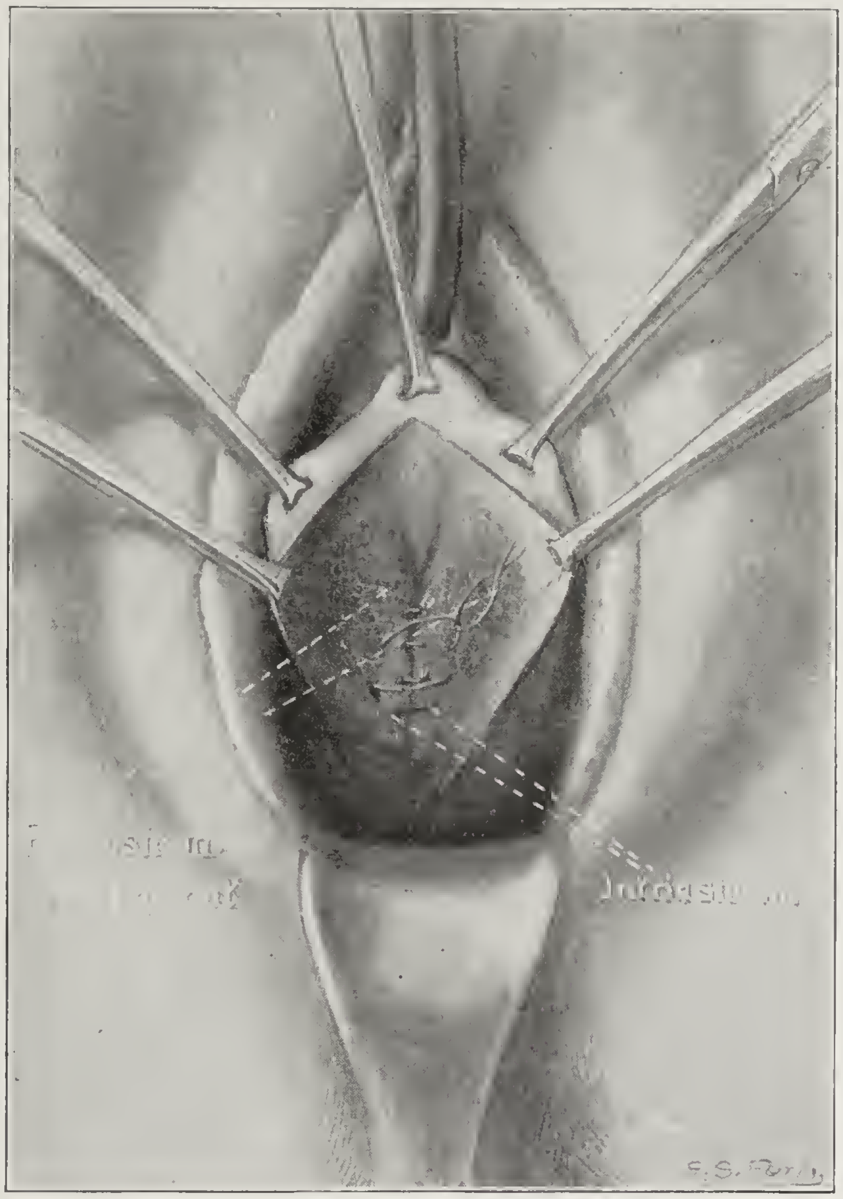

Fig. 2.—Resuture of the intrinsic muscle.

In order to emphasize the essentials of the operative treatment, I want briefly to consider the anatomy. According to the textbooks, the sphincteric control of the female bladder rests in a bundle of muscle around the internal urethral orifice, consisting of the thickening of the circular fibers of the urethra mingled with the muscle fibers of the trigon. This is aided, though feebly, by the constrictor vaginae, a thin sheet of muscle between the two layers of the triangular ligament, consisting of what, in the male, is the compressor urethrae and the upper end of the bulbocavernosus. The vesical neck is suspended under the pubic arch by fascial bands which fix it firmly in place.

If the textbooks were literally true in every case, urinary control would be adequately conserved even with a complete separation of the triangular ligament and enclosed muscle fibers, provided the vesical neck, itself, were not damaged. In the majority of cases this is true to a large extent, but not absolutely. Not only must the intrinsic muscles of the vesical neck be undamaged, but the supporting sphincter muscles between the layers of the ligament, and the ligament or fascia itself, must remain intact. The damage which results in cystocele and that which results in urinary incontinence must involve two different places. A cystocele in reality is a bladder hernia coming out between the edges of separated fascia. So long as the thickened upper fibers of the extrinsic muscles encircling the urethra are not torn, there will be no urinary leak; on the other hand, if they are ruptured, a urinary leak coming on as a result of the trauma will manifest itself without any cystocele necessarily being present. Moreover, there may not be any evidence of damage to the intrinsic muscles, and resuture of the torn extrinsic muscles, which will be found at operation, will result in cure without any stitches in the bladder neck at all.

OPERATION

The technic of operation is simple. A median incision in the anterior vaginal wall is made, starting just below the urethral opening and extending downward to just above the cervix. Dissection is carried down to the urethra and bladder, and the vesical neck identified. This can best be done with a Pezzer catheter in place.

In the first class of case, a careful dissection toward the side will reveal a definite edge of tissue which is thickest at the level of the vesical neck. This is the torn external sphincter. This is brought together over the vesical neck with the mattress sutures. The upper and lower border are likewise sutured in the median line and the mucous membrane sutured over all. A Pezzer catheter is left in place for ten days, and then for two days the catheter is intermittently closed and opened to get the bladder to become accustomed to its work. The patient must be catheterized after first voiding to see that there is not too great a residual urine from a very snug suture. Some residual urine often occurs, but disappears in from a few days to a week.

In the second class, the extrinsic muscles have been gradually thinned and weakened, and no such definite edge can be demonstrated. The intrinsic muscles are similarly relaxed and the plication of the bladder neck must first be performed. Several superimposed mattress sutures are generally necessary before the urethra is snug enough, as indicated by the grip on the inlying catheter. As the last sutures are put in, it pulls the tissues from the sides toward the median line and makes the next stage much easier; this consists in as careful a dissection as possible laterally toward the pubic arch to find what is left of the thinned-out fascia and extrinsic muscle, which is then sutured over the bladder neck as far as its thinned-out condition permits. This not only reinforces the first sutures but tends to anchor the urethra more solidly. Redundant vaginal mucous membrane is cut away and the wound closed. When there is an accompanying cystocele, the closure of this fascia all the way down to the cervix constitutes the best type of cure.

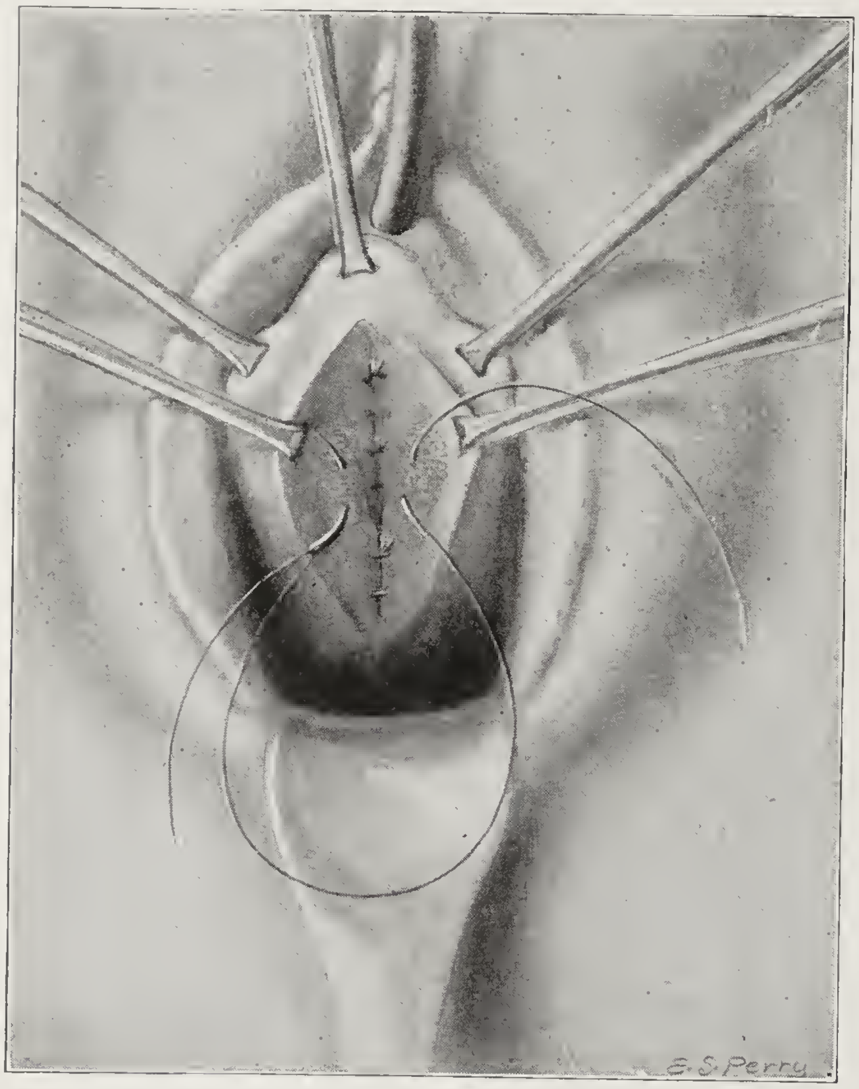

Fig. 3.—Resuture of the extrinsic muscle.

ABSTRACT OF DISCUSSION

Dr. Hugh Cabot, Ann Arbor, Mich.: I think that most of us have failed to remember, if indeed we ever knew, that there is in the female a double sphincter control. We always refer to the internal and external sphincter in the male, and the same arrangement, though in a somewhat weaker form, obtains in the female. One sees the group that is distinctly and definitely associated with traumas of childbirth, and then the group which Dr. Young regards as the larger, but which in my experience has not been the larger, those cases in which the symptoms come on gradually and in which there is not the trauma of childbirth. I have in my series four cases in which this trouble came on at or after middle life, when tissue relaxation is beginning to be definitely noted. It is important to remember the very narrow line between a sphincter which will hold water and one which is practically worthless. I think Dr. Young's contribution is important. He operates on the external sphincter, reinforcing it by whatever he may find necessary to do to the neck of the bladder itself. As a rule, in these cases when the neck of the bladder is exposed by the dissection, the lack of muscles will be definitely noted. Instead of a distinct muscle group there will be just lax tissue, and it is difficult to say just where this group of fibers should have been. My greatest difficulty has been to see where one should put in the most posterior suture. With the traumatic rupture, there is a funnel-shaped bladder neck which may be very confusing. Still, I am not satisfied that the precise determination of that point is important, because in my own series I think that I must in some cases have moved the neck of the bladder back some distance from the place at which the Lord originally put it, but results have been excellent. The point I wish to bring out is that the operation is not at all difficult, and the extraordinary thing is the extent to which it has been neglected. Many surgeons have patted these unfortunate women on the back and said that nothing could be done for them. "'Taint so!"

Dr. E. L. Young, Boston: I wish to emphasize the fact that it is a relatively simple operation, an operation which I feel is almost fool proof and one that will get results. With regard to the point brought out by Dr. Cabot as to where to place the neck of the bladder, I have thought that in the majority of cases a Hank dilator put into the bladder would give a little jump as it went over what was left to the neck of the bladder, the thickened area at that point, or that a Pezzer catheter would catch at that point; but, as Dr. Cabot said, I do not think it makes a bit of difference. If one plicates where one thinks the neck ought to be and brings it into place, one will always get the desired result.

GANGRENE AND EXFOLIATION OF THE URINARY BLADDER WALL IN TYPHOID FEVER

REPORT OF TWO CASES *

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Affections of the urinary bladder as complications of typhoid fever are not particularly uncommon, and gangrenous lesions in this disease, especially of the appendix and the skin, have been reported from time to time. Gangrene of the bladder, however, so far as we have been able to determine, has been referred to only by Cossy [1] in 1843, Lemaire [2] in 1863, Perriol [3] in 1912, and Legueu [4] in 1918, the first author reporting eight cases, only three of which can be accepted unqualifiedly, and the others one each. To these we are adding the two cases to be described. Although our investigations would suggest that gangrenous bladder lesions in general are not so uncommon as the literature would suggest, yet the fact that only 137 cases,[5] including our two, have been reported indicates that no special attention has been given to this subject.

PREVIOUSLY REPORTED TYPHOID CASES

In view of the simultaneous occurrence of our two cases, Cossy's report is of especial interest, since all those recorded by him were encountered within a period of six months. Seven of the eight cases in which he believed that this complication existed were

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* From the Medical Division of the Hospital of the University of Pennsylvania and the William Pepper Laboratory of Clinical Medicine.

[1] Cossy, J.: Sur quelques altérations de la vessie chez des sujets qui ont succombé a l'affection typhoïde, Arch. gén. de méd. **3**: 24 (Sept.) 1843.

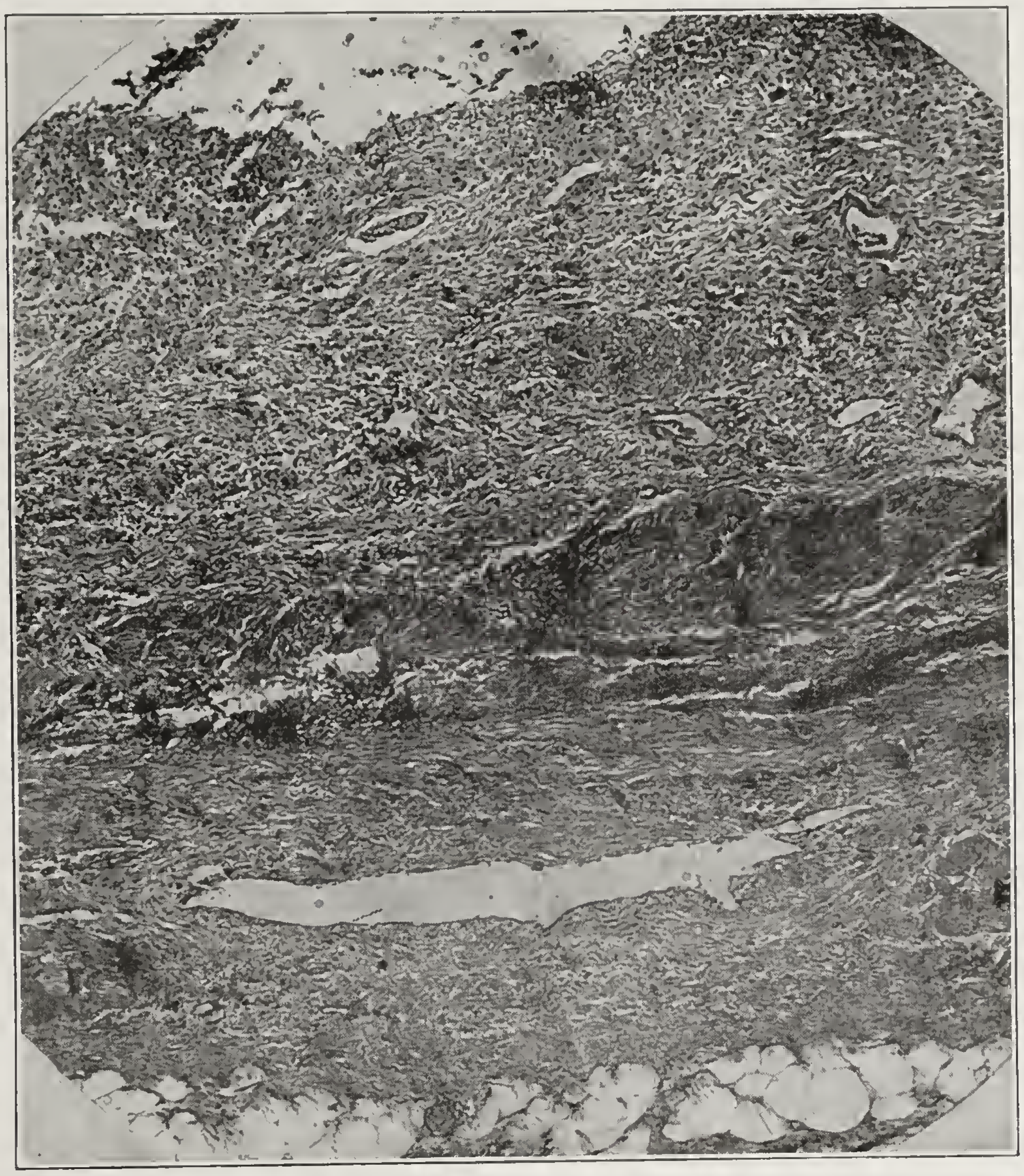
[2] Lemaire: Decollement de la muqueuse vésicale, Bull. de la Soc. anat. **38**: 415 (Aug.) 1863.

[3] Perriol: Deux cas de cystite gangréneuse avec guérison, Dauphiné méd. **36**: 49, 1912.

[4] Legueu, F.: Les gangrènes vésicales par anaérobes, J. d'urol. méd. et chir. **7**: 105 (March) 1918.

[5] Wolferth, C. C., and Miller, T. G.: Gangrene and Exfoliation of the Urinary Bladder, to be published.

discovered in a group of thirty typhoid fever necropsies. He regarded this high incidence in his series as due to the peculiar type of the disease prevalent at that time. His first two cases and his seventh case, however, showed only ecchymotic patches in the bladder mucosa, and these we are discarding because there was in his detailed accounts no evidence of true gangrene. The third one occurred in a girl, aged 18, who had no bladder symptoms, but in whose case the necropsy revealed minute gangrenous spots at the tops of a dozen papillae on the posterior bladder wall. These patches were friable, and penetrated the entire depth of the mucosa. The submucosa was thickened, edematous and red, while the mucosa about these spots was reddish brown and ecchymotic in places. His fourth case was in a woman, whose age was not stated, who died on the forty-eighth day of the disease, having developed on the twenty-eighth day complete urinary retention which required repeated catheterizations. Twelve days after the first catheterization the urine had become quite fetid. At necropsy, forty-two hours after death, the urine was foul and brown; there was gangrenous destruction of the whole mucosa, and the submucosa was brownish, thickened and irregular. Another patient, a girl, cook, aged 21, who died on the fourteenth day of her disease, had complete retention requiring catheterization twice daily for four days before death, and on the last two days the urine was fetid. The necropsy, forty-eight hours after death, disclosed the bladder mucosa covered with a thick chocolate-colored liquid, and above and below the right ureteral opening were patches of gangrene involving both the mucosa and the submucosa. The sixth patient, a woman, aged 26, had no bladder symptoms and died on the seventy-fifth day after having been convalescent from the typhoid fever for about a month. At necropsy the urine was clear, but five irregular spots were observed on the mucosa, and the stellate appearance of one of these suggested a cicatrix which he thought was probably secondary to the gangrenous area. Because of the lack of positive evidence of gangrene in this instance we do not believe that this case should be accepted. Cossy also described a case in his series (No. 8) in which the patient recovered and in which he believed that gangrene of the bladder had occurred. This patient, a woman, seamstress, aged 23, had a severe infection with urinary retention from the twenty-first to the twenty-sixth days requiring routine catheterization. The urine soon became cloudy and fetid, and when normal function returned there was severe pain at the end of micturition, this pain also occurring when the posterior wall of the bladder was explored with a catheter. These circumstances led him to suspect a gangrenous lesion, but here again the data are insufficient to justify such a diagnosis.



Longitudinal section of bladder wall in Case 1, revealing total absence of mucosa (above), infiltration and necrosis in submucous coat, and degeneration of muscle.

Lemaire's patient was a woman, whose age was not stated, who had bladder retention requiring catheterization over a period of two weeks before her death from typhoid fever. He stated that the urinary stream by catheter was frequently interrupted by an obstacle which at first was thought to be inspissated mucus, but which proved at necropsy to have been the mucosa itself, completely isolated from the bladder wall and floating in the urine.

Perriol's patient was a woman, aged 20, who during the course of her typhoid developed retention of urine followed by violent cystitis. She finally expelled a necrotic membrane in the form of a sac with a thickness of 3 or 4 mm. that proved to be the mucous membrane of the bladder. There were no renal symptoms, and complete recovery ensued.

The final case, reported by Legueu, occurred in the practice of his friend, a Dr. Behr. The patient, a woman, aged 33, as a result of nervous system involvement, developed on the eighteenth day of her typhoid fever urinary retention. This necessitated catheterization for five days, after which there was incontinence. The bladder became infected, and the urine fetid and bloody. On the eighth day after the beginning of the bladder trouble her physician discovered in the urethra a grayish bloody mass. This was extracted by pulling on it, and proved to be a cast of the bladder covered on the inside with calcium salts and on the outside, as microscopic study later disclosed, with muscle fibers. Fetid, bloody urine followed its extraction. Eventually, complete recovery occurred, except that the urine remained cloudy.

REPORT OF CASES

Case 1.—E. M., a white woman, aged 38, single, a librarian, was admitted to the University Hospital, Sept. 9, 1921, on the thirteenth day of a moderately severe attack of typhoid. A blood culture and a Widal test were both positive. The first two examinations of the urine, made on the first and third days after admission, revealed no more than a trace of albumin and an occasional cast, no red cells and no leukocytes. September 14, urinary retention developed suddenly, and on catheterization a liter of urine was recovered. Thereafter for a number of days this procedure had to be repeated regularly, as the patient could void only small amounts voluntarily. On the third day of the catheterizations, the urine was cloudy and alkaline in reaction, and on the sixth day it was reddish brown in appearance and contained small amounts of blood and pus, although at this time the temperature, which had been dropping gradually for a week, became normal and continued so for several days. A culture of the urine for *Bacillus typhosus* was negative. The patient's general condition seemed to improve slightly, but not as satisfactorily as is usual during convalescence from this disease. She was irritable and querulous, and very weak. The pulse was of poor quality, and the rate ranged between 120 and 130. A leukocyte count, September 21, was 12,000. There was no pain on urination, and no desire to void frequently. The urine became more and more hemorrhagic. Up to this time no local treatment had been given, although by mouth she had received hexamethylenamin, 0.3 gm., three times a day.

September 25, there was a sudden jump in the temperature to 102 F., while the pulse rate rose to 160, and one hour later reached 174. The leukocyte count was 25,000. No localizing symptoms were discovered. The patient reacted fairly well to stimulation and external heat, but several hours later had a chill and went into profound collapse, with an imperceptible pulse and a complete loss of consciousness. Following a blood transfusion of 500 c.c. she recovered from the collapse, but the pulse remained very weak and frequent. On the next day a large mass was felt by ballottement in the right flank. It could not be determined whether this mass was kidney or liver.

A cystoscopic examination, September 27, by Dr. Floyd E. Keene, revealed the urine very bloody; there was an extensive membranous cystitis, the mucosa appearing almost gangrenous; the ureteral orifices were obscured by the extensive membranous cystitis. Cultures of the urine obtained at the cystoscopic examination disclosed an organism of the proteus group which overgrew the culture medium. There was present also a gram-positive staphylococcus. No organisms resembling *Bacillus typhosus* were seen. A number of bacteriologic studies made later disclosed the same organisms.

On the advice of Dr. Keene, the bladder was irrigated twice daily with 1 : 10,000 silver nitrate solution, and an instillation of a 1 per cent. solution of freshly prepared mercurochrome-220 soluble was made once a day. She was catheterized frequently enough to avoid the accumulation of more than 250 c.c. of urine. During the first few days of this regimen the urine quickly lost its hemorrhagic appearance, although red cells could still be found by the microscope. It remained alkaline, however, and contained a small amount of pus and some granular débris. The odor, which had been somewhat fetid from the beginning, became much more pronounced. The patient's general condition seemed to improve slightly, and the mass in the right flank became smaller, by October 5 being no longer palpable.

A second cystoscopic examination, made November 11, revealed a great deal of sediment in the base of the bladder and some exfoliation of a membrane which was rolling up before being cast off the bladder wall. The urine continued to be extremely fetid, and deposited a heavy sediment; but the desire and ability to void returned in part, and catheterizations were less often required. November 30, while attempting to catheterize the patient, the nurse noted a mass protruding from the urethra and called the medical resident, Dr. W. R. Stanford, who removed a strip of necrotic, very foul smelling membrane, 7.5 cm. long and 2.5 cm. wide. During the next week the patient's general condition gradually became worse, and she died, December 6.

A necropsy was performed by Dr. M. T. McCutcheon fifteen hours after the patient's death, which disclosed that the right kidney measured 9.5 by 4 by 14 cm. The pelvis of the kidney contained much necrotic material surrounded by a greenish black boundary zone. The fluid in the pelvis was brown and turbid. The right ureter was considerably thickened and dilated just above the bladder. It showed no points of constriction. The space of Retzius was obliterated by dense adhesions. The bladder was slightly distended, and of a dark greenish color on both inner and outer surfaces. The contents were brown, turbid and foul. On the inner surface were found numerous shreds of tissue more or less attached to the wall; there was one calcareous deposit on this material. No deep ulceration was found. Sections of the bladder indicated that the mucosa and submucosa were missing, except in a few places where the latter showed an active connective tissue proliferation with the presence of many fibroblasts. Endothelial proliferation also was present. There was an exudate consisting chiefly of small round cells with a very few polymorphonuclears. The blood vessels were moderately congested. The muscle layer contained rather more fibrous tissue than is usually seen, but this was of the adult type. The fatty layer showed no special changes Cultures, made at necropsy, revealed a member of the proteus group in the kidney and the bladder urine, in the gallbladder and in the heart blood. In addition, short chain, gram-positive, nonhemolytic streptococci were found in the kidney and the bladder urine, and a staphylococcus was also found in the bladder urine.

Case 2.—A. G., a woman, aged 30, single, was admitted to the private service of Dr. Alfred Stengel, Sept. 14, 1921, in the beginning of the third week of an illness which proved to be typhoid. She had complained of pain, malaise, headache, backache and fever. On admission she had a temperature of 104 F., with a disproportionately slow pulse (100), and she was mentally confused. The mouth was dry, the tongue was furred in the center with a red periphery, and the pupils were contracted. There were numerous crackling râles at both pulmonary bases. The abdomen showed typical rose spots, and was distended. The spleen was not definitely palpable. Over the lower dorsal region there was a large discolored area, the result of the application of a mustard plaster two weeks before. Otherwise the physical examination was negative.

Urinalysis on the day of admission disclosed only a trace of albumin and an occasional light granular cast. There were no red cells, and only from one to three white cells to the high power field. Blood pressure was 140 systolic and 80 diastolic. A complete blood count was normal, the leukocytes numbering 6,400. The Widal reaction was positive for *Bacillus typhosus* and negative for both paratyphoid organisms.

On the eighth day after admission it was noted that the patient had urinary retention, and 900 c.c. of urine was removed by catheter. The last portion of urine removed was somewhat purulent, and microscopic study disclosed many rod-shaped bacilli and extracellular diplococci. From this time it was necessary to catheterize the patient every eighth hour. September 26, although the first urine was clear, a second portion was purulent, and the final part of the collection was grossly quite bloody. It was also extremely fetid. Irrigations of the bladder with 2 per cent. boric acid solution, which were being given as a routine after each bladder evacuation, became quite painful at this time. Frequently during the catheterization the stream was suddenly stopped, and on a few occasions fragments were passed. Unfortunately, none of the latter were subjected to microscopic investigation.

September 30, the temperature rose to 105.2 F., and the patient became quite stuporous. Rectal examination was negative, but a mass was palpable in the right kidney region and a right sided pyelonephritis was suspected. The leukocytes numbered only 8,000. A specimen of urine was obtained by catheter at this time, and all subsequent ones showed only a few red blood cells under the microscope, but much pus. She finally succumbed rather suddenly, October 9, having had a distinctly septic type of temperature for ten days.

COMMENT

Our cases are significant in that they represent the only instances yet reported in which gangrene and exfoliation of the urinary bladder have occurred in typhoid patients whose diagnoses were determined by laboratory methods. Only two other cases, those of Perriol and of Legueu, have been reported since the discovery by Eberth in 1880 of *Bacillus typhosus,* and in the accounts of those no reference was made to laboratory tests. In both of our patients the Widal test was positive and in one a blood culture demonstrated the causative organism.

It is quite interesting, furthermore, that our two cases developed simultaneously in the same hospital and yet that there was no known direct or indirect contact between them. One occurred in a patient who had a special graduate nurse and a private room on the third floor of the institution, while the other was a ward patient on the first floor of a separate wing of the building, and no one physician attended the two individuals. As stated, Cossy's reported cases occurred within a very short period of time, but his explanation of this as due to the peculiar type of the epidemic seems unlikely in view of our present knowledge of the etiology of the disease, and particularly since we were unable to demonstrate the typhoid organism in the urine of our one case so studied. Also the extreme rarity of the complication would seem to oppose such an explanation. Nor does it seem justifiable to attribute it to any condition incident to general infections, for in only one other disease, in which organisms frequently enter the blood stream, has this lesion been described and that in a single instance of pneumonia reported by MacGowen.[6] All the other cases have occurred in connection with some pathologic condition in the urinary tract, lower abdomen or pelvis or in conjunction with lesions of the central system.

All of the typhoid cases, and also the one in a pneumonia patient, occurred in women, whereas, excluding those associated with conditions incident to the childbearing act, the incidence in our total series of 137 is about equally distributed between the sexes. The ages in two of the typhoid cases were not stated, but in the others ranged from 18 to 38, all, therefore, being within the period of sexual activity. In all but one of the cases (Cossy's Case 3) urinary retention occurred, while in that one it is alleged that there were no bladder symptoms. Such retention is the condition which Haultain [7] believed to be of etiologic significance in all the cases in which direct pressure interfering with the blood supply to the bladder was not present, but Cossy's Case 3 cannot be reconciled with this theory. It is quite probable, however, that bladder distention was at least a predisposing factor in the other cases. Haultain believed that it acted by interfering with the venous circulation through the bladder.

It is conceivable that the loss of general bodily tone due to the typhoid infection was another predisposing factor, acting by lowering the resistance of the bladder to infection. Indeed, it is our suspicion that local infection may have been the determining cause in all of the cases. Seven of the eight patients were catheterized, thus affording an opportunity for the direct introduction of pathogenic organisms through the urethra, and it is also quite possible that such agents might reach the bladder from the blood stream by way of the kidneys. Unfortunately, organisms have been searched for in none except our two cases (in only one of which were cultures made), but in both they were abundant. In Perriol's and Legueu's cases it is alleged that the bladder became infected. Furthermore, in our larger group pus in the urine was frequently reported.[8]

It is well recognized that a severe cystitis may be caused by *Bacillus typhosus,* but whether or not actual gangrene may be so produced cannot be stated. In our case in which this organism was searched for in the urine it was not found. Legueu, who believes that infection is the important factor, found in a single case (not typhoid) an anaerobic organism (*Bacillus neiguex*), and insisted that cultures for such bacteria should always be made.

It would seem that whether or not exfoliation occurred was merely a matter of the duration of the gangrenous process, the necrotic material invariably being thrown off if the patient lived long enough. All of Cossy's patients died before exfoliation had taken place, while Lemaire's, Perriol's and Legueu's, as well as our own, cast off some of the membrane from the bladder wall, and all of these but Lemaire's passed it by the urethra. The amount of tissue involved varies, sometimes the entire bladder wall being exfoliated, but we have accurate data on this in the typhoid series only in our Case 1, in which the mucosa and submucosa were cast off, and in Legueu's case in which the extruded mass contained muscle fibers. While the passage of bladder tissue is the only certain diagnostic sign, an extremely foul, bloody and purulent urine is most suggestive of gangrene; and when to this is added frequent stoppage of the urinary stream through the catheter, exfoliation should be suspected.

All of the typhoid patients, except those of Perriol and of Legueu, died, this being a higher mortality rate than we found in our total series, in which only about 50 per cent. were fatal. Our first patient apparently did not die of the typhoid itself but rather of the pyelonephritis and general sepsis, for her fever had subsided before the bladder conditions assumed an important character. Our other patient had a septic type of temperature during the last ten days of her life, and also apparently died of sepsis. One of Cossy's patients died as early as the fourteenth day of her disease, and had only gangrenous patches. It would seem, therefore, that the bladder lesion could not be held responsible for all of the deaths, but that, on the other hand, in some cases it did in itself cause death by giving rise to sepsis.

SUMMARY

1. In two proved cases of typhoid, gangrene and exfoliation of the urinary bladder were indicated by certain clinical features and the passage through the urethra of fragments of bladder tissue. In one of these the mucosa and submucosa were demonstrated as being absent from the bladder at necropsy.

2. Only six acceptable cases of this complication in typhoid have previously been reported.

3. In line with the rarity of this affection in typhoid, it is pointed out that it has been reported in only one other condition, excluding lesions of the urinary tract, lower abdominal region, pelvis or the central

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[6] MacGowen, G.: Exfoliative Cystitis, California State J. Med. **16**: 21 (Jan.) 1918.

[7] Haultain, F. W. N.: Necrosis of the Bladder: Its Pathology, Etiology and Course, Rep. Roy. Col. Phys., Edinburgh. **2**: 185, 1890.

[8] In fifty out of 131 cases, and it doubtless was often overlooked.

nervous system, and that in a single instance of pneumonia.

4. The etiology of this complication is obscure. All the eight reported cases occurred in women, all but one patient had urinary retention, and the two here reported had numerous micro-organisms in the urine. In one of these, the only one in which cultures have been made, typhoid bacilli were not found. It is suggested that local infection may be the important factor in all the cases.

5. Foul, bloody, purulent urine developing after marked urinary retention should suggest the probability of bladder gangrene; the presence of bladder tissue fragments in the urine is pathognomonic of exfoliation.

110 South Twentieth Street.

THE FIRST PERMANENT MOLAR *

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In 1887, Dr. Andrieu of Paris read a paper before the section on dental and oral surgery of the Ninth International Medical Congress, advocating the extraction of the first permanent molars. His argument was based on the fact that 75 per cent. of these teeth decay. Black and others who have collected statistics on this subject have agreed that caries occurs in these teeth in a much larger percentage than in any other tooth in the denture, and that more of them are lost from decay than any other tooth.

Since the reading of Andrieu's paper, there have been constantly appearing articles advocating the wholesale removal of these teeth. In recent years, and even at the present time, this procedure has often been advocated for avoiding, or correcting, crowding and irregularity of the teeth. The purpose of this paper is to point out the fundamental fallacy in this procedure.

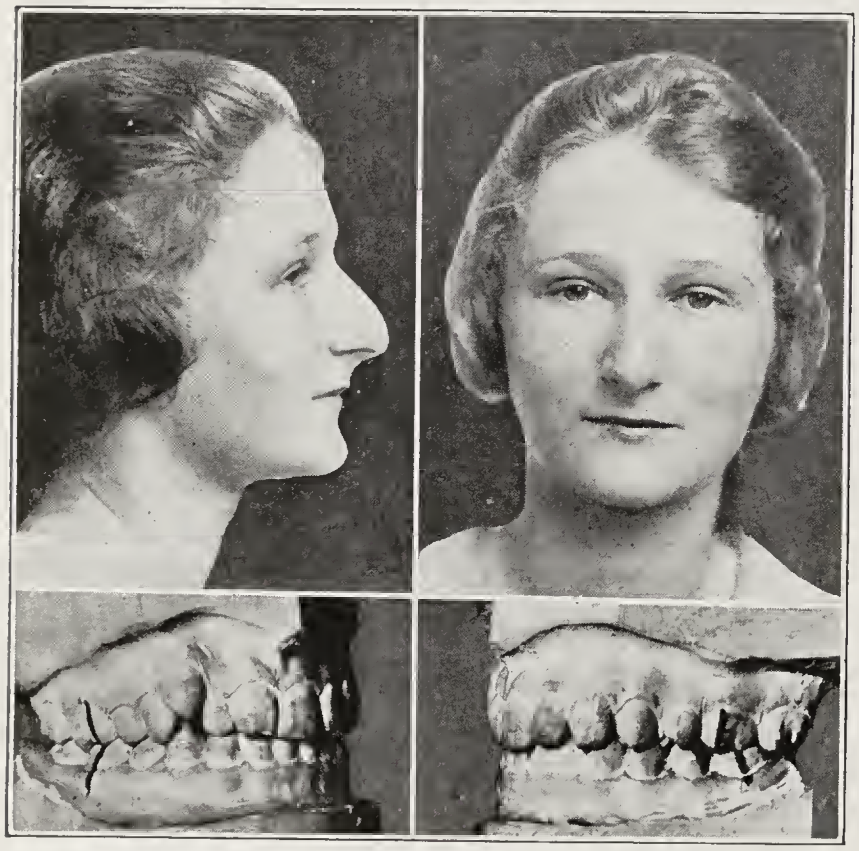

Fig. 1.—Effect of symmetrical extraction of first permanent molars: Above, front and side view of face, showing effect of extraction of four first molars. Notice concavity from tip of nose to tip of chin due to underdevelopment of alveolar portions of the maxillary bones. Below, casts of teeth, showing right and left sides with teeth in occlusion.

It is true that in many cases the first molars are so badly damaged by caries through neglect that their preservation is impossible, but their removal always causes irreparable damage to the denture, and they should not be removed except when their preservation is impossible.

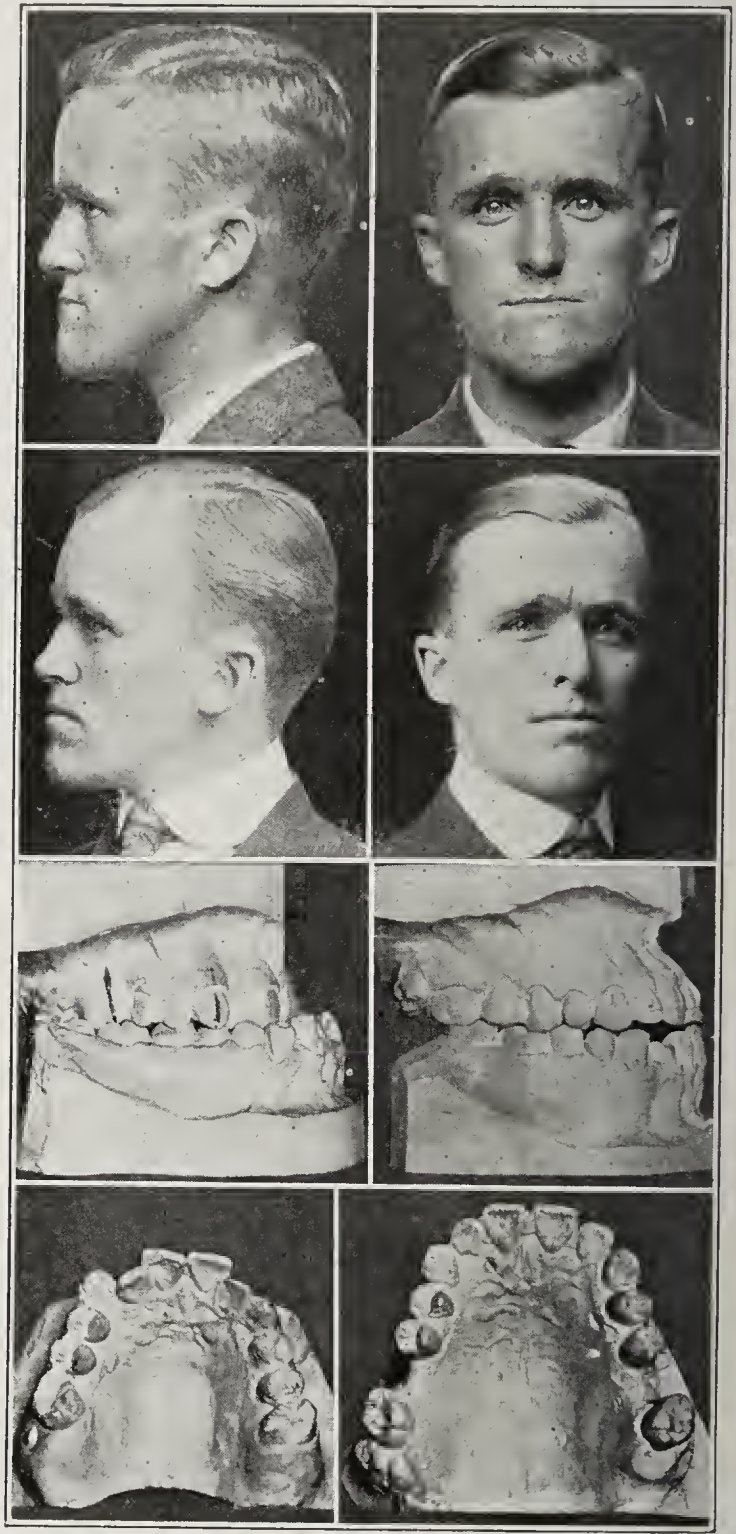

Fig. 2.—Effect of extraction of upper first permanent molars between 6 and 10 years of age: Upper portraits, effect on the face at 22; apparent prognathism caused by underdevelopment of the maxilla. Lower portraits, face after treatment. Upper casts, side view before and after treatment; in the left-hand cast the second bicuspid is in contact with the second molar; in the right-hand cast, all of the anterior teeth have been brought forward and the missing first molar bridged in. Lower casts, occlusal view of upper jaw before and after treatment; in the right-hand cast the development of the bone and the space for the lost teeth have been restored.

In the last quarter of a century, many men have given much time and thought to the study of the development of the human denture and the complicated interrelated factors which contribute to it. It was Dr. Edward H. Angle who first clearly recognized and stated the fact that it is the first permanent molar around which the denture is developed and that the normal relation of these teeth is the most important single factor in the development of a normal denture

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* Read before the Section on Stomatology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

and an harmonious face. Further, that malrelation of these teeth on eruption always produces characteristic types of deformity. I have in other places[1] attempted to analyze the factors that are involved in the development of the human denture, and I wish here to point out some of the fundamental factors in which the first permanent molars are involved:

1. They erupt back of the second temporary molars while the temporary dentition is still intact. For this reason, they should be guided into normal relation, and they maintain the normal relation of the mandible to the maxilla during the period of the loss of the temporary denture and its replacement by the permanent one.

2. In all of the periods, from 6 to 8 years of age they are the largest, strongest and most efficient portion of the masticating apparatus. They are firm in their attachment, while the temporary teeth are being loosened and replaced.

3. They determine the balance of forces between the muscles attached to the anterior and posterior portions of the mandible which result in the normal form of this and related bones.

4. Their loss always affects the relation of all of the teeth to the skull, reducing the efficiency of the denture as a masticating machine and marring the symmetry of the features.

The first molars should, therefore, be most carefully guarded, to preserve them from destruction by caries, to which they are more liable than any other tooth. Their loss destroys the masticatory efficiency of the denture during the most important developmental period, and causes more or less deformity.

Their malrelation always causes malocclusion in the denture and deformity of the face. Their eruption should be watched; if necessary they should be guided into normal relation, so that the normal distribution of forces may allow development to proceed toward the normal instead of away from it.

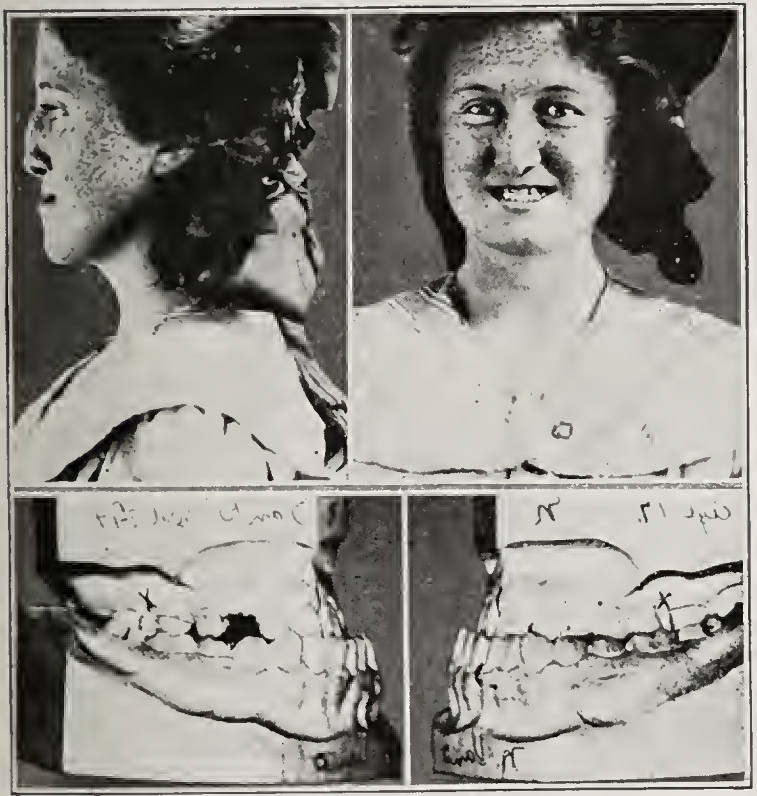

Fig. 3 (Dr. Ketcham's case).—Effect of early extraction of upper first permanent molars: Above, effect on the face: underdevelopment of the maxilla and depression of the base of the nose. Below, right and left sides of the casts in occlusion, showing that all of the anterior teeth have not moved forward as they should.

THREE TYPES OF DEFORMITY RESULTING FROM EXTRACTION OF FIRST PERMANENT MOLARS

1. Symmetrical removal of all four at an early age, the procedure that has been most often recommended. The result is that the anterior teeth shift distally, and the posterior teeth mesially, usually with great reduction of the efficiency of the denture and loss of harmony in the features. Case 1 is typical of this type, and is what the advocates of the removal of the four first molars before the eruption of the second molars would call a good result; but a close examination of the cusp relation reveals great loss of masticating area and an unpleasant position of the right upper cuspid. The accompanying illustrations indicate very clearly the effect on the face. The concavity from nose to chin is the result of lack of development in the anterior part of the denture.

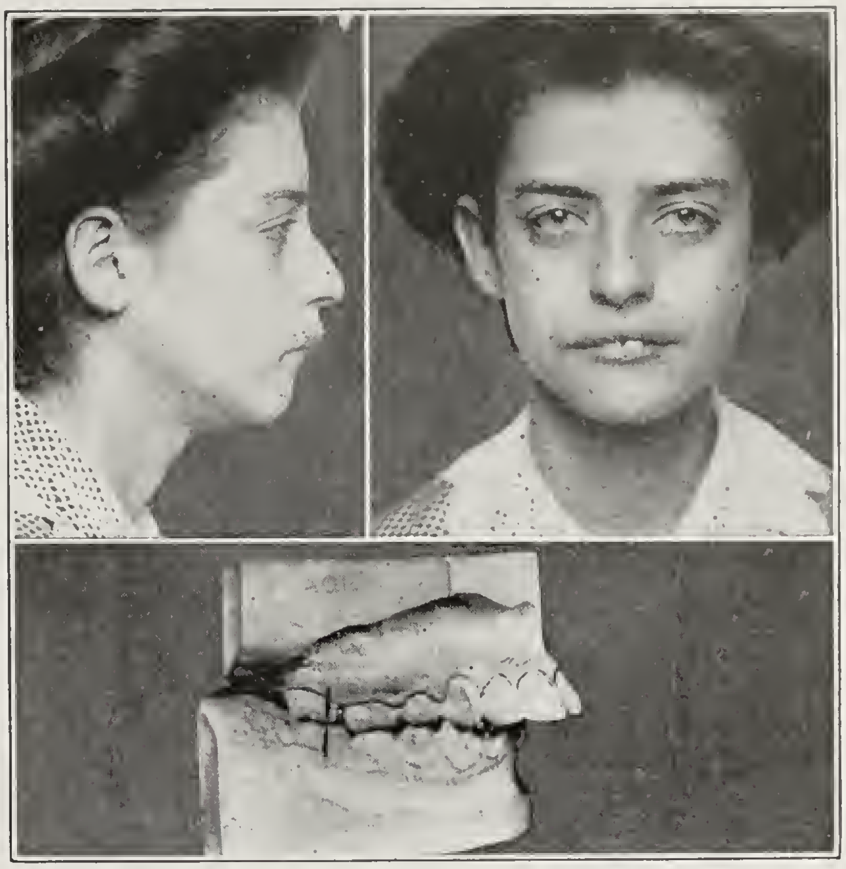

Fig. 4 (Dr. Strang's case).—Effect of extraction of both of the lower first permanent molars between 6 and 10 years of age: Above, effect on the face—protruding upper incisors and loss of nasal breathing. Below, side view of cast showing the second molars in normal relation, and underdevelopment of the alveolar portion of the mandible.

2. The loss of one or both the upper first molars with retention of the lowers. Case 2 illustrates this condition. The upper incisors are lingual to the lower; the distal surfaces of the upper second bicuspids are in contact with the mesial surfaces of the second molars, the space where the firsts were extracted being entirely closed, largely by the distal shifting of the anterior teeth. The effect on the face is the production of an apparent prognathism. One case of this character is taken from my own practice and one from that of Dr. A. H. Ketcham of Denver. One who can recognize them will see such cases continually in public conveyances.

3. The result of the extraction of one or both lower first molars, with retention of the upper. This is illustrated in Case 3, from the practice of Dr. R. H. W. Strang of Bridgeport, Conn. All of the lower incisors are tipped distally and elongated. The lower second molars are in the same relation to the upper first molars that the first would be in case of the second class.

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[1] Noyes, F. B.: American Textbook of Operative Dentistry, and papers.

In fact, these cases can easily be mistaken for Class 2, Division 1. In my experience, they are extremely difficult and unsatisfactory unless treated by restoration of the lost teeth.

All sorts of combinations of these three types may be found, depending on the number of teeth extracted and the time that the extraction occurred, combined with various defects of function.

CONCLUSION

I want to make the strongest possible plea for the early care and preservation of the first permanent molars. The prevalence of caries of these teeth greatly increases the difficulty and emphasizes the necessity for early care. Malrelation of the upper and lower first permanent molars should be corrected at once and a normal condition maintained, as it determines the normality or abnormality of the distribution of developmental forces, consequently producing harmony or lack of harmony in the denture and the face.

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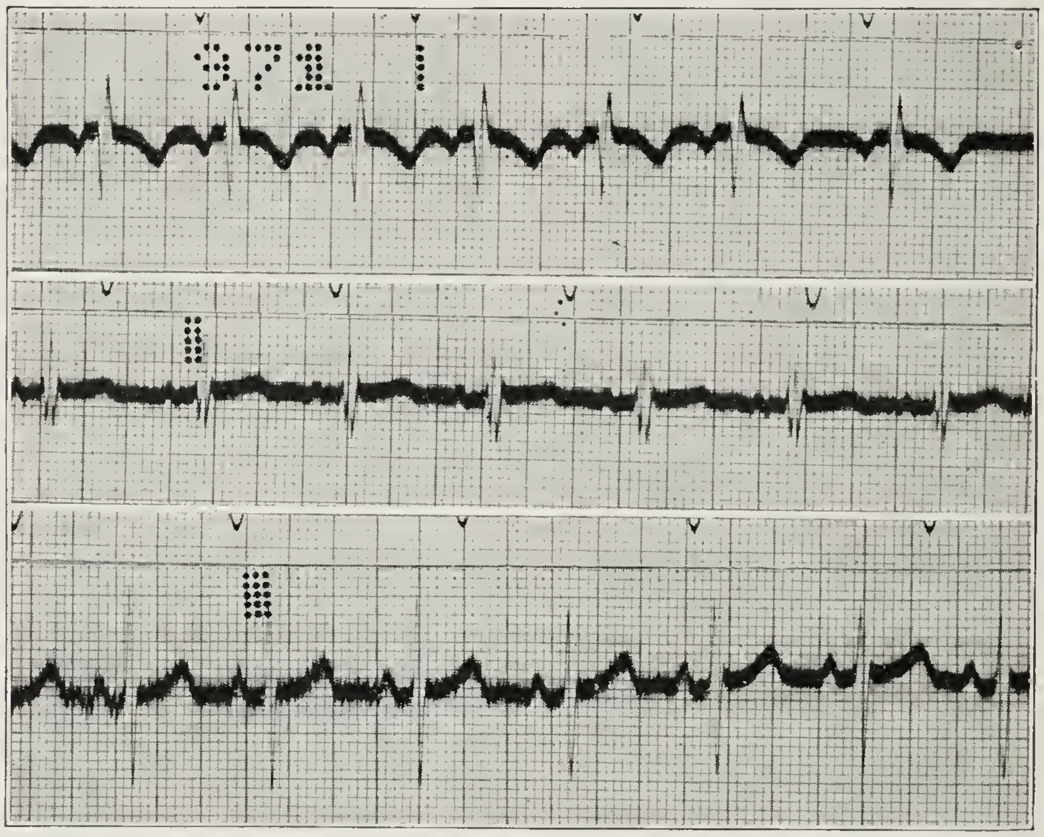
ABSTRACT OF DISCUSSION

Dr. B. E. Lischer, St. Louis: I do not agree with some of the terminology Dr. Noyes used; for instance, when he speaks of Class 2, Division 1. Numerals are all right in catalogues of merchandise but should have no standing in a scientific discussion of deformities of the human body. Besides, the American Society of Orthodontists has officially adopted a group of terms for diagnostic purposes that are applicable to conditions such as he has described today. I do not think Dr. Noyes wanted to convey the idea that every type of deformity such as he described today is always caused by the early loss of the first permanent molars. Such early loss is always a causative factor of great moment, but it is not the only cause. Many persons present dentofacial deformities of the kind under consideration who have not lost their first permanent molars.



Heart rate 110 a minute; sinus arrhythmia. In Lead I the P and T complexes are inverted. In Lead II the complexes are smaller in amplitude than is ordinarily noted in normally placed hearts.

Dr. S. D. Ruggles, Portsmouth, Ohio: The function of the dentist is to impress on the parents the care of the first permanent molar and the necessity for its preservation. As a rule, parents think that it is a deciduous tooth, little realizing that its removal means a permanent deformity. Correcting these matters is an expensive process, especially when long distances must be traveled to see a specialist for a period of two or three years.

Dr. Frederick B. Noyes, Chicago: Dr. Lischer did not notice that I said these conditions exactly represent the conditions in which all molars are present. The purpose of the paper was a plea for the care of the first molar, in order to prevent the conditions which are most difficult to overcome; and I wanted also to show the fundamental reason for the damage which inevitably occurs to the face and the denture when these teeth are extracted. Also I believe that the three types shown are true types. They represent the types of things which result when those procedures are carried out. Now, that this really is important is illustrated, for instance, in the May issue of the *Dental Digest,* in which there is a plea for the extraction of the first permanent molars. The author says that he can show that the net result in the masticating area of the denture will be greater than it will be if the first molars are not extracted. There is but one answer to that, and that is "That is not true."

COMPLETE HETEROTAXY

REPORT OF A CASE WITH ELECTROCARDIOGRAPHIC STUDIES *

ELMER H. FUNK, M.D.
AND
SAMUEL SINGER, M.D.
PHILADELPHIA

The terms heterotaxy, situs viscerum inversus, lateral inversion of the viscera and, more commonly, transposition of the viscera, are applied to the developmental abnormality in which the viscera normally occupying one side of the body are found on the other. This transposition may be total, involving all the viscera, or partial, such as occurs with transposition of the thoracic viscera, without involvement of the abdominal viscera, and vice versa.[1] Partial heterotaxy is referred to in the literature as incomplete, atypical or localized heterotaxy. Royer and Wilson[2] reported an interesting example of incomplete heterotaxy in which there was transposition of all the viscera except the heart. A very descriptive term used by some writers is mirror transposition, the misplaced organs resembling normally placed organs when observed in a mirror.

REPORT OF CASE

A white girl, aged 8 years, with complete visceral transposition, came under our observation during the routine examination of a number of schoolchildren. The family history revealed nothing of importance except that one brother was born with club feet. She had been a full-time baby, delivered by forceps, and was breast-fed. Dentition occurred at 14 months, and walking at 18 months. Measles and chickenpox occurred in infancy. Since then the patient's health has been good.

The patient was fairly well nourished, with normal eyes, ears, nose and throat. No cyanosis or icterus was evident. The neck showed nothing of note. The chest was normal in contour, and fair and equal in expansion. The lungs vere clear throughout. The cardiac impulse was visible and palpable in the fifth right interspace, just within the mid-lavicular line. The right border of cardiac dulness was cm. to the right of the sternum in the fourth interspace, nd the left border corresponded to the left border of the ternum. The area which corresponds to the cardiac area nder normal conditions was resonant. The heart sounds vere of normal quality. A rough systolic murmur was heard n the second and third interspaces, to the right of the ternum. The murmur was not transmitted beyond the heart rea. Examination of the abdomen revealed a slight prominence of the left upper quadrant. Palpation and percussion evealed the hepatic signs on the left side. The spleen could ot be palpated on the right side, nor could splenic dulness e ascertained. The extremities and reflexes were normal. The child was right-handed.

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* From the Department of Medicine, Jefferson Medical College.

[1] Gruber, quoted by Arneill (Am. J. M. Sc. **124:** 885, 1902) analyzed seventy-nine cases and found transposition of both chest and abdominal organs in seventy-one cases, and of the abdominal organs alone in eight.

[2] Royer and Wilson: Incomplete Heterotaxy with Unusual Heart Malformation, Case Report, Arch. Pediat. **25:** 881, 1908.

The blood and urine examinations indicated nothing abnormal. The Wassermann test was negative. Roentgenograms evealed dextrocardia, with transposition of the liver, stomach nd colon. The bismuth meal showed very clearly the pylorus pointing toward the left, the cecum on the left side and the igmoid colon on the right.

Electrocardiographic studies revealed inversion of the P and T complexes in Lead I.

COMMENT

As far as one can determine by clinical methods, his case is one of complete heterotaxy. The patient s a healthy girl who plays and studies as most children lo. She is of ordinary intelligence, is right-handed, nd suffers no handicap from the transposition. Most of the reported cases are among males. Among the eventy-nine cases compiled by Gruber, there were orty-nine males, nineteen females and eleven in whom he sex was not mentioned. Among the females, Gruber found that five of the nineteen lived to an age between 70 and 84. The women were normally fruitul; one gave birth to twelve children.

The life expectancy among these patients would seem o be dependent more on associated abnormalities of he heart and great vessels than on the cardiac misplacenent. In our patient there possibly is a pulmonary tenosis, which so far has given rise to no circulatory listurbance. The mother is sure that there was no yanosis at birth or afterward. There is no clubbing of the fingers.

In reviewing the literature on heterotaxy, especially vith regard to the heart, we found that the following roupings permitted of a clearer understanding of this elationship:

1. *Complete heterotaxy in which all of the organs, ncluding the heart, are transposed.* The misplacement s not associated with any organ defect. There is no isability, and the life expectancy is normal. This type s discovered only in routine examinations, such as, or life insurance and for military service. The patient nay present himself for some unrelated disease. Thus, Lane's[3] patient, a man aged 27, showed complete transosition, the viscera functioning perfectly, and the conition was unrecognized until he presented himself or tertiary syphilis. The three patients recently eported by Willius[4] had no complaint referable to the bnormality.

2. *Incomplete heterotaxy in which the heart alone s transposed.* The misplacement is not associated with ny congenital defect of the heart or great vessels. imple congenital dextrocardia is very rare. Recently Parsons-Smith[5] reported two cases of true dextrocardia without transposition of the other viscera. Although there is no congenital defect of the heart itself or of the vessels, the resultant disability, according to Parsons-Smith, is likely to be serious. Sooner or later, symptoms of incompetence occur as a result of the visceral overcrowding on the right side, the liver and right lung impeding the cardiac movements. He states that patients with this anomaly are likely to complain of pains both local and referred, the result of pressure on the intercostal nerves, the vagus or its intracardiac endings; later there is a tendency for dyspnea, palpitation, insomnia and faintness to appear.

3. *Incomplete heterotaxy in which all the organs except the heart are transposed.* Heterotaxy without dextrocardia is extremely rare. Theoretically it would seem that the disability and life expectancy would, in the absence of any organic defect of heart or vessels, be comparable to that of the preceding group. Certainly, the mechanical factor of overcrowding would be the same.

4. *Heterotaxy, complete or incomplete, with or without cardiac misplacement, associated with various congenital lesions of the heart and great vessels.* In this group the cardiac and vascular malformations are the lethal factors. A striking example is the case of complete transposition with absence of the pulmonary artery and patent interventricular septum resulting in death four hours after birth recently reported by Toy and Ellis.[6] McCrae[7] reported an instance of complete transposition in an infant boy with atresia of the pulmonary artery, aplasia of the right ventricle, deficient auricular septum, open ductus arteriosis supplying the lungs, and hypertrophy of the left ventricle. The baby lived forty-nine days in the foundling hospital, in which he had been known as the "blue baby."

McCrae refers to reports by Hickman and Griffiths. Hickman's patient lived six weeks after birth, necropsy revealing complete transposition with atresia of the pulmonary artery, with patent foramen ovale and communicating ventricles. Griffiths' patient lived four and a half months, cyanosed in life, necropsy revealing complete transposition with atresia of the pulmonary artery, fibrous cord, with patent ductus arteriosis and common ventricle with imperfect division. These are cases of high grade vascular and cardiac developmental disorders in association with dextrocardia. Lesser grades undoubtedly occur with greater frequency.

The case of Royer and Wilson[2] presented two very interesting features. First, it was one of those rare instances of transposition of all the viscera except the heart. Secondly, the normally placed heart showed transposition of the auricles, rudimentary left ventricle, patent foramen ovale, incomplete ventricular septum and pulmonary and mitral stenosis. The patient had been a "blue baby," and presented clubbing of the fingers and toes. Death resulted from scarlet fever at 6½ years.

DIAGNOSIS

Transposition of the viscera is not rare, but rather uncommon. The early reports in the literature came from anatomists and pathologists, while the recent ones have been made by clinicians. No better illustration can be given of the advancement of the art of physical diagnosis. More frequent and more careful examinations, with the use of the roentgen ray and electrocardiograph, have revealed during life what was formerly found only at necropsy.

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[3] Lane, C. G.: Case Report: Transposition of Viscera Associated ith Tertiary Syphilis, Boston M. & S. J. **181**: 641 (Nov. 27) 1919.

[4] Willius, F. A.: Congenital Dextrocardia, Am. J. M. Sc. **157**: 35 (April) 1919.

[5] Parsons-Smith, B.: A Note on Dextrocardia, Complete and Incomete, with Four Illustrative Cases, Lancet **2**: 1076 (Dec. 13) 1919.

[6] Toy, W. B., and Ellis, A. G.: Transposition of Viscera with Multiple Malformations, J. A. M. A. **74**: 322 (Jan. 31) 1920.

[7] McCrae, John: A Case of Congenital Atresia of Pulmonary Artery with Transposition of Viscera; A Second Case of Transposition, J. Anat. & Physiol. **40**: 28, 1905-1906.

The complete types are not easily overlooked. The incomplete types offer greater difficulty, although they are less frequent. In both types, dextrocardia is almost the rule, and its discovery often directs attention to the possibility of heterotaxy. It must not be forgotten, however, that congenital misplacement of the heart is quite rare compared to acquired displacement, and that great care must be exerted to diagnose correctly. Gross lesions in the respiratory tract, mechanically influencing the position of the heart, can usually be demonstrated in the acquired dextrocardia. In the patient of Carnot and Friedel[8] the acquired dextrocardia was due to the pressure of a megacolon which also displaced the stomach, liver and spleen. The abdominal examination should be directed toward outlining the position of the liver and spleen and, by the use of the roentgen ray and the barium meal, toward determining the positions of the stomach and intestines.

The greatest liability to error occurs when the examiner's attention is focused exclusively on the abdomen. The left-sided liver may be mistaken for a splenic enlargement, such as occurs in leukemia, malaria, Banti's disease and other pathologic conditions. An acute lesion of the transposed appendix may suggest in a woman such conditions as tubo-ovarian disease and twisted ovarian cyst. Palamountain's[9] patient was operated on for left tubal gestation. Section revealed a gangrenous appendicitis on the left side, and further investigation revealed the liver on the left side and the apex beat in the fourth right interspace. This is another illustration of the imperative importance of examining every chest before an abdominal operation.

The introduction of the electrocardiograph in 1910 was followed shortly by observations on congenital and acquired dextrocardia. Nicolai,[10] in 1911, reported four cases of congenital dextrocardia in which the electrocardiograms disclosed complete inversion of the usual picture in Lead I. Hoke,[11] in the same year, recorded a similar finding in one patient. Owen,[12] in the latter part of 1911, reported a case of complete transposition of the viscera, associated with mitral stenosis, with a description of the electrocardiographic tracings made by Lewis. Owen stated that the electrocardiograph offered a ready and certain means of diagnosing transposition. In his patient there was an inversion of the usual picture in Lead I. He expressed the relationship of the curves obtained by means of several leads in the normal and transposed cases as shown in the accompanying tabulation.

NORMAL SUBJECT			TRANSPOSED SUBJECT
R. A. to L. A. (Lead I)	=		L. A. to R. A. (Lead I transposed).
R. A. to L. L. (Lead II)	=	(approx.)	L. A. to L. L. (Lead III),
L. A. to L. L. (Lead III)	=	(approx.)	R. A. to L. L. (Lead II).

If, in the normal subject, Lead I is taken from the left arm to the right arm, instead of from the right arm to the left arm, as is usually done, an inverted electrocardiogram will be obtained, similar to that found when the heart is transposed. This reversal of the picture applies to Lead I alone, according to Lewis,[13] for it is the only symmetrical lead. Acquired displacement never yields the completely inverted electrocardiogram found in transposition. Willius[4] reports electrocardiographic studies in three women patients, aged 40, 37 and 33, respectively, in whom transposition was present without symptoms referable to the abnormality. In the first patient, there was complete inversion of Leads I and II. In the second and third patients, there was inversion only in Lead I. Willius explains that the inversion of Lead II in the first case was due to the exaggerated inclination of the heart to the right. He states that inversion of the deflections in Lead I is definite evidence of congenital dextrocardia with situs transversus, and that his experience confirms the value of the electrocardiogram in the differential diagnosis of cardiac displacement.

Vaquez and Donzelot[14] report two cases in which the long axis of the heart pointed toward the right side and yet the electrocardiagrams were normal. In both instances the dextrocardia was the result of dextroversion rather than inversion of the heart due to abnormal embryonal development. Hirschfelder[15] points out that sometimes a curve that is practically normal may be obtained in congenital dextrocardia. He presents an electrocardiogram from a patient with complete inversion of the heart, dextrocardia with the other organs in their normal positions, showing a curve of normal form, and a second electrocardiogram from a patient with complete transposition of all the organs, showing all the waves inverted.

The striking difference in the electrocardiographic studies of congenital dextrocardia is easily understood when it is recalled that there exist two principal forms of the condition. In one form, the heart is not transposed but rotated on its vertical axis from left to right —as a result of a persistence of the embryonic stage, in which the apex was formed by the right half of the common ventricle. In this form the electrocardiogram shows no inversion of the waves in Lead I. In the second form, represented by our case and the cases reported by Nicolai, Hoke, Owen and Willius, transposition, mirror picture, rather than rotation, is present. Abbott[16] says:

> The apex, pointing to the right, is formed of what was normally the left ventricle, which now lies on the right side and communicates with the right, normally left, auricle which receives the pulmonary veins and is structurally the systemic auricle. This form is not the result of an arrest of development, but of an altered relation of the embryo to the primitive chorionic villi.

It is in this form that the electrocardiogram shows inversion of the waves in Lead I. One must conclude, therefore, that the electrocardiograph affords the most delicate method, differentiating not only the acquired displacement from the congenital misplacements, but also the two types of congenital dextrocardia from each other.

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[8] Carnot, P., and Friedel, G.: Dextrocardia par Megacolon, Arch. d. mal. de l'app. digestif, **10**: 557 (Sept.) 1920.

[9] Palamountain, W. B.: Gangrenous Appendicitis on the Left Side: A Case of Visceral Transposition, J. A. M. A. **64**: 1986 (June 12) 1915.

[10] Nicolai: Das Elektrokardiogramm bei Dextrocardie und anderen Lageveränderungen des Herzens, Berl. klin. Wchnschr. **48**: 51, 1911.

[11] Hoke: Ueber das Elektrokardiogramm eines Falles von Situs Viscerum Inversus Totalis, München. med. Wchnschr. **58**: 802, 1911.

[12] Owen: A Case of Complete Transposition of the Viscera, Associated with Mitral Stenosis, Including a Description of the Electrocardiographic Tracings, Heart **3**: 113, 1911.

[13] Lewis: Electrocardiography and Its Importance in the Clinical Examination of Heart Affections, Brit. M. J. **1**: 1421, 1912.

[14] Vaquez, H., and Donzelot: Dextrocardie et dextroversion, Presse méd. **28**: 41 (Jan. 17) 1920.

[15] Hirschfelder: Diseases of the Heart and Aorta, Ed. 3, Philadelphia, J. B. Lippincott Company, 1918, p. 560.

[16] Abbott: Congenital Cardiac Disease, in Osler and McCrae: Modern Medicine, Ed. 2, **4**: 347, 1915.

A NEW METHOD FOR TREATMENT OF THROMBO-ANGIITIS OBLITERANS *

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The purpose of this paper is to present the results obtained in the treatment of a few cases of thrombo-angiitis obliterans by a method which, to my knowledge, has not heretofore been used.

The etiology of the disease is not known. The pathology has been clearly described by Buerger.[1] One point, however, on which sufficient emphasis has not been laid is the involvement of the nerves in the fibrous tissue surrounding the blood vessels. The contracting scar tissue not only acts as an irritant, but results in such injury to the nerve that definite secondary degeneration takes place. It is worth noting that the nerves are involved in this process only below the knee, where they run parallel and adjacent to the blood vessels. In the thigh the femoral vessels do not come in contact with the sciatic nerve. The importance of this fact will be made clear later.

The physician is called on to treat cases of thrombo-angiitis obliterans when they are already well advanced, and the symptom for which relief is demanded is the constant, tormenting, burning pain which makes sleep impossible. All forms of treatment have been directed chiefly toward relief of this symptom, and the degree of success in attaining this object has been the criterion of their value. The measures tried will be briefly enumerated. Physical measures to improve the circulation have been widely used, such as baking, combined at times with Bier's hyperemia, and exercises to stimulate the blood flow to the affected extremity. Surgical procedures directed to the same end were, first, arteriovenous anastomosis, an illogical procedure since both veins and arteries are thrombosed, and, later, the simpler operation of ligation of the femoral vein, which has usually not been of great benefit.[2] A more recent surgical procedure, suggested by Leriche [3] for cases of causalgia, known as perivascular sympathectomy, and consisting of the stripping of the main artery of its outer sheath containing the sympathetic fibers, has also been tried by some operators for this condition without striking benefit. In view of the work of Potts,[4] who showed that the sympathetic supply of the large vessels of the lower extremities comes off at various levels along their course from the adjacent nerves, and not through a continuous perivascular sympathetic system, it may reasonably be doubted whether this procedure can be expected to be of value.

The prolonged use of sodium citrate injected intravenously has been reported, by Ginsberg [2] and by Steel,[5] to give favorable results. The method of flushing the patient daily with from 8 to 10 quarts (liters) of Ringer's solution through a duodenal tube, and supplementing it with several daily subcutaneous injections of this fluid, has been advocated by Meyer,[6] and combined with an antidiabetic diet. Most of these forms of treatment are painful and prolonged, and their benefits uncertain and transient. Frequently they have failed entirely, and then amputation has been performed as a last resort to relieve the intolerable pain, even when no gangrene is present.

METHOD OF TREATMENT

The following method of treatment is simple, brief, and may be expected to give immediate and prolonged relief. The principle is in no sense new, this being merely an application of it to this particular condition. The procedure consists in blocking the transmission of the sensation of pain by an injection of absolute alcohol into the exposed nerve as far proximal as is necessary and as far peripherally as possible. The operation can be performed in a few minutes under local anesthesia, and in the cases here reported it has been found sufficient to inject the posterior tibial nerve at the level of the internal malleolus. It is important to bear in mind the pathologic picture of the nerve embedded in contracting scar tissue, for it seems reasonable to conclude that this is one of the chief causes, if not the essential cause, of the pain. The failure to obtain relief from an injection at the ankle would indicate that a higher injection of either one or both main nerves, perhaps at the lower level of the popliteal space, would succeed. It is important, of course, to choose a level below the distribution of the nerves to the large calf muscles, so as not to paralyze these. That blocking the nerve at this level will succeed if a lower injection fails is proved by the complete relief of pain resulting from amputation at the knee. I have seen several cases in which exposure of the femoral vessels for ligation or other operative procedure revealed that they were diseased. In several instances the procedure carried out failed to give relief, and amputation at the knee was then performed, giving complete and permanent relief of pain. Attention has been called to the fact that the nerve is involved in the fibrous tissue surrounding the blood vessels only up to the knee, owing to the separate anatomic course of the large nerves and vessels above this level.

If the operation is performed at the ankle, poorly nourished tissue is necessarily incised. This will perhaps lead to delay in healing; but, with careful asepsis, primary union will take place. The nerve, when exposed, should first be anesthetized with procain, and then injected thoroughly for some distance with absolute alcohol, care being taken to avoid spilling any alcohol into the surrounding soft tissues. Anesthesia of the sole of the foot, with relief of pain, results immediately. Paralysis of the intrinsic muscles of the foot follows injection; but since these muscles have practically no value in walking, their loss is a minor consideration. No trophic disturbances have resulted, following this procedure, in the cases here reported, and the wounds have healed firmly.

Five patients were treated by this method; one had such extensive gangrene that amputation had soon to be resorted to for relief from this condition, and this was therefore not a suitable case; another was a patient with three extremities already amputated and the disease involving the remaining hand. In this case an effort was made to stop the pain in the little finger by an injection of the ulnar nerve in the hand, but without success, the pain undoubtedly being due to involvement of the nerve proximal to this point. The remaining

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* From the Second Surgical Service, Mount Sinai Hospital.

[1] Buerger: Am. J. M. Sc. **136**: 567, 1908; Surg., Gynec. & Obst. **19**: 582, 1914.

[2] Ginsburg, N.: Am. J. M. Sc. **154**: 328 (Sept.) 1917.

[3] Leriche, R.: Presse méd. **25**: 513 (Sept. 10) 1917.

[4] Potts: Anat. Anz. **47**: 138, 1914.

[5] Steel, W. A.: Sodium Citrate Treatment of Thrombo-Angiitis Obliterans, J. A. M. A. **76**: 429 (Feb. 12) 1921.

[6] Meyer, Willy: Thrombo-Angitis Obliterans, J. A. M. A. **71**: 1268 (Oct. 19) 1918.

three cases are typical of the disease in the stage for which this procedure is recommended.

CASE REPORTS

Case 1.—G. G., a man, aged 36, admitted, Nov. 29, 1921, two months before admission scratched the middle toe of the right foot. This failed to heal. For two weeks he had severe pain in this foot, worse at night, and was unable to sleep. The foot felt cold. Physical examination was negative except for the lower extremities. There was no right popliteal, posterior tibial or dorsalis pedis pulsation, and the right middle toe was ulcerated and had signs of gangrene. The left dorsalis pedis was not pulsating. December 8, alcohol was injected into the posterior tibial nerve at the level of the internal malleolus. Operation was followed by striking relief from pain; the patient felt comfortable and slept at night without medication. There was slight infection of the wound. On the 22d, the gangrenous toe was removed. January 6, the toe was almost healed. There was still an indolent wound at the site of the nerve exposure. July 5, the patient stated that he had had no pain since operation, slept well, and was able to walk considerable distances. The wound was firmly healed; there was no evidence of trophic disturbance beyond what was evident when the patient left the hospital. There was diminished sensation on the plantar surface of the foot. The patient has had no treatment since leaving the hospital.

Case 2.—N. S., a man, aged 49, admitted, Jan. 2, 1922, stated that he used to smoke heavily. The left leg had been amputated in 1916 for thrombo-angiitis obliterans. For eight weeks previous to admission, his right foot had been painful, especially on walking. For four weeks the toes were blue and cold, and pain was so severe that he was unable to sleep. There was no ulceration. Physical examination was negative except for the lower extremities. The left extremity had been amputated at the middle of the leg. The right foot was cold, with a reddish flush, but with no ulceration. There was no femoral, popliteal, posterior tibial or dorsalis pedis pulsation. On the 5th, the femoral vein was ligated, and alcohol was injected into the posterior tibial nerve at the level of the internal malleolus. After operation the pain in the foot was entirely relieved. The patient developed phlebitis of the superficial veins of the thigh, which caused considerable discomfort. On the 27th, the pain in the foot had gone. There was some pain and hyperesthesia on the inner side of the thigh above the knee when the patient was discharged. July 5, the patient stated that he was quite comfortable and able to sleep well. He had a little pain if his shoe pressed on his great toe, but he wore a shoe cut to eliminate the pressure. He could not walk any great distance. The wound was firmly healed. There were no trophic disturbances beyond what was present at the time of operation. There was diminished sensation on the plantar surface of the foot.

Case 3.—M. G., a man, aged 28, admitted, Jan. 28, 1922, for the last six weeks had had pain in the left foot, which was worse at night and on walking, making it impossible for him to sleep. For five weeks he had noticed a sore on the great toe, which was getting larger. Physical examination was negative except for a right lower rectus scar, hyperemia of the left foot, with a discolored great toe having a small ulceration at the tip. There was no popliteal, posterior tibial or dorsalis pedis pulsation. On the 30th, alcohol was injected into the left posterior tibial nerve at the ankle. After operation, the pain disappeared. The wound healed by primary union. February 10, the pain was relieved, and the wound healed. There was superficial dry abrasion of the big toe. This patient has returned to Europe. However, a relative in this country received a letter from him, July 15, in which he stated that he was entirely relieved of his pain and had no progression of the trophic disturbances.

COMMENT

The three patients have apparently been relieved for more than six months and have suffered no ill effects as a result of the procedure carried out. Deductions drawn from such a limited number of cases are necessarily premature, but that relief can be obtained by this simple procedure seems demonstrated, and the assumption that the method is a logical procedure based on an understanding of the pathology seems warranted. In view of these facts, it seems worth while to publish the method in the hope that a wider application of it will soon result in a safer conclusion as to its value. It must be emphasized that this treatment is palliative and makes no claim to cure the disease. It simply eliminates for a time its most distressing symptom.

35 East Eighty-Fourth Street.

Clinical Notes, Suggestions, and New Instruments

DIRECT DETERMINATION OF LIPASE WITHIN THE SMALL INTESTINE: A TEST FOR PANCREATIC FUNCTION

Jacob Buckstein, M.D., New York
Consultant in Gastro-Enterology, U. S. Veterans' Bureau; Assistant Roentgenologist, Bellevue Hospital

The method ordinarily employed for the determination of lipase within the intestinal fluid of the human being consists first in obtaining this fluid by means of a rubber tube inserted into the small intestine. A specimen of this fluid, obtained by means of a syringe, is then placed in a test tube or other vessel and examined. The same serious objections apply to the test tube method of studying the enzymotic content of intestinal fluid, as apply to the test tube method of studying intestinal digestion.

These objections have already been outlined.[1] The objections, in brief, are these:

1. There is a very definite alteration in the environment when fluid from the small intestine is placed within a test tube. As a result of this change, it is reasonable to suppose that the fluid may behave in a different manner.
2. There is a stasis of the fluid within the test tube which does not occur within the intestine itself where there is a constant change due to the outpouring of fresh secretion. Such stasis may lead to uncontrolled pathologic biochemical changes.
3. At best, we are determining the enzymotic content of the particular specimen removed. This finding may not apply to any specimen of intestinal fluid removed at some other time. This is indicated by the definite variation in the enzymotic values in separate specimens of intestinal fluid removed by the fractional method.

In the matter of the determination of lipase, it is possible to overcome these objections by demonstrating its presence directly within the small intestine. This may be accomplished by means of the following simple procedure. I have devised a capsule made of celluloid and of the size, thinness and transparency of the ordinary 00 gelatin capsule. Such a capsule is very easily swallowed and is not affected by the gastro-intestinal secretion. A silk string, 40 inches (102 cm.) long, is threaded on a needle and passed through the top of one part of the capsule. The string is then knotted on the inner side so that the capsule is permanently attached. Within the capsule is then placed a small capillary tube containing olive oil, agar-agar and Nile blue sulphate, according to the formula of Einhorn. The two parts of the capsule are then sealed in the following manner. The end of a hairpin, moderately heated, is passed through the capsule where the two parts coapt. This is not only sufficient to cause the two parts to agglutinate permanently, but, in addition, it makes openings whereby the capillary tube within the capsule may be reached by fluid in which the capsule is immersed. Several more openings may be made in the same manner to allow more thorough communication.

The capsule is swallowed by the patient at night, for a distance of about 36 inches (92 cm.) from the teeth, as measured by the attached string. This will ordinarily reach the intestine within a few minutes. The following morning, after twelve hours, the capsule is removed. The capillary tube is then examined and the change in color of the Nile blue sulphate, measured in millimeters, indicates the extent of lipolytic digestion. The capillary tube is not affected by gastric secretion, and the fact that it has been within intestinal fluid is indicated by the yellowish discoloration of the end of the string, and the presence of golden yellow fluid within the capsule itself. The minimal reading in a series of twenty cases was 3 mm.; the maximum, 7 mm. No clear reason to suspect pancreatic disease was present in this series.

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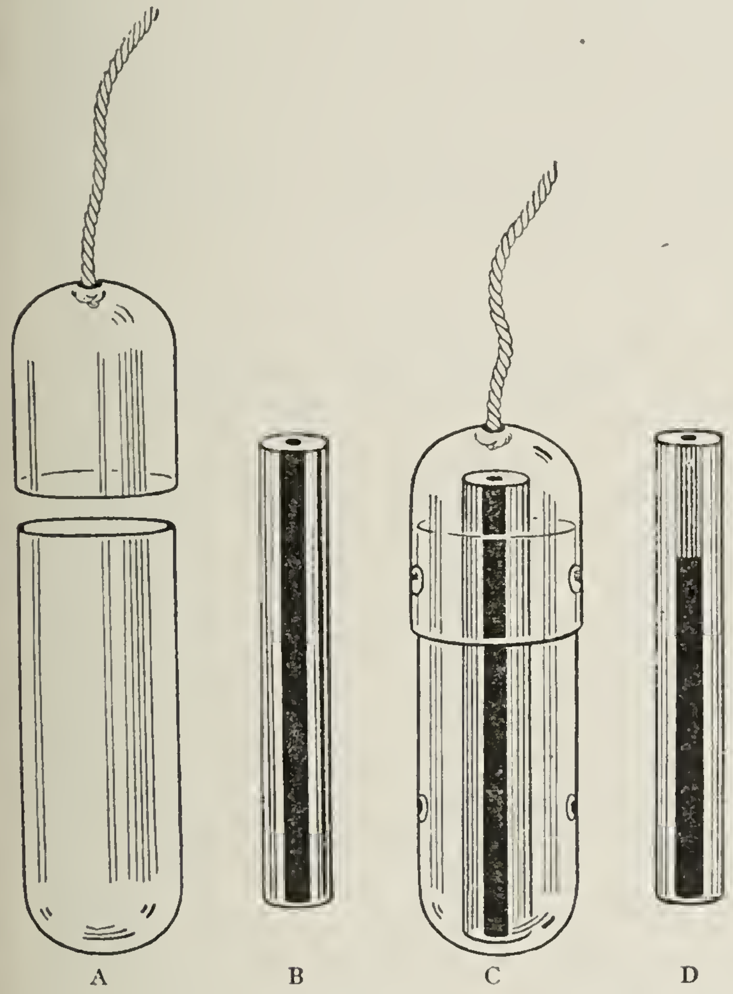
[1] Buckstein, Jacob: The Intestinal Digestion of Connective Tissue, Arch. Int. Med., to be published.

Thus, through the employment of the capillary tube described above, placed within the small transparent, indigestible celluloid capsule attached to a string and passed into the small intestine, it is possible to determine the presence of lipase in a manner that is simple and carried out under actual living conditions of the normal environment. Such determinations may prove to be of value in cases of suspected pancreatic disease.

1 West Eighty-Fifth Street.



A, indigestible transparent capsule made of celluloid with string, 40 inches long, attached; *B*, Einhorn capillary tube for lipase determination, containing olive oil, agar-agar and Nile blue sulphate; *C*, capsule containing capillary tube, closed and perforated, prior to introduction into the small intestine, and *D*, capillary tube after removal of capsule from the intestine; digestion indicated by change in color of the blue sulphate.

The Deadly Automobile.—During 1921, according to statistics compiled by the Department of Commerce, 10,168 deaths resulted from accidents caused by automobiles and other motor vehicles, not counting motorcycles, within the registration area of the United States. This number represents a rate of 11.5 per hundred thousand of population as compared with 10.4 in 1920 and 9.0 in 1917. In four years, therefore, the death rate from motor vehicles increased about 28 per cent. In twenty-seven states in which figures are available for 1917, the actual number of deaths increased from 6,014 to 8,492, or 41.2 per cent. The highest rate for 1921 is that of Los Angeles: 170 deaths (rate, 27.1). Albany stands second, with twenty-three deaths (rate, 26.9), and Youngstown third, with thirty-four deaths (25.7). Among the large cities, New York had 896 deaths (15.4), Chicago, 565 deaths (20.5), Philadelphia, 203 deaths (10.2), and Detroit, 130 deaths (13.4).

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

SULFARSENOL.—Sulfarsphenamine.—The salt, disodium 3,3′-diamino-4,4′-dihydroxyarsenobenzene-*N*-dimethylenesulphonate, $NaOSO_2.CH_2.NH.OH.C_6H_3.As:As.C_6H_3.OH.NH.CH_2.O_2SONa+4H_2O$, adjusted by the addition of inorganic salt to an arsenic content of 18 to 20 per cent. The arsenic content of 3 parts of sulfarsenol is approximately equal to 2 parts of arsphenamine. According to claims, it differs from neoarsphenamine in having two side chains instead of one and in that the sulphur has a valence of four (with an extra oxygen atom) and not two as in neoarsphenamine.

Actions and Uses.—The same as those of neoarsphenamine (see New and Nonofficial Remedies, 1922, p. 47) over which it is claimed to have the advantage of somewhat greater stability of solution in the presence of air, and of permitting subcutaneous injection.

Dosage.—Practically the same as for neoarsphenamine (see New and Nonofficial Remedies, 1922, p. 47).

Manufactured by Laboratoire de Biochimie Medicale, Paris, France. (Chas. Leich and Co., Evansville, Ind., distributor). Licensed for interstate sale by U. S. Treasury Department under the "act to regulate the sale of viruses, serums, toxins and analogous products" as conforming to the regulations for the control, sale and manufacture of sulpharsphenamine. No U. S. patent. U. S. trademark applied for.

Sulfarsenol, .06 Gm. Ampule.
Sulfarsenol, .12 Gm. Ampule.
Sulfarsenol, .18 Gm. Ampule.
Sulfarsenol, .24 Gm. Ampule.
Sulfarsenol, .30 Gm. Ampule.
Sulfarsenol, .36 Gm. Ampule.
Sulfarsenol, .42 Gm. Ampule.
Sulfarsenol, .48 Gm. Ampule.
Sulfarsenol, .54 Gm. Ampule.
Sulfarsenol, .60 Gm. Ampule.

Sulfarsenol is an orange yellow powder possessing an odor resembling that of sulphur dioxide and arsine. It is readily soluble in water yielding a yellow solution which is acid to litmus (*distinction from neoarsphenamine which is neutral and sodium arsphenamine which is alkaline*). On standing over night, the solution darkens and a precipitate is formed.

A *freshly* prepared solution of sulfarsenol (1: 100) yields no immediate precipitate on the addition of diluted acetic acid, whereas neoarsphenamine yields precipitate sooner (*distinction from arsphenamine*). The general reactions with silver nitrate and ferric chloride, the tests for the presence of sulphur, the assay and the toxicity tests are the same as those for neoarsphenamine. (See New and Nonofficial Remedies, 1922, p. 48.)

BARIUM SULPHATE FOR ROENTGEN-RAY WORK (See New and Nonofficial Remedies, 1922, p. 62).

Barium Sulphate-M. C. W.—A brand of barium sulphate for Roentgen-ray work-N. N. R.

Manufactured by the Mallincroft Chemical Works, St. Louis. No U. S. patent or trademark.

GUAIACOL BENZOATE (See New and Nonofficial Remedies, 1922, p. 92).

Benzosol.—A brand of guaiacol benzoate-N. N. R.

H. A. Metz Laboratories, New York, distributor. U. S. patent expired. U. S. trademark No. 65,165.

NORMAL HORSE SERUM (See New and Nonofficial Remedies, 1922, p. 278).

Parke, Davis and Company, Detroit.

Normal Horse Serum-P. D. and Co.—Marketed in packages containing one 10 Cc. syringe container (*Bio. 50*); in packages containing one 10 Cc. rubber-stoppered bulb (*Bio. 52*), and in packages containing one 30 Cc. rubber-stoppered bulb (*Bio. 53*).

ANTIRABIC VACCINE (See New and Nonofficial Remedies, 1922, p. 290).

Parke, Davis and Company, Detroit.

Rabies Vaccine (Cumming).—The virus is prepared by dialyzing a 1 per cent. suspension of brain tissues (from a rabbit dying of rabies induced by an injection of fixed virus) against running distilled water until the active virulent virus is destroyed. The treatment is divided into two classes: mild, requiring 14 doses; severe, requiring 21 doses. One dose, 2 Cc., is given daily over a period of either 14 or 21 days. Each package (*Bio. 440*) consists of seven syringe containers of 2 Cc. each (1 dose).

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SATURDAY, NOVEMBER 18, 1922

THE STRENGTH AND WEAKNESS OF STATISTICS

Raymond Pearl[1] has recently called attention to an incident which teaches a moral relative to improper statistical reasoning. In 1881, before the diphtheria bacillus had been discovered, a writer in a German medical journal presented an argument making it seem highly probable that the eating of potatoes is the cause of diphtheria. By conventional methods it was pointed out that the disease first appeared in Europe near the close of the sixteenth century, after potatoes had been introduced as food, and that it increased concomitantly with, and at about the same rate as, the increase in the dietetic consumption of potatoes, the most severe epidemics occurring at the times of planting and harvesting the vegetable.

The statistical reasoning in the paper cited, we are assured by Pearl, is "every bit as good and as cogent as at least much of the statistical work in the field of public health in this country at the present time." He has specifically cited several illustrations of prevalent errors in the evaluation of statistical data. Among such mistakes is that of failing to take into account the age, sex and race distribution in any group that is the subject of consideration with respect to death rate or morbidity rate. Again, in estimating trends of this sort it has become requisite to ascertain the probable errors of the differences or trends. A further common pitfall in this, as in many other fields of scientific study, lies in the too ready tendency to argue post hoc ergo propter hoc. Thus, the conclusions that poverty directly affects the infant mortality, or that density of population determines a higher death rate from certain diseases like tuberculosis, fail to take into account other simultaneous variables in each case. It has been observed,[2] for example, that the presumably rich and varied bacterial environment of city life may be productive of a greater resistance of city bred students to infectious disease, as compared with students reared in rural isolation. How is this observation to be reconciled with the vaunted superior vigor of the country boy?

Failure to take into account the numerous and often unsuspected variables, as well as random sampling of data, has been responsible for many doubtful if not actually erroneous conclusions. A little knowledge—particularly of statistics—is a dangerous thing. In the words of a trained investigator in this field, it needs to be brought emphatically to the attention of the user of vital statistics and the public health officer that in the last quarter of a century the theory of statistics has advanced by leaps and bounds. The day has passed, Pearl reminds us, when the mere tabulation of crude statistics, and the drawing of unchecked and uncriticized conclusions from these tabulations, will pass the court of scientific judgment. No statistical conclusion is today accepted by competent workers in the field, unless it is fortified by a determination of the probable errors involved.

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[1] Pearl, Raymond: The Statistical Evaluation of Public Health Activities, Am. J. Pub. Health **12**: 915 (Nov.) 1922.

[2] Clark, P. F.; Zellmer, C. E., and Stone, H. W.: Observations on Nonspecific Immunity; J. Infect. Dis. **31**: 215 (Sept.) 1922.

DIAGNOSTIC POSSIBILITIES OF SALIVARY ANALYSIS

Hardly a decade has passed since Folin and Denis of Boston initiated the microchemical methods for the rapid estimation of the nonprotein nitrogen of the blood. These procedures early gave promise of throwing new light on the phenomena of the retention of nitrogenous waste products in the organism as well as of promoting diagnosis and prognosis, particularly in the study of renal disorders. Just as the comparatively simple quantitative determination of sugar in small amounts of blood easily withdrawn from the circulation in man has advanced the therapy of diabetes, the microchemistry of blood nitrogen has begun to contribute useful data in other fields of clinical investigation and practice. Thus it happens that the chemical laboratory of a single hospital can report in one year hundreds of determinations of the nonprotein nitrogen of blood samples taken as a matter of diagnostic routine, quite as chemical and microscopic examinations of urine are placed on record because they have become indispensable for forming judgments with respect to the management of the sick.

The papers presented before the Section on Urology at the St. Louis session of the American Medical Association attest the growing recognition of the importance of blood chemistry, and notably those newer aspects involving the nonprotein nitrogenous components, among which urea, creatinin and uric acid are conspicuous.[1] As the outcome of the symposium, one is impressed in particular with the significance of the data securable for blood urea. Thus, Frontz and Geraghty assert that virtually all the information of clinical value gained by estimations of total nitrogen, nonprotein nitrogen, uric acid and creatinin is furnished by the estimation of the blood urea content. Olmsted and Caulk aver that with retention of urea, bilateral disease is always present, whether anatomic or functional or both. They add that in 250 surgical cases involving the kidney they have never seen retention of nitrogen without bilateral disease. Squier, Bandler and Myers, who have had large experience in the application of microchemical technic in the department of biochemistry at the New York Post-Graduate Hospital, insist that preoperative information on the chemistry of the blood should be secured in all surgical conditions of the kidneys, bladder or prostate. The information is of more value in prostatic than in other urologic lesions. Of the different chemical blood tests, the urea is the most helpful, they believe, although, with urea retention, the creatinin or carbon dioxid combining power may be more significant. Patients presenting urea nitrogen figures greater than 25 mg. for each hundred grams of blood should be operated on with caution, according to these New York clinicians, and best after a period of preliminary treatment directed to relieve the nitrogen retention. This applies particularly to any lesion inhibiting the output of urine. In the discussions, a preeminent place was given to the determination of renal function by such methods as the phenolsulphonephthalein test and to the estimation of blood urea.

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[1] Berglund, Hilding: Nitrogen Retention in Chronic Interstitial Nephritis and Its Significance, J. A. M. A. **79**: 1375 (Oct. 21) 1922. Olmsted, W. H., and Caulk, J. R.: Present Status of Blood Nitrogen in Surgical Lesions of the Kidney, p. 1380. Frontz, W. A., and Geraghty, J. T.: The Value of the Estimation of Urea, Nonprotein Nitrogen and Creatinin, p. 1383. Squier, J. B.; Bandler, C. G., and Myers, V. C.: Significance of Chemical Blood Findings in Urologic Conditions, p. 1384. Thomas, B. A.: Comparative Values of Indigocarmin and Blood Biochemical Tests, p. 1387.

For an expert, these diagnostic procedures are not difficult to master. Nevertheless, they require special training on the part of the analyst and a peculiar sort of cooperation from the patient. Consequently, special interest attaches to the recent evidence that the more easily collected saliva also may serve to reveal the urea content of the blood and thereby afford a valuable index of renal functional capacity. Studies made at the Mayo Clinic by Hench and Aldrich[2] indicate, in the saliva of man, a certain amount of nitrogen derived wholly or mainly from urea. The latter bears a very close relationship to the amount of urea in the blood. This suggests that urea reaches the saliva by diffusion, and the physical properties of urea are such that its diffusion is to be expected. The results reported by Hench and Aldrich for normal persons indicate that the combined urea and ammonia nitrogen values of the saliva are normally between 6 and 13 mg. for each hundred cubic centimeters, representing between 13 and 27 mg. of urea for each hundred cubic centimeters. The combined urea and ammonia nitrogen values of the saliva closely approximate those of the urea nitrogen of the blood. In urea retention, the combined urea and ammonia nitrogen of saliva always increases with an increase in the blood urea nitrogen.

It will be a noteworthy advance if the analysis of the saliva may precede or replace blood urea nitrogen determinations, especially in children and other persons in whom bleeding may be difficult. We are assured by the investigators at the Mayo Clinic that the finding of a normal combined nitrogen value in the saliva excludes the possibility of an abnormal blood urea value, and likewise that high combined nitrogen values in the saliva indicate the need of studies of the blood. So long as the effect of the rate of secretion of saliva on the content of its nonprotein nitrogenous constituents remains problematic, it may be too early to dogmatize about these applications of salivary analysis to clinical diagnosis. The prospect, however, is one that invites extensive study; and already there are promises of useful application.

DRIED MILK IN INFANT FEEDING

Milk is today firmly enthroned in an exalted position as a preëminently valuable nutrient during the periods of infancy and adolescence. There are times, however, when fresh milk may become scarce in certain regions; and there are places where it always is scarce or at least unduly expensive. Changes in production and methods of transportation are making such conditions far less common; nevertheless they do exist and are likely to remain in the case of a product having a variable local and seasonal output. Conservation of food resources in times and places of plenty is exemplified in various methods of preserving milk, the newest being represented by the desiccation of the fluid.

Dried milks are rapidly becoming common articles of commerce. Out of them a potable nutrient fluid can easily be reconstituted by admixture with water at a reasonable cost in any place. The public health official and the pediatrician have been confronted with the question of the suitability of dried milk products for child feeding. The United States Public Health Service accordingly designed a study in Boston "to determine the safety, usefulness and comparative value of dried milk powder in infant feeding on a practical, community-wide basis." The report,[1] recently published, confirms the earlier observations that there are now available dried milk powders from which products may be remade that are safe for infant feeding and in some cases may have distinct therapeutic value.

The gains in weight of infants nourished on such food were very satisfactory in the Boston study, as was their physical development. But these are not the sole criteria for safe judgments. Bacterial dangers always loom large in infant feeding; but from this standpoint it would now seem, to quote the government experts, "that powdered milk, and especially the whole milk powder, can be safely used for feeding infants where a good grade of fresh cow's milk cannot be obtained." So far as the highly essential vitamins are concerned, the antiscorbutic potency of dried milk powders is still sub judice, with growing evidence that the commercial processes of desiccation are not necessarily destructive of all the vitamin C in fresh milk. The latter is itself variable with the season and feed of the lactating cow.[2] Safe practice has long since dictated the use of antiscorbutics, such as fruit or vegetable juices, for infantile health insurance. As for the alleged antirachitic factor, the present limitations of our knowledge still place the subject in the domain of speculation rather than certainty. No one makes a plea to supplant the unsurpassed fresh raw milk; nor should the possibilities of preserving it be unworthy of careful consideration. Times of stress may come.

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[2] Hench, P. S., and Aldrich, Martha: The Concentration of Urea in Saliva, J. A. M. A. **79**: 1409 (Oct. 21) 1922.

[1] Clark, T., and Collins, S. D.: Dried Milk Powder in Infant Feeding, Pub. Health Rep. **37**: 2415 (Oct. 6) 1922.

THE PITUITARY HORMONE

Ever since Howell[3] demonstrated, in 1898, that extracts of the posterior lobe of the pituitary prepared from material including the pars intermedia have the effect of raising blood pressure when they are introduced into the circulation, the subject has retained a lively interest not only for physiologists and pharmacologists, but also for biochemists. It has become evident that these structures contain some chemical principle which seems to exercise a stimulating effect on involuntary muscles. This is readily exerted, for example, on the uterine muscle, in which instance the phenomenon is often referred to as the oxytocic activity. With two distinct compounds of marked physiologic potency, epinephrin and thyroxin, already isolated from so-called ductless glands, it is not strange that the discovery of the potent component of the posterior lobe should become the goal for a number of chemical investigators. The further fact that extracts of the pituitary have already gained a place in practical therapeutics[4] serves merely to magnify the value attaching to success in the search for an "active principle."

In some respects the action of pituitary extracts resembles that of epinephrin and of histamin (beta-iminazolylethylamin), both of which may be found in the body and have been extensively studied. The experiences with pituitary extracts, however, have been somewhat contradictory; and unfortunately the various commercial preparations vary widely in their activity. It is conceivable, and has repeatedly been suggested, that the pituitary contains more than one physiologically potent constituent; and perhaps pressor and depressor compounds are derivable from the gland structures, serving to account for some of the experimental discrepancies. It has even been asserted that the important active component is histamin.

Abel and Rouiller[5] of the Johns Hopkins University have at length succeeded in preparing products from the infundibulum which have both vasomotor and oxytocic effects. They estimate that the uterus-stimulating potency of the active principle, when once it is freed from accompanying inert material, will be found to be fifty times more powerful than that of the undeniably active histamin. The Baltimore pharmacologists conclude that there is only one specific hormone in the infundibulum, and that this substance has both vasomotor and uterus-stimulating properties, as well as a powerful effect on the kidneys. The hope of a speedy isolation of the long sought pituitary hormone as a chemical entity is somewhat shattered by the fact that the latter is unstable in laboratory manipulations, and, so far as can be judged, is present in quantities not exceeding 0.002 gm. in a single posterior lobe of the ox pituitary. In any event, however, the prospect of material progress in pituitary chemistry is decidedly promising.

POOR CALIFORNIA

The chiropractors of California, through an adroitly worded bill and a clever and misleading propaganda, appealed for an independent chiropractic licensing board to the sympathy and a lack of understanding on the part of the voters of the state, and at the election of November 7, under the initiative, they won. They carried along with them the struggling osteopaths, who were given an independent licensing board of their own. Now the people of California can have their back bones chiropractically analyzed and adjusted, and their inflamed appendixes osteopathically rubbed to the point of rupture, by any person whom the State Board of Chiropractic Examiners or the Board of Osteopathic Examiners of the State of California, as the case may be, sees fit under the law to set loose on the suffering community. The Board of Medical Examiners of the State of California is relieved from all duty and responsibility in the premises. The only evidence of state sanity from the medical standpoint in the California situation, as far as was disclosed by the recent election, was the defeat of the measure which aimed to prevent the use of living animals for research designed to advance medical science and the welfare of men and of dumb animals.

What chiropractic is, the California law does not say. One licensed by the board of chiropractic examiners is authorized "to practice chiropractic in the state of California as taught in chiropractic schools or colleges; and, also, to use all necessary mechanical, and hygienic and sanitary measures incident to the care of the body"; but his license does not authorize "the practice of medicine, surgery, osteopathy, dentistry or optometry, nor the use of any drug or medicine now or hereafter included in the materia medica." The law creating the board of osteopathic examiners omits altogether any definition of osteopathy, but provides that the board shall in respect to all matters relating to graduates of osteopathic schools, applying for or holding any form of certificate or license, take over, exercise and perform all the functions and duties imposed on and heretofore exercised or performed by the board of medical examiners.

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[2] Variations in the Antiscorbutic Potency of Milk, editorial, J. A. M. A. **76**: 1105 (April 16) 1921; The Nutritional Variability of Milk, ibid. **78**: 1540 (May 20) 1921.

[3] Howell, W. H.: J. Exper. Med. **3**: 245, 1898.

[4] Hatcher, R. A., and Wilbert, M. I.: The Pharmacology of Useful Drugs, Chicago, American Medical Association, 1915, pp. 196, ff.

[5] Abel, J. J., and Rouiller, C. A.: Evaluation of the Hormone of the Infundibulum of the Pituitary Gland in Terms of Histamine, with Experiments on the Action of Repeated Injections of the Hormone on the Blood Pressure, J. Pharmacol. & Exper. Therap. **20**: 65 (Aug.) 1922.

What a chiropractor and an osteopath may do under licenses issued by these new boards will doubtless be determined in the courts, if interested prosecuting officers can be found who will bring prosecutions in cases of apparent violation of the law. It is said that the chiropractors will be entitled to sign birth and death certificates, be health officers, and fill any official position connected with the practice of medicine and public health.

Current Comment

SHALL CHILDREN GAIN BY POUNDS OR INCHES?

The fact that growth is the foremost physiologic function characteristic of childhood is becoming recognized more extensively than ever, particularly as a result of the unprecedented activities in behalf of child welfare. Difficulties have arisen, however, in the attempts to formulate norms of growth. What shall be the index of adequate increments of size? Shall it be body weight or height or some appropriate interrelation of these measurements by pounds and inches or kilograms and centimeters, respectively? Much attention has been devoted of late to secure some satisfactory expression of a normal relation between weight and stature; and it has been debated whether the correlation should be expressed for standing or sitting height. The usual argument has intended to show that growth is satisfactory when a body is properly "rounded out" for its stature. In an elaborate study, Porter [1] of the Harvard Medical School has taken exception to current tendencies to proclaim "the supreme importance of weight in relation to height." The emphasis, he asserts, is overdone in that it tends to lessen the attention paid to growth in height. Porter proclaims the doctrine of securing the inches in healthy children, for the pounds will look after themselves. Loss of weight through sickness is, of course, in a different category. Porter reminds us that a world in which every human being had the correct number of pounds for each inch in height would be the best possible world for adults, in whom skeletal growth is hopelessly finished, but it would be a very poor world for public school children, the majority of whom have been deprived of their rightful number of inches. It is our duty, he adds, to make our children reasonably tall. Again and again it has been proved that life is more difficult for undersized men and women than for those who are somewhat taller than the average. Consequently, Porter adds, the parental and social incompetence which produces stunted children does not repair its fault by making the pounds of a defective boy bear the customary ratio to his defective inches. Those who deal with the practical aspects of the subject would probably conclude that in specific cases it is no easier to get the pounds than the inches—when the causes of retarded growth are not apparent. Before prescription should come correct diagnosis.

MEDICAL INSPECTION IN SCHOOLS WINS IN WASHINGTON

An act of the legislature of the state of Washington, passed in 1921, exempting children from physical examination in the public schools, was, under the referendum, rescinded at the polls, November 7. The objectionable statute, as it passed the legislature, was said to be the work of Christian scientists. It provided that a parent or guardian having control or charge of any child enrolled in any public school in districts of the first class might file annually with the principal of the school a statement in writing refusing consent to the physical examination of such child, and that thereupon the child should be exempted from any physical examination unless a practicing physician or graduate nurse "in good faith" had reason to believe that the child was actually suffering from a contagious or infectious disease. Incorporated in the law, as it passed the legislature, was a proviso that no child should be required to submit to vaccination without the written consent of his parent or guardian, the law already providing that a child should not be required to be vaccinated against the will of his parent or guardian. The vaccination clause was calculated apparently merely to put on school authorities the duty of obtaining written consent in each case. The operation of the act was arrested under the referendum, through the activity of the public health forces of the state, which procured 70,000 signatures to petitions suspending its operation pending the referendum vote, although only 24,000 signatures were necessary. The people have now as a whole registered their votes in favor of the protection of health in the public schools through physical examinations of the pupils where deemed necessary.

NEW OBSERVATIONS OF EPIDEMIC ENCEPHALITIS

At the meeting of the first Scandinavian neurologic congress in Copenhagen, Kling [1] presented a highly interesting report of his observations on epidemic encephalitis in a sparsely settled part of Lapland. The settlements there were so far apart that it required about one day to go from one to another, and this wide separation of the population facilitates greatly the study of the spreading of the disease. Kling found that the transmission is directly from person to person, that the incubation period is ten days, and that abortive cases in which catarrhal symptoms predominate are frequent. By inoculation of rabbits, the virus was demonstrated to be present in the nasopharynx of well persons who had been in contact with the sick. Altogether, Kling studied 120 patients, of whom twelve died, and he believes that he has isolated the virus, which is a filtrable virus, pathogenic for rabbits but not for monkeys. In rabbits the virus produces a chronic disease with specific changes in the brain. The observations of Levaditi and Harvier in Paris, and of Straus, Loewe and Hirschfeld in this country, are not accepted as dealing with the specific virus of epidemic encephalitis. In the case of the French investigators it is possible that the virus they used was the virus of ordinary herpes (not herpes zoster), which Kling claims can be separated from true encephalitic virus by immunologic tests, the serum of encephalitis patients restraining the action of the encephalitis virus but not that of the herpes virus. The complete reports will be awaited with interest. Finally, it is noteworthy that Kling regards epidemic encephalitis as having existed for a long time without having been recognized as a distinct disease.

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[1] Porter, W. T.: The Relative Growth of Individual Boston School Boys, Am. J. Physiol. **61**: 311 (July) 1922.

[1] Kling: Norsk Mag. f. Lægevidensk. **83**: 843, 1922.

THE SACRIFICE OF THE INNOCENT

Five-year-old William Francis Shoemate of Whistler, a suburb of Mobile, Ala., died, September 28, of "religious scruples," supplementing "disease and neglect." So stated the coroner in the death certificate issued after an inquest. Obviously, the "religious scruples" were not those of the child victim. His life appears to have been sacrificed to the religious views of some adult responsible for his care, a member of a religious sect known as the "Holy Rollers" or "Assembly of God," who do not believe in giving medical attention to the sick.

NONBACTERIAL CARDIOVALVULAR DEFECTS

The share of bacteria in the development of pathologic conditions in the body is so large that nonbacterial causes are overlooked. The delayed recognition of the nature of certain dietary deficiency diseases is an instance of oversight attributable largely to the dominance of microbiotic points of view in the modern study of pathology. Thalhimer[1] has recently directed attention to the paucity of knowledge regarding the pathologic processes forming the basis of the progressive development of chronic cardiovalvular disease: the nonbacterial, nonrheumatic disorder of the heart valves. It is characterized by marked fibrosis of the valve cusps or flaps, sometimes causing marked distortion or stenosis, at times with calcareous deposits on the valves, but unaccompanied by other than small vegetations. The lesions associated with bacterial invasion of the endocardium are well understood. They usually start from a bacterial embolus or a bacterial implantation at the valve. But vegetations of a verrucose character occur at times independently of any direct infectious origin. According to Thalhimer, these may be entirely different from the lesions of bacterial endocarditis and are formed of small thrombi on the valve. His studies at the Columbia Hospital in Milwaukee lead him to the belief that the same conditions which govern thrombus formation in blood vessels govern the formation of a thrombus on a heart valve. At first there is a mild fibrosis. With the thickening of the valve, slight abnormalities of the circulation in the neighborhood may ensue, leading to damage, at the site of which a minute thrombus—an aseptic vegetation—is deposited. It becomes organized, fibrosed and incorporated in the valve, adding to its thickening and fibrosis. This process still further lessens the elasticity and resilience of the valve, and renders it more liable to subsequent minute injuries, verrucae, and the result of organization of these verrucae. Thus, a vicious cycle is completed, each minute injury and its repair rendering the valve more susceptible to further injury. The picture of the evolution of a pathologic process here presented must still be regarded as largely a hypothetic attempt to explain the development of certain cardiovalvular defects rather than as a final dictum of heart pathology.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ARKANSAS

Public Health Meeting.—At the annual meeting of the Washington County Public Health and Anti-Tuberculosis Association, in Fayetteville, October 20, Dr. W. J. Frost was elected president to succeed Dr. P. L. Hathcock, Lincoln.

Hospital News.—The Missouri Pacific Association has purchased a site at Little Rock, Ark., on which to erect a $150,000 hospital for its employees. Construction work will begin early in the new year, it is stated.——A new hospital is under construction at Blytheville. It will have twenty-four beds.——Dr. Edwin P. Bledsoe, formerly superintendent of the state hospital for nervous diseases, Little Rock, has been appointed superintendent of the U. S. Veterans' Bureau Hospital No. 78, Fort Logan H. Roots, North Little Rock, to succeed Dr. Lyon O. Weldon. Dr. Weldon has been appointed to the emigrant service at Ellis Island, New York.

CALIFORNIA

Physicians' Licenses Revoked.—According to reports the license to practice medicine of Dr. Amos J. Landis, Chico, has been revoked, and he has been placed on five years' probation on a charge of administering drugs to an addict.——Dr. William Raymond McDannell, Los Angeles, was found guilty of unlawfully administering narcotics and his license was revoked by the state board of medical examiners, October 18.

Southern California Medical Society.—The annual meeting of the society was held in Los Angeles, November 3-4, under the presidency of Dr. William Duffield, Los Angeles. Dr. Edward C. Rosenow, Rochester, Minn., and Dr. Walter C. Alvarez, San Francisco, were among the speakers. The following officers were elected: president, Dr. Robert Pollock, San Diego; vice president, Dr. Francis L. Rogers, Long Beach, and secretary-treasurer, Dr. Egerton Crispin, Los Angeles (reelected).

Convictions and Fines for Illegal Practitioners.—Press clippings from various California papers report convictions of illegal practitioners as follows: Byron E. Frank, chiropractor of Chico, fined $500 on a charge of practicing medicine without a license; Helen Penner, Dinuba, chiropractor, given a suspended sentence of three months by Judge Wallace for practicing without a license; W. W. Ross, chiropractor of Corning, sentenced by Judge Ellison at Red Bluff to pay a fine of $300 or serve 300 days in the county jail for violating the medical practice act of California; Mrs. Beatrice Sessions, a Fullerton chiropractor, fined $100 and put on probation for practicing without a state license, and H. C. Sauders, Huntington Beach, a chiropractor, sentenced to serve 120 days in jail by Judge Williams on a charge of practicing without a license from the state board of medical examiners. He will appeal.

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[1] Thalhimer, William: The Mechanism of the Development of Nonbacterial, Chronic Cardiovalvular Disease, Arch. Int. Med. **30**: 321 (Sept.) 1922.

COLORADO

Hubert Work Gymnasium Dedicated.—At a meeting of the trustees of the Colorado School for Deaf and Blind, Colorado Springs, it was decided, following the suggestion of the student body, to name the new gymnasium of the school in honor of Postmaster-General Work. This gymnasium, which was erected at a cost of $125,000, was formally dedicated, November 3. Governor Shoup and John F. Bledsoe, Maryland School for the Blind, Overlea, Md., were present at the dedication ceremonies.——A new $200,000 service building, now under construction, will be called the Arzo Building in memory of the late Prof. W. K. Arzo, who was superintendent of the school at the time of his death.

Smallpox in Denver. — Owing to the recent outbreak of variola in Denver, a mass meeting of citizens was held, October 28, demanding that the city quarantine hospital be removed from its present location near the county hospital to some isolated spot, and stating that it was a menace to the health of the residents. Another special conference was held the same day, between Dr. William H. Sharpley, director of health and Denver physicians on the necessity of urging widespread vaccination against smallpox. Free vaccination centers will be established, and Dr. Sharpley appointed physicians to take charge. After a preable stating that smallpox has been prevalent in Denver continuously for the last twelve months and has at the present time attained the status of an epidemic of serious proportions, the Medical Society of the City and County of Denver, it was announced, November 11, by resolution requested the mayor to declare the present situation an emergency and to take such steps to prevent the further spread of the disease as are authorized by law in case of an epidemic. It was recommended that the county hospital be set aside for the care of smallpox patients in order that they may receive proper and adequate medical attention, and that provision be made in the other hospitals of the city for the care of other acute or emergency medical and surgical cases. The prevailing type of disease is of extreme virulence, from 40 to 50 per cent. of all cases being confluent. In September, thirty-two cases were reported, with seven deaths; in October, 160 cases, with forty-two deaths; from November 1 to November 7, inclusive, seventy-five cases, with twenty-five deaths; in all, in sixty-eight days, 267 cases, with seventy-four deaths. During the week ending November 11, sixty-six cases were reported, with seventeen deaths. Of the 267 cases reported between September 1 and November 7, inclusive, 195 of the patients had never been vaccinated, the vaccination histories of twenty-one could not be ascertained, and the vaccination histories of the rest are at the present writing not available. Of the seventy-four patients who died within the period named, sixty-seven had never been vaccinated, one had been vaccinated fifteen years ago, one twenty-three years, one fifty years, one fifty-three years, one fifty-nine years, one sixty-five years, and one seventy years. The manager of health and charity, Dr. W. H. Sharpley, November 8, gave out the following statement:

> There is no way to suppress smallpox except by vaccination, and those who do not wish to contract the disease can easily protect themselves.
>
> This applies to Denver as well as to any other community, and many people who are panic stricken with fear are the very ones who object to vaccination and who oppose the only sure method to prevent the disease.
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> There should be no quarantine on smallpox, and the people who do not wish to contract the disease can protect themselves by vaccination, and those who object to vaccination should have the privilage of having smallpox.
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> There is no more danger in a convention being held in Denver at the present time than in any other place. Our population is nearly 275,000, and we have about eighty cases of smallpox in the city. One can easily figure the percentage for himself.

The extent to which foci of infection are scattered throughout the city is indicated by the fact that on a recent date forty patients were under treatment in the isolation hospital, and thirty-two in private homes.

CONNECTICUT

Yale Professor Gets Leave.—Announcement is made through the secretary's office of Yale University that leave of absence has been granted by the Yale Corporation to Dr. Lafayette B. Mendel, Sterling professor of physiologic chemistry, for the remainder of the university year. Professor Mendel will lecture for the Hitchcock Foundation at the University of California, San Francisco, on the subject of "New Aspects of the Physiology of Nutrition." He will leave New Haven after the dedication of the Sterling Chemistry Laboratory in April.

GEORGIA

Medical Society Organized.—At a meeting of physicians in Douglasville, October 31, the Douglas County Medical Society was organized, with Dr. Delvous Houseworth, president; Dr. Ralph E. Hamilton, vice president, and Dr. J. M. Boyd, secretary-treasurer.

ILLINOIS

Verdict Set Aside.—In the case of Dr. Preston O. Carrico, Ashmore, charged with manslaughter through an illegal operation, it is reported that the verdict of guilty was set aside and the case remanded for a rehearing.

Physician Exonerated.—According to reports, the jury, in the case of Dandurand against Dr. Shirley W. Lane, Kankakee, returned a verdict of not guilty, October 13, and completely exonerated Dr. Lane from blame. He was charged with malpractice in the setting of a fractured arm.

Impostor to Serve Jail Sentence.—Bert Hall, alias "Dr." Robinson, alias George B. Williams, a deaf and dumb negro, who, the police assert, has posed as a medical man of repute, was sentenced to forty-two days in jail on a charge of disorderly conduct in Galesburg, October 31. He was imprisoned when he failed to pay the fine of $200 and costs imposed on him at a hearing in Judge Meadow's court. The "doctor" is alleged to have taken $20 from a colored woman to whom he had promised medical attention.

Drugs Smuggled in Medical Belts.—A new offensive against violators of the Harrison Narcotic Law resulted in the arrest of members of two alleged rings of narcotic drug pedlers, recently. It was discovered that the narcotics had been smuggled out of Camp Grant in belts worn in the medical department. When arraigned before U. S. Commissioner Glass, one woman stated that the drugs in her possession had been found in belts purchased from authorities at Camp Grant. One thousand morphin tablets were taken from a youth of 22, said to be an old offender.

Trachoma Survey to Be Made at Anna.—A medical officer from the field staff of trachoma experts of the U. S. Public Health Service will shortly be detailed to make a survey of the trachoma situation at Anna, according to an announcement made by Dr. Isaac D. Rawlings, state director of public health. It is reported that considerable eye infection has been detected, especially among schoolchildren, and that conflicting opinions as to the correct diagnosis have arisen. An investigation by a public health service expert has been requested, in order that proper control and preventive measures may be instituted.

Chicago

Personal.—Dr. Hugh T. Patrick gave a lecture before a meeting of the Seventh District Medical Society at Indianapolis, October 26.

Military Surgeons will Convene.—The second annual meeting of the Association of Military Surgeons of Illinois will be held at the Army and Navy Club, Chicago, November 20, under the presidency of Col. Gustavus Blech. Dr. Frank Billings will address the meeting.

To Honor Professor Michelson.—A fund has been contributed by members of the faculty and alumni of the University of Chicago, for a portrait of Prof. A. A. Michelson, who for thirty years has been head of the department of physics in the university. Ralph Clarkson has just completed the portrait.

INDIANA

Fine for Impersonating Physician.—It is reported that Jesse Wagner of Elkhart was arrested on a charge of trespass filed by William Kershner of Bristol. He pleaded guilty and was fined $80 on this charge and $11 on charge of intoxication. He went to the home of Kershner, where a daughter was ill with typhoid fever, and stated that he was a specialist from Chicago.

IOWA

County Medical Meeting.—At the annual meeting of the Scott County Medical Society, November 7, Dr. Walter E. Foley, Davenport, was elected president, and Dr. William C. Goenne, Davenport, secretary.

KANSAS

Personal.—Dr. Borden S. Veeder, professor of pediatrics, Washington University, and chairman of the Section on Diseases of Children, American Medical Association, addressed the Atchison County Medical Society of Kansas, recently.——Dr. Henry C. Ulery was recently appointed health officer of Girard.——Dr. Henry R. Conway and W. Wilson, both of Brewster, are in a serious condition from gunshot wounds received in a shooting affray.

KENTUCKY

Vaccination Rule Enforced.—The fact that smallpox is not at the moment present in a given county in Kentucky, or in adjacent territory, does not prevent the local health authorities from enforcing a rule of the state board of health requiring teachers and students in the public schools to be vaccinated; reasonable apprehension of a smallpox epidemic is sufficient to warrant such enforcement. A motion was filed on behalf of the father of an 8-year-old child who had been refused admission to the public school until she was vaccinated, asking that the Newport health officer be enjoined from vaccinating the child and from interfering with her. The case was heard in the Campbell Circuit Court, and the motion for an injunction was overruled, October 19, for the reasons stated.

LOUISIANA

Health Exhibit at First Annual Fair.—The first annual fair for central Louisiana was held in Alexandria during the week of October 9-14. The public health exhibit occupied a booth at one of the entrances to the main permanent building. Demonstrations and instructions were given in disease prevention, sanitation and child welfare. Special literature and apparatus was featured for venereal disease care.

MASSACHUSETTS

Hospital News.—The Boston Consumptives Hospital, established in 1908, has changed its name to the Boston Sanatorium.——Plans have been drawn for the addition to the City Hospital, Quincy, to be erected at a cost of $100,000.——An annex and infirmary will be erected at the Masonic Home at Charlton, at a cost of $200,000.——Alterations will be made at the Newton Hospital at Newton Lower Falls in the near future, it is reported.——A site has been purchased on which to erect a new hospital for Amesbury.——The new Swedish Hospital at Fairlawn will be formally opened to the public, December 1. The institution has accommodation for seventy patients and an old residence in the grounds will be remodeled for a nurses' home.——Construction work is under way on the new medical and surgical building for the Gardner State Colony for Quiet Chronic Insane. This new building will have a capacity of seventy-five beds and will cost $134,000.—A new dormitory building will be erected at St. Mary's Infant Asylum, Dorchester, at a cost of $60,000.

Industrial Colony for Tuberculosis Patients.—A colony of unusual type, where those suffering from advanced tuberculosis may live with their families, will be established at Rutland. A 220 acre tract of land has been purchased on a large fruit farm north of the village, and plans are being drawn for the immediate erection of the most necessary buildings. With $150,000 as a nucleus for the establishment of the colony, construction will be started as soon as possible, with the intention of opening the first unit next summer. The first building to be erected will be a sanatorium, located in the center of the estate, which will be the first one of six hospital buildings which will be grouped near a central administration building. To the west of the hospital group, it is planned to establish a model village, where patients who need permanent care but have passed the need of sanatorium treatment will be able to reside with their families. The proposed colony will be conducted under the immediate direction of the Central New England Sanatorium, Inc. Drs. Bayard T. Crane, Edwin A. Locke and Vincent Y. Bowditch are on the board of directors.

MICHIGAN

Annual Health Conference.—Under the auspices of the Michigan Department of Health and the Michigan Public Health Association, the second annual health conference will be held in Lansing, December 4-8. It is designed as a short course of intensive training in public health work, and will include lectures on the various communicable diseases, rural health problems and quarantine. National health authorities and leading health workers of Michigan will appear on the speaking program.

MINNESOTA

St. Paul Clinic Week.—The clinic week of St. Paul will be held from Jan. 9-12, 1923, inclusive. Morning sessions will be devoted to clinical work with a symposium each afternoon.

Leper Reported in Duluth.—The first case of leprosy known in Duluth in many years was reported to the health department in October. The man with the disease, a workman, came from Greece ten years ago.

Personal.—Dr. Edwin E. Shrader, Watertown, was recently elected president of the Wright County Medical Society.——Dr. Edwin L. Gardner, Minneapolis, was elected president of the medical alumni of the University of Minnesota, October 14.——Dr. Bernard R. Reinertsen has resigned from the staff of the Eitel Hospital, Minneapolis, and will practice in Buffalo, S. D., where he had been appointed county coroner and health commissioner.

MISSISSIPPI

Plans for Expansion Discussed.—At a former meeting of the Clarksdale and Six Counties Medical Association, it was proposed to dissolve the society and substitute the Delta Medical Society, which would include the counties of Washington, Leflore and Humphrey, as well as the original six. At the annual meeting, November 1, in Clarksdale, this action was opposed by a vote of 28 to 14 against the change. Objectors argued that such action would so widen the range of the society that it would decrease interest in the meetings, owing to the necessity for longer trips by attendants. Dr. Andrew J. Brown, Mattson, was elected president, and Dr. Ellis Leroy Wilkins, Clarksdale, secretary-treasurer.

MISSOURI

Health Officers' Conference.—A health officers' conference will be held in Columbia, November 24-25. An interesting program is being planned by Dr. Mazyek P. Ravenel of the School of Medicine of the University of Missouri.

Hospital News.—An annex to the Freeman Methodist Hospital, Joplin, will be erected in the near future, at a cost of between $50,000 and $100,000.——The contract has been let for the $200,000 addition to St. John's Hospital, Springfield.——Dr. W. J. Harned, Bethany, has acquired the Helibron Sanatorium at Bethany, and has changed the name to the Bethany Sanatorium and Hospital. When remodeled and refitted, the institution will contain thirty beds.——It is planned to erect a county hospital at Chillicothe. Through the efforts of the members of the Livingston County Medical Society, petitions have been filed with the county court, requesting the court to authorize the submission of a bond issue for this purpose.——Work has also been started on the new hospital for the medical department of the University of Missouri, Columbia. A corridor will connect the institution with the Parker Memorial Hospital. When the building is complete, the university will begin clinical instruction in medicine and extend the course from two to four years, thus providing Missouri students with a full medical course in medicine. This is the first of several buildings in the group to be erected in expending a total of $1,000,000 to provide hospitals for clinical instruction for medical students at the state university.

MONTANA

Dr. Thorkelson Resigns.—Following the resignations of Drs. Scanland and Bolton, it is announced that Dr. Jacob Thorkelson, consulting surgeon on the staff of the Montana State Hospital, Warm Springs, has resigned. Dr. Thorkelson will devote his entire time to his practice in Anaconda.

NEBRASKA

Society News.—At a joint meeting of the Elkhorn Valley Medical Society and the Fourth Councilor District Society, October 3, the question of amalgamating the two societies was turned over to a joint committee.——Dr. J. H. Regan, Chadron, was recently elected president of the Eighth Councilor District and Holt County Medical Society.——The Nebraska University Medical Alumni Association held its annual meeting in Omaha. Dr. Willis H. Taylor, Omaha, was elected president, and Dr. George Potter, Omaha, was reelected secretary-treasurer.——The annual meeting of the

Twelfth Councilor District of the state medical association, composed of Morril, Banner, Box Butte and Scotts Bluff counties, was held in Scottsbluff, October 30, under the presidency of Dr. Minor Morris, Alliance. Dr. Frank W. Plehn, Scottsbluff, was elected president; Dr. Schocker, Alliance, vice president, and Dr. George J. Hand, Alliance, secretary-treasurer. Dr. Philip H. Bartholomew, Lincoln, gave an address following the banquet in the evening.

NEVADA

Nevada State Medical Association.—At the annual meeting of the association, held at Reno, October 6-7, under the presidency of Dr. Ralph A. Bowdle, East Ely, Dr. John LaRue Robinson, Reno, was elected president and Dr. Horace J. Brown, Goldfield, was reelected secretary-treasurer.

NEW JERSEY

Chiropractor Fined.—It is reported that Meade H. Whiteside of Trenton, chiropractor, was recently found guilty and fined $200 for practicing medicine and surgery without a license.

Health Expert Dies.—Raymond Bernard Fitz-Randolph, Ph.D., director of the state laboratory of hygiene, Trenton; formerly bacteriologist for the Brooklyn health department, and at one time instructor of chemistry in the U. S. Naval Laboratory; died, October 22, from heart disease.

New Jersey Tuberculosis League.—At the sixteenth annual meeting of the society in Newark, October 20-21, the following officers were elected for the ensuing year: president, Dr. W. L. Kinkhead; vice president, Dr. B. S. Pollak, and secretary, Dr. Ernest D. Easton. Dr. W. R. P. Emerson, Boston, gave a stereopticon lecture on "A Program for Correcting Malnutrition in Children," October 21.

NEW YORK

Pediatric Society Organized.—Under the auspices of the Bronx County Medical Society, the Bronx Pediatric Society was organized, November 2, for the advancement of the knowledge of physiology, pathology and therapeutics of infancy and childhood. The first meeting will be held, December 13. Dr. Joseph H. Gettinger and Dr. William Hinz will speak on the subject of "Pediatric Activities in Europe."

Many Persons Poisoned at Church Supper.—A large number of the congregation of the Methodist Church, Albion, were taken ill, November 5, following a supper at the church the previous evening. Physicians were summoned for what appears to have been botulinus poisoning. It was found that meat served at the meal had been partially cooked the evening before the supper, but the cause of the intoxication has not been definitely determined.

Free Graduate Courses for Physicians.—At the one hundredth anniversary meeting of the Kings County Medical Society in Brooklyn, a resolution was unanimously adopted approving the establishment of a school of medicine to give free graduate instruction to physicians of the county. The plan was outlined by Dr. F. D. Jennings, president of the county medical society; Dr. Charles A. Gordon, chairman of the committee on clinics, and Dr. John O. Polak, professor of obstetrics and gynecology at the Long Island College Hospital. Dr. George E. de Schweinitz, president of the American Medical Association, spoke on "Graduate Medical Teaching." Bird S. Coler, public welfare commissioner, announced that the use of all the city hospitals would be given for the course, which contemplates cooperation in medical extension education between the Long Island Medical College and the welfare department of the city. A committee was appointed to work out the plans for this project.

New York City

Hospital News.—The cornerstone of the new Beth Israel Hospital, which is to occupy a block in Livingston Place between Sixteenth and Seventeenth streets, was laid with appropriate ceremonies, November 5. The new structure will be the tallest hospital building in the world. It will have eighteen floors, will cover a plot 184 by 120 feet, and will cost about $3,000,000, exclusive of the site. Four floors will be below street level and fourteen above. The land was purchased several years ago at a cost of $500,000. The hospital plans to establish a diagnostic clinic, the first to be operated by a New York hospital. The staff of the clinic will be made up of twenty-one specialists.——The August Koelsch residence, at Morris Avenue and One Hundred and Seventy-Sixth Street, has been sold, and is to be converted into a maternity hospital. About $80,000 will be expended in remodeling the property, which will be ready for occupancy by December 1.——A drive is being conducted to finance the reorganization and extension of the Beekman Street Hospital. Subscriptions of nearly $25,000 were announced at the first meeting of the committee conducting the drive.——Contracts have been let for the construction of the first unit of the new eleven-story addition to the Reconstruction Hospital on Central Park, West. The estimated cost of the new building is $320,000. The work of the hospital has developed so extensively during the last year that the present facilities have been entirely outgrown. More than 2,000 physiotherapy applications are being given each week.——A survey completed recently by the Lying-In Hospital, for the purpose of measuring the scope of its educational service, showed that more than half of the 1,202 physicians from outside New York City who have gone to that institution for a special course of training in obstetrics within the last decade came from small towns—municipalities with populations less than 25,000. It was found that every state in the Union was represented by at least one student during this period; that 100 physicians had come from Canada, three from Alaska, and forty-seven from eighteen foreign countries.——Claiming that 1,551 persons on the police force and from their families required treatment last year, 10,877 votes in favor of erecting a police department hospital followed a ballot taken in New York City recently. Only 510 were opposed to the project.

NORTH CAROLINA

County Society Reorganized.—At a meeting of physicians at the Columbus Hotel, Whiteville, October 26, the Columbus County Medical Society was reorganized, with Dr. Tilon V. Moore, Acme, president; Dr. Richard B. Whitaker, Whiteville, vice president, and Dr. Floyd Johnson, Whiteville, secretary.

Hospital News.—The contract has been awarded for the erection of the Guilford County Tuberculosis Hospital at Greensboro for approximately $120,000. The county provided bonds amounting to $100,000 for the institution, and a friend of the hospital donated the remainder. The hospital will care for negroes as well as white persons.——In his will, Dr. von Ruck, who died, November 5, made provision for the continuation of both the von Ruck Memorial Sanatorium, Inc., and the von Ruck Research Laboratory for Tuberculosis (for investigation only) at Asheville.

OHIO

Milton Jay Lichty Chair Dedicated.—At Mount Union College, Alliance, October 20, the Dr. Milton Jay Lichty chair of biology was dedicated. Raymond Pearl, Ph.D., delivered the dedicatory address on the subject "The Trends of Modern Biology." Dr. Lichty, in whose honor the chair was named, died in 1918, while in war service at Camp Taylor, Ky.

Association of Assistant Physicians of State Hospitals.—At the meeting of the association in Cleveland, October 17-18, Dr. Isabel A. Bradley, Columbus, was elected president; Dr. Lorne W. Yule, Cleveland, vice president, and Dr. John J. McCloud, Columbus, secretary-treasurer. The address of welcome was delivered by Dr. Guy H. Williams, superintendent of Cleveland State Hospital.

Society News.—During the fourth annual graduate course of the Second District Medical Society, in Dayton, September 25-29, the Montgomery County Medical Society presented the district organization with a bronze tablet in memory of Dr. John C. Reeve, Dayton, first president emeritus of the state medical association, who died in 1920, aged 94. Among the lecturers at the meeting were: Drs. Douglas Vanderhoof, University of Virginia; Stewart R. Roberts, University of Georgia; Dean Lewis, Rush Medical College; Charles P. Emerson, dean of the Indiana University School of Medicine; George B. Eusterman, Mayo Clinic; Henry J. Gerstenberger, Western Reserve University, and Irving W. Potter, Buffalo.

Illegal Practitioners.—It is announced in the *Ohio State Medical Journal* that the following men were convicted for the illegal practice of medicine: George Kuces, reported fined $100 and costs for practicing medicine without a license in Youngstown, recently; Andrew Rankin, who pleaded guilty to the illegal practice of medicine, fined $25 and costs in Cleveland; Marcus Kadji, fined $100 and costs in Cleveland; James Reed, who pleaded guilty, fined $25 and costs, which was suspended on good behavior; George, Schuster, who pleaded guilty on three counts in the court of Justice Martin, Youngstown, to illegal practice of medicine, was fined $300 and costs, and sentenced to serve six months in the county jail; Sullivan, unlicensed chiropractor, who was found guilty at Cleveland of practicing without a license, and was fined $100 and costs.

OREGON

State Medical Meeting.—The annual meeting of the Oregon State Medical Association was held in Portland, October 26-27, under the presidency of Dr. Clarence J. McCusker, Portland. The meeting had been postponed since June. The following officers were elected for the ensuing year: president, Dr. Philip J. Bartle, Eugene, and secretary, Dr. William L. Bishop, Portland.

PENNSYLVANIA

Jewish Charities Open Health Center.—A health center was opened at the Montefiore Hospital, Pittsburgh, November 1, for the purpose of educating adults and children in the principles of good health, emphasizing the prevention of disease rather than the treatment thereof. The center, which will be open three days a week, is in conjunction with a movement of the Federation of Jewish Philanthropies. Dr. K. J. Sanes is chairman of the medical and surgical departments.

Philadelphia

A Memorial to Dr. J. William White.—A stone memorial tablet in memory of "Dr. J. William White, surgeon, teacher, author, athlete, 1850-1916, leader in beautifying Rittenhouse Square, 1913-1915," has been placed above the fountain in Rittenhouse Square.

Graduate Medical Lectures.—The university extension medical graduate courses of the University of Pennsylvania Graduate School of Medicine and Medico-Chirurgical College have commenced. Dr. George E. Pfahler, professor of radiology, Medico-Chirurgical College of Philadelphia, gave a lecture, November 6, on "General Principles of Radium Therapy"; November 7, Prof. George H. Meeker, professor of biochemistry, Graduate School of Medicine, University of Pennsylvania, spoke on "Phenolsulphonephthalein Renal Function Test," and Dr. John A. Kolmer, professor of pathology and bacteriology, Graduate School of Medicine of the University of Pennsylvania, delivered a lecture on "Syphilis," November 9.

TENNESSEE

Examiners' Law Ruled Out.—The Tennessee law giving the state board of medical examiners power to issue and revoke licenses to practice medicine was held unconstitutional by a chancery court decision, November 6, at Memphis.

Personal.—Dr. Frederick C. Caldwell, formerly director of the International Health Board in Panama, has arrived in Knoxville, to take charge of the new branch laboratory to be established there for East Tennessee, in cooperation with the state board of health.

Change in Narcotic Rules.—Commissioner Frazier of the food and drugs department, with the approval of Dr. R. Q. Lillard, secretary of the state board of health, has revised the rules and regulations regarding the use of narcotics, as follows:

> Regulation 14. That part of Regulation 3, authorizing certificates of incurability to be renewed from time to time by the health officer writing on the margin thereof the word "renewed," signed and dated, is hereby revoked, and, on and after November 1, all renewals must be by reissuing a new certificate at the expiration of the six-day limit on the one last previously issued.
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> Regulation 15. That part of Regulations 6 and 10, allowing certificates of incurability to be transferred from one druggist or dispensing physician to another, is hereby revoked, and, on and after November 1, no further transfer of certificates will be allowed. When once filed with a druggist or dispensing physician, they are to be held as permanent records of such druggist or physician.

TEXAS

Epidemic of Dengue.—It is announced by Dr. J. H. Florence, state health officer, that there have been about 500,000 cases of dengue reported in the state during the last few weeks, but that it is not of a virulent type. It is expected that the coming of cold weather, with the consequent death of mosquitoes, will end the epidemic.

Hospital News.—Dr. Marion M. Brown will open a new sanatorium at Mexia.——The contract has been let for the erection of a Catholic hospital for San Antonio. The plans call for a three-story concrete and brick building, to be erected at a cost of $150,000. The Sisters of Charity of Incarnate Work are building the institution.——Bonds amounting to $50,000 will be issued to erect a branch county hospital at Electra. Two other such institutions will be erected in Burkburnett and Iowa Park, the main hospital being in Wichita Falls. The Burkburnett and Iowa Park branches will cost $50,000 each, it is announced.——The contract has been awarded for the erection of a $75,000 hospital building at Temple.

VERMONT

New Ward for State Hospital.—A new ward building will be erected at the Waterbury State Hospital for the Insane, Waterbury, at a cost of $175,000, it is announced.

VIRGINIA

State Tuberculosis Association Elects.—At the annual meeting of the association in Richmond, October 6, Capt. W. W. Baker, Hallsboro, was elected president, and Dr. Roy K. Flannagan, Richmond, secretary.

WASHINGTON

Hospital News.—The Lakeside Hospital, Seattle, has been reopened under the auspices of the North End Medical Society and will be known as the North End Hospital, it was recently announced.——Construction work was started, October 16, on the new Bay View Sanatorium at Aberdeen, which will be erected at a cost of from $15,000 to $20,000. Its architecture will be that of an old English manor.——The new hospital of the Washington Cancer Institute, Centralia, was opened to the public, November 1. It is two stories high, of brick construction, and represents an expenditure of about $50,000. It has accommodations for fifty patients.

WISCONSIN

Personal.—Dr. Gustavus I. Hogue, Milwaukee, who was promoted to the rank of colonel, M. O. R. C., has been assigned to command of the 326th Medical Regiment, 101st Division. ——Dr. Frederick J. Gaenslen, Milwaukee, spoke on "Foreign Clinics" before the opening meeting of the Milwaukee Academy of Medicine, October 14.

CANADA

University News.—Approximately 300 delegates will attend a convention of the Federation of the Experimental Biological Sciences, which will be held in the Faculty of Medicine Building of the University of Toronto, December 27, 28 and 29. The federation is one of the most important organizations in the medical sciences on the continent. It includes the American physiologic and biochemical and pharmacologic sciences.

Hospital News.—The Hon. Dr. Beland, minister of soldiers' civil reestablishment, has, after a thorough investigation in which he and members of his department questioned more than 200 patients at the Westminster Psychiatric Hospital, London, Ont., announced that the charges of ill treatment made by the friends of a deceased Wallaceburg, Ont., veteran, were without foundation.——The movement for a public hospital at Burlington, Ont., has been abandoned, and a private hospital is under consideration. If it is operated, the private hospital will be ready by next spring.——One of the societies in Milton, Ont., is still working hard for the erection of a public hospital at Milton.——The offer of Dr. S. Groves, of Fergus, Ont., to present to the town, as a free gift, the finely equipped Royal Alexandria Hospital, which he founded and has conducted with conspicuous success, will be submitted to the ratepayers at a public meeting to be called by the city council. The generous offer has been greeted everywhere in the vicinity of Fergus with enthusiasm.

GENERAL

State Charities Aid Association.—The regional fiftieth anniversary of the association will be held in Rochester, N. Y., November 24-25, on invitation of its Monroe County branch and the tuberculosis and public health associations of Rochester. It will be a regional meeting for the counties of Monroe, Orleans, Genesee, Livingston, Ontario, Wayne, Niagara, Wyoming, Yates, Alleghany, Steuben, Seneca and Cayuga. Among the speakers will be Drs. Frankwood E. Williams, Arnold Gesell, Allen K. Krause, Linsly R. Williams and Eugene H. Howard. The semiannual meeting of the ıssociation's state committee on tuberculosis and public ıealth will be held at Syracuse, November 23. In addition o the regional celebration in Rochester, numerous other neetings will be held to observe the fiftieth anniversary of he association, in various parts of the state.

Personal.—Dr. W. Weygandt, professor of psychiatry at the University of Hamburg, spoke on "Newer Methods of Treating Syphilis of the Nervous System," at Mount Sinai Hospital, New York, October 31.——H. J. Spinden, anthropologist at Peabody Museum of Harvard University, addressed the Harvard Medical Society of New York City, recently, on "Civilization in the Tropics."——Dr. Gustaf von Holst and Dr. Silas Lindquist sailed for Gothenburg, October 28.——Dr. Charles Loomis Dana, New York, will deliver the third Weir Mitchell Oration before the College of Physicians of Philadelphia, November 23.——Dr. Bradbury N. Robinson of the U. S. Public Health Service, who has been in England two years assisting British officials at Liverpool and other ports in examining emigrants, arrived in this country on the *Adriatic,* November 4.——Dr. Benjamin C. Gruenberg has resigned from the U. S. Public Health Service, where he has been engaged for some years in the work of the government's program of sex education in high schools and colleges, to study the problems of educational use of motion pictures with the Urban Institute, Irvington-on-Hudson, N. Y.

Tri-State Medical Convention.—At the recent meeting in Peoria of the medical association which includes the states of Illinois, Iowa and Wisconsin and the districts of Missouri, Nebraska, Minnesota, Indiana and Kentucky, held under the presidency of Dr. John E. O'Keefe, Waterloo, Iowa, the following officers were elected: president, Dr. Horace M. Brown, Milwaukee; president-elect, Dr. Clifford U. Collins, Peoria; vice presidents, Drs. Joseph S. Evans, Madison, Wis., Edwin P. Sloan, Bloomington, Ill., and Frank M. Fuller, Keokuk, Iowa, and secretary-treasurer, Dr. Domer G. Smith, Freeport, Ill. Dr. William J. Mayo, Rochester, Minn., is president of clinics, and Dr. James R. Guthrie, Dubuque, Iowa, honorary president, of the society. The next meeting will be held in Des Moines, Iowa. Dr. William Seaman Bainbridge, New York, opened the meeting with an address at the Central Christian Church, October 30. Vice President Calvin Coolidge gave an address. Upward of $100,000 has been subscribed toward the $500,000 foundation fund that the association is raising, as a medical community trust fund, in order permanently to carry on the educational work of the society. Among the physicians who held clinics were: Drs. Einar Key and Euhling, Stockholm; Professor Tuffier, Paris; John M. Finney, Baltimore; John B. Deaver, Philadelphia; Emmett Rixford, San Francisco; Charles A. Elsberg, New York; Alfred N. Murray, Chicago, and Walter W. Chipman, Montreal.

Bequests and Donations.—The following bequests and onations have recently been announced:

New York Association for the Blind, $250,000, as the residue of her state; $10,000 in cash, and the proceeds of a sale of diamonds, amountıg to $725, under the will of Miss Lucy Kirtland.

Memorial Hospital, Niagara Falls, N. Y., $250,000, the result of a rive for funds.

New York Hospital, part of the estate of the late J. Augustus Rogers, ılued at approximately $132,612.

Paducah, Ky., for the establishment of a hospital in Cottle County, 100,000, by W. Q. Richards.

Chester County Homeopathic Hospital, West Chester, Pa., for a room he furnished to his memory, the greater part of a $108,000 estate, Harry D. Hubbs.

Northern Westchester Hospital, White Plains, N. Y., $5,000; Harvard niversity, Boston, $50,000, and the entire residuary estate, after proding for Winthrop Cowdin memorials at the university and St. Paul's chool, Concord, N. H., under the will of Winthrop Cowdin.

Guilford County Tuberculosis Hospital, Greensboro, N. C., $20,000 ward the building fund from "A Friend."

Woman's Hospital, New York, $15,000, by the will of Mrs. Rosina oyt.

Arnold Gregory Memorial Hospital, Albion, N. Y., to be known as e Byington Fund, the residue of the $15,000 estate of Miss Cora yington, following other bequests of about $2,500.

Jefferson Hospital, Philadelphia, $10,000, in memory of his wife, Jean, the will of Samuel I. Hendrickson.

Brattleboro (Vt.) Memorial Hospital, an additional $10,000, for the ection of the nurses' home, by Senator and Mrs. Dunham, as a emorial to their daughter, Marion.

Home for Incurables, New York, $10,000, by the will of Mrs. Florence C. Parsons.

Stanford University, San Francisco, $3,000 in pledges, from the medıl staff of the Merritt Hospital, Oakland, Calif.

Public Health Nursing Fund of Ottawa, Ill., $2,250, from public bscriptions.

James Whitcomb Riley Hospital, Indianapolis, $1,000 in pledges from e Hamilton County Junior Red Cross.

Jennie Stuart Memorial Hospital, Hopkinsville, Ky., the residue of estate of the late Dr. E. S. Stuart, who originally founded the stitution in memory of his wife.

Jefferson and Lankenau hospitals, the Asylum for the Aged and Infirm, d the Lutheran Orphans' Home, Philadelphia, the residue of the estate Jacob Nagley, following private bequests amounting to $5,500.

College of Puget Sound and a Methodist college in China, endowment funds, under the will of the late Dr. Charles I. Holt of Bellingham, Wash.

Jewish Consumptives Relief, Denver, two beds endowed; one by Julius Wodiska, in memory of his parents, and one by Noah Sheifer in honor of his wife.

Shelbyville, Ind., for the establishment of the William S. Major City Hospital, provided she is given residence in the hospital building. Mrs. Major will give the property (valued at $75,000) for the hospital building now, instead of at her death, as provided by the will of Mr. Major.

Medical and Chirurgical Faculty of Maryland, his medical and surgical books; Church Home and Infirmary, Baltimore, his medical and surgical instruments, by the will of Dr. Walter B. Platt.

Narcotic Drugs Import and Export Act: Federal Narcotics Control Board Issues Regulations.—The Federal Narcotics Control Board, created by the "Narcotic Drugs Import and Export Act" of May 26, 1922, has issued regulations governing the importation, exportation and transshipment of narcotic drugs, namely, opium, coca leaves, cocain and salts, derivatives and preparations of opium, coca leaves and cocain. The act makes it unlawful to import any narcotic drug into the United States except such amounts of crude opium and coca leaves as the Federal Narcotics Control Board finds necessary for medical and legitimate uses which may be brought in under such regulations as the board may prescribe. The narcotic drugs cannot be exported from the United States or its dependencies [or from any territory under its control or jurisdiction] except to a country which has become a party to the International Opium Convention of 1912, and then only if such country has instituted and maintains an adequate system of permits or licenses for the control of such narcotic drugs as may be imported, if the narcotic drug to be exported is consigned to an authorized permittee, and if there be furnished to the board satisfactory proof that the exported narcotic drug is to be applied exclusively to medical and legitimate uses within the country to which exported, that it will not be reexported from such country, and that there is an actual shortage of and a demand for the narcotic drug for medical and legitimate uses within such country. The importation, exportation or transshipment of smoking opium or opium prepared for smoking is absolutely forbidden.

Under the regulation just issued, the amount of crude opium or coca leaves necessary to provide for medical and legitimate uses within the United States has not been officially determined by the Federal Narcotics Control Board. Crude opium and coca leaves, which are the only narcotic drugs as defined by the act that are admissible, may be imported only at the ports of New York, Philadelphia, St. Louis and San Francisco. Importations may be made only by manufacturers actually engaged in manufacturing for the wholesale trade products for medical or other legitimate uses, and applications for permission to import must state the amount of the stock on hand, the usual requirements for the next six months, and the necessity for the proposed importation. Rigid precautions are laid down by the regulations to insure the safe delivery of the imported drug into the possession of the importer. No narcotic drug may be taken out of the United States by any one on his person or in his baggage, nor offered nor received for transportation out of the United States, except after approval by the Federal Narcotics Control Board. The importation or exportation of narcotic drugs in the regulation mails or by parcel post is forbidden.

National Prohibition Act: Permits to Prescribe Liquor.—Amended regulations relating to permits under the national prohibition act were issued by the Commissioner of Internal Revenue, with the approval of the Secretary of the Treasury, Oct. 3, 1922. Under them, federal prohibition directors in the various states will no longer grant permits, but all permits will be granted by the Prohibition Commissioner. Applications, executed in triplicate, are to be filed with the prohibition director of the state in which operations under the permit, if issued, are to be carried on. The director will, after due investigation, endorse his recommendation thereon and forward the application to the Prohibition Commissioner at Washington for final action. The permit will be issued in triplicate, a copy of the application being attached to each copy of the permit, and one copy of the permit, with application attached, being forwarded to the permittee. Every permittee must permanently file his permit, together with a copy of the application and all other papers delivered to him by the Prohibition Commissioner in connection with such permit, at the place of business covered by such permit, so that it may be readily accessible to examining officers. A permit to prescribe liquor does not confer authority other than to prescribe, but a permit to prescribe may be combined with a permit to the same physician to use liquor in the course of his practice. A feature of the regulations likely to encourage the distribution of liquor in small bottled-in-bond containers provides that unless otherwise required by the Commissioner, no bond need be filed by a pharmacist applying for a permit to sell on prescription, not to exceed 120 pints per three-month period of bottled-in-bond spirits in original bottles not more than one pint capacity each.

Permits expiring Dec. 31, 1922, for which renewal applications have been duly filed, may, in the absence of express action, continue as renewal permits until April 30, 1923; and if a permittee has not received notice of action upon his application on or before April 1, and notifies the Prohibition Commissioner at Washington, by registered letter mailed between April 1 and 15, that such application was filed, giving the facts, and that no notice of action thereon has been received, his permit may remain in force as a renewal permit until such application is acted upon. Ordinarily, however, all permits, unless specifically limited to an earlier date, will expire, if issued prior to August 31 of any year, then on December 31 of that year; and if issued after August 31 of any year, then on December 31 of the following year. Applications for renewal of permits may be filed on or after July 1, but not later than August 31, preceding the expiration of any permit expiring on December 31. If a permittee desiring a renewal of his permit fails to file application therefor on or before August 31, the Prohibition Commissioner may in his discretion and for good cause shown allow such application to be filed at any time prior to November 30; but after November 30, any such permittee must apply as for a new permit.

Unless otherwise required by the Prohibition Commissioner, no bond need be filed by a physician desiring a permit to prescribe, or to use, or to prescribe and use, liquor in the course of his practice; nor in connection with a permit to use intoxicating liquor in a hospital or sanatorium (except a hospital or sanatorium engaged in the treatment of persons suffering from alcoholism). Where the person operates several places of business for which he desires to obtain permits, a separate application must be filed and a separate permit procured for each such place. Where a person holding a permit desires to remove his place of business to an address other than that indicated in the permit, he must make application for amendment of his permit accordingly.

No permit will be issued to any person who within one year prior to making application has violated the terms of any permit theretofore issued or of any federal or state law regulating traffic in liquor; nor will a permit be granted to any person within one year after the revocation of a permit theretofore held by him, if such prior permit was revoked because the permittee was found guilty of violating wilfully any state law relating to intoxicating liquor or had not in good faith conformed to the provisions of the national prohibition act.

The Prohibition Commissioner and the prohibition directors are to send to every permittee a copy of the Treasury decision embodying the regulations from which the foregoing abstract is made.

LATIN AMERICA

Pediatric Society in Chile.—A society of pediatrics was organized in Santiago, Chile. Dr. Calvo Mackenna was appointed president and Dr. C. Sanhuesa, honorary president.

Public Health in Costa Rica.—A public health department has been organized in Costa Rica as a branch of the police department.——Dr. L. Schapiro of the Rockefeller Foundation was presented with a gold medal for his services in the hookworm campaign.

Restrictions on Foreign Physicians in Colombia.—The Barranquilla Medical Society has requested the Colombian congress to enact a law compelling foreign physicians to submit to a general examination in Spanish and to pay fees equivalent to those contributed by medical students during the whole of their studies.

Free Eye, Ear, Nose and Throat Treatment in Venezuela.—The government of Venezuela has opened a special ophthalmologic and otorhinolaryngologic service in the Casa Nacional de Beneficencia in Caracas, for the free treatment of indigent patients, schoolchildren and emergency cases. The service includes three sections: outpatient, operating room and hospitalization.

Centennial of Colombian University.—The Antioquia University of Medellin celebrated the first centennial of its foundation, Oct. 9, 1922. In connection with the celebration, the Academy of Medicine held a general medical meeting at which many papers on medical, surgical and public health subjects were presented. The members of the organizing committee were Drs. G. Toro Vila, Alfonso Castro, N Jiménez, L. Uribe C. and G. J. Gil.

Personal.—Dr. J. Tomás Rojas, a professor in the Mexico Medical School, has returned to his country after taking a graduate course and visiting clinics in Spain, France and Germany.——Dr. J. H. White, in charge of the Rockefeller Foundation yellow fever work in Mexico, has returned to New York.——Dr. Manuel González of Mexico City is in San Francisco, studying American hospital methods.——Dr González Rincones of Caracas, Venezuela, is visiting Chicago hospitals.——Dr. Luis Razzetti, editor of the *Gaceta Médica de Caracas,* and a noted surgeon, has been visiting Eastern hospitals.

Congress of Practitioners at Rio de Janeiro.—The *Brazil-Medico* brings the details of the National Congress of Practitioners held in October, with Dr. C. Sampaio presiding. Prof. F. Mahalhães delivered the opening address, his theme being "Democracies Can Succeed Only When the Authorities Take as Their Guide the Principles of Social Medicine." Dr. Silva Araujo extolled the advantages of organization of the profession, and Dr. Oliveira Motta urged the federation of all the scientific societies of Brazil, speaking in the name of the medical societies. The meetings filled a week. The congress did not have any governmental support, and the large numbers and high reputation of those that took part, and the magnitude of the subjects discussed were a surprise to all. The lively discussion on several of the subjects demonstrated, as the *Brazil-Medico* remarks, the usefulness and the need for such exchanges of ideas. Prophylaxis of tuberculosis and professional secrecy were the two most debated themes. The congress was due to the initiative of the Sociedade de Medicina e Cirurgia of Rio, and the *Brazil-Medico* issued a daily edition during the meeting. These daily issues form a total of thirty-two large pages, which are bound with the *Brazil-Medico* for October 7. They contain very full summaries of the communications presented, and the resolutions adopted. One was an appeal to the authorities to organize simple, practical postgraduate courses, like the American or European courses, or allow private initiative to organize courses of the kind. The final vote was for the creation of the Brazil Medical Association, as proposed by Dr. T. de Almeida, the by-laws to be drawn up within three months. The numbers attending the meetings ranged from 98 to 122, with a closing banquet. The discussion on quackery was particularly lively, one physician citing instances of registered medical men hiding their diplomas and passing as irregulars to attract the public.

FOREIGN

Centennial of French Hospital.—On the occasion of the celebration of the centennial of the Hospice de Darnétal, a bronze medal was awarded to Dr. Bouju who has been connected with the hospice since 1894.

Graduate Course in Historical Pathology.—Dr. Cabanes of Paris is holding a course on this subject at Brussels. Gout is his special theme this year, describing it through the centuries by different historical persons as representative types of gout and the gouty.

Contraceptives in France.—At the recent congress on promotion of natality held at Tours, France, attention was called to the open sale of preventives of conception. Among other suggestive labels, one of them even advertises its being awarded a gold medal at public health exhibitions.

Personal.—Prof. Albert Einstein has been awarded the 1921 Nobel prize for study of physics.——Major H. H. Broome, F.R.C.S., has been appointed professor of surgery, and Major P. B. Bharucha has been appointed professor of anatomy at King Edward Medical College, Lahore, India.

Thermometer in Duodenum.—An insane patient at Zurich swallowed a clinical thermometer. When it was removed from the duodenum, it registered 41.5 C. Dr. Preis, who reports the case, ascribes this high temperature to hot beverages, as Ito's experiments showed a difference of only 0.7 degree between the temperature in the rectum and in the duodenum.

The Regulation of Pharmacies in France.—The *Journal de pharmacie* comments on the incongruous position of the pharmacists in Alsace and Lorraine as the regulations in those provinces—a holdover from the German occupation—conflict with the general legislation for France. The pharmacists there are liable to penalties for complying with their local regulations.

Cancer Research in Spain.—The *Medicina Ibera* describes the opening of the Instituto del Cancer at Madrid. Professor Goyanes is in charge, and has supervised the building and equipment of the institution, after visiting similar institutions in other European countries. The establishment is ready, but at present there are only two beds as the present endowment does not allow more than this.

Foreign Physicians Invited to Russia.—The soviet government, according to newspaper reports, is so impressed with the lack of a sufficient number of doctors, that the soviet public health committee has invited physicians with foreign diplomas to go to Russia to practice their profession. There are at present epidemics in several places, and a most serious outbreak of plague is threatening Black Sea ports.

Netherlands Bibliography on Neurology and Psychiatry.—A work of 300 pages has been issued containing the names of writers in the Netherlands on nervous and mental diseases and allied subjects. An alphabetical arrangement by titles is to follow. The work has been done under an endowment and lists all publications since 1850 and some before this. It is issued by the university neurologic clinic at Amsterdam.

Malaria at Berlin.—The *Münchener medizinische Wochenschrift* warns that physicians should think of the possibility of tropical malaria in puzzling cases, even in the heart of Germany. A number of instances have been reported recently in which persons who have lived constantly at Berlin have developed tropical malaria. None of them had had any suspicion of their disease before it flared up under a course of arsphenamin treatment.

International Conference on Cancer Research.—At the conclusion of this conference at Amsterdam in October, a banquet was tendered the foreign scientists by the Netherlands Association for the Advancement of Science which was holding its annual meeting there at the same time. The leading address at this annual meeting was by Prof. J. Fibiger of Copenhagen who described the latest achievements in the line of experimental cancer. Prof. G. van Rijnberk, editor of the *Nederlandsch Tijdschrift voor Geneeskunde*, and professor of physiology at Amsterdam was elected president of the association.

Report on Opium Agreement as It Affects Japan.—In pursuance with the resolution for a special permit system in regard to the import of opium, adopted at the second opium conference held in Geneva, the regulation came into force in European countries, Sept. 1, 1922, and will be effective in Japan, Jan. 1, 1923. According to this agreement, those intending to import opium are to obtain an import permit from their government which must be sent with any order for opium and certified by the government of the exporter. It was stated at the conference, at which Dr. Miyajima was the Japanese delegate, that the quantity of morphin manufactured in Japan or imported to that country was much larger than the actual needs.

The Cajal Statue at Zaragoza.—Prof. Ramón y Cajal was not able to be present at the recent unveiling of the portrait statue at the medical school of Zaragoza, but a letter from him was read in his name, saying that he doubted whether he would have had courage to witness the unveiling of his statue even if his health had allowed it. He said he feared the statue would ask "What have you done to deserve this honor? Are you not ashamed to be so distinguished when no memorial has been erected to . . ." and he named several Spaniards who had won international recognition among the scientists of their day. He added that the car of Spanish civilization has been running along too long on merely the two golden wheels of art and literature. It needs two more wheels to keep abreast with the rest of the world, a wheel of science and a wheel of original industry.

Death in Other Countries

Dr. **Louis Rénon**, professor of pathology at the University of Paris, president of the Société de thérapeutique and of the Société de biologie, and author of two popular works, "Traitement de la tuberculose" and the "Maladies populaires," aged 59.——Dr. **Janicot**, editor of the *Bulletin médical*, from its foundation in 1886, for more than twenty years.——Dr. **Alfred Laforest** of Port au Prince, Haiti.——Dr. **G. Borginon**, formerly deputy from Brussels and honorary president of the Fédération médical belge.——Dr. **Hobbs**, professor at the Bordeaux medical school.——Dr. **André**, professor of pathology at the Toulouse medical school for twenty-five years.——Dr. **O. Vocke** of Bremen, aged 88.——Dr. **E. Tomasczewski**, professor of dermatology at the University of Berlin, killed in an accident in the mountains.——Our Spanish exchanges mention the death of Dr. **J. Albisu** at Irun. The town gave his name to one of its principal streets some time ago. Also the death from typhus of Dr. **F. Serrano Flores**, an army surgeon at the prison camp of Axdir. Also the death of Dr. **E. Xalabarder** at Barcelona, and of Dr. **A. Esquerdo Iborra** at Madrid.

Government Services

Hospital for Oregon

Pursuant to instructions of the Secretary of War, June 27, 1922, the organization of a general hospital, organized reserves, to be known as General Hospital No. 46 (University of Oregon Medical School Unit, Portland, Ore.), has been authorized.

Army Correspondence Course, 1922-1923

The Surgeon-General's Office has prepared two correspondence courses for the personnel of the Officers' Reserve Corps, for civilians who volunteer for such courses and for officers of the National Guard. These courses are divided into short instruction units, or subcourses, which are arranged to meet the needs of the individual student. Students are permitted to progress as rapidly or as slowly as their time permits, the only requirement being that, to maintain his enrolment, the student must complete a full instruction year, which requires approximately thirty-nine hours' work. The number of textbooks available for issue without charge is limited, but many officers may already have certain books needed in the various courses. Charges for books will be kept at a minimum, and each course will show the list required for study. Applications for enrolment for the medical, dental, or veterinary correspondence course should be made to the commander of the corps area in which the applicant resides. Medical Corps Course "A" deals with early post duties, organization and tactical employment of line troops, service with the medical department, hospitalization, sanitary devices, first-aid and military law. Course "B" deals with logistics, supply, commercial law, principles of statistical computation, duties of division corps, and army surgeons and sanitary inspectors, doctrines, principles and methods, organization of the general staff, organization of the theater of operations and of the sanitary service in the field; estimate of the situation; causality estimates, and tactical problems.

Hospitalization Board to Cooperate with Veterans' Bureau

Following a conference at the White House between President Harding, members of the Federal Board of Hospitalization and Col. Charles Forbes, director of the U. S. Veterans' Bureau, announcement was made that there will be closer cooperation in the activities of the board and the bureau in the future. These two government agencies are charged by acts of Congress with carrying out the government's policy respecting the care of disabled former service men, and during this conference a number of important features regarding the work of the hospitalization board and the bureau were discussed by the executive. Greater cooperation is to follow, the hospitalization board acting in an advisory capacity in the future, while programs for facilitating the care and treatment of disabled veterans will be carried into effect by the bureau, it was announced.

Reinstatement of Government Insurance

The director of the U. S. Veterans' Bureau announces that World War veterans who have allowed their government insurance to lapse, or have cancelled it, may reinstate their insurance now or at any time prior to March 4, 1926, under the following provision: within three months, provided the applicant is in as good health as he was at the due date of the premium in default, and forwards with his application for reinstatement (Form 744) a remittance covering two premiums on the amount of insurance to be reinstated, one for the month of grace and one for the current month. The same conditions hold after the expiration of three months, except that he must then submit an application for reinstatement (Form 742), completely executed. If term insurance is reinstated under these provisions, for the purpose of converting term insurance into permanent insurance, only one premium on the term insurance, and the first monthly, quarterly, semiannual, or annual premium on the converted insurance is necessary. Converted insurance which has lapsed may also be reinstated in whole or in part by forwarding Form 744 or 807, depending on whether the lapse has been for less or more than three months, and a remittance covering all premiums in arrears with interest from their several due dates at the rate of 5 per cent. per annum. If the applicant is unable to comply with the foregoing requirements as to physical condition, his insurance may still be reinstated provided his disability is due to an injury or disease, or to an aggravation thereof suffered in the active service during the World War, provided, further, he is not totally or permanently disabled. The necessary blanks for reinstatement will be promptly forwarded on request to the U. S. Veterans' Bureau, Washington, D. C.

Graduate School for Physicians of the U. S. Veterans' Bureau

In order to render the best possible professional care and treatment to disabled ex-service men, Col. C. R. Forbes, director of the Veterans' Bureau, announces that he is about to establish graduate schools for physicians now connected with the bureau and those who wish to join this service. There will be two schools for the teaching of the diagnosis, care and treatment of pulmonary tuberculosis, one at Fitzsimons General Hospital, Denver, and the other at U. S. Veterans' Hospital No. 41, New Haven, Conn. The courses at these hospitals will be uniform and will run simultaneously. Each course will last two months, and will include collateral branches of medicine, such as pathology, interpretation of roentgenograms and physiotherapy. Before attending the schools, physicians now in service will be given a preliminary course, which will be established under competent instructors in each of the veterans' hospitals for tuberculosis. They will then be selected to take the graduate course at Denver or New Haven. Specialists not connected with the bureau will be invited to attend and give lectures to the students. It is anticipated that at least three courses of two months' duration each can be run during the year in the East and West. As more physicians with special knowledge of tuberculosis than are already in the service will soon be needed, it is hoped that this demand will be supplied from the profession at large. Applications for admission to the schools, with a view to service in bureau hospitals, may be sent to Col. C. R. Forbes, Director, Veterans' Bureau, Washington, D. C., Attention Clinical Director of Tuberculosis.

President to Present Coordination Report

When Congress convenes in extra session, President Harding will transmit for its consideration the report of the joint congressional commission on reorganization of the governmental departments. This report provides a complete plan for the reorganizing of each department, bureau and independent agency. This report, which was presented to the President more than six months ago by Walter F. Brown, chairman of the joint congressional committee, is understood to have been finally approved by the departmental heads. There are many changes, it is said, in the various bureaus and agencies dealing with public health. The principal aim of the reorganization report is to adjust the departmental work so as to reduce duplication of effort and bring about greater efficiency by a general allocation of functions and duties of the agencies.

General Hospitals Authorized

The Secretary of War has authorized the organization of the following general hospitals, organized reserves.

General Hospital No. 26 (University of Minnesota, Minneapolis).

General Hospital No. 6 (Peter Bent Brigham Hospital Unit, Boston).

General Hospital No. 50 (University of Washington Unit, Seattle).

Veterinary General Hospital No. 1 (University of Pennsylvania, School of Veterinary Medicine Unit, Philadelphia).

Major E. C. Cutler, M. O. R. C., Brookline, Mass., has been assigned as commanding officer of General Hospital No. 6, and Lieut.-Col. J. B. Eagleson, M. O. R. C., Seattle, as commanding officer of General Hospital No. 50.

Foreign Letters

PARIS

(From Our Regular Correspondent)

Oct. 13, 1922.

The Sixteenth French Congress of Medicine

The first session of the sixteenth congress of medicine was presided over by Monsieur Léon Bérard, minister of public instruction, and by Monsieur Strauss, minister of hygiene. Prof. F. Widal, president of the congress, delivered the first address.

CLINICAL CONTRIBUTIONS TO PHYSIOLOGY

Widal endeavored to show that clinical studies today take rank with the biologic sciences. Clinical study does not repudiate any of the sources of information that have been introduced: it would seem to be more and more influenced by the experimental spirit. Claude Bernard was the first to awaken this spirit. Pasteur followed. Gradually we became accustomed to regard disease as an ensemble of functional troubles, and the *penser physiologique* (physiologic conception), as Grasset termed it, penetrated medical consciousness more and more. New methods of research were brought forward; the meaning of semeiology became amplified. We no longer regard symptoms as the sole elements of diagnosis or the only means of recognizing a lesion. In cases in which the physiologist can study only the effects of the sudden and total suppression of a function, disease allows us to observe gradually progressive loss of function and creates changes characterized by great variety. Close observation of patients will bring to light special cases, which, having the value of spontaneous experiments, will sometimes solve physiologic problems that have long awaited solution.

"To relieve and to cure is the supreme purpose of our clinical activity," said Widal in closing; "it rises, therefore, above experimental science, but through the contributions that it furnishes to biology, which are becoming every day more numerous, it deserves to take rank along with the fundamental sciences."

MEDICINE IN RELATION TO THE CLASSICS

Léon Bérard, minister of public instruction, spoke of the immense progress made by medicine since Molière's time (1622-1673), stressing particularly the scientific character it has acquired since the day when Laplace refused to recognize it as a science. The minister emphasized the importance of literary studies, especially classic studies, for a broad training of physicians and the extension of their influence in the world.

Vacant Chair in the Academy of Sciences

An election will take place soon in the Academy of Sciences to provide a successor to Professor Laveran, whose death left a vacancy in the section of medicine and surgery. Three men have announced their candidacy for the chair: A. Calmette, assistant director of the Pasteur Institute; Chauffard, president of the Academy of Medicine, and Vincent, chief medical inspector and professor in the Ecole d'application de médecine et de pharmacie militaires in Val-de-Grâce.

The Rôle of Midwives

At the recent congress for the protection of mothers and children, Mlle. Chaptal, a midwife, supported the contention that normal confinements in the home should be reserved exclusively for midwives, and that special cases should be handled by physicians in the hospital. The *Journal des praticiens* protests editorially against this demand, inquiring by what right normal confinements belong to midwives—if a family desire a physician, should not their wishes be respected? Would the idea of selecting special cases be feasible? How are we to know what turn affairs may take? How can we predict the difficulties that may arise which would try the capacity of a midwife?

Professor de Castro in Paris

Professor de Castro, dean of the Faculté de médecine of Rio de Janeiro and delegate from Brazil to the League of Nations, was given an ovation recently by the Faculté de médecine of Paris, in the presence of the ambassador from Brazil and many of the professors and students. De Castro delivered an address on monoglandular and pluriglandular dystrophies.

Death of Prof. Louis Rénon

Dr. Louis Rénon, professor of internal pathology at the Faculté de médecine of Paris, died recently, after a long illness, at the age of 59. Rénon was a pupil of Dieulafoy. He was appointed, in 1897, physician to the hospitals of Paris. He became an assistant professor (the first of his class) in 1901, and full professor in 1920. Last year, he was elected a member of the Academy of Medicine. He formerly held the offices of president of the Société de thérapeutique, and vice president of the Société de biologie.

BELGIUM

(From Our Regular Correspondent)

Oct. 12, 1922.

Proteotherapy in Malignant Tumors

Before the Royal Academy of Medicine, Dr. Gathy recently gave an account of nine cases of tumors which appeared clinically to be of a malignant nature and which he treated by proteotherapy, giving repeated injections of small quantities of antidiphtheritic serum. Four cases, especially, deserve more serious consideration. These four tumors were of a sarcomatous nature, located in the clavicle, the buttocks or the thigh. In two cases, the histologic diagnosis confirmed the existence of a lymphoma. These four tumors retrogressed fairly rapidly under the influence of injections of serum. One of these tumors had been operated on four times. The results of this very simple therapeutic method should not be overlooked.

The Fourteenth Congress of Professional Medicine

The congress of the Belgian medical federation was held in Antwerp, September 9-11, under the chairmanship of Drs. Loontjens and Tricot-Roger. Three papers were presented, the discussion of which brought out a lively exchange of views:

COLONIAL MEDICINE (DR. BERTRAND)

There is an urgent need of more medical services, not only with reference to the future of the colonies but also for the immediate amelioration of living conditions on the Congo. At present, the prosperous conditions affecting Belgian physicians make them loath to emigrate to a new country. But the indications are that, two or three years from now, there will be an oversupply of physicians, for which reason it is desirable that we begin at once a campaign in favor of a migratory movement toward the colonies. Physicians will find on the Congo adequate compensation and a comfortable existence, and they must not forget that their activities constitute one of the principal factors in the general uplift of the colonies. All nations alike are of necessity interested in solving the great problems of public health in the colonies. The campaign against disease and the improvement of equipment are tasks which only the physician can bring to a successful issue. It is possible that the success of such a program will transform the idea of commercial colonization into a mission for the spread of civilization.

PHARMACEUTIC SPECIALTIES

The example that the Council on Pharmacy and Chemistry of the American Medical Association furnishes in keeping the medical profession of the United States informed in regard to the real value of pharmaceutic specialties, whose number is legion, is one that deserves to be imitated. Dr. Waucomont emphasizes the need of such a council, in order to give a healthy tone to the pharmaceutical market. He recommends a bureau and a laboratory under private rather than governmental control, as being likely to offer better chances of success. At the end of a lively debate, the assembly decided to leave the study of this question to a mixed commission composed of physicians and pharmacists, in the work of which the league against charlatanism would be asked to participate.

DIPLOMA FOR NURSES

Basing his statements on inquiries that he has made among members of the medical profession, the president of the federation, Dr. Loontjens, presented a paper which was highly interesting and well worked out, giving much valuable statistical information on the subject of diplomas for nurses. A period of three years for the training of nurses appears to him too long, and causes him to fear the misuse of theoretical knowledge, owing to the fact that in three years many prospective nurses will have become *"demi-savantes."* He also calls attention of professors in training schools for nurses to the necessity of university medical training for nurses. He proposes a midway solution, which a new royal decree could easily accomplish. This would result in disburdening the curriculum of studies having too medical a character; would reduce to two years the time within which the diploma of "hospital nurse" could be secured, and would provide for a special examination for highly specialized nurses. Individualistic medicine is gradually giving way to social medicine, which is governed by these principles: Anticipate the disease; ferret out patients who are still unconscious of the danger which threatens them; bring them in touch with physicians, and procure for them the best treatment. The care of patients is becoming more and more involved, requiring frequently the intervention of specialists, recourse to the laboratories and the use of complicated instruments and equipment. The physician often needs this trained assistance. Nurses will continue to be useful only so far as they do not depart from their rôle as aids.

CENTENNIAL OF PASTEUR AND WILLEMS

At the congress of the Fédération médicale, Belgian physicians celebrated the centennial of Pasteur, in connection with which they also paid tribute to the memory of Dr. Willems (1882-1907). Willems was the first scientist in Belgium who, recognizing the contagiousness of diseases, instituted a campaign against infectious diseases. The notion of the specificity of contagion was the governing principle of all his protective undertakings. The son of an agriculturalist, he utilized at first, as the field of his activities, the stables of his father, in which, at this time, a grave epidemic of pleuropneumonia was raging; and it was here that he succeeded in finding the wonderful vaccine which permitted Belgian stock raisers to withstand this terrible crisis. By injecting pathologic exudates into healthy cattle, he discovered that the disease was inoculable, that the metastatic tumors were also inoculable, and furthermore that the animals that survive the inoculation are henceforth immunized. But many animals were unable to withstand the inoculation. Willems was obliged to perfect the technic of the vaccination. For twenty years, he had to defend his discovery, and, when it was finally fully developed, he generously turned it over to his country. He was elected a member of the academy. His bust, which was set up in the gallery of the academy, was carried off by the Germans. Dr. Van Weddingen de Herck gave a biographic sketch of his compatriot: His memory is deserving of the highest tribute, for we should not forget that Pasteur himself bestowed on him the Barbier prize, the highest reward at the disposal of the Académie de France.

Radium for the Poor

The Belgian Red Cross has created at Brussels an institute for the treatment of cancerous affections by radium (20, Place Georges Brugman). This institute is for the exclusive use of the poor and persons of limited means who would be unable to stand the full expense of radium treatment. The Red Cross has only a limited income, and receives no subsidies. In order to place at the disposal of the poor the benefits accruing from radium treatment, including the use of rooms, personnel and radium itself, it finds itself compelled to solicit among the communes and the various charitable organizations the money needed to cover the cost of hospitalization and treatment; for otherwise it would be unable to continue to exist and carry forward the work it has undertaken.

GUAYAQUIL

(From Our Regular Correspondent)

Oct. 10, 1922.

Hemorrhagic Jaundice

At about the time last year that cases of infectious jaundice were being studied in New York by Wadsworth, Stewart, Coleman and others, and in Buenos Aires by Grapiolo, Fossatti and Palaso, who found spirochetes in the liver of a 17-year-old girl, Dr. Carbo Noboa, a professor at the Guayaquil medical school, was considering some suspicious cases of jaundice. Sept. 6, 1922, he reported to the Medicosurgical Hospital Society the first case of icterohemorrhagic leptospirosis in Ecuador. Confirmation of the diagnosis was obtained by injecting a guinea-pig subcutaneously with 1 c.c. of Noguchi's A medium, containing blood from a patient in the fourth day of the disease, which had been kept for twelve days at room temperature in the laboratory. Typical symptoms and lesions appeared in the animal, and the germ was isolated from kidney sections. Dr. Carbo Noboa is continuing his research and is now studying the relations between the leptospira and the organism isolated from Guayaquil rats. Noguchi showed, in 1918-1919, that the Guayaquil rat leptospira was identical to strains obtained from infectious jaundice patients in Europe, Japan and the United States.

Medical Congresses

At the Child Welfare Congress held at Rio Janeiro in connection with the Brazilian centennial celebration, Ecuador was represented by Dr. J. M. Estrada Coello. While there, Dr. Estrada was awarded the Orden del Merito.——Drs. A. J. Valenzuela and C. A. Arteta, professors at Guayaquil and Quito medical schools, respectively, will represent Ecuador at the Sixth Latin-American Medical Congress, to be held at Havana.

Tax on Physicians

A tax of $10 a year was added by the last national congress to the other burdens already borne by physicians.

Report of Cases Before the Medicochirurgical Society

At recent meetings of the Sociedad Médico Quirurgica del Guayas, several interesting cases were reported.

Dr. Hurtado Flor, professor of pediatrics, reported a case of pseudohermaphroditism in a new-born infant. At another session, he confirmed his findings by the necropsy report and the presentation of anatomic sections.

Drs. Valenzuela and Reinert reported cases of sporotrichosis and sprue, confirmed by the presence of typical lesions, patches and cultures of fungi. The sporotrichosis cases are the first ever found in this country, and cultures were sent for identification to Professor Pinoy of the Pasteur Institute in Paris.

Sale of "Patent Medicines"

A recent law restricts to drug stores the sale of "patent medicines" and drugs in general. This limitation will undoubtedly tend to diminish the demand for drugs and the exploitation of medicines of secret formula.

Pasteur's Centennial

The Academy of Medicine has decided to participate in the celebration of Pasteur's centennial, offering prizes for the best papers on "Pasteur: The Influence of his Discoveries on Scientific Evolution of Medicine in Ecuador." The prizes will consist of a microscope and a bust of Pasteur.

Public Health

The health authorities continue their work in the sanitation of Guayaquil. In the first six months of the present year, 151,110 rats were trapped. During the year 1921, 26,014 persons were vaccinated against smallpox. In addition, local registrars have been ordered not to register births unless parents can show a vaccination certificate. The antimalaria campaign started by the Rockefeller Foundation has been continued. One of the foundation's physicians, Dr. Connor, stated that, since there were 28,999 water receptacles, 8,236 tanks and 20,763 barrels in Guayaquil, it would be enough to keep down to 5 per cent. the proportion of mosquito breeding places in tanks, to secure protection against yellow fever, should a case be imported. At present, inspections show, however, only 0.21 per cent. of breeding places in tanks and 3 per cent. in other water-collecting places.

Venereal Disease Control

At Quito, there has been organized a venereal prevention service, including a reception hall, a dispensary and a laboratory. Of 246 women so far examined, 208, or 84 per cent., were infected.

Personal

Dr. Rojas has returned to Guayaquil, after taking a graduate medical course in the Rockefeller Institute, New York. ——Hospitals and schools in several South American countries were visited recently by Dr. J. A. Falconí Villagómez. Dr. Falconí has been appointed a member of the staff of the *Boletín de Medicina y Cirugía* of Guayaquil.

VIENNA

(From Our Regular Correspondent)

Oct. 15, 1922.

The Forensic Position of the Practitioner

An interesting paper, published quite recently by Dr. Herlatschek, and discussed at a meeting of the Forensic Society, deals with the problems facing the practitioner whenever his patients come in contact with the law. Of course, psychiatric cases come first in this respect. Here the physician is under the control of the public, so to say, and many interesting cases show manifestly that clinical psychiatry has yet a good deal to learn. Especially is psychanalysis often not enough, often too much, concerned. Here lie many stumbling blocks for the physician, and the public is only too quick to grasp any mistake or blunder. Therefore, medical circles demand a strict explanation by the law as to which cases should be termed mentally deranged, for "causal connection," "responsibility" and "free will" are expressions often used at the discretion of the law. Another point on which the physician is often called on to give his opinion in a decisive way is that connected with "damages" alleged to have been sustained by an accident. At one time, there was quite a mania for these cases, and the profession was somewhat responsible for it; for medical testimonials were sometimes given with undue liberality. In several instances —not many—doctors were sued for damages. Our law is fairly strict and exact on this point, and it even prosecutes the physician for neglecting his patient to such a degree that the latter suffers material detriment or dies.

It must be said, however, that a physician is rarely found guilty of gross neglect or fined for malpractice. The problem of induced abortion is one of the chief points of discussion at present. While, until a short time ago, the attitude of the lawyers as to interruption of pregnancy, except in urgent medical (or surgical) cases, was very strict, now the adherents of "free maternity" are slowly getting the upper hand. In cases in which there are a large number of living children, or living conditions are very difficult, the physician is faced by a real problem of conscience. Professional secrecy is still upheld by the physician, and must continue to be; still he must, by law, report cases of death under suspicious circumstances, or foul play, of those in which a medicine has been erroneously or carelessly dispensed. There is often a conflict of conscience in infectious cases, syphilis or tuberculosis of the husband of wife, for instance, or of a servant. Here his tact and his persuasive or, if necessary, suggestive, ability are called on in determining the proper procedure for his patient. It may be added that only recently the Vienna Medical Council found opportunity to emphasize the moral importance of this attitude of the profession.

The Importance of the Vienna University for Eastern Europe

Until a few years ago, Vienna University was, as regards the number of students, third in the world, but as a factor of civilization it was, perhaps, first. Not only did the citizens of Austria-Hungary regard it as their spiritual center: for the whole southeast of Europe, as well as the East, it was sort of a Mekka of wisdom. Things have changed now, in many respects, but, from statistical data obtained from the managing board of the university, it is manifest that it is still of paramount importance as a central institute for medical instruction of students coming from the Balkan and the eastern European states. Thus the report shows that, in the winter term of 1918-1919, there were altogether 3,697 ordinary and 197 extraordinary medical students working at the university institutes, including hospitals; in the summer term, 2,989. Of these more than 30 per cent. came from the Balkan states and the Near East. In 1919-1920, the total was 4,500 in winter, and 3,307 in summer, with nearly 40 per cent. from these countries. The importance of Vienna is even more emphasized in the next year. The winter term 1920-1921 was attended by 3,950 medical students. Of these, 2,650 were from the Balkan or the successory states, or more than 65 per cent. The summer term, attended by 3,348 students altogether, saw again 1,430, or 45 per cent., from the eastern countries, while Italian, Egyptian, French, Swiss, Spanish and Swedish students were also in attendance, although only in small numbers. In 1921-1922, the total number was 3,837 ordinary and 201 extraordinary students in the winter, of whom 1,760, or 45 per cent., were foreigners from the East, while eighty-seven came from other countries of Europe as ordinary students. In the summer term, 3,283 ordinary and ninety-seven extraordinary students were enrolled, of whom 1,640, or 50 per cent., came from the East, while about eighty came from other parts of Europe. It is clear that the flocking of students to this city is not only due to the monetary advantages offered to the students possessing money of a high exchange rate. The old established organization of the university, along with the excellent opportunities for thorough training is the chief cause of the influence it exerts on all its more or less open political adverseries, who have nothing to compare with this venerable seat of learning. Also as regards the conferring of the degree of M.D., the "promotion" as it is termed here, the name Vienna is of utmost influence in this part of the world. An "M.D. of Vienna" is regarded all over the Balkans, Russia and the Oriental states as a guarantee of competence and learning. Therefore, an ever increasing number of men study for their degrees here, and the statistical figures show also the same increase of foreign applicants; while in 1918-1919 (from October to July) there were 247 promotions, with 68 per cent. Austrians. In 1919-1920, the figure went up to 350, with only 56 per cent. Austrians and 44 per cent. foreigners, mostly from the East. In 1920-1921, of 440 diplomas 56 per cent. were granted to non-Austrians and 44 per cent. to Austrians, or just the reverse of the preceding year. In 1921-1922, the figure rose to 475, with 55 per cent. non-Austrians. It is interesting to note the increasing number of women graduating in Vienna. By a coincidence, both years, 1918-1919 and 1919-1920, show the same number of promotions among women: viz., thirty-eight; and 1920-1921 and 1921-1922, seventy each, of which 40 per cent. were among non-Austrians. All these foreign students can obtain their diplomas only under the condition that they bind themselves not to practice here privately, so that the doctors in this country do not suffer from their competition. But the limited means at the disposal of the university, as well as the scarcity of "human material," i. e.; patients for the study of disease and bodies for study of anatomy and pathology, have prompted the authorities to exert a certain check on the influx of foreign students. In many institutes, in the anatomic, chemical and surgical departments only a limited number of students are accepted, and preference is given to Austrians, while foreigners are admitted only if the regular number is not made up by Austrians. Thus for instance, only 400 first-year students may be admitted at the anatomic institute for dissections. These restrictions, however, do not apply to graduate work, which is open to any number of physicians applying. It may be added here that a constantly growing number of physicians from all parts of Europe and the other continents are working here with our professors and *privat Docents.* American physicians and also Italian, Dutch and Scandinavian, are satisfied with the results of their stay here; and even French doctors say that they find their stay here a profitable one.

Antialcohol Legislation

The fight against intoxicating drinks is gradually spreading over the country. While recently a law was passed which forbade the sale of alcohol to persons under 16 years of age, it has now been augmented by the law which makes it a criminal offense to sell alcohol to persons already under the influence of drink. Furthermore, in certain districts in which the labor party is in power on local boards, the public houses and bars or saloons have to be closed from Saturday at noon until Monday morning; just the time when wages are mostly spent on drink. All recipients of the so-called "dole," or government relief for the unemployed, found intoxicated will be reported to the relief board, and will thus forfeit this aid. Antialcohol demonstrations and exhibits have been opened in all larger towns of the industrial districts, while in wine districts an effort is being made to convince the vine growers that the conversion of their vineyards into pastures or arable ground would be a profitable step.

Camphor Oil in Hemoptysis

At a recent meeting of the Vienna Medical Society, Dr. Weisz strongly recommended the use of large doses of camphorated oil in cases of hemoptysis. He had excellent results in several cases in which artificial pneumothorax could not be produced on account of external conditions. The injection of calcium chlorid, which proved very useful also in his hands, and which has been advocated lately by many experts, had only a transient effect (twenty-four hours at the most). The injections are possible only where the veins are well visible, as they must be made intravenously. In private practive, however, or when rapid action is paramount, it is hardly possible to get to the veins by anatomic dissection. Dr. Weisz applied the camphorated oil in doses of 6 c.c. in cases of infarct of the lungs, parenchymatous oozing or edema of the lungs, and found it most effective. The injections are made, as usual, subcutaneously; and therefore this method is very advantageous, because every practitioner can employ it and has the oil in his emergency case. In folklore, camphor is used as a local styptic, and it also is used by gynecologists before and during the radical scraping out of the mucous membrane of the uterus, and in carcinoma operations to control bleeding. The increase of the blood pressure or of the action of the heart caused by camphorated oil is no disadvantage in hemoptysis.

BERLIN

(From Our Regular Correspondent)

Oct. 28, 1922.

Effects of the Seasons on Physiologic and Pathologic Conditions in Man

In a recent number of the *Deutsche medizinische Wochenschrift,* Dr. Kurt Beckmann discusses the question as to why the autumn is a critical period of the year. In the animal organism, the close relation between numerous processes and the season is plainly evident, and connections between the human organism and the change of seasons have also been established. Among these are changes in the facial appearance and in growth. The hair grows faster in the spring and the slowest in winter. We may find a slight reminder of the hibernation of animals in the observation that man sleeps in winter about 30 per cent. longer than in summer. In many parts of Russia where the population is but poorly nourished, the term *licjka* is applied to a condition, occurring in man, which resembles the winter sleep of animals. *Licjka* may persist, with short interruptions, for four or five months. That certain diseases occur more frequently in the transitional periods of spring and autumn is proved by statistics.

Among the pathologic conditions that are increased, we find not only "colds," rheumatic affections, tuberculosis and neuroses, but also skin diseases and disturbances of the endocrine glands, such as exophthalmic goiter. Anemia is worst in May; cardiovalvular diseases and arteriosclerosis are more frequent in spring. Many extrinsic causes doubtless play a part in the increase of many diseases in the spring and fall, but these extrinsic causes appear to have some connection with inner processes. For instance, this would seem, from recent investigations, to be true of "colds." It has lately been observed that, under the influence of chilling, physicochemical changes in the tissue colloids may be shown to occur. Through the influence of cold, such colloid tissues as the mucous membranes of the nose, the pharynx and the lungs become less resistant to bacterial infections.

The influence of the season shows itself not only in physical but also in mental processes. The spring is the season of the most frequent attacks, in the majority of mental cases. Suicides are fewest in the period from November to February, reach their highest point in May and June, and then drop rather rapidly. We seem justified in believing that the excitability of the nervous system is greatest in spring, and that this hypersensitiveness has some connection with the glands of internal secretion. The organism has to adjust itself to new weather conditions, and during the transitional period, while it is seeking to strike a balance, it is especially exposed to disease.

In a purely physiologic sense, this influence of seasonal fluctuations can be clearly shown in the regulation of breathing. The carbon dioxid fixation curves reach the highest point on the shortest day of the year, and the lowest point on the longest day. More alkaline substances are at the disposal of the body during the transition from autumn to winter than during that from spring to summer. At the same time, a more or less changed regulation of respiration takes place. The carbon dioxid tension of the arterial blood, by which the respiratory center regulates in a very delicate way every departure from normal, follows these changes only to a limited extent, so that breathing is accomplished in a less perfect manner. While the body is adapting itself, in its most delicate functions and reactions, to the changed conditions, a better opportunity is afforded the causative agents of disease to effect an entrance into the organism.

Hereditary Influences Affecting the Color of the Eyes

Davenport and Hurst, on the basis of their statistical investigations, have expressed the view that the hereditary transmission of blue and brown eyes takes place in accordance with simple mendelian laws pertaining to the transmission of types—that brown is dominant over blue. In reality, however, things seem to be somewhat more complicated, in proof of which Winge recently furnished some interesting statistics. Winge ascertained the hereditary facts affecting about 1,400 children. Of 637 offspring resulting from marriages in which both parents had blue eyes, 625 children had blue eyes, and twelve, brown eyes. Of 639 offspring resulting from marriages in which one parent had blue and the other parent brown eyes, 317 children had blue eyes, and 322, brown eyes. Of 441 offspring resulting from marriages in which both parents had brown eyes, twenty-five children had blue eyes, and 416, brown eyes. Doubtful cases (grayish green, bluish green) are omitted from these findings. It will be seen from these statistics that there were brown-eyed children among the descendants of blue-eyed parents, although only a small percentage (2 per cent.). This would scarcely be the case if brown actually dominated over blue. One is inclined to assume that in certain cases one of the parents was only disguisedly and not inherently blue-eyed; that, at the same time, an inhibitive factor was at work which did not allow brown eyes to develop. This factor seems to affect also the other qualities of the eye. Thus, Winge often observed in the critical cases astigmatism, weak vision and similar defects.

The findings in the combinations of brown and blue, and brown and brown appear to accord well with the Davenport hypothesis. In the first case—brown and blue—almost the same number of brown-eyed and blue-eyed children resulted. Since in Denmark the brown-eyed persons are almost all heterozygotes, the data that were found were to be expected according to mendelian laws. In spite of this fact, the matter is not so simple. If we consider among the offspring the matter of sex, it will be seen that among the females there is quite a considerable excess of brown eyes. This is a fact that the earlier statistics of various countries also brought out. As Winge shows by a detailed analysis of his statistics, all the various data can be harmonized with the preconditions as stated, especially the fact that the reciprocal marriages between blue-eyed and brown-eyed parents (father blue-eyed) and brown-eyed and blue-eyed parents (father brown-eyed) gave entirely different results. The effect of sex on transmission has been shown in man with regard to various characteristics, such as color blindness and blood diseases.

Marriages

Alvin J. Bayley, major, M. C., U. S. Army, Fort Benning, Ga., to Miss Ada Bush of Columbus, Ga., October 20.

Edward C. Lynch, North Platte, Neb., to Miss Winona Ingle of Lincoln, Neb., at Grand Island, September 19.

Emmett Washington Horton, to Miss Emma Lee Phelps, both of Bluefield, W. Va., September 5.

Francis Lucien Badaglicacca, to Miss Elizabeth O'Connor, both of Baltimore, October 25.

Karl A. Connell, Omaha, to Miss Frances Hovey Roof of Lakewood, N. J., in September.

Walter W. Read, Durban, Man., to Miss Loretta Kennedy of Wingham, Ont., October 24.

Hugh MacDonald, Evanston, Ill., to Miss Edith M. Jersild of Chicago, November 1.

Alfred H. Goodsett, to Miss Sophia Feld, both of Milwaukee, recently.

Earl C. Sage, to Miss Blanche Duel, both of Omaha, October 4.

Deaths

Robert Worthington Hastings ⊕ Brookline, Mass.; Medical School of Harvard University, Boston, 1893; formerly associate professor of diseases of children at Tufts College Medical School; one of the founders of the Boston Floating Hospital; superintendent of the Board of Health Hospital, Brookline; member of the New England Pediatric Society; aged 56; died, October 13.

John Seymour Thacher ⊕ New York; Medical Department of Columbia College, New York, 1880; professor of clinical medicine at his alma mater; member of the Association of American Physicians and the New York Academy of Medicine; on the staffs of the Roosevelt and Presbyterian hospitals; died, October 28, aged 66, from heart disease.

James Lee Roberts ⊕ Kansas City, Mo.; Louisville Medical College, Louisville, Ky., 1904; served in the M. C., U. S. Army, with rank of captain, during the World War and was honorably discharged in 1919; specialized in gastroenterology; died, October 17, aged 44, from pneumonia.

Herman Emil Molzahn, St. Paul; George Washington University Medical School, Washington, D. C., 1908; member of the Minnesota State Medical Association; specialized in ophthalmology, otology, laryngology and rhinology; died suddenly, November 1, aged 43, from heart disease.

Nicholas Louis Linnemann ⊕ Duluth, Minn.; University of Minnesota Medical School, Minneapolis, 1902; member of the Minnesota Dermatological and Pathological societies; served in the M. C., U. S. Army, during the World War, with rank of captain; died, October 31, aged 55.

Walter Brewster Platt ⊕ Baltimore; Medical School of Harvard University, Boston, 1879; member of the Royal College of Surgeons, England; Southern Surgical Association; superintendent of the Robert Garrett Hospital for Children; died, October 30, aged 69, from heart disease.

William Emil Durr ⊕ Milwaukee; Northwestern University Medical School, Chicago, 1891; aged 57; was found dead in bed, October 29, at the Milwaukee Hospital, with a bullet wound in his brain, presumably self-inflicted; he was suffering from heart disease.

Everett James Stothart, Savannah, Ga.; University of Georgia, Medical Department, Augusta, 1909; served in the M. C., U. S. Army, during the World War; aged 34; died, October 8, at the U. S. Veterans' Hospital, No. 62, Augusta, Ga., from paralysis.

Harry C. Cline, Front Royal, Va.; University of Maryland, School of Medicine, Baltimore, 1876; member of the Medical Society of Virginia; died at the University of Virginia Hospital, University, Va., aged 74, September 29, from pernicious anemia.

Henry M. Knowles, New Bedford, Mass.; Medical Department of Columbia College, New York, 1864; gave up his practice to become manager of the Union Iron Works at Cleveland; died, October 18, aged 79, following a long illness.

Percy Musgrave, Doylestown, Pa.; Medical School of Harvard University, Boston, 1898; served in the M. C., U. S. Army, during the World War; aged 50; was found dead in his room, October 26, from bullet wounds, presumably self-inflicted.

William Joseph Morris, Sulphur, Ky.; Medical Department, University of Louisville, Louisville, Ky., 1867; formerly president of the Henry County Medical Society; for many years chairman of the board of education; died, October 28, aged 78.

Ida Catherine Mettler Nahm, New York; Hering Medical College, Chicago, 1893; in 1906 she was appointed manager of the Woman's Hospital, New York; aged 56; died, November 1, at the Fifth Avenue Hospital, from diabetes mellitus.

Charles Howard Ridlon, Gorham, Maine, Bowdoin Medical School (Medical Department of Bowdoin College), Portland, 1886; member of the Maine Medical Association; died suddenly, October 27, aged 63, from angina pectoris.

Frank Smith Lower, Chicago; Jenner Medical College, Chicago, 1910; also a chiropodist; aged 40; died, November 3, from the effects of an overdose of morphin; presumably self-inflicted, while despondent over ill health.

William T. Hayes, Louisville, Ky.; Louisville Medical College, Louisville, Ky., 1892; member of the Kentucky State Medical Association; died, September 14, aged 63, at the St. Mary and Elizabeth Hospital, from uremia.

George W. Dille, Cooperstown, Pa.; Western Reserve University, School of Medicine, Cleveland, Ohio, 1872; member of the Medical Society of the State of Pennsylvania; died, October 25, aged 73, from heart disease.

William Sylvio Durand ⊕ Everett, Wash.; University of Michigan Medical School, Ann Arbor, 1899; died, October 25, aged 51, at the Northern State Hospital for Insane, Sedro-Woolley, where he had been a patient.

Eugene C. Underwood, Sr., Louisville, Ky.; Hospital College of Medicine, Louisville, Ky., 1888; member of the Kentucky State Medical Association; died suddenly, October 5, aged 62, from cerebral hemorrhage.

Charles Duncan McKenzie ⊕ Denver; University of Colorado, School of Medicine, Denver, 1912; served in the M. C., U. S. Army, with rank of captain, during the World War; died, October 23, aged 47.

Thomas Francis Greene ⊕ Boston; Tufts College Medical School, Boston, 1894; chairman of the medical staff of the Hart Private Hospital, Roxbury; died, October 24, aged 60, following an operation.

Thomas William Stone, Bowling Green, Ky.; Vanderbilt University, Medical Department, Nashville, Tenn., 1893; member of the Tennessee State Medical Association; died, November 1, aged 57.

William Henry Lopp, Los Angeles; Indiana Medical College, Indianapolis, 1877; Medical Department of the University of the City of New York, 1879; also a dentist; died, October 25, aged 68.

Gilbert P. Johnson, Wyandotte, Mich.; Detroit College of Medicine, 1891; at one time president of the school board; formerly county physician; died, October 22, aged 59, from cerebral hemorrhage.

Alexander L. Ladd, Canton, N. Y.; University of Buffalo, Department of Medicine, 1892; aged 53; died, October 27, at the A. Barton Hepburn Hospital, Ogdensburg, following a long illness.

Benjamin M. Sharp, Sidney, Ohio; Columbus Medical College, Columbus, Ohio, 1879; member of the Ohio State Medical Association; Civil War veteran; aged 78; died, October 29.

Douglas Grady Greene, Dundee, Miss.; University of Virginia, Department of Medicine, Charlottesville, Va., 1916; Tunica County physician; died, October 29, aged 34, from hematuria.

William Clark Wood, Gloversville, N. Y.; Albany Medical College, Albany, N. Y., 1880; surgeon to the Nathan Littauer Hospital; died, October 30, aged 64, from cerebral hemorrhage.

James Wilson Shanks, Grand Rapids, Mich.; Medical Department of the University of Illinois, Chicago, 1901; died in California, October 21, aged 46, from cerebral hemorrhage.

George Byron Teames, Round Lake, N. Y.; Medical Department of Columbia College, New York, 1890; formerly health officer; died, October 19, aged 63, from heart disease.

Daniel C. McTaggart, Bryan, Ohio; Pulte Medical College, Cincinnati, 1887; member of the Ohio State Medical Association; died, September 1, aged 66, from angina pectoris.

James Monroe Boyles, Houston, Texas; Medical College of Alabama, Tuscaloosa, Ala., 1886; member of the State Medical Association of Texas; died, October 25, aged 68.

Albert W. Miller, Anderson, Ind.; Eclectic Medical College, Cincinnati, 1882; formerly a member of the city council; died, October 29, aged 63, following a long illness.

Charles H. Robertson, Eagleville, Mo.; Ensworth Medical College, St. Joseph, Mo., 1893; member of the Missouri State Medical Association; died, October 25, aged 62.

Joseph L. Preston, Cloverdale, Ind.; Indiana Medical College, Indianapolis, 1877; member of the Indiana State Medical Association; died, October 24, aged 71.

Leonard D. McCutcheon, Richwood, W. Va.; Kentucky University, Medical Department, Louisville, Ky., 1906; died, October 9, aged 43, from diabetes mellitus.

Eugene Livingston Mulligan, Huntington, L. I.; Long Island College Hospital, Brooklyn, N. Y., 1875; died, October 14, aged 69, following a long illness.

Thomas M. Johnson, Galatia, Ill.; Marion-Sims College of Medicine, St. Louis, 1895; aged 55; was found dead in his garage, October 26, from heart disease.

Horace Mortimer Lacock ⊕ West Finley, Pa.; Jefferson Medical College, Philadelphia, 1902; died suddenly, October 23, aged 47, from cerebral hemorrhage.

William K. Gray, Indianola, Miss.; Medical Department, University of Louisville, Louisville, Ky., 1881; died, October 28, aged 67, following a long illness.

Joseph Byron Moore, Washington, D. C.; Georgetown University School of Medicine, Washington, D. C., 1871; died, October 27, aged 92, from senility.

Ebenezer T. Gilmore, Ivey, Ga.; Medical College of the State of South Carolina, Charleston, 1868; Civil War veteran; died, October 10, aged 80.

Louis E. July, Alexandria Bay, N. Y.; Hahnemann Medical College and Hospital of Chicago, 1893; aged 57; died, October 22, at the Hepburn Hospital.

Percival William Harrig ⊕ Albany, N. Y.; Albany Medical College, 1906; instructor in dermatology at his alma mater; aged 39; died, October 28.

Thomas Samuel Booth, Ardmore, Okla.; Missouri Medical College, St. Louis, 1884; died, September 23, aged 64, from cerebral hemorrhage.

Frank Hunter Zabriskie ⊕ Greenfield, Mass.; Medical Department of Columbia College, New York, 1883; died, October 25, aged 63.

T. Clarke Slay, Dover, Del., Hahnemann Medical College of Philadelphia, 1870; died, October 8, aged 77, from cerebral hemorrhage.

Francis Marion Teas, Denison, Texas; Vanderbilt University, Medical Department, Nashville, Tenn., 1895; died, October 31, aged 55.

Archibald Dixon Purdy, Kuttawa, Ky.; Medical Department, University of Tennessee, Memphis, 1882; died, October 30, aged 70.

Philip Broome Brooks, Washington, D. C.; Howard University, School of Medicine, Washington, 1889; died, October 26, aged 58.

Lewis H. Tennant, Pierceton, Ind. (licensed, Indiana, 1897); Civil War veteran; died, October 5, aged 85, from myocarditis.

George M. Kinsey, Cleveland, Ohio; University of Wooster Medical Department, Cleveland, 1878; died, October 24, aged 68.

William Sondericker, Woodstock, Ill.; Hahnemann Medical College and Hospital of Chicago, 1887; died, October 24, aged 60.

James S. Hayes, Los Angeles; Eclectic Medical College, Cincinnati, 1881; died, October 5, aged 75, from paralysis.

Laura Maria Wright, Belleville, N. J.; United States Medical College, New York, 1882; died, October 30, aged 82.

Louis Joseph Papineau, Webster, Mass. (licensed, years of practice); died, October 19, aged 74.

W. D. Fountain, Houston, Texas (licensed, years of practice); died, October 8, aged 61.

The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other General Material of an Informative Nature

APROTEIN AND APROTINE NOT ADMITTED TO N. N. R.

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following report.

W. A. Puckner, Secretary.

Aprotein and Aprotine are casein preparations marketed as "the foremost tissue and body builders," by The John Norton Co., Columbus, Ohio.

Aprotein.—This preparation (formerly designated Diaprotein No. 2, Granulated Food Casein) is described in the advertising issued by The John Norton Co. (formerly the Diaprotein Co.) as:

> "A scientifically, specially prepared granulated casein precipitated from fresh, skimmed milk, concentrated to a high degree."

Though stated to be simple casein, it is designated as a "compound food" which is "readily soluble."

In the information sent the Council by the Diaprotein Co. the product was alleged to have the following composition:

Moisture	8.42
Fat	0.45
Protein	81.47
Ash	5.90
Sugar (lactose)	3.72

Analysis of the submitted specimen showed that it contained *three times* as much fat as claimed and but *one-fourth* as much sugar. The product was not soluble in any ordinary sense. Its high ash and low acidity suggested the presence of combined or occluded calcium.

Aprotein is inadmissible to New and Nonofficial Remedies because, (1) though claimed to be casein, its composition does not agree with that of a good dietetic casein and was not found to have the composition claimed for it and (2) it is not only irrational but also a hindrance to therapeutics to market a well-known substance like casein under a fanciful name.

Aprotine.—In the information sent the Council, this preparation is designated "a sodium-calcium caseinate derivative" prepared by precipitating an acid calcium caseinate from skimmed milk by addition of acid, washing the precipitate, mixing it with sodium bicarbonate and drying. While the term "sodium-calcium caseinate derivative" suggests that Aprotine is a definite sodium-calcium caseinate, the following sets of analyses, furnished by the manufacturer to show the limits of variation in the composition of the product prove it to be a decidedly indefinite mixture:

	SPECIMEN A Per Cent.	SPECIMEN B Per Cent.
Moisture	10.83	8.42
Fat	4.64	0.43
Lactose	Trace	3.78
Nitrogenous matter	76.78	81.47
Ash	7.75	5.90
Total	100.00	100.00

In the advertising furnished the Council, Aprotine is not designated sodium-calcium caseinate derivative, but is claimed to be "granulated casein." In an advertising pamphlet, under "Aprotine Analysis" appears the analysis given for "Specimen B" in the table just given. From this one would infer that Aprotine always has the composition indicated by this analysis, whereas the information furnished the Council made it perfectly plain that the product is a most variable one.

Furthermore, a comparison of the "Aprotine Analysis" in the advertising pamphlet with the statement of composition of

Aprotein which was furnished the Council suggests that these two preparations are the same:

	Aprotine Per Cent.	Aprotein Per Cent.
Protein	81.47	81.47
Lactose	3.78	3.72
Fat	0.43	0.45
Ash	5.90	5.90
Moisture	8.42	8.42
Total	100.00	99.96

In the advertising is the description:

> "Aprotine. Compound food. A concentrated form of nourishment which has proven a very satisfactory and effective body builder and restorer, and is foremost in the replacing of tissue elements, which have been destroyed through illness or otherwise."

It is recommended:

> "In any wasting disease, such as tuberculosis, anemia, faulty assimilation. For anyone taking a great deal of exercise. For expectant and nursing mothers, and before and after an operation. For lack of vitality and malnutrition, Aprotine taken in either liquid or solid food, will noticeably increase the strength and vitality."

These recommendations suggest that Aprotine is possessed of therapeutic properties whereas its effects will not differ from those obtained from cottage cheese. It is absurd to suggest that the administration of casein is indicated in anemia, lack of vitality and malnutrition or to advise the consumption of Aprotine rather than of good food for "anyone taking a great deal of exercise."

Aprotine is inadmissible to New and Nonofficial Remedies because (1) the statements made in regard to its composition are indefinite and misleading, (2) the therapeutic claims are unwarranted and (3) there is no evidence to indicate that this casein preparation presents an improvement over casein-N. N. R.

Correspondence

VIENNA POLICLINIC APPEALS FOR AID

To the Editor:—The Vienna General Policlinic is engaged in a terrible struggle for life. One of the most beneficent institutions, with a long and glorious record, is in danger of passing out of existence. With great uneasiness and almost without hope, we are the powerless witnesses of its decline. Where are the helping hands of former days? Where are our friends with kind hearts and open purses, who were ever ready to assist "their" policlinic? Unfortunately, the rich among us have become poor and are in need themselves; our impoverished state is heaving for breath under the burdens it has to bear and cannot aid us. Our laboratories are nearly deserted; we cannot buy the expensive chemicals and technical appliances necessary; the prices of gas, electricity, light and for heating are enormous; building repairs and important architectonic changes cannot be undertaken on account of the great cost they would entail. In consequence, the closure of the institution is imminent, of the institution where Hans Hebra and Robert Ultzmann worked; where Wilhelm Winternitz reduced hydropathy to a scientific system; where Benedict, Viktor Urbantschitsch, Alois Monti, the surgeons Anton Woelfler and Julius Hochenegg, the laryngologists Ottokar Chiari and Hans Koschier taught, and where many other medical men of international reputation are still scientifically and practically active.

In our great need we think of our American colleagues, who for so many years were our friends. Remember the time you spent in Vienna as our welcome guests, our diligent pupils and often also as our teachers. Is there a state in your Union, is there a single large city in your great country where there is not at least one physician that has learned to appreciate and love Vienna? We turn to you with the urgent request to aid us. Is not our institution also yours? What you do for us you will do for medical science, which helps everybody, which is one and the same, and pursues one and the same object, everywhere, in spite of animosities that may exist between different nations.

We are convinced that we shall survive the dreadful shock that has prostrated us, and that the spirit of our people, now broken by untold sufferings, will rise to new life and vigor, to new and fruitful activity. It will then redound to the honor of American physicians to have extended to us their helping hand at the right time; they will have erected in the hearts of the Vienna medical profession a monument of thankfulness "aere perennius."

B. J. Menneberg,
A. Alexander,
Dr. F. J. Kaiser,
General Policlinic, Vienna.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

MUSIC AND NERVOUS DISEASES

To the Editor:—I should like information concerning the use of music for the treatment of nervous diseases. Some time ago I read an article along this line, but cannot remember when and where.

L. E. C., Minneapolis.

Answer.—The following is a list of references to articles on this subject:

Jatewood, E. L.: Psychology of Music in Relation to Anesthesia, *Am. J. Surg.* (Anesthesia Supp.), April, 1921.
Mott, F.: Influence of Song on Mind and Body, *J. Ment. Sc.* **67**: 162 (April) 1921.
Harting, J. W.: Music Takes First Place in Reconstruction Work, *Mod. Hosp.* **12**: 404 (June) 1919.
Mays, T. J. Music and Medicine, *New York M. J.* **105**: 832 (May 5) 1917.
Kane, E. O'N.: The Phonograph in the Operating Room, The Journal, June 6, 1914, p. 1829.
Mendelson, R. W.: Operating-Room Slumber Songs, The Journal, July 4, 1914, p. 50.
Salutary Effects of Music, Current Comment, The Journal, Sept. 12, 1914, p. 953.
Morris, H.: Combining Medical with Military and Military with Medical Education and Mingling Music with Both, *Lancet*, Sept. 18, 1915.
Schmidt, C. G.: Importance of Music in Mental Development and Character Building, *Musician*, July, 1913.
Value of Music in Factories, *Outlook*, Sept. 6, 1913.
Working to Music, *Literary Digest*, April 17, 1915.
Lawrence, R. M.: Healing Influence of Music. in Primitive Psychotherapy by Lawrence, Boston, Houghton, Mifflin & Co., 1910, pp. 172-200.
Music as Medicine, *Brit. M. J.* **1**: 1380, 1912.
Kress: Die Musik im Dienste der Heilkunst, *Klin. therap. Wchnschr.* **19**: 47, 1912.
Wimmer, D. J.: The Influence of Music and Its Therapeutic Value, *New York M. J.* **50**: 258, 1889.
Harford, F. K.: Music and Illness, *Lancet* **2**: 43, 1891.
Olker, P. V.: The Influence of Music in Hospitals, *Bull. Iowa Inst.*, Des Moines **2**: 70, 1900.
Merz, C. H.: Music in Medicine, *Lancet-Clinic* **29**: 845, 1892.
Hermann, A. L.: Hygiene of Music, The Journal, Oct. 15, 1898, p. 939.
Davison, J. T. R.: Music in Medicine, *Lancet* **2**: 1159, 1899.
Boice-Hayes: Therapeutic Value of Music, *Homeop. Eye, Ear & Throat J.* **5**: 290, 1900.
Shoemaker, J. V.: The Therapeutic Benefit of Music, *M. Bull.*, Philadelphia **23**: 290, 1901.
Brayton, A. W.: Music as a Therapeutic Agent, *New York M. News*, Oct. 29, 1904.
Edwards, W. M.: Treatment of Diseases by Music, *Am. Med.* **5**: 305, 1905.
Brayton, A. W.: Music and Poetry: Their Relation to the Medical Life, *Indianapolis M. J.*, May, 1906.
Knott, J.: Music as a Therapeutic Agent, *New York M. J.* **5**: 678, 1911.
Corning, J. L.: Musical Memory and Its Derangements, *M. Rec.*, Jan. 13, 1912.

Cremation Society of England.—The report of the society for the year 1921 states that during that period there were 1,922 cremations in Great Britain, as compared with 1,796 in 1920. The membership of the society has been increased. A feature of the report is a list of American and continental crematories.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Arizona: Phoenix, Jan. 2. Sec., Dr. Ancil Martin, 207 Goodrich Bldg., Phoenix.

Colorado: Denver, Jan. 2. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

Delaware: Wilmington, Dec. 12-14. Sec., Dr. P. S. Downs, Dover.

Kentucky: Louisville, Dec. 5-7. Sec., Dr. A. F. McCormack, State Board of Health Bldg., Louisville.

Louisiana: New Orleans, Nov. 30-Dec. 2. Sec., Dr. Roy B. Harrison, 1507 Hibernia Bank Bldg., New Orleans.

Maryland: Baltimore, Dec. 12. Sec., Dr. J. McP. Scott, 141 W. Washington St., Hagerstown.

Minnesota: Minneapolis, Jan. 2-4. Sec., Dr. Thomas S. McDavitt, 539 Lowry Bldg., St. Paul.

Missouri: Kansas City, Nov. 20-23. Sec., Dr. Cortez F. Enloe, State House, Jefferson City.

North Carolina: Durham, Dec. 12. Sec., Dr. Kemp P. B. Bonner, Raleigh.

Ohio: Columbus, Dec. 6-8. Sec., Dr. H. M. Platter, Hartman Hotel Bldg., Columbus.

Rhode Island: Providence, Jan. 4-5. Sec., Dr. Byron U. Richards, State House, Providence.

Texas: Waco, Nov. 28-30. Sec., Dr. T. J. Crowe, Dallas County Bank Bldg., Dallas.

Virginia: Richmond, Dec. 5-8. Sec., Dr. J. W. Preston, McBain Bldg., Roanoke.

THE UNIVERSITY OF NEBRASKA COLLEGE OF MEDICINE

The present development of the College of Medicine of the University of Nebraska dates from 1913, when the medical school proper was removed from Lincoln, the seat of the university, to Omaha. At that time, a single laboratory building, the North Laboratory Building, was completed and ready for occupancy. This building housed all departments of the medical school except the outpatient department, which occupied rented quarters in the down town district.

Buildings of the University of Nebraska College of Medicine, Omaha: in center, the University Hospital, with the nurses' home in the distance at the left; at extreme left, South Laboratory Building, which houses the departments of biochemistry, physiology and pharmacology; at right, North Laboratory Building, containing the departments of anatomy, pathology and bacteriology.

The medical campus in 1913 comprised a little more than 6 acres. The site, on high ground, a little more than 2 miles from the business center of the city, is in a beautiful residential district, overlooking a rolling landscape to the south and west. The original site has been increased by purchase to a total of more than 17 acres, providing ample space for additional hospital wings, laboratory buildings, housing for nurses, and an athletic field.

The buildings are all fireproof and of reinforced concrete and steel construction. Particular attention to fireproofing was given the construction of the hospital. The architecture is simple but beautiful, and the buildings present a uniformity and symmetry which is most pleasing.

Funds for the erection of the buildings of the medical group have been derived wholly from legislative appropriations. The North Laboratory Building was completed in 1913, the first wing of the University Hospital in 1917, the South Laboratory Building and the Power Plant in 1919, and the first wing of the permanent Nurses' Home in 1922. The cost of the building so far completed totals $641,000.

The North Laboratory Building houses the departments of anatomy, pathology and bacteriology. The South Laboratory Building houses the departments of biochemistry, physiology and pharmacology. Clinical work is confined wholly to the University Hospital and affiliated hospitals. The North Laboratory Building will ultimately become the Anatomical Institute, and the departments of pathology and bacteriology will be housed in a future building, which will accommodate in addition the department of public health and the outpatient service. The present housing affords to the department of anatomy 15,000 square feet of floor space; to each of the departments of biochemistry, physiology and pharmacology, 7,500, and to the departments of pathology and bacteriology, 12,000.

The University Hospital contains 130 beds, and is constructed especially for teaching. Ward units contain sixteen beds each. Adjoining isolation rooms provide for patients requiring special attention or those seriously ill. Electrocardiograph outlets permit the making of electrocardiograms of any patient in the hospital without moving the bed. Wide and ample porches to the north and south, glass enclosed and steam heated, furnish sun rooms with a total capacity of sixty patients. Ample laboratory space is provided on each floor. These ward laboratories are open to clinical clerks and are under the direct supervision of the department of pathology.

The library, at present housed in the administration wing of the hospital, contains 25,000 bound volumes and 14,000 unbound pamphlets, reprints and theses. Plans for the future contemplate the addition of an adequate library building to the medical group.

Miscellany

STILL HARPING ON THE FEDERAL MATERNITY LAW

"The chief of the Children's Bureau of the Department of Labor announces that the Sheppard-Towner Maternity law is proving successful in spite of the refusal of a number of the more important states to accept it, and in spite of the attacks that have been made upon the act by leading lawyers, physicians and men of affairs. We are told that the bill has served its purpose even in states where it has not been accepted, because the widespread discussion of the law has brought about a campaign of education among mothers and prospective mothers.

"We fear that the uplifters who brought about this legislation misunderstand—wilfully or otherwise—the point of the opposition. Intelligent persons everywhere are in favor of the spread of knowledge that will decrease mortality among mothers and infants; they concede that it is likely that organizations of a charitable and semipublic nature may do much good in this regard, but they do not believe that it is the business of the federal government. The law makes it possible to appoint hordes of officials whose chief work shall be to absorb salaries and eat up large sums of money. Moreover, such work, if it be desirable that it shall be done under public and official supervision, properly belongs to the city or to the state and not to the government at Washington.

"Such reasoning has prompted states like New York, Maine, Massachusetts, Rhode Island, Louisiana and Washington to reject the proffered federal aid. That is why the attorney general of Massachusetts has gone into court to ask that the law be declared unconstitutional. He points out that even those states which decline to accept it are still called upon to pay their share of the money which is being given to other states, which never refuse a federal appropriation of any kind for any purpose whatever.

"But entirely aside from the legal aspects of the case there is a revolt against the growing practice of having all of our affairs regulated from Washington. We now have laws to guide us from the cradle to the grave, and the crowning effort comes in this attempt for federal supervision of child-bearing. If it is allowed to continue we shall be thoroughly Prussianized, and we all know what became of that kind of government. But it ought to be clearly understood that the opposition is not to giving sane aid to prospective mothers and their offspring, but to doing it in the wrong way by saddling on the federal government a law that has endless possibilities for creating officeholders and for meddling with things which belong to private charity or to the city or state." —Philadelphia *Enquirer*.

SOURCE OF SATISFACTORY BLOOD STAINS FOUND

It has been difficult during the last few years to obtain satisfactory brilliant cresyl blue, and purified methyl alcohols for the preparation of blood stains. Attention was called to this difficulty by Buckman and Hallisey (The Journal, Feb. 12, 1921, p. 427), who were able to substitute crystal violet for brilliant cresyl blue in their work on blood platelets. An extensive search, however, for a source of supply for cresyl blue has been made by the Committee on Standardization of Stains of the Society of American Bacteriologists, and a satisfactory product has been found in an experimental lot submitted by the National Anilin Company. A sample was submitted to Buckman for comparison with Grublers' brilliant cresyl blue, says H. J. Conn, chairman of the Committee on Standardization of Stains, and was found to be "just as good in its staining properties, and, in the matter of counting blood platelets, the best sample" he had ever examined. The National Anilin Company intends to put on the market a lot of the stain which it expects to be even better than the sample submitted for examination. Conn says further that the difficulty with Wright's stain, since the supply of German stains was cut off, was for a time supposed to be with the eosin and methylene blue of American make, but that investigation disclosed that these stains were of high quality. He says that since Merck's reagent alcohol is no longer available, there is more reason to suspect the difficulty in making Wright's stain now rests with the solvent. In this matter also, the Committee on Standardization of Stains has found sources of satisfactory Wright's stain prepared for use, and of a satisfactory methyl alcohol for its preparation, in the Will Corporation, and in the National Anilin Company. Conn concludes by saying that, since it was its policy to discontinue manufacturing these stains as soon as a satisfactory source was assured, the Will Corporation will probably discontinue its own blood stain in favor of those of the National Anilin Company.

Tuberculosis Mortality Decreasing.—According to a report of Dr. Charles L. Furbush, director of public health, the mortality rate from tuberculosis in Philadelphia has dropped from 317.1 per hundred thousand population (1880) to 102.44. Until 1912, tuberculosis of the lungs was the most frequent cause of death. Last year, it was fifth on the mortality list, being even lower than carcinoma or chronic nephritis.

Book Notices

Die Fruchtabtreibung durch Gifte und andere Mittel. Ein Handbuch für Aerzte und Juristen. Von Prof. Dr. L. Lewin. Third edition. Paper. Price, $4.75. Berlin: Julius Springer, 1922.

In this monograph, Lewin presents the means, the methods and the reasons for the production of criminal abortion, with an epitome of the laws of most civilized countries concerning abortion. The book deals with the question from the German point of view, and slights other countries. Abortion outside of Germany is made to appear frequent, while the impression is given that it rarely occurs in that country. The first chapter discusses the influences that prompted abortion among the women of the ancient Hebrews, Greeks, Romans and Egyptians. Facts are presented which demonstrate that the human impulses which influenced the ancients are essentially those of today. Likewise, the essential principles laid down by the ancient legislative bodies are the basic principles in the laws of modern times. Also, we are informed of the crude methods employed to interrupt pregnancy. Having covered the period up to the nineteenth century, the author passes on to modern times. Tables present the incidence of criminal abortion in various countries; as they are taken from official documents, they give the impression that criminal abortion in Germany and some other European countries is relatively rare, while in others, especially Belgium, Italy and the United States, it is enormously more common. For instance, the author states that in New York City 80,000 criminal abortions are perpetrated annually—so common is the crime that "everywhere reigns the observation, 'Where no life is, then no crime.'" There is no attempt to compute the official frequency in America: merely the bald statement, a crude conjecture, is quoted as the frequency in our largest American city. Surely, a compilation from our reports of coroner's offices would give some inkling as to the official frequency. Those who have studied the abortion problem know full well that official figures of incidence are no criteria as to the actual frequency, for largely, in all countries, deaths by abortion alone may be officially investigated. When maternal deaths do not occur, legal action rarely takes place: the crime of abortion, without maternal death, is the most difficult offense against nature which may be prosecuted successfully. Those who have studied in Germany and Austria know that men and women discuss the abortion problem more fully and openly than here: such conversations are proof that abortion there is alarmingly frequent. Certainly, abortion is not disproportionately more frequent in the United States than in Germany or any other civilized country. Chapters which are valuable contributions to our knowledge cover the legal, ethnic and religious phases of the problem. The ninth chapter, which comprises nearly a quarter of the volume, is a veritable encyclopedia on the means for the production of abortion. It is entitled "Attempted and Consummated Abortion from Poisons," and treats of inorganic substances, carbon derivatives, plants and plant products, combinations of plant life and other abortive means, animal poisons, metabolic poisons, organic poisons, and poisons due to disease. The final chapter covers the subject of therapeutic abortions. Indications for the operation are conservatively presented, and the approved methods are ably discussed.

Crime, Its Cause and Treatment. By Clarence Darrow. Cloth. Price, $2.50 net. Pp. 292. New York: Thomas Y. Crowell Company, 1922.

The author is a lawyer of many years' experience involving intimate contact with criminals and with officers of the law charged with the detection, prosecution and punishment of crime. The book is essentially a plea for the treatment of criminals in ways more humane even than those now followed. The plea, however, will hardly lead to action looking toward the suggested amelioration, for the subject is presented as an exposition of the author's views rather than as a reasoned argument in favor of any more or less well defined plan for relief or improvement. There is no adequate statement of the facts of specific cases on which judgments have been passed, or citations of the opinions of other students of crime and criminals in support of such judgments. With reference to medical expert testimony, however, the opinion of one who has had the author's ample opportunity for observation and study needs no citations of specific instances or of authorities to give it weight, especially when it is in such close harmony with the opinion of other competent observers. Concerning this matter, the author has no doubts: "Expert testimony is always unsatisfactory in a contested case. Under present methods, it can never be different." But experts chosen by the state and appearing in a strictly neutral capacity, he fears, would not correct the evils of the situation, for "state officials, or those chosen by the state, usually come to regard themselves as a part of the machinery of justice and to stand with the prosecuting attorney for conviction. . . . Very soon under our political system the expert business would gravitate into the hands of politicians, the last group that should handle any scientific problem. . . . A defendant should be left to get any lawyer or any expert he wishes." Eugenics is given short shrift by the author. "That sterilization should follow as a punishment of sex crimes is without any sort of logic except that sterilization relates to sex. And to what standard, asks the author, would one endowed with the power to breed the human race according to scientific principles aim to develop it? "Who would settle the kind of man that was to be evolved or the specific changes that would be required? Or, what was to be done and how?" The volume meets the popular demand for information concerning "glands," if not to the satisfaction of the medical profession, no doubt to the gratification of the average reader, when the author says: "About all that can be learned of the mind and the character of the man must be gathered from the manifestation of the machine. It is shown by his behavior in action and reaction. This behavior is caused by the capture, storage and release of energy through ductless glands." On the whole, the book affords food for thought, but it will hardly be cited as an authority on the subjects discussed. It will prove disappointing to students of criminology and penology. It may mislead the dabbler in these fields.

Laboratory Technique. The Methods Employed at St. Luke's Hospital, New York. By F. C. Wood, Karl M. Vogel and L. W. Famulener. Second edition. Paper. Price, $1.35. Pp. 281. New York: James T. Dougherty, 1922.

"With the extraordinary development of technical methods, the hospital laboratory today is called on to perform work of an extremely complicated nature in much greater amount than was the case ten years ago. In fact, the total volume of work is so large that unless some definite system is employed mistakes are certain to occur. Moreover, it is important that the laboratory procedures be standard ones, that the limits of accuracy be thoroughly understood, and that the methods of carrying out the tests do not vary from year to year with the shifting of the laboratory interns or of the department chiefs; in this way only can the reports be of value to the attending physicians." This little book consists merely of laboratory notes, the methods outlined representing the practice at St. Luke's laboratory and being the usual well recognized tests or modifications of them. The section headings include histology; clinical pathology, covering the blood, transudates and exudates, the urine, gastric contents and stools; clinical analytic methods; bacteriology; bacteriologic technic; serologic technic; hematologic technic, and the Wassermann reaction. Dr. Wood is responsible for the chapter on histologic methods, and, in conjunction with Dr. Vogel, has revised the notes on clinical pathology. Dr. Vogel bears the entire responsibility for the chapter on clinical analytic methods; and Dr. Famulener has prepared the sections on bacteriology and serology. Reliable and accurate methods are presented for practically all the examinations which the hospital intern or the laboratory assistant may be called on to perform. The text is clear, concise, and necessarily more or less dogmatic. Little or no attempt is made to introduce matter dealing with the interpretation of results, as such material would seem to be irrelevant and foreign to the book. We have no hesitancy in recommending it to hospital and general laboratory workers, as one that will prove useful in the daily routine work of the laboratory.

Medicolegal

Requirements in Procedure Before Medical Boards

(Dyment v. Board of Medical Examiners et al. (Calif.), 207 Pac. R. 409)

The District Court of Appeals of California, Second District, Division 2, says that, in December, 1917, the board of medical examiners of that state issued to the petitioner a reciprocity certificate authorizing him to practice medicine and surgery in the state. In August, 1920, there was filed with the board a complaint that he had procured this certificate through fraud and misrepresentation. In response to the complaint, he filed with the board a letter in which he stated that, as the statute set out twelve distinct definitions of unprofessional conduct, he demanded to know which particular statute he was accused of violating, and how. This letter was plainly effective as a demurrer to the complaint. The board, however, did not pass on the demurrer, but proceeded in the absence of the petitioner to try the charges against him as on a default. Wherefore, the court reverses a judgment that affirmed an order of the board revoking the petitioner's license, and it directs the board to take such further proceedings as it may be advised to take in the proceeding against the petitioner, all in accordance with the views expressed in this opinion.

The complaint failed to state the facts constituting the fraud and misrepresentation by means of which it was alleged that the petitioner procured his reciprocity certificate. The averment was that the person making the complaint "charged Philip Dyment with having been guilty of unprofessional conduct by violating Section 14 of Chapter 354 of the Statutes of 1913 and acts amendatory thereof of the state of California, in that he (Philip Dyment) procured by fraud and misrepresentation a certificate to practice medicine and surgery in the state of California." This court is of the opinion that the complaint was insufficient. It is, of course, needless to cite authorities on the proposition that neither as to pleadings nor as to evidence must the procedure in trials before medical boards be marked by the refinements and subtleties which are characteristic of the conduct of actions in courts of law. The cases on this point are both uniform and numerous. Still, giving to the rule its full scope, a complaint in such a proceeding must give an alleged erring practitioner such notice of the nature of the charge against him as will enable him to formulate a defense. This the complaint in this case did not do. It is probably not possible to conceive of the many different practices by means of which an applicant fraudulently might procure the issuance to him of a certificate licensing him to practice medicine and surgery, and a complaint against him for having brought such an attempt to fruition ought to notify him of the specific acts committed by him in the attempt The work done by the medical boards of the various states in purging the ranks of the medical profession of quacks and charlatans is a most commendable one. The public interest demands the prosecution of that work with vigor, dispatch and thoroughness, and without undue interference by the courts. It is equally important, however, that no man be brought to trial, even before a medical board, on a charge which does not notify him of the nature of the offense attempted to be pleaded against him.

The Supreme Court of California, in denying the petitioner a rehearing, says that it is satisfied with the conclusion of the district court of appeals that the complaint made to the board of medical examiners was not in law a sufficient charge of unprofessional conduct to give the board jurisdiction to revoke the certificate. The specific facts must be stated. The complaint must be sufficient in its statement of facts to show actual unprofessional conduct by the person charged, or it will not give the board power or jurisdiction to revoke his certificate, and if a revocation is ordered on such a complaint the holder thereof may maintain a proceeding in certiorari to have it annulled for the want of jurisdiction of the board to make the order, as well when he did not make the objection to the board as when he did object. The supreme court does not agree with the theory that it was necessary for the board to determine the sufficiency of the complaint in this case prior to the time of the hearing thereof. The statute does not contemplate a formal method of procedure. The person charged may at the hearing object either formally or informally to the sufficiency of the complaint. But, whether he does or not, the complaint must be sufficient in its statement of facts to show actual unprofessional conduct by the person charged.

Death of Physician from Erysipelas Infecting Boil

(Kimball v. Massachusetts Accident Co. (R. I.), 117 Atl. R. 228)

The Supreme Court of Rhode Island says that the plaintiff, as beneficiary of an accident insurance policy issued by the defendant, sought to recover for the death of the insured, a practicing physician. The insurance was against loss or disability "resulting directly, independently and exclusively of any and all other causes from bodily injury effected solely through accidental means." The policy also contained a provision that the insurance should not cover any injury, fatal or nonfatal, sustained by the insured from participating in aeronautics, from ptomains, or from disease. The evidence showed that the insured specialized in dermatology; and that the cause of his death was erysipelas. Eight days before his death, the insured called another physician, to whom he explained that a boil had developed on the back of his neck about a week before, and that he had been dressing and taking care of it himself. The other physician, who had previously treated him for several abscesses, recognized that this one was different from the others, and concluded that erysipelas had developed. Against the objection of the defendant, this other physician was permitted to testify that the insured told him that he had seen three erysipelas cases within a week before he called him. The trial justice who tried the case, a jury trial having been waived, found that the plaintiff's proof did not show that the erysipelas was effected by accidental means, and that the open boil became infected with the erysipelas germ in some unknown way. The plaintiff contended that the insured received the infection from contact with an erysipelas germ while engaged in the treatment of patients suffering from erysipelas, and that this infection was "bodily injury effected solely through accidental means," which the defendant denied. Decision was given in favor of the defendant, and the suspreme court holds that there was no error in it, in consequence of which it overrules the plaintiff's exceptions and remits the case to the superior court, with direction to enter judgment for the defendant on the decision.

In determining that an injury occurred by "accidental means," it should appear, the supreme court says, that the cause or means governed the result and not the result the cause; and that, however unexpected the result might be, no recovery could be allowed under such a provision unless there was something unexpected in the cause or means which produced the result. The policy in this case provided that recovery for the death of the insured could be had only when the insured died from bodily injuries effected solely through accidental means, resulting directly, independently and exclusively of any and all other causes. When a man is injured while doing merely what he intends to do, he is not injured by an accident, unless the course of his action has been interrupted or deflected by some unforeseen or unintended happening.

The "bodily injury" that the insured had was an open boil or abscess, and the primary question was: Was this caused by "accidental means"? According to his statement to the other physician, he had been treating and dressing it for a week, and there was no testimony to show that its open condition or infection was the result of "accidental means." The trial justice correctly found that there was no testimony to show that the open boil was infected with the erysipelas germ by "accidental means." The infection of the boil by the erysipelas germ was not of the kind that naturally develops from the boil itself. Erysipelas was an independent and intervening cause of death. The testimony showed that the death of the insured was the result of disease and not of bodily injury effected solely through accidental means.

Society Proceedings

COMING MEETINGS

American Physiological Society, Toronto, Canada, Dec. 28-30. Dr. Chas. W. Greene, University of Missouri, Columbia, Secretary.
Hawaii, Medical Society of, Honolulu, Nov. 19-21. Dr. F. J. Pinkerton, 45-46 Young Building, Honolulu, Secretary.
Isthmian Canal Zone, Medical Association of, Ancon, Dec. 15. Dr. L. S. Chapman, Ancon, Secretary.
Philippine Islands Medical Association, Manila, Dec. 20-22, 1922. Dr. I. Concepcion, College of Medicine and Surgery, Manila, Secretary.
Porto Rico, Medical Association of, Ponce, Dec. 15-17. Dr. Augustin R. Laugier, San Juan, Secretary.
Radiological Society of North America, Detroit, Mich., Dec. 4-8. Dr. M. J. Sandborn, Appleton, Wis., Secretary.
Society of American Bacteriologists, Detroit, Dec. 27-29. Dr. A. P. Hitchens, Army Medical School, Washington, D. C., Secretary.
Southern Surgical Association, Memphis, Tenn., Dec. 12-14. Dr. H. A. Royster, Raleigh, N. C., Secretary.
Western Surgical Association, Minneapolis, Minn., Dec. 8-9. Dr. Warren A. Dennis, Hamm Building, St. Paul, Secretary.

MINNESOTA STATE MEDICAL ASSOCIATION

Fifty-Fourth Annual Meeting, held at Minneapolis, Oct. 12-14, 1922

(Concluded from page 1714)

Results Obtained in Elephantiasis Through the Kondoleon Operation

Dr. Walter E. Sistrunk, Rochester: I have operated on forty patients. My experience leads me to believe that the Kondoleon operation may be looked on as a definite means of controlling the progress of elephantiasis, although it is not always possible through it to restore the limb entirely to normal. All the patients operated on gave histories of lymphedema which preceded the elephantiasis. If lymphedema is allowed to exist, without efforts to control it by means of bandaging, or other measures, the edema usually increases slowly; and, in certain cases, probably through infection, a tremendous increase in the fibrous tissue elements of the skin, subcutaneous tissue, aponeurosis and superficial lymphatics occurs, until the condition gradually changes to one elephantiasis. Thirty of the forty patients obtained good results. The remaining ten were improved.

Postoperative Hernia

Dr. Arthur E. Benjamin, Minneapolis: Greater care should be exercised in the preparation of a patient for operation on a postoperative ventral hernia than in the ordinary laparotomy. It is imperative in every case of large ventral hernia to put the patient to bed for a time until one is able to reduce the hernia and demonstrate that it can be contained within the abdomen before operation. The function of the kidneys and the action of the heart should be analyzed, and the chemistry and clotting time of the blood determined in exceptional cases, in order to administer the necessary preoperative remedies, to make operative procedures less hazardous, as the extent of the operation is very great and the risk correspondingly increased. The convalescent period is followed up with a gentle and gradually increasing number of exercises to give tone to the abdominal and other muscles. Use of an abdominal support for some time is recommended.

Nonspecific Irritation: A Precipitating Cause of the Anaphylactic Diseases of Infancy and Childhood

Dr. W. Ray Shannon, St. Paul: The effect of local irritation in the production of asthma, eczema and repeated colds in children with exudative diathesis is to be regarded merely as a precipitating factor, dependent for its apparent profound effect on the presence of a predisposing anaphylactic state. The local irritant may be a protein, as is the case in seasonal asthma, associated with hay-fever. In this class of cases it is, therefore, necessary to eliminate all proteins producing the state of anaphylaxis, if maximum results are to be obtained.

Treatment of Duodenal Ulcer

Dr. Hugh S. Willson, Minneapolis: There are undoubtedly many so-called spontaneous cures. Supervision covering a period of years is essential. If a patient remains symptom-free over a period of time during which, according to his history, he would ordinarily have three or four attacks, the chances of permanent success are good. However, five years or more of freedom from symptoms should be required to place these patients in the cured class. I believe that every duodenal ulcer patient, unless it is contraindicated, should first be treated medically. If satisfactory results are not obtained, the patient has lost very little either in risk, time or money. I am thoroughly in accord with the statement made by Bevan that the price of permanent cure is eternal vigilance, whether medical or surgical.

Diagnosis of Gastric and Duodenal Ulcer Without the Aid of a Modern Laboratory and the Roentgen Ray

Dr. O. J. Hagen, Moorhead: The stomach is the mirror of the gastro-intestinal tract. There is a well defined syndrome to cover approximately 60 per cent. of duodenal ulcers and approximately 56 per cent. of gastric ulcers. Variability in the remaining cases which are later proved to be ulcer, but in which a definite diagnosis could not be made, is due to acidity, to location of ulcer, to variation in motility, spasm, perforation, penetration, to accompanying extragastric disease, such as gallbladder disease or appendicitis, or the existence of other primary disease. I plead for a square deal for the patient who has the distress and the burden to bear—that he be given a thorough, exhaustive examination by every instrumentation that may throw light on his case.

Present Status of Medical Opinion Concerning the Nature, Diagnosis and Prognosis of Epidemic (Lethargic) Encephalitis

Dr. Charles R. Ball, St. Paul: Medical opinion at the present time is that this disease is a separate entity; also, that it is infectious, that the most probable causative factor is a filtrable virus, which can be transmitted to certain animals by inoculation, and that it can be grown in a suitable culture medium. The disease usually enters the system through the nose and throat, and its spread from one person to another most probably takes place by contact with the nasopharyngeal secretions of infected persons or healthy carriers in whose nasopharyngeal secretions the virus is present. It is thought to be also contagious; that is, transmissible without active contact; but the danger of this is slight as compared with its infectious properties. The acute attack in many instances is only the beginning of a chronic progressive disease of the nervous system manifesting remissions and exacerbations. The acute attack may be so mild that it is of the ambulant form; but the mildness of the onset is no guarantee against the later development of serious nervous sequelae; for this reason, caution in the prognosis is indicated. These chronic nervous types are still capable of acting as carriers. Of the nervous sequelae, the parkinsonian type seems the most common.

Milk Transmission of Pollen Hay-Fever

Dr. Edgar T. Hermann, St. Paul: Previously sensitized guinea-pigs react by anaphylactic shock to intrathecal injection of milk containing ragweed pollen protein. Ragweed containing milk gives a positive cutaneous reaction in high dilution in sensitive persons. Ingestion of milk from a cow that has eaten ragweed tops produces clinical hay-fever within one-half hour after ingestion of the milk. Absence of gastro-intestinal symptoms following ingestion of one glass of milk, and the appearance of selective anaphylactic phenomena in the upper respiratory tract, may be due to chronic irritation and decreased resistance of tissues involved. Ragweed pollen protein is found apparently unchanged in the milk of cows that have eaten ragweed tops some hours earlier.

Local Wassermann Reaction: A New Diagnostic Aid in Primary Syphilis

Drs. D. Stern and Harold Rypins, Minneapolis: The local Wassermann test, carried out on the surface serum of chancres in forty-three cases of demonstrated primary syphilis was positive in all cases. It was negative on the serum from five proved nonsyphilitic lesions. Of these forty-three cases of primary chancre, the dark field was positive in forty-one, or 95.3 per cent., and the blood Wassermann in thirteen, or 30.2 per cent. Treatment of the lesions with antispirocheticide, even when the spirochetes have disappeared, does not interfere with the reaction. When no dark field examination is available, or when it is negative, the local Wassermann reaction is the only method of making a positive diagnosis of primary chancre.

Chronic Intestinal Indigestion in Early Childhood

Dr. Rood Taylor, Minneapolis: Chronic intestinal indigestion occurs frequently in early childhood. The cardinal symptom is the passage of excessive amounts of fecal material. The causes are retarded development of the digestive system, infections outside the alimentary tract and malfeeding. Chronic intestinal indigestion exists in two types. In the first type, there is an intolerance for carbohydrate, and in the second not only intolerance for carbohydrate, but also a markedly lowered tolerance for fat, gastric achlorhydria, defective hepatic function, muscular weakness and a disturbance of growth amounting in many cases to infantilism. As regards treatment, the child needs rational discipline and control. Complicating or causative infections must be cared for. The diet must be suited to the child's capacity.

Status Thymicolymphaticus in Infancy

Dr. Carl O. Kohlbry, Duluth: My patients were infants, the ages varying from 1 to 9 months. None had had any earlier illness. They all died with the first infection. Evidence of infection of comparative mildness was present in every case—an upper respiratory affection described as a cold. These infections were not accompanied by any considerable amount of fever. The illnesses were of short duration, three children having been sick only three days, while the others had had a cold for from one to two weeks before, with none but the local symptoms. Evidences of a pathologic condition in the thymus were found in all. Three patients showed stridor, and two showed, in addition, a dyspnea which was probably cardiac in origin. There was a definite roentgenographic shadow, such as is generally considered to be due to an enlarged thymus, in the only two cases submitted to roentgen-ray examination. In one case, a thymic area of dulness was obtained on percussion. The postmortem examination showed that the thymus weighed 13 gm. or more, the largest weighing 27 gm. There were hemorrhages into the gland in four of the five cases. Lymphoid hyperplasia was found elsewhere in the body in four cases, and was most evident in the mesenteric glands and the solitary follicles of the intestines. Sudden death was conspicuous in three cases. This occurred practically without warning. Evidence of a systemic disease was not lacking, as is shown by hemorrhages elsewhere. Two cases showed large hearts, with symptoms of cardiac dilatation in addition.

The Relation of the General Hospital to the Tuberculosis Sanatorium

Dr. Arthur T. Laird, Nopeming: Many general hospitals are now admitting tuberculous patients, but in many cases not frankly and openly, and without adequate provision for their care. The following classes of cases should be admitted to suitable quarters for a limited time: (1) cases requiring diagnosis; (2) in which patients are on the waiting list for admission to sanatoriums; (3) hemorrhage cases; (4) cases in which surgical treatment is required; (5) cases of the moribund. The United States Public Health Service, the American Medical Association and the National Tuberculosis Association all favor special provision for tuberculous patients in general hospitals. Physicians should encourage provision for the best possible care of them in general hospitals, in order that physicians themselves may have opportunities for acquiring familiarity with the disease and its treatment, and in order that suitable instruction may be given to nurses in the care and supervision of tuberculous patients.

The Training of the Laboratory Technician

Dr. Walter E. King, St. Paul: Student technicians should receive a defined, carefully planned course in theory. A certain portion of time should be devoted to textbook assignments, quizzes, lectures and demonstrations. The course should include proper allowance of time for the interpretation of laboratory findings, the elements of medical ethics and the suggestions of specialists who place dependence on different phases of clinical laboratory work. Clinical laboratory technicians should receive proper recognition in the form of an official certificate or license from state boards of health or other authorities. Technicians should be graded according to ability, training and experience. Before definite steps can be taken to issue official certificates of recognition to technicians, certain standard methods of clinical laboratory analyses must be defined and adopted.

Strophanthus Kombé

Dr. R. Edwin Morris, Minneapolis: To secure strophanthus action, one should have strophanthus kombé from a reliable firm. It is one of the digitalis family; if it or another member of the family has been employed, the administration of smaller doses will avoid toxic symptoms. The therapeutic range should not be exceeded. Smaller doses produce better results than doses bordering on the toxic side. Strophanthus kombé is an excellent drug and a safe one for rapid cardiac stimulation and regulation.

Diagnosis of Uterine Malignancy

Dr. Oliver C. Melson, Rochester: Less than 50 per cent. of the cases of cancer of the cervix or uterus are in the operable stage when the patient comes to the clinic. The average duration of symptoms in the series of cases studied before clinical examination was seven months; the shortest time, one week; the longest duration of symptoms, two years and ten months. In the operable cases, the longest duration of symptoms was twenty-five months, the shortest, three weeks. In the inoperable cases, the shortest duration of symptoms was eleven days. Any real advance in the treatment of uterine cancer must come through the medium of early diagnosis. Statistics show that in the early cases, cure is the rule and recurrence the exception.

Diseases Which May Be Associated with Pernicious Anemia

Dr. Herbert Z. Griffin, Rochester: From Jan. 1, 1917, to Jan. 1, 1922, 628 patients with pernicious anemia have come under observation. In 108 of these, other diseases were also present. The more important groups of associated diseases were syphilis, hemorrhage of various forms, gallbladder disease, chronic recurring sepsis, renal insufficiency and hypertension, carcinoma, thyroid disease, tuberculosis, diabetes and intestinal parasites. While other diseases may produce a blood picture which is typical of that of pernicious anemia, it is doubtful whether the complete pernicious anemia syndrome is ever seen as a result of other disease. The notable and striking exception to this statement is the infestation by *Balantidium coli*, which, in the few cases we have seen, has always been accompanied by the features of pernicious anemia.

Preoperative Preparation of Patients with Obstructive Jaundice

Dr. Waltman Walters, Rochester: Using the method of preparation consisting in a daily intravenous injection of 5 c.c. of 10 per cent. calcium chlorid solution for three days, large quantities of carbohydrates and fluids by mouth and glucose solution by proctoclysis, thirty-four patients with an extreme degree of jaundice were operated on without a death from hemorrhage.

Use of Paravertebral Nerve Block Anesthesia in General Surgery

Dr. William R. Meeker, Rochester: In paravertebral nerve block, the nerves are blocked at their points of emergence from the spinal canal; this may be applied to all spinal nerves and is applied to all levels of the spine, each procedure being called by the name of the vertebral segment to which it belongs. Thoracic and lumbar paravertebral nerve block is most efficient in laminectomy and thoracic operations. It also has a limited value in radical removal of the breast and in nephrectomy. The use of bilateral paravertebral nerve block for abdominal operations is not to be recommended. The technic is highly complicated, tedious and time consuming, and anesthesia is often insufficient. The anesthetic technic itself is an extensive surgical procedure, so that the demands made upon the psyche of the patient are rather severe, and the injections are not free from risk. This procedure has been unsatisfactory for abdominal surgery, even in the hands of experts. In block of the sacral nerves, preference is given to the transsacral method, in which the nerves are injected at the posterior sacral foramina, combined with a low epidural injection. A very effective anesthesia of the entire pelvic floor and viscera is produced. Combined with an abdominal wall field block for the suprapubic incision, resection of the bladder and prostatectomy may be painlessly performed. The value of paravertebral nerve block is not the same at all levels of the spine. It is most efficient in surgery of the pelvic floor and viscera, and in the neck. It is least satisfactory in abdominal surgery, in which its use is never indicated.

Some Unusual Postoperative Pulmonary Complications

Dr. Norman M. Keith, Rochester: The chief points of interest brought out in these cases were: (1) the importance of repeated physical examinations of the chest; (2) bacteriologic examination of the sputum; (3) leukocytic response; (4) exploration by needle; (5) roentgen-ray examination of the chest; (6) the fact that when delayed resolution is unduly prolonged, pulmonary abscess and a tuberculous process must be excluded, and (7) the fact that when the cyanosis in an acute bronchopneumonia is out of proportion to the extent of the lesion of the lung, a diffuse pulmonary septic process must be considered.

KENTUCKY STATE MEDICAL ASSOCIATION

Seventy-Second Annual Meeting, held at Paducah, Oct. 16-19, 1922

The President, Dr. J. A. Stucky, Lexington, in the Chair

The Rectum in Its Relation to Digestive Disorders

Dr. Bernard Asman, Louisville: There exists an important relationship between rectal lesions and digestive disturbances. Following proper surgical eradication of rectal lesions, digestive disturbances previously complained of have subsided promptly and completely. No routine physical examination should be considered complete which does not include careful examination of the anorectal structures to determine the presence or absence of disease in that region

Status Thymicolymphaticus

Dr. R. Julian Estill, Lexington: A history of frequent severe colds with wheezing in the chest should make one suspect status lymphaticus, likewise the presence of enlarged tonsils with hyperplasia of the faucial and pharyngeal lymphatic tissue and enlarged lymph glands in infants under 2 years of age. It is probable that a complete examination of children under 2 years of age would show that status lymphaticus is more common than is believed to be the case. A roentgen-ray examination of the chest should be made of every child giving a history of frequent colds or attacks of wheezing in the chest. Except in cases of sudden death in new-born infants and in neglected cases, the roentgen ray offers a very favorable prognosis in status lymphaticus.

Diagnosis and Treatment of Bronchopneumonia

Dr. J. H. Pritchett, Louisville: The most dependable signs as to diagnosis are: age, usually under 3 years, previous history, irregular temperature curve, rapid respiration and pulse rate, with pulse ratio as 1 : 2 or 3; and cough, cyanosis and toxic, drowsy appearance. Physical signs may be extremely variable and indefinite. Careful attention should be given to ventilation. There should be quiet, and skilful nursing; light nutritious diet, plenty of water given; attention to mouth and nose, and proper elimination.

Diagnosis and Treatment of Acute Lobar Pneumonia

Dr. Frank W. Fleischaker, Louisville: Vaccine prepared from the cultures of the pneumococcus and autolyzed pneumococci have been administered in the treatment of acute lobar pneumonia, but clinical results do not appear to justify this usage. The use of antipneumococcic serum in the treatment of pneumonia presupposes that adequate laboratory equipment and personnel are at hand for the rapid identification of the various types of pneumococci. That reason, together with expense, and doubtful clinical results, operate against its popularity. Summarizing the work done at the Rockefeller Institute, it is evident that favorable therapeutic results were obtained in Type I infections, by using the corresponding antiserum; while antipneumococcic serum to Types II and III showed very slight or no convincing evidence of their therapeutic efficacy. A polyvalent serum for treatment of pneumococcal pneumonia of all types has not proved successful.

Juvenile Tuberculosis

Dr. Oscar O. Miller, Louisville: The most important point in diagnosis of tuberculosis in the child is a history of prolonged exposure to infection. Such children often harbor serious pulmonary infection, without outward manifestation. Tuberculin, 0.1 mg., is most appropriate for the intracutaneous test, when the skin test (Pirquet) is negative. The roentgen ray, notwithstanding the wide margin of error in interpretation, is an indispensable aid.

Local and Regional Anesthesia in Major Surgery

Dr. Walter I. Hume, Louisville: Almost any operation may be accomplished under local anesthesia alone, but the combination of local anesthesia plus gas analgesia, at critical periods, is recommended in intra-abdominal work. Local anesthesia is the method of choice in cases of strangulated hernia; in certain cases of intestinal obstruction; in typhoid perforations; for limited exploration in bad risks; for late toxic goiter; for drainage in empyema, abscess of the liver, certain cases of appendical abscess and empyema of the gallbladder; and, in general, in bad risk cases and when multiple stage operations are recommended. Routine comparative observations of the condition of the patients, during and following operations under general and local anesthesia, will convince the most skeptical of the greater safety of the latter.

Sacral Anesthesia in Obstetrics

Dr. S. P. Oldham, Owensboro: Sacral anesthesia is safer than and preferable to general anesthesia. It facilitates delivery; the uterine contractions continue under the anesthetic, the blood pressure in the uterine sinuses is greatly reduced, and hemorrhage during the delivery is distinctly less than under general anesthesia. When empty, the uterus contracts promptly, and secondary hemorrhage after delivery is unusual.

Some of the Complications of Pneumonia

Dr. William V. Neel, Henderson: In approximately 5 per cent. of the pneumonia cases in which necropsy was performed, the subacute form of pericarditis, characterized by fibrinoplastic and purulent exudate, had occurred, leading to the shaggy heart. Among the fourteen instances, lobar pneumonia had occurred in eight, and bronchopneumonia in six. In seventy-two instances of pericarditis, both lungs were involved in the preceding or accompanying pneumonia in 45.8 per cent., and the right lung in 25 per cent. One of the most important factors in the development of pericarditis as a complication of pneumonia appears to be its association with empyema. Pericarditis and the associated myocardial changes are frequently important contributory causes of death in empyema.

Abortion, Criminal and Inevitable

Dr. N. W. Moore, Cynthiana: On deciding that abortion is inevitable, the following treatment should be instituted: If the os is closed and there is hemorrhage and pain, properly applied vaginal tampons, held in place by a T-bandage, and permitted to remain in place from eighteen to twenty-four hours, will serve to arrest hemorrhage, soften the cervix and bring on uterine contractions. On removing the tampon, one will probably find the entire fetal shell unbroken, if the period is early in gestation, or the fetus with the membranes and placenta, at later periods. If unsuccessful at the first tamponing, one should repack, and wait several hours longer; however, if this should fail, and there is no great amount of hemorrhage; if the os is still undilated and the patient having uterine pains, the physician's main duty consists in not interfering. Forcible dilation of the cervix with steel dilators should be avoided, if possible. They are dangerous even in the hands of an expert, for in many cases the uterus has been ruptured, with fatal results; furthermore, they produce tears or rents in the cervix which open new avenues of infection. If the os is sufficiently dilated, the finger can be used to loosen and remove the ovum; and, if the placenta is not too tightly adherent, it can also be removed by the same method. If the placenta and membranes are very firmly attached, and dip down deeply into the uterine tissue, so that they cannot be removed by the force of the finger, DeLee says, "All that is needed in such a case is to go over the uterus lightly with a half sharp curet, to make certain that pieces are not retained, especially in the tubal corners."

Therapeutic Abortion

Dr. L. C. Redmon, Lexington: Therapeutic abortion should never be performed by any physician, except after very careful consideration of the indications, with competent consultants. The indications may be classified under the following heads: pathologic conditions directly due to pregnancy such as toxemia; maternal diseases aggravated by pregnancy, and certain pelvic conditions.

The County and Community Diagnostic Laboratory

Dr. Vernon R. Jones, Shelbyville: There is a constant endeavor to turn to clinical use all the discoveries of the different branches of scientific research. It becomes necessary to use methods of examinations borrowed from chemistry, physics, bacteriology and physiology. The medicine of the future has one great problem to solve: how to establish rapport between the research conducted by the physiologist in the laboratory, the research conducted by the physician in the ward and the research by the general practitioner from his first to his last visit; and many such problems can be studied here and nowhere else. A local diagnostic laboratory, properly equipped, can fill a much needed place in every county and local community. The only practical way would be for the legislature to enact a law creating the establishment of these diagnostic laboratories in every county, and when that is done the problem of the rural communities, as far as the scarcity of physicians are concerned, will be solved.

Arteriosclerosis and Hypertension

Dr. J. W. Morris, Louisville: In general, the treatment of arteriosclerosis is prophylactic and systematic. It is essentially a chronic progressive disease, and the secret of success in the management of it is not to treat the disease per se, but to treat the patient who has the disease, the keynote being individualization. The habits and mode of life should be studied in every case. The most successful treatment of acute hypertension is largely without drugs. Absolute rest in bed, with the removal of all exciting causes, and light liquid diet, is largely the line to be followed. Venesection in some cases seems to lessen the severity of the tension. Morphin is of unquestioned value in the late stages of this disease, to relieve the dyspneic attacks which so often come on during the night, especially when the heart and kidneys are failing to perform their functions properly. As to heart stimulants, one may use strychnin, spartein, caffein or camphor.

The Surgical Consideration of Empyema

Dr. John Price, Louisville: I would urge early dependent drainage. The surgeon should not be called on to treat old cases of empyema, because, as soon as the diagnosis is made, the patient should be treated by the surgeon. A subperiosteal resection of a rib or two at the most dependent point should be made under local anesthesia, adhesions should be broken up, caseous material should be removed and a rubber tube inserted, and a thick pad should be applied immediately to prevent air being sucked into the chest. The after-treatment consists primarily of attention to cleanliness. This may be accomplished by washing the skin about the incision with soft soap and water, and alcohol, and applying frequent sterile pads about the drainage tubes, which must also be kept clean and frequently renewed. Irrigations of the pleural cavity by surgical solution of chlorinated soda may be helpful in certain cases in the hands of the expert.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Physiology, Baltimore

October, 1922, **62**, No. 2

Vascular Reaction to Epinephrin in Perfusates of Various Carbohydrates. II. Portal-Venous System of Liver. C. D. Snyder and L. E. Martin, Baltimore.—p. 185.
Comparative Studies on Respiration. XXIII. Effect of Epinephrin on Production of Carbon Dioxid by Animals and by Plants. D. M. Hutchinson, Cambridge, Mass.—p. 192.
Studies of Thyroid Apparatus. VII. Differential Effect of Thyroparathyroidectomy and Parathyroidectomy on Incisor Teeth of Albino Rat. F. S. Hammett, Philadelphia.—p. 197.
Permeability to Dyestuffs of Placenta of Albino Rat and White Mouse. Y. Shimidzu, Philadelphia.—p. 202.
*Liberation of Epinephrin During Muscular Exercise. F. A. Hartman, R. H. Waite and H. A. McCordock, Buffalo.—p. 225.
Effects of Subcutaneous Injection of Splenic Extract. A. W. Downs and N. B. Eddy, Edmonton, Canada.—p. 242.
*Studies in Absorption from Serous Cavities. IV. On Passage of Blood Cells and Granules of Different Sizes Through Walls of Lymphatics in Diaphragm. R. S. Cunningham, Baltimore.—p. 248.
*Id. V. Absorption of Particulate Matter from Peritoneal Cavity of Fetus. R. S. Cunningham, Baltimore.—p. 253.
Influence of Temperature and Other Factors on Two-Summited Contraction Curve of Gastrocnemius Muscle of Frog. P. M. Harmon, Bloomington, Ind.—p. 261.
Active Response of Capillaries of Frogs, Tadpoles, Fish, Bats and Men to Various Forms of Excitation. I. Excitation by Electricity. Tsang G. Ni, Ann Arbor, Mich.—p. 282.
Physiology of Mammalian Auricle. IV. Nature of Muscular Contraction in Auricular Fibrillation and Flutter. C. J. Wiggers, Cleveland.—p. 310.
Studies on Nervous Control of Kidney in Relation to Diuresis and Urinary Secretion. VI. Effect of Unilateral Section of Splanchnic *Nerve on Elimination of Certain Substances by Kidney. E. K. Marshall, Jr., and M. M. Crane, Baltimore.—p. 330.
Thermo-Electric Studies of Temperature Variaions in Animal Tissues. I. General Considerations; Description of Apparatus and Technic. G. W. Crile, H. R. Hosmer and A. F. Rowland, Cleveland.—p. 341.
Id. II. Effects of Anesthesia; Electrical Stimulation; Abdominal Trauma; Exposure of Viscera; Excision of Organs; Acid; Alkali; Strychnin; Diphtheria Toxin. G. W. Crile and A. F. Rowland, Cleveland. —p. 349.
*Id. III. Epinephrin. G. W. Crile and A. F. Rowland, Cleveland. p. 370.
Vasodilator Mechanisms. I. Effect of Nicotin on Depressor Reflex. S. W. Ranson, Chicago,—p. 383.
*Id. II. Vasodilator Fibers of Dorsal Roots. S. W. Ranson and W. D. Wightman, Chicago.—p. 392.
Id. III. Vasodilator Action of Nicotine. S. W. Ranson and W. D. Wightman, Chicago.—p. 405.

Liberation of Epinephrin During Muscular Exercise.—Proof is given by Hartman, Waite and McCordock that the increased dilatation of a denervated pupil (superior cervical ganglion removed) during exercise is due to epinephrin. The maximum output of epinephrin reached depends on the intensity and duration of the exercise. After the exercise ceases the increased output of epinephrin persists usually for a few minutes and after vigorous exercise of long duration sometimes for a few hours. The increase is gradually diminished until it disappears altogether. There is considerable individual variation in the after-secretion. Epinephrin injections usually, although not invariably, improve the working power of the individual. These improvements resemble the "second wind" which is observed in normal cats accompanying dilatation of the denervated pupil. The injection of epinephrin hastens the onset of fatigue convulsions.

Effects of Subcutaneous Injection of Splenic Extract.—Previous conclusions with regard to the action of "protein-free" splenic extract on the number of red corpuscles in the circulating blood of the rabbit are confirmed by Downs and Eddy. Subcutaneous administration of "protein-free" splenic extract causes: (*a*) Reticulated cells to occur in the circulating blood in a proportion much greater than normal; (*b*) the appearance of nucleated red corpuscles in the rabbit's circulation, and (*c*) the resistance of the circulating red corpuscles to extend over a wider range than normal.

Absorption from Serous Cavities.—Cunningham's observations are of considerable interest because they demonstrate the high phagocytic capability of the lymphatic endothelial cells, and assist in understanding the enormous use of this power which must take place in the removal of large amounts of particulate matter from the peritoneal cavity. The results of Cunningham's own experiments indicate that most, if not all, of the transfer of granular material from the peritoneal cavity into the diaphragmatic lymphatics, during the first thirty minutes, takes place by means of a type of phagocytosis. That later on leukocytes do bring in loads of granules is undoubted, but it seems very likely that the large inflow of free granules continues so long as any remain free in the peritoneal cavity.

Absorption from Peritoneal Cavity of Fetus.—The explanation which Cunningham regards as being most plausible from the facts now at hand, is that particles, cells, etc., become adherent to the surface of the peritoneal lining cells without regard to the location of the nucleus or intercellular junctions. That the movements of the diaphragm against the adjacent viscera force the granules into the cell cytoplasm, but those granules over the nucleus do not enter it but turn aside and pass through the perinuclear zone. The granules and particles which were adherent to the peritoneal lining cells nearer the periphery might be forced into the cytoplasm or between the cells as the case might be. The evidence obtained from the fetuses studied in this manner tends to indicate a preponderance of the intracellular route over the intercellular.

Reaction to Stimulation Depends on Brain.—The findings in Crile and Rowland's studies support the conclusions (*a*) that the brain is the tissue on which depend the reactions of the organism to stimulation; (*b*) that the thyroid and the suprarenals play essential parts in the production and maintenance of these reactions; (*c*) that in the performance of its function the brain is indissolubly linked with the liver.

Vasodilator Fibers of Dorsal Roots of Spinal Cord.—Ranson and Wightman believe that the evidence clearly demonstrates that the sensory fibers are capable of conducting antidromically impulses which cause vasodilatation and that they play an important rôle in the vascular reaction which accompanies inflammation. It has not been demonstrated, however, that vasodilator impulses normally leave the cord by way of the sensory fibers of the dorsal roots. Such vasodilator impulses as play a part in the depressor reflex from central vagus stimulation pass through synapses of sympathetic character and are interrupted by suitable doses of nicotine. If, then, the sensory fibers conduct dilator impulses antidromically in the depressor reflex, it becomes necessary to locate synapses of sympathetic character through which these impulses pass. It has been demonstrated by the use of nicotin that such synapses are not present in the periarterial plexuses or anywhere at the periphery and the most probable location for them is the spinal ganglion. It is known that the spinal ganglion does contain axonic ramifications in the form of pericellular plexuses which closely resemble those found in the sympathetic ganglions. The possibility cannot be excluded that preganglionic vasodilator fibers may leave the spinal cord by way of the dorsal roots to end in the spinal ganglions or that they may reach these ganglions by way of the sympathetic from the ventral roots of thoracic or sacral nerves

American Journal of Roentgenology, New York

October, 1922, **9**, No. 10

Roentgen-Ray Studies of Thoraces of Still-Born and New-Born. W. A. Evans, Detroit.—p. 613.
Simplified Pneumoperitoneum Technic. L. R. Sante, St. Louis.—p. 618.
Osgood-Schlatter's Disease. E. R. Bader, Cincinnati.—p. 623.
Osteitis Deformans (Paget's Disease). C. M. Jack, Decatur, Ill.—p. 626.
Mutation of Pulmonary Shadows Due to Type of Breathing. H. A. Bray, Ray Brook, N. Y.—p. 628.
Roentgenologist and Urologist in Diagnosis of Renal Disease. E. G. Crabtree and W. M. Shedden, Boston.—p. 632.
Serial Roentgenographic Observations of Chronic Pulmonary Tuberculosis. J. B. Amberson, Jr., Loomis, N. Y.—p. 639.
*Effects of Roentgen Rays and Radium on Blood and General Health of Radiologists. G. E. Pfahler, Philadelphia.—p. 647.
Carcinoma of Uterus with Pregnancy Intervening Treated Successfully by Radium Followed by Delivery of a Normal Child. C. E. Field, New York.—p. 657.
*Treatment of Benign Conditions of Pelvis with Radium. L. J. Stacy, Rochester, Minn.—p. 658.
Technic and Statistics in Treatment of Carcinoma of Uterus and Contiguous Organs with Combined Use of Radium and Roentgen-Rays. H. Schmitz, Chicago.—p. 662.

Effect of Size of Radium Applicators on Skin Doses. E. H. Quimby, New York.—p. 671.

Protection to Operator from Unnecessary Radium Radiation. A. Soiland, Los Angeles.—p. 683.

Effect of Roentgen Ray and Radium on Radiologist.—An investigation was made by Pfahler as to the effect of radium and the roentgen ray on the blood of those who make use of these agents in medical practice. From answers to a questionnaire it seems that undue exposure to the roentgen ray or radium is associated at times with a moderate leukopenia, a relative lymphocytosis, a relative polycythemia, and occasionally an eosinophilia. A low blood pressure is quite common in radiologists, which does not seem to be associated with any other definite symptoms. The asthenia, sometimes noted, can probably be accounted for by strenuous work, caused by the great interest and also by the desire to meet the heavy "overhead" charges which must be carried by the radiologist. These symptoms are also probably caused by close confinement, lack of fresh air, and lack of recreation. The skin changes found in the earlier workers are not increasing, and are being avoided entirely by the younger ones, because of the increased knowledge and increased protection. Complete protection can undoubtedly be obtained It requires not only the means, but continual caution on the part of the individual. Increased protection is needed by those who are working with the gamma rays, or with the higher voltage roentgen rays. A dental film carried in the pocket for two weeks, will give a quick index of excessive exposure. If definitely fogged or blackened, protection should be increased. Shortening the hours of work and increasing the amount of fresh air and recreation will probably remove symptoms, and prevent future trouble.

Radium Therapy for Nonmalignant Pelvic Conditions.—The results of intra-uterine radium therapy for nonmalignant conditions in cases were investigated by Stacy. It appears that radium is the treatment of choice in cases of menorrhagia of menopause associated with fibromyomas not exceeding in size a four months' pregnancy, or of a fibrous uterus, in which the possibility of malignancy is eliminated by the history, or by a curettement. Small doses of radium are indicated in a few carefully selected cases of menorrhagia in young women of the child-bearing age. A history of evidence of pelvic infection is a contraindication to the use of radium. In adenomyomas which are adherent and difficult to remove, the use of radium is preferable to surgery. Treatment with radium relieves the symptoms in certain cases of pruritus vulvae and in kraurosis associated with pruritus. Endocervicitis continuing after an abdominal hysterectomy responds satisfactorily to one or two treatments of radium.

American Review of Tuberculosis, Baltimore

October, 1922, **6**. No. 8

*Classifications of Pulmonary Tuberculosis. Anatomic Versus Physiologic Concept. F. M. Pottenger, Monrovia, Calif.—p. 621.

Lipin Content of Acid Fast Bacilli. E. R. Long and L. K. Campbell, Chicago.—p. 636.

Lipin-Protein in Relation to Acid-Fastness of Bacteria. E. R. Long, Chicago.—p. 642.

*Biochemistry and Chemotherapy of Tuberculosis. XXIII. Chemical Composition of So-Called Tuberculous Lesions. M. E. Maver and H. G. Wells, Chicago.—p. 649.

*Pleural Effusions Complicating Artificial Pneumothorax. A. Peters and J. S. Woolley, Loomis, N. Y.—p. 659.

*Pulmonary Involvement in Nonpulmonary Tuberculosis. J. G. van Zwaluwenburg, A. D. Wickett and E. F. Merrill, Ann Arbor, Mich. —p. 677.

*Pulmonary Tuberculosis and Influenza. T. Klein, Philadelphia.—p. 684.

*Mechanical Factors in Hemoptysis. E. N. Packard, Saranac Lake, N. Y.—p. 690.

Clinical Study of 289 Serum Reactions with Tuberculo-Antigens. P. M. Andrus, London, Ont.—p. 694.

*Studies on Respiratory Organs in Health and Disease. VII. Correlation of Symptoms, Vital Capacity Readings and Physical and Roentgen-Ray Findings in 619 Cases Examined for Pulmonary Tuberculosis. J. A. Myers, Minneapolis.—p. 702.

After-History of 953 Tuberculous Patients Discharged from Metropolitan Life Sanatorium from 1914 to 1920. H. J. Howk, L. I. Dublin and I. A. Knudsen.—p. 707.

Controlling Factors in Phototherapy. E. Mayer, Saranac Lake, N. Y. —p. 721.

Classification of Pulmonary Tuberculosis.—The anatomic classifications of pulmonary tuberculosis are not endorsed by Pottenger for various reasons which are discussed at length. He suggests that the classification of tuberculosis into stages be abolished. The anatomic concept has a tendency to force a mechanical attitude toward the disease and to do away with the personal element, which is the greatest factor in disease. The physiologic concept, on the other hand, is based on the personal element; hence, it encourage the study of each patient as a reacting organism. An intelligent understanding of tuberculosis, however, can be obtained only by combining the two. If classifications are continued they should be based more generally on a physiologic conception of the disease, in which its chronic nature is fully recognized.

Chemical Composition of Calcified Tuberculous Lesions.—Maver and Wells found that calcified peribronchial lymph node and pulmonary lesions contain a small proportion of silica, but not more than uncalcified peribronchial lymph node or lung tissues contain in adults. This silica is derived chiefly, if not entirely, from inhaled silicious dust, for calcified tuberculous mesenteric lymph nodes do not contain appreciable amounts of silica, and only a trace was found in a calcified tuberculous pleural exudate. Therefore, these analyses furnish no chemical evidence supporting the hypothesis that silica plays an important part in the healing of tuberculous lesions. Calcified tuberculous lesions resemble in composition other calcified pathologic tissues and also normal bone.

Pleural Effusions Complicating Artificial Pneumothorax.—Of 140 patients whose cases are analyzed by Peters and Woolley in whom an appreciable pneumothorax was obtained, recognizable pleural effusions developed during the course of treatment in seventy-five, or 53.6 per cent. Four patients out of the seventy-five developed an effusion on more than one occasion, the interval being twelve months in one case. Two of these later effusions eventually developed into tuberculous empyemas, whereas the first effusion was purely serous in character. Of the seventy-nine effusions in these seventy-five patients, thirty-five were of considerable degree (estimated to fill more than half the side of the chest), twenty-eight were of moderate degree, and sixteen of slight degree (confined to the base only). Most of the largest effusions produced well marked symptoms and most of the slight effusions insignificant symptoms or none at all, but this was not invariably true. The proportion of effusions which became purulent is of particular clinical interest: nine out of seventy-five cases (12 per cent.). In these cases tubercle bacilli were usually found in large numbers. In five cases pyogenic bacteria were recovered, and in two cases there was demonstrable bronchial communication with the pleura. Of seventy-nine effusions, twenty-seven occurred during the first four months, seventeen during the next four months and thirty-five during the last four months. The appearance of these effusions is held to signify an allergic response on the part of the pleura to endogenous infection, probably usually from intrapulmonary foci by lymphatic metastasis. It is simply a "phase of reinfection in the sense that it represents extension or metastasis from foci elsewhere in the body." The allergic serous membrane (pleura) responds characteristically with the formation of an exudate. The extent and kind of the pleural reaction is probably in proportion to the degree of infection. Empyema except where rupture has occurred is merely the final step in the progress of a pleural effusion where the pleural reaction is progressive.

Pulmonary Involvement of Nonpulmonary Tuberculosis.—The purpose of this study is to carry into a new field the investigations previously published by the authors on the incidence and nature of the so-called pleural cap. Zwaluwenburg et al. believe that they are justified in the assumption that the cap is essentially a tuberculous product and that it frequently precedes all other radiographic evidence of a tuberculous infection anywhere in the body showing that the coexistence of thoracic lesions is much more common than is ordinarily appreciated in bone and joint tuberculosis, abdominal tuberculosis and urinary tuberculosis.

Pulmonary Tuberculosis and Influenza.—Influenza played an important etiologic rôle in 39 per cent. of 3,168 cases of pulmonary tuberculosis analyzed by Klein. The tuberculous patient was not in any way immune to influenza. In the untreated cases a surprisingly large number were made worse by the occurrence of influenza.

Mechanical Factors in Hemoptysis.—Sudden and great variations of external air pressure on weakened blood vessels; the stretching of these diseased vessels by excessive lung movements, as occurs during paroxysms of cough; and the dilatation of a bronchus, with the dislodgement of a blood clot, appear, to Packard, to be better explanations of the cause of hemoptysis during, or following, strain, than sudden elevations of pulmonary blood pressure.

Vital Capacity in Pulmonary Lesions.—Myers' study was made on 619 patients who came for examination for pulmonary tuberculosis. Stereoscopic roentgenograms were taken in 516 cases while physical examinations were made in 619 cases. In 149 patients in whom the physical examination revealed no evidence of disease and in eighty-nine in whom the roentgen ray revealed no evidence of disease, the average vital capacity was found to be approximately 130.0 per cent. In 100 cases of chronic bronchitis the average vital capacity was slightly higher than 103.0 per cent. In twenty-nine cases of pleurisy the average vital capacity was reduced to approximately 92.0 per cent. All groups of cases with evidence of parenchymatous lesions showed reduction in the average vital capacity. The average vital capacity was found to decrease with the extent of disease revealed by the roentgen ray and physical signs. There was also a decrease in the average vital capacity with increase of symptoms.

Boston Medical and Surgical Journal

Oct. 26, 1922, **187**, No. 17

Sixty Years of Surgery. 1862-1922. W. W. Keen, Philadelphia.—p. 592.

Canadian Medical Association Journal, Toronto

October, 1922, **12**, No. 10

Gallbladder Problems. W. Boyd.—p. 689.
Pleurisy and Tuberculosis. D. A. Carmichael.—p. 693
Use of Circulatory Stimulants in Care of Sick. R. D. Rudolf.—p. 697.
Functional Paraplegia (with Case Report). K. A. McKenzie.—p. 702.
*Epidemic Encephalitis: Influence of Horse Serum in Treatment. C. K. Russel.—p. 705.
Medical Organization. T. C. Routley.—p. 711.
Relation Between Physician and Druggist and Physician and Patient from Viewpoint of Medication. V. E. Henderson.—p. 715.
Application of New Psychology by Internist and General Practitioner. C. Hunter.—p. 717.
Pathology and Bacteriology of Empyema and Abscess of Lung. J. Miller.—p. 721.
*Value of Colostrum to New-Born. G. L. Boyd.—p. 724.
Report of Medical Survey in Wabaska District. W. W. Bell.—p. 726.
Roentgen-Ray Diagnosis of Tuberculosis of Bones and Joints. A. E. Walkey.—p. 728.
*Poisoning from External Use of Resorcin. S. G. Graham and F. F. Tisdall.—p. 730.
When to Operate on Renal Calculus. E. J. Boardman.—p. 733.
Radium Therapy. W. H. B. Aikins.—p. 736.
Retrocecal Abscess Rupturing in Bladder Following Course of Right Ureter. Webster and Hooper.—p. 737.
Infectious Type of Erythema Nodosum. W. Woolner.—p. 738.
Two Cases of Tuberculosis of Spine. A. M. Forbes.—p. 738.
Hemorrhagic Disease of New-Born. L. M. Lindsay.—p. 740.

Horse Serum in Treatment of Encephalitis.—Russel reports some good results from the use of horse serum, subcutaneously, in cases of encephalitis. The influence on the temperature would suggest the beneficial action of the foreign protein, while the disappearance of the signs of organic disease which have already appeared and have been progressing would suggest the possibility that the more or less minute hemorrhages so characteristic of the disease have been controlled. The dose varied from 10 to 20 c.c.

Value of Colostrum to New-Born.—According to Boyd the blood of the new-born before ingestion of any food, contains relatively small quantities of globulin and negligible amounts of euglobulin. In infants receiving colostrum within a few hours after birth, there is a marked and early rise in the euglobulin and pseudoglobulin, and an increase in the proportion of total globulin. In infants deprived of colostrum, the globulin content of the serum remains low, and euglobulin is only present in traces.

Poisoning from External Use of Resorcin.—In one of the cases reported by Graham and Tisdall an ointment containing approximately 8 per cent. resorcin was applied to practically the entire skin surface three times during the day. On the next day the treatment was applied as usual in the morning and again at 2 p. m. About 3 p. m. the infant "collapsed." In the second case an ointment which contained 4 per cent. resorcin was applied to the involved areas night and morning. This treatment was continued for three days. The fourth day the ointment was applied as usual in the morning. About 10 a. m. the baby "collapsed." Both patients recovered.

Iowa State Medical Society Journal, Des Moines

October, 1922, **12**, No. 10

Pros and Cons of Foreign Protein Injections in Affections of Eye. J. M. Patton, Omaha.—p. 387.
Occult Disease of Childhood. J. C. Gittings.—p. 391.
Psychiatric Analysis of Children in State Juvenile Home. L. G. Lowrey and J. J. B. Morgan.—p. 396.
Treatment of Fractures. O. C. Morrison, Carroll.—p. 404.
Brief History of Public Health Movement. L. A. Beach, Rockwell City.—p. 407.
Renal Function Tests in Chronic Nephritis. F. H. Lamb, Davenport.—p. 410.

Journal of Cancer Research, Baltimore

October, 1921, **6**, No. 4

*Cancer and Parasite. I. Kross, New York.—p. 257.
Teratomas and Their Relation to Age. H. E. Himwich, New York.—p. 261.
*Atypical Adenoma of Pancreas Originating in Islet Tissue. H. Goldblatt, Cleveland.—p. 277.
Influence on Growth of Transplanted Flexner-Jobling Rat Carcinoma of Hydrogen Ions and of Various Salts in Different Concentrations. K. Sugiura, H. M. Noyes and K. George Falk, New York.—p. 285.
Primary Spontaneous Tumors in Kidney and Suprarenal of Mice. Studies on Incidence and Inheritability of Spontaneous Tumors in Mice. M. Slye, H. F. Holmes and H. G. Wells, Chicago.—p. 305.
*Critical Investigation of Freund-Kaminer Reaction. L. Herly, New York.—p. 337.
Is Cancer a Biologic Phenomenon? Some Heretic Thoughts on Cancer. F. G. Gade, Christiana, Norway.—p. 357.
*Relation of Muscular Activity to Carcinoma. I. Sivertsen and A. W. Dahlstrom, Minneapolis.—p. 365.

Parasite of Cancer.—In order to test the ability of a micro-organism to produce a malignant growth, Kross prevented participation of the tumor cells in the process by radiation and freezing. Transplantation of the unradiated control tumor resulted in the usual 60 per cent. of takes which this particular tumor has given during the past seven or eight years at the Crocker Laboratory. On the other hand, in not a single instance did a tumor develop from the radiated cells. In other words, when the tumor cell factor was eliminated the micro-organism factor, which was being tested, was not able to reproduce the tumor. While most of the ascitic tissue fluid cultures of the Crocker Institute carcinoma 11 contained micro-organisms of various kinds, in no instance was there found the characteristic micro-organism described by Nuzum. Kross suggests the probability that the two so-called undoubted tumors in Nuzum's series were a spontaneous new growth.

Adenoma of Island of Langerhans.—An adenoma of the head of the pancreas is described by Goldblatt which originated in an islet of Langerhans. The tumor was discovered at the necropsy made on a woman, aged 55, in whose past history nothing of importance is noted save that eight years previously a myomectomy was performed with uncomplicated recovery. Two years before her death she noticed looseness of the bowels, which for several months progressively became worse and ultimately became a profound diarrhea. This was accompanied by gradual loss of flesh and strength but she was not confined to bed until about two months before death. In the last weeks of her life bowel movements were extremely frequent but well controlled, sometimes numbering from sixteen to twenty in the course of twenty-four hours. No microscopic or chemical examination of the stools was made but the gross examination showed thin watery stools with very little mucus and no blood. At various times indigestion of the different food elements was noted. On a milk diet the stools, on standing, showed a supernatant layer of undigested fat. When meat was introduced into the diet, undigested fragments were seen in the stools. Fruits, such as banana, were easily recognizable. Fermentation was never marked nor was putrefaction severe. The clinical examination showed no abnormality of lungs, heart, abdomen, or nervous system. The patient died apparently as the result of profound asthenia.

Freund-Kaminer Reaction Has Negative Value.—In 1910, Freund and Kaminer described certain phenomena occurring when tumor cells are mixed with the blood serum from noncancerous individuals, on the one hand, or blood serum from cancer patients on the other hand. This relationship became known as the Freund-Kaminer reaction. Herly studied this reaction experimentally. After having made sure that there was no difference in the action of either rabbit or guinea-pig serum on the one hand, and rat serum on the other; and after having eliminated the sources of error enumerated by Freund and Kaminer, namely, the admixture of connective tissue capsule and its blood vessels, the presence of red blood cells in the serum, the use of old serum or of serum obtained at the height of digestion; and having, furthermore, used carcinoma (the most sensitive tumor to this test, according to the originators) instead of sarcoma, as had been done by previous investigators, Herly was unable to detect any marked difference in the results of inoculation whether tumor serum or normal serum is used. The growth capacity seems neither increased in the one nor diminished in the other. He feels justified in stating, therefore, that the value of the Freund-Kaminer reaction remains at present unproved. With this proviso, however, that these experiments prove only that the serum of normal rats is devoid of any deleterious effect on the Flexner-Jobling rat carcinoma. What might be the case with serum from a rat bearing a spontaneous carcinoma, is not known. However, the first half of the experiment seems sufficient; for since this shows clearly that normal serum has no harmful effect on the cancer cell, Herly says, there can be no difference, with respect to cytolytic power, between normal serum and that of an animal with a tumor, be this transplanted or spontaneous.

Relation of Muscular Activity to Carcinoma.—Carcinoma in men, especially retired farmers, has been noted frequently. These patients, men with large, well developed bodies of the "frontiersman" type, usually gave a history of having retired from the farm in good health, a few years previously, to enjoy a well deserved rest. On the other hand, farmers who, for one reason or another, still shouldered the responsibilities of the farm, were well and working hard though 60, 70, or even 80 years of age. This observation brought Sivertsen and Dahlstrom to consider muscular activity in relation to carcinoma. There have been no deaths from carcinoma among the Turn Teachers in the past thirty years. The Turn Teachers are of necessity active in a muscular sense. The authors assert that they have seen precancerous patients improved clinically with increased muscular activity. Attention is called to observations of less carcinoma among those of necessity physically active. The reported incidence among domesticated animals is greater than in wild animals. A working hypothesis is advanced: That human carcinoma may be the reaction to and the result of chronic irritation of adult epithelial tissue bathed in body fluids altered by certain metabolic products as a result of deficient muscular activity. From a study of carcinoma deaths among males in Minnesota for three years it appears that the death rate in those who are active is greatly exceeded by the death rate in those who are inactive. From a study of the death rates of those who are actively engaged in a gainful occupation it appears that the death rate is lowest in those occupations involving the greatest amounts of necessary muscular activity, and is highest in those occupations involving the least amounts of muscular activity. The age incidence factor of the cases studied does not explain the variations shown.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

October, 1922, **20**, No. 3

Study of Colloidal Properties of Arsphenamin and Allied Products. G. W. Raiziss and J. L. Gavron, Philadelphia.—p. 163.
So-Called Habituation to "Arsenic": Variation in Toxicity of Arsenious Oxid. E. W. Schwartze, Washington, D. C.—p. 181.
Chemical Method of Assaying Active Principles of Digitalis. A. Knudson and M. Dresbach, Albany, N. Y.—p. 205.
Edema of Paraphenylenediamin. O. S. Gibbs, Edinburgh.—p. 221.

Maine Medical Association Journal, Portland

October, 1922, **13**, No. 3

Elements Confronting Abdominal Surgeon. W. N. Miner, Calais.—p. 71.
Recent Developments in Blood Chemistry. H. E. Thompson, Bangor.—p. 80.
Relationship of Medical Profession to Public Health Work. B. L. Bryant, Bangor.—p. 84.

New York State Journal of Medicine, New York

October, 1922, **22**, No. 10

Traumatic Back Injuries and Their Treatment. J. W. Sever, Boston.—p. 439.
Corrective and Operative Treatment of Idiopathic, Structural Scoliosis. A. Whitman, New York.—p. 449.
Procedures for Improvement of Impaired Function of Knee Joint Due to Extra-Articular Causes. R. R. Fitch, Rochester.—p. 452.
Surgical Treatment of Laryngeal Cancer; Analysis of Seventy Cases. J. E. MacKenty, New York.—p. 456.
Cancer of Larynx Treated by Radium. D. Quick and F. M. Johnson, New York.—p. 462.
*Studies on Thyroid Disorders. IV. Intravenous Administration of Glucose Solution in Treatment of Acidosis Following Thyroid Operations. (Preliminary Report.) E. Goetsch and E. J. Browder, Brooklyn.—p. 469.
Case of Fatal Phosphorus Poisoning from Sucking Spit-Devil. A. S. Corwin, Rye, N. Y.—p. 475.
Aspects of Present Tendencies in Medical Legislation. J. N. Vander Veer, Albany, N. Y.—p. 476.

Glucose Solution in Postoperative Thyroid Acidosis.—Goetsch and Browder emphasize the following points: There is an increase in the blood sugar during operation and this is true whether a general or local anesthetic is used. In the control, subject, with apparently normal metabolism, there is a progressive increase in the blood sugar over a period of from sixty to eighty minutes and may reach as high as 200 mg. of sugar per hundred cubic centimeters of blood. Following this there is a gradual fall over the subsequent two, four or five days before the normal preoperative sugar level is again reached. In the common surgical cases acetone does not appear in the urine before operation but often the first postoperative specimen and sometimes those voided during the following twenty-four hours will contain a trace of or a one plus acetone. There are usually very few, if any, signs of acidosis, and the occurrence of this amount of acetone is ordinarily negligible. In cases of hyperthyroidism, however, there is a very different behavior of the blood sugar and acetone in that the blood sugar increase is less and continues only over twenty minutes when it reaches its height, following which there is usually a rapid fall to the preoperative level or even below within an hour. The higher the degree of hyperthyroidism, the less is this development of hyperglycemia. On the other hand, there is an early and progressive development of acetone, beginning immediately after operation and extending sometimes over the following two or three days and then only gradually disappearing at the end of from five to ten days when the urine becomes acetone free. Along with this acetonuria there are rather disturbing symptoms, such as headache, dry tongue, acetone odor to the breath, distressing nausea and vomiting, restlessness and often diarrhea. Feeling that the occurrence of hyperglycemia is a protective measure against the development of acidosis by sparing possibly the combustion of proteins and fats with their resulting liberation of the toxic acid bodies, Goetsch and Browder have used glucose intravenously, in 5 per cent. solutions, giving amounts varying from 300 to 750 c.c. on the first development of acidosis. They now give it prophylactically in all cases of acute hyperthyroidism immediately after operation, and it has been very gratifying to be able to greatly diminish or prevent the development of acidosis.

Pennsylvania Medical Journal, Harrisburg

October, 1922, **26**, No. 1

Lure of Medicine. L. Litchfield, Pittsburgh.—p. 1.
Bacteriology of Human Cystic Bile. DeW. G. Richey, Pittsburgh.—p. 4.
Subjective Symptoms of Cardiac Arrhythmias. J. H. Musser, Jr., and T. McMillan, Philadelphia.—p. 9.
Study of Heart Cases in Pediatric Clinic at Jefferson Hospital. R. M. Tyson, Philadelphia.—p. 12.
Nonoperative Treatment of Pelvic Inflammatory Disease. F. B. Block and H. M. Mikelberg, Philadelphia.—p. 15.
Treatment of Concomitant Squint with Especial Reference to Training of Fusion Sense. H. M. Langdon, Philadelphia.—p. 17.

- *Unusual Case of Exudative Calcifying Fascitis (?) with Extensive Calcareous Intermuscular Deposits. H. Lowenburg, Philadelphia.—p. 21.
- Cerebral Abscess Following Old Meningeal Hemorrhage. H. C. Flood, Pittsburgh.—p. 28.
- Solid Sarcoma of Ovary. M. R. Hoon, Rochester, Minn.—p. 30.
- Medical Progress and Its Dependence on Pathology. R. A. Keilty, Danville.—p. 32.
- Acute Stramonium Poisoning. Z. R. Scott, Pittsburgh.—p. 34.

Exudative Calcifying Fasciitis.—The term exudative calcifying fasciitis with extensive calcareous deposits (largely and primarily intermuscular) is used by Lowenburg for the reason that it is descriptive of the pathologic condition encountered in his case and not because it represents a definitely known disease entity. The calcareous deposits follow the terminal division of the fibrous or serous framework holding the muscle fibers together. The changes within the latter do not exhibit calcification but are more of a degenerative and necrotic type and appear to be due to pressure or to interference with the circulation of the muscle fiber. In other words, as the process developed the muscle framework also became calcified but not the muscle itself. Because osseous elements were absent in the material examined, the condition, though probably akin to, was differentiated from myositis ossificans. The case is described in detail. Both hithighs were involved, the process extending upward over the hips. Osteomyelitis and arthritis absent. Skull shows no abnormalities, neither does the thorax or abdomen. The right shoulder showed calcareous deposits around the scapula. These are also seen in the pelvis and around both innominate bones, almost as high as the crest of the ilia and around the right knee and the left knee and down the outer side of the left leg.

Porto Rico Medical Association Bulletin, San Juan

Aug. 30, 1922, **16**, No. 138

- Pyramidon. Gabriel Villaronga.—p. 131.
- Principles for Treatment of Otitis Media. G. Salazar.—p. 138.
- Improvement of Cretin Under Thyroid Treatment. L. B. de la Vega.—p. 144.

Texas State Journal of Medicine, Fort Worth

October, 1922, **18**, No. 6

- Rôle Played by Patella in Knee Joint. E. D. Martin, New Orleans.—p. 292.
- *Operation for Lengthening Bone. G. Hamilton, Houston, Tex.—p. 293.
- Fractures Below Upper Third of Femur, with Demonstration of Apparatus for Fixation. C. S. Venable, San Antonio.—p. 295.
- Treatment of Acute Osteomyelitis. Mcl. Woody, Dallas.—p. 299.
- Roentgen-Ray Treatment of Tonsils and Adenoids. S. Israel, Houston.—p. 301.
- Seriousness of Peritonsillar Infection. J. H. Foster, Houston.—p. 304.
- Details Regarding Tonsillectomy. J. J. Crume, Amarillo.—p. 306.
- At What Age Shall We Do Tonsillectomy? R. H. Gough, Fort Worth.—p. 308.
- Duty of General Practitioner in Management of Tonsil. M. A. Ramsdell, Eagle Pass.—p. 310.
- Vestibular Tests. S. A. Schuster, El Paso.—p. 312.
- Bronchial Asthma. Suggestion as to Its Etiology and Treatment. I. S. Kahn, San Antonio.—p. 314.
- *Triple Aneurysm of Aorta. L. Rice, Galveston.—p. 317.
- *Epidemic of Infectious Jaundice. G. G. Wyche, Angelton.—p. 319.
- Dehydration in Infants. G. T. Spencer, Graham.—p. 319.
- Simple Method of Ligating Tonsillar Vessels. R. L. Works, Bronsville.—p. 320.

Operation for Lengthening Bones.—Using the femur as an illustration, Hamilton describes his method as follows: If, for example, an increase in length of 1½ inches is to be obtained, two oblique cuts are made in the femur, about 4½ or 5 inches apart. These cuts are made half way through the bone on opposite sides, and are made obliquely so that an overhanging buttress is made to prevent overriding of the fragments. With a motor saw a cut is made through the compact bone connecting the depth of the oblique cuts, then with a thin osteotome driven into this cut the opposite side is cut through. In this way the bone is split as nearly as possible into two equal parts. The split bone is mobilized, so that the cut ends can be brought out of the incision. From the end of one of the fragments 1½ inches is cut off, giving the cut the same obliquity as the original oblique cuts. This fragment is used as a free graft, and is placed against the overhanging buttress on the fragment from which the graft was cut. A screw nail with deep threads and a smooth shank, which is smaller than the threads, is used to fasten the graft in place. By bending the fragments to a right angle the end of the other fragment is brought in contact with the graft, where it is held from slipping with forceps. Then forcibly but slowly and cautiously, the whole bone is brought into a straight line. After the bone is brought into alignment, another screw is used to hold the fragments in place. In this manner, Hamilton asserts, one can lengthen and procure bony continuity with unslipable apposition.

Triple Aneurysm of Aorta.—Rice records a case of triple aneurysm of the aorta in a man, aged 65. One sac arose from the ascending aorta, another from the transverse portion, and the third from the abdominal aorta. Rupture occurred at an umbilication in the left sac. The entire thoracic aorta was dilated, and the third, fourth and second dorsal vertebrae, were slightly eroded. The right subclavian and innominate arteries were compressed.

Epidemic of Infectious Jaundice.—Wyche records an epidemic of infectious jaundice which occurred at Angleton, Texas. Sixteen cases came under his observation. Only one patient was over 14 years of age, and males and females were attacked in about equal numbers. There was a history of direct contact in each case, the children having played together. In one family of seven children there were but two cases, notwithstanding that no precautionary measures were instituted. The same situation arose in other families to a lesser extent. The character of occupation and wet weather, played no part in the epidemic, as the victims had no occupations and the weather was dry and hot. There were no prior or concurrent contagious diseases. Dengue fever prevailed in the community two weeks later. The victims were, with the exception of three, among those children who had not suffered from this disease, and the clinical symptoms were entirely different. The sanitary condition of the community is said to be on a par with that of the average rural town in which there is no sewage system.

Virginia Medical Monthly, Richmond

October, 1922, **49**, No. 7

- Case of Ectopic Kidney. R. C. Bryan, Richmond.—p. 363.
- Differentiation Between Mongolism and Cretinism. N. P. Barnes, Washington, D. C.—p. 366.
- *Richmond Pelvis. M. P. Rucker, Richmond.—p. 370.
- Case of Rapid Sinus Thrombosis Complicating Acute Mastoiditis; Involvement of Torcular Region. J. R. Page, New York.—p. 378.
- *Malignant Tricuspid Endocarditis with Probable Banti's Disease. W. M. Sheppe, University.—p. 380.
- Treatment of Corneal Ulcers. E. Hill, Richmond.—p. 385.
- Acute Pancreatitis. Case Report. A. S. Brinkley, Richmond.—p. 388.
- Local Treatment of Eczema. J. W. Anderson, Norfolk.—p. 390.
- Control of Hemorrhage in Tonsillectomy. C. M. Miller, Richmond.—p. 391.
- Vaginitis Due to Trichomonas Vaginalis. H. F. Kane, Washington, D. C.—p. 393.
- Pelvic Pathology and Cardiovascular System. W. E. Darnall, Atlantic City, N. J.—p. 395.
- Neglected Latent Faculty. S. Harnsberger, Warrenton, Va.—p. 397.
- Management of Breech Cases of Labor. J. R. Allen, Marshall, Va.—p. 403.
- Rectal Surgery. E. H. Terrell, Richmond.—p. 405.

Richmond Pelvis.—The term "Richmond pelvis" is used by Rucker to describe the pelvis met with in doing obstetrics in Richmond. It would seem from his figures that the outlet of the pelvis found in Richmond is smaller than one would expect from the measurements given in textbooks. The inlet of the negro pelvis is slightly smaller, and the outlet slightly larger than that of the white pelvis. The variability is greater for the negro pelvis, and especially for the outlet measurements.

Malignant Tricuspid Endocarditis with Banti's Disease.—The clinical course of the case cited by Sheppe indicates a chronic, slowly progressive condition on which was superimposed an acute and what proved to be a terminal pyemic infection. The presence before death of an enlarged spleen, ascites and a secondary anemia, together with the course of the disease, led to the diagnosis of Banti's disease. The necropsy corroborated these findings and in addition brought out the perisplenic adhesions which are an almost constant feature of this form of splenic anemia. The pathologic histology of the spleen was typical of that of Banti's disease and confirmed the diagnosis. In addition, the findings of an acute pyemia were revealed, namely, abscesses of lung, kidney, liver, pancreas and heart; acute purulent pericarditis and a vegetation on the tricuspid valve. The case is of interest in that it is probably an example of an early type of Banti's disease and the incidental finding of a vegetative endocarditis involving the tricuspid valve alone.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

Oct. 14, 1922, **2**, No. 3224

Anesthetics and Analgesics in Labor. W. O. Greenwood.—p. 667.
"Standardized-Dosage" Method of Using Scopolamin-Morphin During Labor. N. Hirschman.—p. 669.
Maintenance of "Obstetric Anesthesia" by Means of Infundibulin and Chloroform. A. F. Martin.—p. 672.
*Treatment of Eclampsia. T. W. Eden.—p. 675.
Treatment of Gynecologic Conditions by Roentgen Rays and Radium. R. Knox.—p. 678.
Treatment of Salpingo-Oophoritis. J. Campbell.—p. 683.
*Etiology and Treatment of Nonpyogenic Nephritis (Bright's Disease). W. M. Crofton.—p. 686.
Restoration of Sunken Nose. H. Burrows.—p. 688.
*Injury to Bowel with Recurrent Hemorrhage. M. Horan.—p. 689.
Cross-Wire Axis Finder in Astigmatism. J. Keyms.—p. 689.
Third Stage of Labor. C. J. H. Aitken.—p. 689.
Venesection in Eclampsia. E. W. Sharp.—p. 690.

Treatment of Eclampsia.—Five propositions are submitted by Eden which cover the main points on which, in his opinion, treatment of eclampsia should be based. (1) It is easier to prevent eclampsia than to cure it. Prophylaxis is therefore all important. (2) A case of eclampsia is not a case for domiciliary treatment; prompt removal to hospital is the first indication after a fit has occurred. The general requirements of the case are: a darkened quiet room; continuous supervision by at least two trained nurses; careful attention to the condition of the respiratory passages, as the throat and nasopharynx are apt to become blocked during the convulsive seizures; a well-regulated supply of fresh air, with oxygen in reserve if required; the continuous assistance of a clinical laboratory, and expert medical superintendence always available. (3) Cases of eclampsia vary greatly in severity, and a simple classification of cases as mild or severe would greatly facilitate treatment. (4) All cases of eclampsia are best treated by the minimum of obstetric interference. This should be limited to induction if labor does not come on spontaneously, and termination of the second stage by low forceps when the head has descended to the perineum. Cases delivered (*a*) naturally, (*b*) by induction, or (*c*) by low forceps show a much lower mortality than those delivered by rapid methods such as cesarean section or accouchement forcée. The "expectant" obstetric methods show much the best results. Delivery by rapid dilatation of the cervix is an unjustifiable procedure, and must in future be totally excluded. Delivery by cesarean section, whether in mild cases or severe cases, shows a mortality nearly double the mortality in cases of the same class in which delivery was effected naturally or by simple obstetric measures. (5) Simple medical treatment carefully regulated and constantly watched gives the best results. The methods of Stroganoff and Hastings Tweedy have the great virtue of simplicity of conception and of detail, which allows of their being set going without delay in any simply equipped hospital or institution. In Eden's opinion the general adoption of the principles of treatment advocated by Stroganoff and Hastings Tweedy would result in an immediate reduction of the mortality of this disease and the consequent saving of many valuable lives.

Etiology of So-Called Nonpyogenic Nephritis.—In all the cases treated by him, Crofton has isolated a microbe from the urine; in the majority of cases staphylococci, in a few streptococci as well. Illustrative cases are cited in proof of his postulate that a cure has been effected in almost every case by means of immunization.

Traumatic Recurrent Intestinal Hemorrhage. — Horan relates a case of probably recurrent intestinal hemorrhage which was due to the formation of an aneurysm in a vessel at the site of injury in the bowel.

China Medical Journal, Shanghai

January, 1922, **36**, No. 1

*New Auscultatory Sign Found in Consolidation, or Collection of Fluid in Pulmonary Disease. G. S. Shibley.—p. 1.
Otology. W. S. T. Neville.—p. 33.
Practical Aspects of Embrologic Research in China. P. H. Stevenson.—p. 43.
Eclampsia and Eclampsism. W. Smyly.—p. 50.
Maternity Famine Relief. J. I. Dow.—p. 59.
Multiple Neurofibromas. P. C. Leslie.—p. 74.
Irreducible Minimum. B. E. Read.—p. 76.
Cerebral Abscess. W. G. Lennox.—p. 77.

New Auscultatory Sign in Lung Consolidation.—The new auscultatory sign noted by Shibley in the presence of consolidation of the lung or the collection of fluid in the pleural cavity, is as follows: In the presence of fluid or consolidation, and sharply limited to the area of involvement, all spoken vowels, "a," "e," "i," "o," "u," including also the broad vowel sounds, come through the stethoscope to the ear of the examiner as a frank "AH"; the shorter vowels do not show as striking a change. In the majority of cases, this change in quality is so startling as to cause the auscultator to doubt whether the patient is speaking the vowel sound directed. The "AH" has a "nasal" quality, its "a" ranging from the "a" of hat to the "a" of cart. It seems to be only slightly, if at all, modified by the vowel sound uttered. In extreme cases when the patient says "a, e, i, o, u," the sounds come through "AH, AH, AH, AH, AH"; in all cases differentiation of the vowels uttered is difficult. The sign is strictly limited to the area of involvement and recedes or advances as the process becomes less or greater in its extent.

Indian Medical Gazette, Calcutta

October, 1922, **57**, No. 10

Electrolytic Chlorogen. N. W. MacWorth.—p. 361.
Comparison of E. C. Bleach and Chlorogen. C. M. Hutchinson.—p. 365.
Blood Count in Ankylostomiasis. A Warning. J. B. Borland.—p. 366.
*Situation of Malarial Parasite in Relation to Red Blood Corpuscle. J. A. Sinton.—p. 367.
Gleanings from Records of Government Maternity Hospital, Madras. C. A. F. Hingston.—p. 370.
*Combretum Pilosum Roxb. As an Anthelmintic for Ascaris Lumbricoides. G. C. Ramsay.—p. 374.
Drainage in Abdominal Emergencies. F. F. Strother Smith.—p. 375.
Case of Echinococcal Infection of the Eyeball. J. Shortt Evers.—p. 376.
Advantages of Single Infection. R. J. L. Sladen.—p. 376.
Case of Sarcoma of Knee. Kashi Nath Majumdar.—p. 377.
Plea For More Common Use of Lumbar Puncture. S. K. Ghosh.—p. 377.
*Prevalence of Ileocecal Kinks in Appendicitis. F. J. W. Porter.—p. 378.
Case of Congenital Hydronephrosis. R. B. W. V. Kane.—p. 378.
Case of Breech Presentation. P. S. N. Misra.—p. 379.

Situation of Malaria Parasite in Red Blood Cell.—In his experiments Sinton has obtained results which he is unable to explain satisfactorily except on the hypothesis that the subtertian and the benign tertian malaria parasites are, for most of their asexual cycle in the human host, attached to the outer surface of the red blood cells.

Combretum Pilosum an Anthelmintic.—Combretum pilosum grows luxuriantly as a shrub in the plains district of Cachar. The fruit is largely eaten both by tea garden coolies and villagers as an anthelmintic and the young leaves are often chopped up with flour and eaten as "worm cakes." The shrub is known as *Bhooree loth* by the tea garden coolies and as *Jhoonia loth* by Bengali villagers. Certain species of combretum are used as arrow poisons by the Mombattu dwarfs in Africa. Owing to the exorbitant cost of santonin, Ramsay tested the therapeutic value of combretum pilosum. He made decoctions from the leaves and found that the active principle was a specific for *Ascaris lumbricoides* and *Oxyuris vermicularis*, but seemed to have no effect on either ancylostomas or *Trichuris trichiura*. For decoctions he boils 2 ounces of the powdered leaves for twenty minutes in a pint of distilled water and then strains. The usual dose is 2 ounces, but Ramsay has given 4 ounces without ill effect. Castor oil should be given in the evening, decoction of combretum pilosum first thing next morning, followed by castor oil about two hours afterward, when roundworms may be found in the stools during the following thirty-six hours.

Ileocecal Kinks in Appendicitis.—In a large number of cases Porter has found bands running from the lower end of the ileum to the cecum in such a way as to bend the ileocecal junction at an acute angle. When a person whose appendix has been removed continues to suffer discomfort, Porter believes, an ileocecal band is responsible.

International Journal of Psycho-Analysis, London

September, 1922, **3**, No. 3

Dreams and Telepathy. S. Freud.—p. 283.
Analysis of an Obsessional Neurosis in Child. E. Sokolnicka.—p. 306.
Significance of Stepping Over. G. Roheim.—p. 320.
Notes on Dr. Abraham's Article on Female Castration Complex. E. Jones.—p. 327.
Three Dreams. S. Herbert.—p. 329.

Journal of Laryngology and Otology, Edinburgh

October, 1922, **37**, No. 10

*Scarlet Fever Otitis. W. T. Gardiner.—p. 497.
Mixed Tumors of Mouth and Respiratory Tract; Case Arising from Anterior Nares. F. H. Diggle.—p. 506.
Development of Transatlantic Rhinolaryngology. H. S. Birkett.—p. 512.
Paralysis of Right Vocal Cord Following Left Mammary Carcinoma. J. M. Darling.—p. 516.
*Bilateral Abductor Paralysis of Vocal Cords Following Carcinoma of Right Breast. G. A. Carter.—p. 518.

Scarlet Fever Otitis.—Out of a total of 300 scarlet fever otorrheas seen by Gardiner, a mastoid complication developed in twenty-one (7 per cent.). Of these, ten had an extension of the disease, involving exposure of the lateral sinus; that is to say, when the mastoid cortex was removed the lateral sinus was found exposed to a greater or less extent, and its wall more or less altered in appearance. On two occasions true perisinus abscess was encountered, where on the removal of apparently healthy bone a collection of pus under pressure escaped from around the sinus. Only one case of meningitis was observed and infection by way of the middle ear cleft in this case was doubtful. The intracranial complication (meningitis) is reported in full.

Bilateral Abductor Paralysis of Vocal Chords Following Operation for Breast Cancer.—In the case recorded by Carter, one of right sided scirrhus carcinoma of the mammary gland, both recurrent laryngeal nerves were implicated three years after complete removal of the gland with resulting bilateral abductor paralysis.

Journal of State Medicine, London

October, 1922, **30**, No. 10

Streptococcal Infections Arising from Mouth. K. W. Goadby.—p. 415.
Classification of Streptococci. J. M. Beattie.—p. 424.
Classification of Streptococci. M. H. Gordon.—p. 432.
Differential Culture of Streptococci. H. W. Crowe.—p. 436.
Recent Advances in Bacteriologic Examination of Water. W. J. Wilson.—p. 437.
Clearance of Diphtheria Bacilli from Fauces and Need for More Frequent Resort to Virulence Tests. I. W. Hall.—p. 444.
Unification of Local Health Administration. E. W. Hope.—p. 446.

Journal of Tropical Medicine and Hygiene, London

Oct. 2, 1922, **25**, No. 19

Fresh Water Snails Responsible for Spread of Bilharzia Disease in Portuguese East Africa. F. G. Cawston.—p. 305.
Vaccination in Philippine Islands. V. G. Heiser and C. N. Leach.—p. 306.

South Africa Medical Record, Cape Town

Sept. 23, 1922, **20**, No. 18

Malaria as it Occurs upon Middelveld of Transvaal. H. A. Spencer.—p. 342.
South-African Toxicology. J. Lewis.—p. 350.
Fatal Case of Scorpion Bite. A. M. Vlok.—p. 354.
Two Cases of Ureteral Stone. P. N. Vellacott.—p. 355.

Archives de Médecine et de Pharm. Militaires, Paris

June, 1922, **76**, No. 6

War and Post-War Heart Disturbances in the Army. Rieux.—p. 689.
Medicolegal Examination of the Heart. Tamalet.—p. 714.
*Preservation of Medical Rubber Goods. Diénot.—p. 728.

Preservation of Medical Rubber Goods.—Diénot, who is stationed at an Algerian Sahara post, experienced much difficulty in preserving rubber articles during the hot weather. Although he had tried talcum, lard, petrolatum, etc., the results were unsatisfactory, and at the end of the summer, as a rule, not one single drain, pair of gloves, etc., was in serviceable condition. He then thought of the preservative property of kerosene fumes, and made a metal chest out of an empty gasoline can. One of the sides of the can was opened and hinged to form a door. Inside of this chest several perforated metal shelves were installed to hold the rubber articles. The small pan placed at the bottom contains one fourth liter of kerosene (*pétrole*).

Bulletin de l'Académie de Médecine, Paris

Oct. 3, 1922, **88**, No. 31

*Diagnosis of Ascites. G. Chavannaz.—p. 106.

Percussion in Diagnosis of Ascites.—Chavannaz has found percussion particularly instructive when the subject is rotated around the transverse axis. That is, he is percussed when lying horizontal, then with the shoulders lowered, and then with the shoulders raised—an inverse Trendelenburg position. The slant does not have to be more than 30 degrees, and pillows under the pelvis or shoulders are enough. Small effusions can be recognized by this means, and distinguished from a coincident tumor. In one case this method differentiated multiple tuberculous stenosis in the small intestine, when radioscopy suggested an ascitic effusion.

Bulletin Médical, Paris

Sept. 30, 1922, **36**, No. 40

*Clinical Antianaphylaxis. J. Haguenau.—p. 773.
*Skin Reaction in Anaphylactic Affections. J. Haguenau.—p. 776.
*Peptone Therapy in Anaphylactic Syndromes. E. Fatou.—p. 780.
*Post-Prandial Erythema. P. Vallery-Radot and E. Fatou.—p. 783.

Clinical Antianaphylaxis.—Haguenau reviews the whole field of clinical desensitization and vaccination against the anaphylactic shock, skeptophylaxis, topophylaxis and the preliminary peptone treatment. His data show the wide field for treatment and the sometimes marvelous results realized. But he warns that the brilliant success often proves to be transient. When the alimentary anaphylaxis is only for one substance, the system can be desensitized by a minute preliminary protecting dose of the same substance, but when several substances are involved, peptone can be taken instead, and answers the same purpose for all.

Skin Reaction in Anaphylaxis.—Haguenau remarks that skin tests of the substance inducing the anaphylaxis proved particularly illuminating in asthma, hay-fever, urticaria, nasal hydrorrhea, migraine, and in eczema in infants; not in adults. The antianaphylaxis measures can be given by way of the skin, which has the great advantage that the subject can apply his own treatment himself. Another advantage is that this does away with the danger of an excessive reaction. In one case the horse asthma was cured by the man's applying horse hair to the scarified area every day for two months. The horse asthma in this case was of several years' standing, rebellious to all treatment in France and America. Several months later the asthma reappeared. The diagnostic skin reaction is positive in the majority of cases of anaphylaxis. The only difficulty is to discover the special substance involved, inquiry as to the trade, familial antecedents, the food, plants, animals and the bedding.

Peptone Treatment of Anaphylaxis.—Fatou remarks that the preliminary ingestion of 0.5 gm. of peptone exactly one hour before each of the three meals usually desensitizes in time in addition to the nonspecific skeptophylaxis thus induced. The peptone can be taken for a week and suspended for a week, or be taken continuously. The list of affections thus cured includes besides urticaria, coryza of the spasmodic type, migraine, hay-fever and eczema in children, angioneurotic edema, asthma of digestive origin and pruritus. Ramond cured by this means in two cases of essential pruritus after the menopause that had resisted all treatment for four years. In one case arrhythmia, coming on after eating, was cured by the peptone. In Cordier's case, the asthma yielded to peptone given in an enema just before the meal. The treatment was not kept up and the asthma returned. Auld and others have reported success with subcutaneous and intramuscular injection of peptone. After failure of peptone by the other routes, Abrami injected intravenously 10 c.c. of a 5 per cent. solution. The shock was intense but the giant urticaria of ten years' standing was cured at once. A recurrence several months later was cured by another injection; this time it did not induce a reaction.

Peptone Therapy in Postprandial Erythema.—Vallery-Radot and Fatou have observed the success of peptone in the treatment of somnolency, flatulence, heaviness, diarrhea and arrhythmia occurring after meals. Postprandial erythema of the face is another one of the disturbances among those caused by incompletely digested proteins, which the strictest diet and various medications may be unable to stop. Vallery-Radot and Fatou witnessed a drop of the leukocytes from 9,500 to 5,500 in one of their patients after an albumin meal followed by erythema of the face. Humoral disturbances and clinical signs developed together. An identical meal preceded by peptone was not followed by a decrease of leukocytes or erythema. This and other observations demonstrate that facial erythema accompanied by a decrease of leukocytes is due to the passage into the circulation of albumins not entirely disintegrated, and that the humoral and skin disturbances can be warded off by preventive peptone therapy.

Bulletins de la Société Médicale des Hôpitaux, Paris

July 28, 1922, **46**, No. 26

Estimation of Basal Metabolism. M. Labbé and H. Stévenin.—p. 1160.
*Mercuric Cyanid in Syphilis. Milian and Lelong.—p. 1163.
*Benzene in Leukemia. H. Vaquez and J. Yacoël.—p. 1168.
Calomel in Desensitization. E. Feuillié.—p. 1169.
*Acute Pulmonary Edema. C. Vincent and E. Bernard.—p. 1181.
*Congenital Aortic Stenosis. Loeper and G. Marchal.—p. 1190.
*Benzene in Splenic Anemia. C. Aubertin and R. Labbé.—p. 1192.
*Silent Pneumonia. G. Paisseau and Iser-Solomon.—p. 1194.
*Meningococcus B Sepsis. E. Vaucher and F. Schmid.—p. 1202.
*Treatment of Congenital Syphilis. M. Pinard and P. Girand.—p. 1205.
Tetrochlorethane Poisoning. N. Fiessinger et al.—p. 1210.
The Thyroid and Basal Metabolism. C. Achard and Binet.—p. 1217.
*Serodiagnosis of Syphilis. Fichet.—p. 1222.
*The Joints in Serotherapy. A. Jousset and R. Delgove.—p. 1226.
Arsenicals in Diabetes Insipidus. M. Labbé.—p. 1230.
*Bismuth in Diabetes. L. Bory.—p. 1232.
*Infantilism and Brain Tumor. A. Ricaldoni.—p. 1238.
*Tuberculous Myelitis. M. Garnier and J. Cathala.—p. 1249.
*Cerebrospinal Meningitis. J. Thiroloix.—p. 1254.
Acquired Syphilis in Children. H. Grenet et al.—p. 1259.
Recklinghausen's Disease. A. Florand et al.—p. 1264.
*Purpura Under Arsenical. A. Florand et al.—p. 1266.
*Illuminating Gas Poisoning. A. Florand et al—p. 1271.
*Azotemic Nephritis. P. Merklen and M. Minvielle.—p. 1275.
Developmental Anomalies. A. Léri.—p. 1280.
Arrhythmia in Acute Rheumatism. C. Laubry and E. Doumer.—p. 1287.
*Form of Venous Pulse. M. Klippel and J. Rachet.—p. 1292.
*Occult Spina Bifida. A. Léri and F. Layani.—p. 1296.
*Causalgia. Jeanselme et al.—p. 1300.
Mercury Cyanid in Syphilitic Liver Disease. Chauffard et al.—p. 1311.

Mercuric Cyanid in Syphilis.—Milian extols the efficient diuretic action of mercuric cyanid when given by the vein in syphilitic nephritis. It is particularly effectual also in syphilitic liver disease with ascites.

Leukemia Cured By Benzene.—The cure in the case reported has been permanent during the eight years to date. The myeloid leukemia was treated with 40 drops of benzene (benzol, C_6H_6) daily for two days, and then from 60 to 90 drops during the first fifteen days of each month. After a year of this treatment it was suspended for a year and a half, and the leukocytosis returned. It yielded anew to a four months course, and the blood picture has been approximately normal during the seven years since. No benzene has been taken for a year, but the woman's blood is examined every month.

Acute Pulmonary Edema in Encephalitis.—Vincent and Bernard describe a typical case, and emphasize that the clinical picture is the same as with traumatic pulmonary edema, and the treatment is with epinephrin and pituitary extract. The epinephrin is given under the control of the pupil reaction to instillation of five drops of a 1:1,000 solution in one eye. In the normal, this dilates the pupil in from ten to thirty minutes, and there may be very slight exophthalmos. In acute encephalitis, the pupil shows no reaction, and if there is any change in the eyeball it is in the nature of enophthalmos. This response calls for epinephrin at once, with or without pituitary. In case of pulmonary edema, the physician and the nurse should keep close watch over the patient, recording the pulse, blood pressure and respiration every four hours and applying at the same time the epinephrin pupil test, or repeating it oftener in case of doubt, and giving a subcutaneous injection of the epinephrin four times a day if needed. In five cases this method of treatment carried the patients safely through extremely grave pulmonary edema and prevented its return. They warn that a violent shock may follow injection of epinephrin when the pupil test is neglected or the pupil dilates under it. The dilation of the pupil testifies that the epinephrin content of the blood is adequate, and no more is needed for the moment.

Congenital Stenosis of the Aorta Isthmus.—The young man had succumbed to malignant endocarditis, and the cord obliterating the lumen of the aorta was a necropsy surprise.

Benzene in Splenic Anemia.—The infant of 17 months seemed to throw off the splenic anemia completely under treatment with 5 to 15 drops of benzene (benzol) daily. The formula was 150 drops of benzene to 150 gm. of mucilaginous julep, and the child was given 62 drops of benzene in May, 1920; 150 in June; 150 in September; 180 in November; 360 each in December, in January, 1921, in May and in July. Since then no treatment has been given except a little calcium phosphate. This slow progression of doses combated the myeloid proliferation of the spleen without injuring the red corpuscles.

Central and Mute Pneumonia.—Paisseau presents evidence to show that central pneumonia can exist in adults without physical signs of its presence. The course may be mute also in massive pneumonia.

Meningococcus Sepsis.—The symptoms had persisted for three months apparently unmodified by specific serotherapy, vaccines, and other measures, even by the vein. The patient was a man of 47, and the intermittent febrile attacks had not been accompanied by any localization of the disease in the meninges, skin or joints, and the general health had not been much impaired. Finally, parenteral injection of 10 c.c. of milk was followed by defervescence, complete and permanent.

Sterilization of Syphilis in the New-Born.—Pinard pleads for systematic treatment of syphilis in the new-born under control of the blood serum and spinal fluid. He advises to keep up this treatment until sterilization is complete. Mercury is too heroic, and he uses an arsenical, ten injections in a month and then suspension for three weeks, and repetition of the course. Several cases are described, and he says he had no mishaps in the 1,200 injections given to the new-born in the first six months of 1922. The mothers soon appreciate the benefit, and bring the children regularly for their injections in series of ten, kept up for a year or year and a half, until the more sensitive serologic tests are negative.

Serodiagnosis of Syphilis.—Fichet gives the details of his modification of the Eschbach and Duhot technic for the Bordet-Wassermann test, and claims greater precision and reliability for the test.

Joint Disturbances During Serotherapy.—Jousset calls attention to the analogy between the "rheumatism" in the joints during serotherapy and the attack of gout. Both seem to be due to an autointoxication from the waste products mobilized by the antiserum or other cause, and swept into the joints. Mechanical conditions here favor their deposit, like silt in a delta. Treatment on this basis is effectual. The pains and fever usually subside immediately under hot drinks, diuretics, salicylate, colchicum and theobromin.

Bismuth in Treatment of Diabetes.—Bory's patient had had diabetes for sixteen years when bismuth was given in treatment of recent syphilis, and the glycosuria subsided to traces thereafter. Inherited syphilis is suspected in this case.

Infantilism with Brain Tumor.—The aspect was that of a boy of 13 but the age was 18, and there was diabetes insipidus of the pituitary type, also the Argyll Robertson sign. Necropsy revealed a neoplasm in the upper portion of the third ventricle, not involving the pituitary directly, but the pineal gland had been destroyed.

Acute Tuberculous Myelitis.—This acute process in the young man was secondary to latent caries of vertebrae.

Meningitis.—The recovery of the woman of 34 is attributed to the repeated lumbar punctures and the large amounts of the antiserum used, a total of 1,730 c.c. in twenty-four days. The meningococcus was of the B type.

Hemorrhagic Purpura After Arsenical Treatment.—The woman of 51 bore two injections of the arsenical without by-effects, but the third induced a chill, headache and nausea, and four hours after the fifth injection purpura and hemorrhage developed, and anemia followed.

Polyneuritis from Carbon Monoxid Poisoning.—The polyneuritis in the woman of 57 followed poisoning with illuminating gas, and patches of dry gangrene developed in the right scapula, trochanter and lumbosacral regions.

Uremic Nephritis.—Merklen calls attention to the grave anemia, distress, subnormal temperature, pericarditis and pruritus in a woman of 29, an extreme case of azotemic nephritis, of five months' standing, with digestive and visual disturbances. The continuous diarrhea and dehydration in such cases may suggest cholera; the intense prostration suggests suprarenal disease, and the anemia is like a superimposed pernicious anemia. The high blood pressure in contrast to the anemia gives the clue.

Special Form of Venous Pulse.—In the case described, the tissues are lifted up in the temporal, parotid and occipital regions by the force of the jugular venous pulse.

Occult Spina Bifida.—Léri ascribes to the latent spina bifida in the young man his apparently essential incontinence of urine, and also the extreme atrophy of the testicles. Radioscopy has revealed that in certain cases of infantilism and in certain cases of incontinence, an operation to correct spina bifida might remove an obstacle to normal development and function.

Causalgia Following Herpes Zoster.—The median nerve was involved in the herpes, and the latter entailed severe trophic and vasomotor disturbances of the causalgia type. Treatment as for syphilis is to be supplemented by radiotherapy. If this fails, a catgut ligature of the median nerve or denudation of the humeral artery or alcohol to block the nerve will be considered.

Journal de Médecine de Bordeaux

Sept. 25, 1922, **94.** No. 18

Postencephalitis Parkinsonism. R. Cruchet.—p. 595.
Mental State in Encephalitic Parkinsonism. Verger and Hesnard.—p. 599.
Case of Postencephalitic Mental Disturbance. Abadie et al.—p. 601.
*Local Anesthesia in Luxations. L. Massé and C. Lasserre.—p. 605.
Unity of Origin of Herpes Zoster and Chickenpox. Rudeau.—p. 609.

Local Anesthesia in Reduction of Luxations.—Massé and Lasserre inject a 1:300 solution of cocain hydrochlorid in physiologic serum plus one drop of epinephrin for 2 c.c. This dilution allows injections varying from 10 to 15 c.c. As a rule, one intra-articular injection is sufficient which, however, may be supplemented by periarticular injections if need be. Anesthesia occurs immediately, contraction and pains disappear, and the reduction becomes remarkably simple. This method may be applied to children.

Journal de Médecine de Lyon

Oct. 5, 1922, **3.** No. 66

*Signs of Scarlet Fever. G. Mouriquand et al.—p. 587.
Study of Normal and Pathologic Esophagus. A. Sargnon.—p. 597.

Signs of Scarlet Fever.—Mouriquand says that in the diagnosis of scarlet fever, the elbow sign, the linear redness in the fold of the elbow, is important because of its early appearance and tardy disappearance. Other ecchymotic signs are also valuable aids; he describes different methods to elicit petechiae. Laboratory researches have been so far without appreciable results. The deviation of complement is still in the experimental stage. Schultz and Charlton's discutient or extinction phenomenon is based on the principle that convalescents' serum, as well as normal human serum, has the property of dispelling the eruption of scarlet fever around the point of injection, while they do not act on other exanthemata. It is not a mere blanching of the eruption; the eruption subsides. The serum from patients at the height of the disease does not dispel the eruption. Convalescents' serum properly prepared and preserved in sealed ampules can be kept three months. Mouriquand produced this phenomenon in puerperal scarlet fever. This shows that it is useful in ascertaining the nature of puerperal erythema. In one case in which he had also used antistreptococcus serotherapy, he observed a multiple local extinguishing action which persisted until the end of the eruption. The article is illustrated and the nine differential signs are described and discussed in detail.

Néoplasmes, Paris

July-August, 1922. **1.** No. 4

*Cystic Teratomas. G. Bolognesi.—p. 113.
*Colloid Tumor of the Thigh. P. Delbet et al.—p. 123.

Cystic Teratomas.—The seat of predilection of cystic teratomas is the sacrococcygeal region. Bolognesi describes a case of congenital sacrococcygeal tumor, slightly pedunculated, of cylindrical shape, in a 20 day old babe. The tumor, 6 cm. by 2.5 cm., presented a knobby surface and was mostly soft and elastic. The tumor was removed, the wound sutured and the infant was sent home after healing by primary intention. Simple or cystic teratomas represent typical examples of a twin embryo incompletely developed which grows as a parasite—an actual "autosite." In reality, these tumors are monstrosities rather than neoplasms. Recent operative results, with durable cures, thanks to the progress of asepsis and hemostasis, confirm this assertion.

Large Colloid Tumor of the Thigh.—The man of 52 had complained several years before of lancinating pains in the apex of the sacrum, spreading to the right side, and he later noticed a hard movable tumor the size of a tangerine orange, under the skin of the buttock, below the apex of the sacrum. The tumor was then removed, but three years later he noticed a slight tumefaction which grew rapidly. A large tumor was felt, not adherent to the skin, with indefinite margins, and spreading from the sciatic notch to the meeting point of the upper and midde thirds of the right thigh. Three nodules of ligneous consistency adhered strongly and deeply to the tumor. Delbet and his collaborators do not draw any conclusions from this unique case, but state that it is a remarkable example of what can be accomplished with combined therapeutic methods. They consisted, in this case, of the ablation of the bulk of the neoplasm with the bistoury, irradiation of the operative cicatrix and surrounding tissues, and modification of the soil by injection of antineoplastic vaccine immediately after the surgical intervention. The man has been free from all symptoms and apparently entirely well since this treatment, begun in January, 1921.

Nourrisson, Paris

September, 1922, **10,** No. 5

*Treatment of Rickets. A. B. Marfan.—p. 289.
*Habitual Vomiting and Tetany. H. Lemaire and Olivier.—p. 305.
American Baby Welfare Center in France. Guinon et al.—p. 313.
Foster Institution at Nancy. Remy.—p. 319.
Second International Congress of Maternal and Infant Protection. J. Blechmann.—p. 324.
A Case of Infantile Scurvy. P. Haushalter.—p. 331.
The Disinfection of Day Nurseries. C. Mulon.—p. 334.
*Intolerance for Breast Milk. G. Railliet.—p. 336.
The Troyes Children's Dispensary. Voix.—p. 338.

Treatment of Rickets.—Marfan states that a sojourn at the sea-shore has long been recognized by physicians as very beneficial in rickets as it combines all the requisites for the treatment of the disease. It can be made in all seasons and at any beach, and must be of several months' duration. Skin stimulation is necessary in rickets, and the child should be bathed two or three times a week for about ten minutes in a salt water bath of about 250 gm. of coarse salt. If the seashore treatment is not possible, good effects are obtained with waters strong in chlorid and sodium, plus the usual adjuvants, calcium preparations, epinephrin and cod liver oil. Many physicians advise not to yield to the child's desire to stand up when the disease progresses toward recovery, for fear of aggravating the bone deformity. But Marfan says that the child should not be prevented from standing for a short time and walking a few steps at the beginning. By following these rules he has never witnessed any aggravation of deformities; on the contrary, the muscles strengthened by walking aid in correction of bone deformation.

Habitual Vomiting and Tetany.—Lemaire and Olivier observed habitual vomiting in four infants, less than 6 months old, with signs of tetany. The vomiting occurred after each feeding, accompanied by pyloric spasms. Treatment for vomiting did not have any effect until treatment for tetany was instituted. This consisted in a daily dose of 0.5 gm. of calcium chlorid, divided in four or five doses, and one teaspoonful daily of cod liver oil with 2 per cent. phosphorus. Complete cure of vomiting and spasms was obtained at the end of the first to the third week. Tetany may thus entail a spasm of the gastric muscle. It can be limited to the pylorus or spread over the whole musculature, and its syndrome is similar to that of habitual vomiting. It cannot be treated by ordinary vomiting treatment, but is cured by treatment for tetany, and all the other symptoms of tetany disappear under its action. Thus, it is logical to separate it entirely from Marfan's habitual vomiting, Lesage's spasmodic disease, or Weill and Péhu's essential pylorospasm, as it has not the same etiology, although, clinically speaking, it is impossible to distinguish it from these affections. From a practical standpoint, it is necessary to seek in all vomiting nurslings for signs of latent tetany as well as those of dyspepsia or hereditary syphilis.

Cure of Intolerance for Breast Milk.—The 9 months infant had been overfed on condensed milk, and developed grave enteritis with absolute intolerance even for breast milk after the enteritis had subsided. Railliet finally mixed the milk of two wetnurses, and gave the infant an intragluteal injection of 2 c.c. of this mixed milk. The vomiting stopped at once and permanently, and the child rapidly recuperated under breast feeding.

Presse Médicale, Paris

Oct. 4, 1922, **30**, No. 79

*Embolectomy. L. Sencert and P. Blum.—p. 853.
The Sympathetic-Endocrine Syndrome of Alopecia. A. Lévy-Franckel and E. Juster.—p. 855.

Obstruction of Trunk Arteries.—Operative removal of the obstruction has little chance of permanent success when thrombosis is responsible. Removal of an embolus is much more promising, and Sencert and Blum cite a number of successful cases since Mosny's first successful embolectomy in 1911. They add another to the list. Their case was summarized on page 1366 when published elsewhere.

Oct. 7, 1922, **30**, No. 80

*The Food in Tuberculosis. G. Mouriquand et al.—p. 861.

The Diet in Tuberculosis.—In Mouriquand's experimental research the tuberculosis developed anatomically exactly the same in the guinea-pigs fed with a varied and abundant ration as in those given a monotonous or deficient diet. But the well fed animals developed greater resisting powers. Besredka found this confirmed in the great and terrible experience of inanition now prevailing in Russia. Although emaciated to skeletons, the tuberculous lesions are no more severe or rapidly destructive than in western Europe. The practical conclusion is that the diet in tuberculosis should be varied, not only to sustain the appetite but to insure an abundance of the indispensable imponderables.

Oct. 11, 1922, **30**, No. 81

*Protein Therapy in Pernicious Anemia. K. Faber.—p. 873.
Serodiagnosis of Tuberculosis in Children. Aviragnet et al.—p. 876.

Protein Therapy in Pernicious Anemia.—Faber has been impressed with the benefit from kefir in treatment of pernicious anemia. He reports 2 cases of an actual and permanent cure under it, up to eight years in one case. In other cases great improvement was observed for a time but then the symptoms returned as before. The remissions with it were longer, however, than under any other measures except parenteral injection of milk. The protein therapy proved promptly and remarkably successful in one case, and notable improvement followed in 2 other cases, and a slight effect was apparent in some other patients. The effect of this protein therapy in the few cases benefited opens a new field for shock therapy, and throws light on the pathogenesis of pernicious anemia. In the case showing remarkable benefit, similar benefit, but comparatively transient, had followed the systematic use of kefir. This suggests that the two act by some analogous mechanism, and that kefir treatment may be regarded as a protein therapy by way of the bowel. The first injection of milk was followed immediately and durably by the disappearance of the fever, of the diarrhea, and of the hemorrhagic diathesis. All signs of hemolysis vanished and regeneration of the blood was prompt and pronounced. This patient, a man of 38, had had three uncles die of pernicious anemia. Faber comments on the achylia which so often precedes the pernicious anemia, and he comments further on the instantaneous response to the protein therapy when it is at all effectual. This suggests that it acts by desensitizing the organism against some toxin. This links pernicious anemia with anaphylaxis.

Revue Franç. de Gynécologie et d'Obstét., Paris

August, 1922, **17**, No. 8

*Blood Cysts in the Ovaries. R. Bonneau.—p. 417.
Roentgen Treatment of Uterine Fibromas. C. Picheral.—p. 428.
Immediate Repair of Lacerated Perineum. F. Leynen.—p. 439.

Blood Pseudocysts in the Ovaries.—Bonneau reports seven cases of recurring hemorrhages in the ovary during ovulation. The bleeding ovary should be removed in the grave cases in women near the menopause, and in women who cannot spare time for conservative treatment. In other circumstances, partial resection, the actual cautery, high frequency current, etc., are preferable. In any event, it is better to obtain beforehand consent to ovariectomy if it should be deemed necessary. Recurring hemorrhage at ovulation almost always affects both ovaries. If one ovary is removed for this cause, an operation may be required on the other ovary a few months or years later. The interval in one of the cases reported was five years. Severe pain in the right side with no other symptoms was traced in one of the cases to a cavity, the size of a thimble, in the somewhat enlarged right ovary. Blood oozed from the edges, and he sutured the edges with an over-and-over suture, leaving the cavity open. The cure was prompt and complete. In another case blackish blood escaped from the vagina after menstruation, and both ovaries contained a few blood pseudocysts, but there was no special pain in this case. Appendicitis and urinary affections have to be excluded. The pain may spread along the lower two thirds of the ureter.

Revue de Médecine, Paris

1922, **39**, No. 7

*Localization of Arsenic in Viscera. G. Milian.—p. 385.
*Autovaccines in Vaccine Therapy. J. Parisot and P. Simonin.—p. 392.
Primary Neoplasms of Pleura. Rémond and Colombiès.—p. 424.
Diseases with Neurotropic Virus. Godlewski.—p. 434. Cont'n.

Localization of Arsenic in Viscera.—Milian presents evidence that the arsenic settles mainly in the lungs when it has been administered intravenously or by the gluteal muscle. When the arsenic is administered by the digestive tract, the liver is the main receiving organ. This explains the traditional error that arsenic has a special affinity for the liver.

Autogenous Vaccines.—Parisot and Simonin state that autovaccines should be prepared with great care, and the initial dose should represent at the most a quarter or a fifth or even an eighth of the final dose. Concentrated emulsions are more easily tolerated. In chronic infections they leave an interval of from four to six days between the first and second inoculation. In acute infections they inject very small doses every two days and sometimes even every day. The various phases of the treatment are to be cautiously watched and all the reactions carefully observed as the guide for repeating the dose. This vaccine therapy must not be applied indiscriminately; it has its indications and contraindications, as they explain. By thus strictly defining its rôle, its value becomes more and more apparent.

Policlinico, Rome

Sept. 25, 1922, **29**, No. 39

Classification of Pulmonary Tuberculosis. E. Marchiafava.—p. 1257.
Transvesical Prostatectomy; Two Cases. C. R. Belgrano.—p. 1265.
*Abscess in Prostate Complicating Pneumonia. C. Chiaudano.—p. 1267.

Prostatic Abscess as Complication of Pneumonia.—The abscess in the slightly hypertrophic prostate was evidently a colonizing of the pneumococci from the blood at a point of lessened resistance. Mice inoculated with pus massaged from the abscess, after its spontaneous rupture, developed pneumococcus infection. The symptoms in the man of 54 subsided at once after the rupture and local disinfection.

Oct. 2, 1922, **29**, No. 40

*Anaphylactic Phenomena in Hydatid Disease. G. Sabatini.—p. 1289.
*Ileus from Muscular Exertion. G. Zanetti.—p. 1293.
Prevention of Nitritoid Crises. N. Bennati.—p. 1295.
Vaccination by Mouth Against Typhoid and Dysentery. A. Garavaglia.—p. 1295.

Anaphylaxis from Hydatid Cyst in Brain.—In Sabatini's case the large hydatid cyst in the brain of the boy of 14 had developed rapidly, and it burst. The rupture was followed by a typical anaphylactic shock with urticaria, an eruption suggesting measles, cyanosis, collapse and death. With symptoms of a brain tumor in boys under 15, a hydatid cyst should always be suspected.

Traumatic Ileus.—A few hours after wrestling with a friend, the young man was seized with violent ileocecal pains, and symptoms of partial obstruction followed. They subsided under medical measures but returned a few days later, compelling an operation. This revealed perforation of the bowel and encapsulated peritonitis as responsible for the ileus. The violent muscular effort may have torn some adhesion or may have induced contusion of a sound loop of bowel, the perforation following the dropping off of the eschar later.

Sept. 15, 1922, **29**, Surgical Section No. 9

*Multiple Primary Sarcomas of the Bones. B. Masci.—p. 473.
Two Species of Mycetes Found in Man. G. Berti.—p. 484.
*Ptosis and Dilatation of the Stomach. B. Schiassi.—p. 490.

Multiple Primary Sarcomas of Bones.—The first tumor in the robust man was noted at the age of 59. It was in the brow, and developed without pain to the size of a hen's egg in about five months. Other tumors developed in the meanwhile in the ribs, jaw, skull and clavicle, a total of thirty. They seemed to be all primary, round cell sarcomas of rapid development, without metastasis.

Idiopathic Dilatation of Sagging Stomach.—Schiassi describes a case of this kind to illustrate the necessity for what he calls medical surgery in certain cases. The stomach disturbances in the man of 36 had persisted for years, rebellious to all treatment, including gastro-enterostomy. Schiassi's verdict on the case was that the overlarge and sagging stomach needed to have folds taken up in the wall to bring it to normal size, and then should be fastened in its normal place. As soon as this was done, the clinical cure was complete and permanent. He illustrates the preferable method of *plicatio* in such a case, running the threads vertically to take up two transverse folds, and suturing each fold separately.

Crónica Médica, Lima

July, 1922, **39**, No. 709

The Nem in Apportioning Food. R. Eyzaguirre.—p. 234.
*Historical Medical Figures of Peru. H. Valdizán.—p. 242.
The Evolution of Medical Ideas. J. Voto Bernales.—p. 251.
Modern Orientation of Physical Training. E. Vergne.—p. 260.
Butter-Flour Mixture in Infant Feeding. R. Eyzaguirre.—p. 265.

Historical Medical Figures in Peru.—Valdizán's article is devoted to Dr. J. M. Valdés who died in 1843. His medical works deal mainly with dysentery, cholera and other tropical diseases and children's diseases. His poetry and literary works are listed also.

Archiv für Kinderheilkunde, Stuttgart

Sept. 9, 1922, **72**, No. 1

*Acidity in Infant Stomach. P. György.—p. 1.
*Requirements in Calories of the Prematurely Born. Hoffa.—p. 6.
Congenital Edema from Urogenital Malformation. A. Adam.—p. 18.
*Index of Nourishment. M. Guttmann.—p. 23.
*Roentgenology of Infant Digestive Tract. I. Buchheim.—p. 50.

Acidity in Infant Stomach.—György theorizes to explain the acidity as dependent on the iso-electric point of the albumin.

Low Calory Requirement of the Prematurely Born.—Hoffa's research was conducted on the prematurely born given the minimal amount of food and compared with others fed abundantly. The total number of infants was large but the data are given in detail from only eleven in the first group and two in the second. All were healthy infants of healthy parents, and they were fed with pumped breast milk, gradually supplemented with buttermilk, and no incubators were used. The results obtained with the minimal amounts surpassed those obtained with larger amounts. They demonstrate beyond question the fallacy of the assumption that the prematurely born require an extra amount of calories. Her charts show that, at least in many cases, the actual requirement is less than 100 calories per kilogram of body weight for normal "prematures." The vital processes are low; the infant sleeps and scarcely moves, and uses up very little energy. This physiologic need for rest should be respected in feeding: This is one reason why it is advisable to feed through a stomach tube. She kept it continuously in the nose, fastened with adhesive plaster. The contradictory statements in the literature are explained by the fact that previously the congenitally feeble and the normal prematures have been grouped together. The energy quotient declined as the weight increased, in some of the prematures tabulated. She regards this as confirming that the small requirement for nourishment of certain prematures is the physiologic consequence of their *vita minima*, protected against loss of heat and waste of energy. The milk was slowly increased up to 100 calories per kilogram, and this amount was not surpassed until ten or fourteen days had elapsed without further increase in weight. The calories of the breast milk were determined anew each day. The growth in weight and length was satisfactory in all. One infant had doubled its weight at birth by the twelfth week. They all thrived with a regularity that she attributes to the lack of digestive strain on account of getting only the nourishment actually needed, without any excess.

Index of State of Nourishment.—Guttmann has recorded the various measurements from the first to the thirtieth year of life of 10,867 individuals. Applying to the data thus obtained the index of nourishment suggested by Pignet, Pirquet, Rohrer, Livi, Oppenheimer or Bornhardt, demonstrated that the objective findings failed to conform to the theoretical index in from 52.5 to 78 per cent. with all except the Bornhardt index. This latter conformed to the facts in all but 2 or 3 per thousand. Bornhardt's index was designed as a test for fitness for military service. It was published in the *Petersburger medizinische Wochenschrift* in 1886, page 108. The formula is G-B.L: 240, in which G = net weight; B = chest measure; L = height (metric system). The formula is thus the weight minus the middle chest measure, multiplied by the height without shoes, and divided by 240. The findings with this index on the birthday of the individual, repeated on thousands of individuals, allowed a standard curve to be drawn showing the average index in childhood and youth which corresponds to normal fitness in adult life. He now has the yearly index of fifty families and thousands of individuals over many decades—all confirming the reliability of the Bornhardt index at all ages. He adds that it is as free from sources of error as possible, while it can be easily applied in all countries, and is a useful check on other methods. It is not an index of the constitution or potential energy, being solely an index of the state of nourishment.

Roentgenology of Infant Digestive Tract.—Buchheim reviews ninety-five publications on this subject, and emphasizes the light thrown by the roentgen rays on the physiology and pathology of the stomach and intestine in infants.

Deutsches Archiv für klinische Medizin, Leipzig

Sept. 5, 1922, **140**, No. 3-4

The Epithelium in Respiration. A. Plaut.—p. 129.
Signs in Urine of Fatty Degeneration of Organs. F. Munk and H. Rother.—p. 137.
*Acute Myelosis. A. Hittmair.—p. 148.
*Tests for Volume of Blood. R. Prigge.—p. 165.
*Action of Intravenous Saline. R. Prigge.—p. 168.
*Permeability of Vessel Walls. G. Denecke.—p. 179.
*Kidney Calculi and Renal Tuberculosis. G. Liebermeister.—p. 195.
*Hemolytic Jaundice. M. Gänsslen.—p. 210.
*Monocyte Tonsillitis. E. Baader.—p. 227.
Local Origin of Mill-Wheel Murmur. J. Blum.—p. 247.
*Appeal to Physicians.—p. 253.

Acute Myelosis.—Hittmair concludes from analysis of a case in a man of 36, that acute myelosis, the same as pernicious anemia, must be regarded as a cataplasia-inducing intoxication of the system which produces erythrocytes, leukocytes and thrombin. The responsible toxin is not of bacterial origin, but is one of the toxins responsible for pernicious anemia. The assumption of toxic cataplasia, that is, reversionary metamorphosis to embryonic conditions, throws light on leukemia and also on thrombopenia.

Tests of Volume of Blood.—Prigge says that the number of erythrocytes is an index of the total amount of blood when compared before and after an operation. Refractometry, on the other hand, shows merely the volume of plasma, and this is instructive only when examined serially.

Action of Large Amounts of Saline by the Vein.—Prigge reports contradictory findings. In some patients infusion of strong solutions (up to 4 per cent.) induced, and in others it protected against hemolysis.

Permeability of Vessel Walls.—Denecke tests the permeability by shutting off the circulation in the horizontal resting arm for twelve minutes, and comparing blood from the arm before and after. The findings in six healthy persons and thirty with various forms of kidney disease are compared.

Kidney Calculi and Renal Tuberculosis.—Liebermeister remarks that the wider his experience, the more firmly he is convinced that there is scarcely any pathologic condition in which tuberculosis is not a factor. For instance, the coincidence of a tuberculous lesion with a concretion in the kidney occurs more frequently than generally assumed. When the calculus is found, no further search is made for other causes for the symptoms. He cites some typical examples; in three, tubercle bacilli were found in the calculi.

Hemolytic Jaundice.—Gänsslen analyzes twenty-two cases, including the results of splenectomy in ten. There were in some only one or a few symptoms or numerous symptoms, and in others actual compensation had developed. This latter group included young subjects with no jaundice or anemia, but the slight enlargement of the spleen, the occasional urobilinuria, and the anisomicrocytosis and abnormally low resisting power of the erythrocytes confirmed the diagnosis. In one family, the tendency to hemolysis did not develop till the age of 21, 36 and 40 in different members, but the children in this family belonged to a "compensated" group. Analysis of certain cases of supposed acquired hemolytic jaundice may reveal the familial nature; the hemolysis may escape discovery entirely until revealed by tests of the parents' blood. The endogenous nature of the hemolysis is suggested further by the frequency of steeple skull, fully 50 per cent. in his cases. Nine of the ten splenectomized patients were clinically cured. The other succumbed to portal thrombosis. In one case, by some compensating process, the jaundice developed anew a few years after the splenectomy.

Necrotic Tonsillitis.—Baader reports several cases of a special form of tonsillitis in young adults in which the fever kept up from twelve to thirty-one days. The spleen and liver were always enlarged for a month or two, as also certain or all of the lymph glands. The necrotic coating of the tonsil persisted for nearly two and three weeks, but the most characteristic feature of this form is the great increase in the number of large mononuclear cells. Hence the name, "monocyte angina." In one case they formed 78 per cent., and three weeks later the proportion was still 32 per cent. The diagnosis had been diphtheria at first; later, leukemia was suggested. All his patients recovered, as also the six cases of infectious lymphomonocytosis reported by Sprunt and Evans in 1920.

Appeal to Physicians.—This appeal is signed by the six members of the advertisement-investigating commission appointed by the organized profession in Germany, the Aerztevereinsbund. It is appearing in all the German exchanges. A literal translation is as follows: "As unfortunately many medical periodicals still accept objectionable advertisements of pharmaceutical proprietaries, the committee feels compelled to publish the warning, which is self-evident to every conscientious and scientifically trained physician, to refrain from prescribing any remedy the composition of which (especially its chemical constituents) and its pharmacologic mode of action are not known from articles in medical journals or textbooks. Otherwise, there is nothing to distinguish the physician prescribing them from a handicraftsman or even from a charlatan. The physician should distrust advertisements of remedies which make evidently exaggerated or extravagant statements, especially when they are published in the lay press, and particularly in the daily papers. Physicians must demand from the officials of the medical journals they read that advertisements of this class must be rejected. The Arzneimittelkommission of the German Internal Medicine Society (known as the German Council on Pharmacy and Chemistry), will answer queries on demand. Address with return postage, Professor Holste, Jena." The appeal is dated April, 1922. The six signatures are those of Professors Heffter, Klemperer, Lennhoff and Schwalbe, and Drs. Bechmann and Herzau.

Deutsche medizinische Wochenschrift, Leipzig

Sept. 1, 1922, **48**, No. 35

Therapeutic Significance of Chlorophyl. E. Bürgi.—p—. 1159.
Effect of Cinchophen on Leukocytes. E. Starkenstein.—p. 1161.
Homoplastic Transplantation of Adult Frog Skin. R. Gassul.—p. 1163.
Excitation, Increased Excitability and Protracted Excitations in the Central Nervous System. R. Matthaei.—p. 1164. Conc'n No. 36.
*Dropsy of Biliary System from Pancreas Cancer. H. Gorke.—p. 1166.
*Subacute Atrophy of Liver in Syphilis. A. Buschke and E. Langer.—p. 1168.
Orgasm Without Ejaculation. M. Marcuse.—p. 1171.
Pathogenesis of Arsphenamin Icterus. M. v. Falkenhausen.—p. 1173.
Purpura After Injections of Neo-Arsphenamin. M. Jarecki.—p. 1174.
Treatment of Fractures of the Lower Leg. G. Ledderhose.—p. 1175.
Diagnosis of Paralysis of Eye Muscles. G. Abelsdorff.—p. 1177.

Dropsy of the Biliary System Due to Carcinoma of the Pancreas.—Gorke emphasizes that if a carcinoma of the pancreas has been definitely diagnosed, together with secondary closure of the common bile duct, a cholecystoduodenostomy, possibly with extirpation of the tumor, should be done as early as feasible. Dropsy of the biliary system results from long continued closure of the choledochus, usually in the presence of a tumor of the pancreas, but also in connection with occlusion from stone and in kinking of the common bile duct by scar traction. The hydropic fluid is a product of the mucosa of the bile ducts. The pressure in the bile passages must be greater than the pressure of the secretion of the liver. The bile production of the liver cells is not checked. Three cases are described, with the necropsy findings.

Complications and Cure of Subacute Atrophy of the Liver in Syphilis.—Buschke and Langer state that, besides ascites, accompanying factors of atrophy of the liver are: anasarca and hydrothorax. There are many cases of severe atrophy of the liver in which a clinical cure is accomplished. Abortive types are also frequently found. If leucin and tyrosin are found in the course of icterus, it indicates a severe disturbance of the liver, but they are not a regular symptom even in severe affections. Various types of the affection, from icterus up to atrophy of the liver, even with partial cirrhosis, are to be regarded as different grades of the same disease, doubtless due mainly to parenchymatous injuries of the liver cells. Such damage to the liver in syphilis (whether treated or not) can usually be regarded as due to a specific noxa. The mode of treatment of the syphilis (more particularly arsphenamin) is a primary etiologic factor only in part of the cases—it is, however, frequently a secondary precipitating factor. Possibly the vegetative nervous system plays a certain rôle in the genesis of the affection. Even severe types of atrophy of the liver with a syphilitic base may be amenable to treatment.

Jahrbuch für Kinderheilkunde, Berlin

September, 1922, **99**, No. 4-5

*Action of Colon Bacilli. E. Schiff and R. Kochmann.—p. 181.
*Epidemic Encephalitis in Infants. J. Duzár and J. Baló.—p. 209.
*Milk as Factor in Growth. E. Stransky.—p. 229.
*Face Phenomenon in Older Children. K. Mosse.—p. 244.
*Epinephrin in the Body. A. Bálint and L. Goldschmidt.—p. 252.
"Butter-Flour Mixture" in Solid Form. K. Ochsenius.—p. 266.
*Hand-Walking. E. Kopits.—p. 268.
*Heart Block in Boy of Six. A. v. Bosányi.—p. 276.

Nutritional Disturbances in Infants.—In this first communication of a series on this subject, Schiff and Kochmann discuss the action of colon bacteria from the chemical standpoint.

Epidemic Encephalitis in Infants.—In the infant department of a Budapest hospital last fall, eleven infants developed within a few days a febrile disease with convulsions, rapidly fatal. The brains of the infants showed the pathologic findings characteristic of epidemic encephalitis in adults, except in the infants who had died too promptly for the pathologic changes to be fully developed. Actual inflammatory changes were found in only one child in whom the course had been longer than the others. Only one of the eleven infants survived, and this one died not long afterward during whooping cough. The shortest course was two days, the longest, two weeks.

Action of Milk on the Growth.—The rats thrived on food free from vitamins if they were given 5 c.c. of cow's milk. The whey alone proved ineffectual.

The Face Phenomenon in Older Children.—Mosse's conclusions are that Chvostek's sign does not have the same significance in older children that it does in infants and young children, as a sign of spasmophilia. The sign was positive in older children apparently entirely free from any tendency to spasmophilia. The findings fluctuated almost from day to day. In three children the sign disappeared during a brief febrile catarrhal affection and returned after recovery. The older children with Chvostek's sign had no special history of tetany in early childhood, and the face phenomenon was not modified by calcium or cod liver oil, as is the rule in younger children. The calcium and the phosphorus content of the blood did not seem to differ much in the older children with or without the Chvostek sign.

Research on Epinephrin.—As epinephrin has such a fleeting action, and as only a minute portion is eliminated from the body, the conclusion is evident that it disappears because it is destroyed. The research here related testifies that oxidation is responsible for this destruction, but that it occurs only in the presence of alkali. Another point brought out is that the action of epinephrin in fever is much abbreviated and reduced. This should be borne in mind in giving epinephrin to febrile patients.

Getting the Paralyzed to Walk.—Kopits refers in particular to the paralyzed who have learned to walk on their hands. He describes an extreme case, the boy lifting his feet passively with his hands at each step, balancing himself like a bird. Kopits devised a harness and arrangement which enables the boy to stand erect and walk by twisting his body on the vertical axis. He is on his feet all day long, with two canes, and Kopits is much gratified with the outcome. It was impossible to accomplish more under the circumstances.

Adams-Stokes Disease in Boy of 6.—Bosányi relates that the child presented the complete Morgagni-Adams-Stokes set of symptoms. The heart block still persists, the ratio 3:1, the pulse 40. The child had been healthy until the last six months except for scarlet fever at 3, and his seven brothers and sisters are healthy.

Münchener medizinische Wochenschrift, Munich

Sept. 1, 1922, **69**, No. 35

Accidental Heart Murmurs. F. Rolly.—p. 1267.
The Stiller Asthenia Universalis in Infants. A. Wetzel.—p. 1269.
Clinical Determination of Total Blood Volume. A. Herzfeld.—p. 1272.
Gonorrhea in Women. Asch and Wolff.—p. 1273. Cont'd.
*Diphtheria Bacilli Carriers. K. Pesch and O. Zschocke.—p. 1276.
*Poisons in So-Called Nonpoisonous Snakes. R. Kraus.—p. 1277.
*Radium in Uterine Hemorrhages. W. S. Flatau.—p. 1277.
Treatment of Pleural Empyema. W. Kaess.—p. 1278.
*Malignant Goiter. W. Schaedel.—p. 1282.
*Occlusion of Bile Duct and Anuria from Renal Cyst. O. Hofer.—p. 1279.
Life Cycle of Yoghurt Bacteria. E. Klebs.—p. 1285.
Lymphogranulomas and Other Leukemic Affections. P. Morawitz.—p. 1286.

Sept. 8, 1922, **69**, No. 36

Note on Adrenalinemia. F. O. Hess.—p. 1297.
Oxidation Ferments in Inflammatory Processes. G. Herzog.—p. 1300.
Testing Sense of Pain with Chemical Irritants. Lebermann.—p. 1302.
Migration of Ascarid Larvae in Internal Organs. Nettesheim.—p. 1304.
Remarks on Operative Gynecology. O. Eisenreich.—p. 1306.
Conservative Treatment of Tuberculosis of Bones and Joints. A. Hilse.—p. 1307.
Malpractice Suit Against General Practitioner. A. Döderlein.—p. 1308.
Treatment of Syphilitic Affections of the Aorta. F. Mock.—p. 1309.
Gonorrhea in Women; Evidence of Cure. R. Asch and F. Wolff.—p. 1310. Conc'n.
Diagnosis and Treatment of Tuberculosis of Skin. v. Zumbusch.—p. 1313.

Attempts to Banish Diphtheria Bacilli from the Nose in Germ Carriers.—Pesch and Zschocke report that their attempts to expel diphtheria bacilli from the nose in germ carriers by the use of colon bacilli from the intestine of the subject proved unsuccessful, as the colon bacilli would not grow in the nose. However, they confirmed that *Bacillus coli* crowds out diphtheria bacilli in a bouillon culture.

Poisons in the Head Glands of So-Called Nonpoisonous Snakes.—Kraus' experiments go to show that so-called nonpoisonous snakes as well as the poisonous have head glands that produce acutely fatal secretions. These poisons are biologically different from the poisons of recognized poisonous snakes.

The Cure of Climacteric Uterine Hemorrhages by Means of Radium.—Flatau has found the radium procedure the preferred and surest method of treating severe uterine hemorrhages in women of more advanced age.

Occlusion of the Common Bile Duct and Anuria Due to Renal Cyst.—In Hofer's case the solitary renal cyst caused at first almost no symptoms, later simulated, through pressure symptoms, stenosis of the biliary passages. A primary carcinoma of the bile ducts seemed most probable. Merely a proper evaluation of the anuria of the right ureter would have led to the correct interpretation of the complicated clinical picture.

Malignant Goiter.—Schaedel emphasizes in malignant goiter the value of early diagnosis, which should be based on the rapid increase in size and consistency of a goiter of long standing; also on the lessened movability and the radiating pains, in order that the ideal therapy, total extirpation followed by roentgen irradiation, may be instituted.

Zentralblatt für Chirurgie, Leipzig

June 24, 1922, **49**, No. 25

*Pneumoperitoneum in Splenectomy. F. Partsch.—p. 905.
*Drainage After Cholecystectomy. F. Hollenbach.—p. 907.
Stenosis of Duodenum from Adhesions After Cholecystectomy. E. Glass.—p. 909.
Treatment of Empyema. A. Schlesinger.—p. 912.
*Periarterial Sympathectomy. F. Brüning and E. Forster.—p. 913.

Pneumoperitoneum in Splenectomy.—Partsch finds that only pneumoperitoneum can give us a clear conception of the extent of adhesions in tumors of the spleen. Most fatalities following splenectomy are due to hemorrhage as the result of adhesions. He therefore recommends most urgently the employment of pneumoperitoneum before extirpation of the spleen.

Drainage After Cholecystectomy.—Hollenbach holds that the slight disadvantages of drainage are more than compensated for by the greater safety given the operation.

Periarterial Sympathectomy in the Treatment of Vasomotor Trophic Neuroses.—Forster hit upon the idea of applying to simple vasomotor trophic neuroses the form of periarterial sympathectomy recommended by Leriche for such disturbances developing after nerve injuries. He considered that also the former neuroses might be regarded as the results of pathologic irritation within the sympathetic system. He reports but the one case of a woman of 45 who was suffering primarily from an inflammation of the sheaths of the extensor tendons of the right thumb and, in connection therewith, from a severe vasomotor trophic neurosis presenting the character of an acroparesthesia or a sclerodermia. The operation, following Leriche, consisted in exposing the right brachial artery just below the axilla. The adventitia to the extent of from 8 to 10 cm. was carefully dissected off and removed. As to the effect, it was noted during the operation that the removal of the adventitia brought about a very severe contraction of the arterial tube so that its caliber was reduced to about one-third its former size. Immediately after the operation the patient was relieved at once and permanently of her pain, although for a few days there was slight formication in the hand. After four weeks the marked trophic changes had retrogressed to a great extent. Forster thinks that when we consider that in the case in question the condition was continually getting worse and resisted all other forms of treatment, we must recognize all the more the successful outcome of the operation.

Polska Gazeta Lekarska, Lemberg

June 25, 1922, **1**, No. 26

*Influence of Histamin on Secretion of Human Digestive Juices. P. Carnot, W. Koskowski and E. Libert.—p. 531.
Physical Therapy in the Light of Endocrinology. A. Chelmonski.—p. 534.
Notes on the Statistics of Scleroma. A. Zebrowski.—p. 535.
*Coexistence of Lupus Erythematosus and L. Vulgaris. E. Bruner.—p. 540.
*The Use of Colloids and Nonspecific Proteins in Gynecology and Obstetrics. K. Bochenski.—p. 542. Conc'n in No. 27, p. 560.

The Influence of Histamin on the Secretion of Digestive Juices.—The authors used subcutaneous injections of 1.25 to 1.75 mg. of histamin in fourteen cases. Tabulated results show that from thirty-three to fifty-five minutes after injections, and lasting for one to two hours, the amount of gastric juice, total and combined acidity and digestive power, estimated by the method of Mett, were decidedly, and at times greatly increased. The influence on the pancreas, liver, and duodenum is uncertain, due to obvious difficulties of obtaining, by means of Einhorn's tube, duodenal content without admixture of gastric juice. There was, however, a decided increase of lipolytic and proteolytic enzymes. This is probably partly due to the direct action of the histamin, and partly to the increased amount and acidity of gastric secretion. There were no untoward effects aside from vomiting in one patient, an occasional erythema and tachycardia of brief duration.

Lupus Erythematosus and L. Vulgaris.—Bruner describes a case of mixed lupus in a woman of 50, and discusses tuberculosis as a probable etiologic factor in lupus erythematosus.

Colloids and Nonspecific Proteins in Gynecology and Obstetrics.—Bochenski concludes his article by saying that there is not much difference in action between different colloids and the nonspecific proteins commonly used. Local and general reactions depend more on the constitutional condition of the patient than on the substance used. In general, milder cases reacted very favorably, graver, much less. He recommends early use of colloidal and protein injections in puerperal infections, perimetritis and parametritis, acute, subacute and chronic inflammatory processes of adnexa. The substances used were silver salts, milk and turpentine, the last in 1 c.c. doses of 15 per cent. oil of turpentine solution. Most of the injections were intramuscular. The author warns also, that the good effects observed were frequently temporary, and this indicates that surgical measures should not be neglected or delayed.

July 2, 1922, **1**, No. 27

Epileptoid Convulsions in Early Syphilis. Frenkel and Leyberg.—p. 553.
Corpus Luteum and Ovariotomy During Pregnancy. J. Szymanowicz.—p. 554.
*Surgical Treatment of Epilepsy. A. Domarzewicz and J. Zaczek.—p. 556.
The Use of Pyramidon in Typhoid Fever. F. Obarski.—p. 558.

Treatment of Epilepsy.—These authors commend craniotomy in status epilepticus uninfluenced by medicinal treatment, and in jacksonian and traumatic epilepsy. Two of their patients had small multiple cysts of arachnoid matter. Some had thickening and depression of the inner plate; some were macroscopically negative. There was more or less amelioration of symptoms in all cases, but practically no change of mental conditions in status epilepticus.

Acta Medica Scandinavica, Stockholm

1922, **56**, No. 6

*Influence of Light Baths on Infections. C. Sonne.—p. 619. Idem. Hansen.—p. 629.
*Undernourishment and Internal Secretions. T. W. Tallqvist.—p. 640.
*Sciatic Scoliosis. P. Haglund.—p. 658.
*Function of Ninth Dorsal Motor Root. G. Söderbergh.—p. 677.
*Myotonic Dystrophia. A. Barkman.—p. 686.
*Attacks of Unilateral Cramps. A. Barkman.—p. 697.

Influence of Light Baths on Infections.—Sonne presents experimental and clinical evidence to sustain the assumption that universal light baths by heating the blood increase oxidations. This has a pronounced protecting effect in diphtheria, etc. Sonne is chief of the Finsen Light Institute at Copenhagen. The article is in English, as also Hansen's on similar research with typhoid agglutinins, etc.

Undernourishment and the Internal Secretions.—Tallqvist bases his statements on 13,000 patients under observation between 1912 and 1922, charting the prevalence of diabetes, exophthalmic goiter and gastric achylia. His chart unmistakably demonstrates the antagonistic influence on these diseases of the food scarcity during the war. A preceding article by him along these same lines was summarized in these columns April 22, 1922, p. 1241. All his data sustain the assumption that the internal secretions are peculiarly sensitive to lack of adequate nourishment. The benefit from fasting in diabetes has been ascribed to the favorable influence on the sugar metabolism. But he thinks we are justified in going back of this to the fact that undernourishment depresses the functioning of the whole hormonal system. The benefit in exophthalmic goiter from the undernourishment of the war years suggests a prophylactic and therapeutic influence on this disease from systematic dieting. Testimony is accumulating that a constitutional predisposition is an important factor in both diabetes and exophthalmic goiter, and the war experiences seem to indicate that undernourishment materially reduces this predisposition. The article is in German, and cites Riesman's article in The Journal, June 15, 1912, p. 1846.

Sciatic Scoliosis.—Haglund's orthopedic experience has confirmed the assumption that sciatica, lumbago and often pains in the back may be the result of irritation or strain, usually from some upset in the static balance of the body or overexertion. The result is a neuralgia, and measuses to relieve the irritation or strain may cure rebellious pain as if by magic. While orthopedists are familiar with such experiences, this is an unexplored field for internists. The term sciatic scoliosis is misleading; the spine is bent merely to relieve the sciatica. It is a compensating attitude with no settled curvature at first. Four cases are described showing extreme types. In the first, the man of 45 had been long incapacitated with intense pain in the right leg and the back, together or alternately, and the trunk was bent far over to the left. Progressive correction with plaster jackets restored health and earning capacity. In the second case the supposed sciatica in the right leg of the boy of 14 had been unbearable for months except when he bent the spine far forward. Any attempt to stand straight caused excruciating pain. With progressive plaster bandages to the trunk and hip joint, a complete cure was realized in a few months. In all these cases no organic anomaly could be discovered with roentgenoscopy. He theorizes to explain the benefit from the gradual plaster correction, and declares that the same principle can be applied to many other groups of similar combinations of symptoms in other regions. He exclaims, "That our diagnostic rubbish heaps—sciatica, rheumatism, lumbago, etc.—those disagreeable signs of our fearful ignorance—become reduced more and more must be a cause of great satisfaction to us." He fully endorses Lindstedt's theory of these pains as an irradiating neuralgia from irritation or strain, and advises prolonged reclining, to relieve the strain on spine and hip joint. If this fails, then progressive plaster fixation of the spine should be considered. Even if the patient is neurasthenic, this is no reason for not trying to remove the cause of the trouble. "In this respect we have sinned much and are still sinning against these patients." The article is in English.

Function of the Ninth Dorsal Motor Nerve Root.—This is Söderbergh's thirteenth communication on the neurology of the abdominal wall. It is in French.

Myotonia.—Barkman gives an illustrated description of a case of myotonic dystrophia presenting what he thinks are two new symptoms. He ascribes it to endocrine derangement plus cerebral lesions; the former is responsible for the dystrophia, the latter for the myotonia. (In French.)

A Cramp Syndrome.—Unilateral cramps and tonic contractions developed suddenly in the robust young man, and the cramps returned several times an hour for eighteen days and then gradually subsided. He classes it with the affections for which the central nuclei are responsible. (In French.)

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DIFFERENTIAL DIAGNOSIS OF LOBAR PNEUMONIA AND APPENDICITIS IN CHILDREN *

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Although lobar pneumonia is generally conceded to : one of the easiest diseases in which to make a corct diagnosis, it is well recognized that its differentiaon in the early stages, and particularly in children, om one or two quite remote conditions, notably -called surgical conditions of the abdomen and rebrospinal meningitis, is not always simple. Much is been written on this subject, but the frequency ith which the diseases are confounded, in both genal and hospital practice, the relative frequency with hich patients with early pneumonia are subjected to necessary surgery, and the importance from a theraeutic standpoint of establishing immediate diagnosis, ive made it seem worth while to review the records of series of such cases in the hope of being able to point it what clinical features are of the greatest signifince in differentiating the two conditions. Only ildren between the ages of 2 and 15 have been nsidered.

All of the patients with lobar pneumonia in this age oup admitted to the pneumonia service between Sept. 1920, and April 9, 1922, have been studied; and ice by far the most common error is that of mistak- lobar pneumonia for appendicitis—we have never en appendicitis wrongly diagnosed as pneumonia—we ve, for purposes of comparison, studied the records the sixty-three most recent patients with acute pendicitis, with or without abscess or peritonitis, mitted to, and operated on in the four general surcal services prior to April 15, 1922.

The records were analyzed with a view to determine diagnosis under which the patients were sent to the spital, the presence or absence of important sympns and signs referable to the respiratory, the gastroestinal and the central nervous systems, and the lymorphonuclear leukocyte count. First has been arted a summary of the entire series of lobar pneunia cases; next, a summary of those cases in the ar pneumonia group in which the patients were sent the hospital with diagnoses either of acute appendicitis or of acute surgical conditions of the abdomen, or in which this diagnosis was made on the admitting floor, and then of those cases in the same group in which a diagnosis of cerebrospinal meningitis was made either by the outside physician or by the admitting physician in the hospital.

The cases of appendicitis are listed in three groups: acute appendicitis, acute appendicitis with abscess, and perforated appendix with peritonitis.

DIAGNOSIS

Of the total series of 145 lobar pneumonia patients, it is interesting to note that only sixty-six, or 45.5 per cent., were sent to the hospital with the diagnosis of bronchopneumonia or lobar pneumonia; but it is startling to observe that twenty-five, or 17.6 per cent., were either sent in with a diagnosis of appendicitis, admitted with that diagnosis, or were about to be operated on for that condition when seen by the pneumonia service. This figure is much higher than in adults, as shown by Abrahams,[1] who found that in a series of 558 cases of lobar pneumonia in adults, only seven, or 1.4 per cent., were admitted as appendicitis. In many of our cases there was some doubt in the mind of the visiting surgeon as to whether there were sufficient abdominal signs to warrant exploration; but in some, abdominal symptoms and signs were so striking that even in the face of a definite diagnosis of lobar pneumonia made by the pneumonia service, there was reluctance on the part of the surgeon to postpone abdominal exploration. Seven patients, or 4.8 per cent., were sent in with the diagnosis of cerebrospinal meningitis, chiefly, as will be observed later, because of the presence of delirium.

It must be borne in mind that a large proportion of these children arrived at the hospital unaccompanied by a parent or other adult capable of giving an intelligent history, and that the older children, who under more favorable circumstances might have been depended on, were usually too frightened and excited to warrant much dependence being placed on their stories. Some of the histories analyzed were obtained from one day to a week after the patient had been admitted. The necessity not uncommonly arose of making the diagnosis on the basis of physical examination and laboratory findings alone. In these instances roentgenologic examinations would have been of assistance in ruling out consolidation in the lungs; but since immediate roentgenograms were seldom available, this method of obtaining evidence has been left out of consideration.

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* From the pneumonia service of the Boston City Hospital.
* Read before the Medical Society of the District of Columbia, Nov. 1922.

[1] Abrahams, A.: Lobar Pneumonia: A Clinical Analysis of Five Hundred and Fifty-Eight Consecutive Cases, Lancet 2: 543 (Sept. 11) 1920.

RESPIRATORY SYMPTOM

The respiratory symptoms on which stress was laid were the presence of "cold," that is, coryza, running nose, pharyngitis or other low-grade infection of the upper respiratory tract, prior to the onset of the more acute symptoms; cough, with or without sputum, and pain in the chest, with or without relation to respiration.

The figures in the first two groups show a striking similarity. A history of previous "cold" occurred in 25.7 per cent. in the first series, and 24 per cent. in the second; cough in 75.8 per cent. in the first series, and 88 per cent. in the second, and chest pain in 44.1 per cent. in the first series, and 40 per cent. in the second. If a relation between chest pain and respiration or cough can be established, this is an important differential point, as it immediately draws attention to the possibility of pleural inflammation; but as a general rule, except in the older children, it was impossible to develop this point. Consequently, in going over the series, chest pain has been recorded as such without attempt to define it further. Raising of sputum has been relatively uncommon. The figures for the patients with lobar pneumonia, admitted as having meningitis, also show a similarity to the entire pneumonia series with the exception of previous cold, which was present in none of the seven cases.

In contrast with the foregoing figures, only one patient of the sixty-three operated on for acute abdominal conditions showed cough, and none gave a history of other respiratory symptoms. It must be borne in mind, however, that in these patients the respiratory history was probably not carefully taken. But it seems apparent that a history suggesting respiratory disease, particularly cough and chest pain, if obtainable, is strong evidence in favor of lobar pneumonia as opposed to surgical conditions of the abdomen; but these symptoms were not present in a sufficient proportion of the pneumonia cases to permit their absence being considered as a differential point against lobar pneumonia.

GASTRO-INTESTINAL SYMPTOMS

Abdominal pain, vomiting and diarrhea constitute the abdominal symptoms studied. As in the case of chest pain, the attempt was made to classify abdominal pain more accurately, particularly with regard to location, type and influence of respiration; but here again the records were seldom clear, probably in most cases because accurate information could not be obtained from the children. The inability of the young to locate abdominal pain accurately, or their tendency to refer it to the umbilical region, is too well recognized to warrant further comment. In many cases, both of pneumonia and of appendicitis, the child will point to the midabdomen as the place where pain exists, and occasionally we have seen the child locate the pain on the side opposite that on which the lesion existed. This has also been noted by Pastore,[2] Dunn [3] and others. Our impression is, however, that the older children have a tendency to locate the pain higher in pneumonia than in appendicitis, and that a history of increase of pain on inspiration can occasionally be obtained. In the younger children it is quite impossible to get much of an idea concerning the type of pain. Of two differences, however, we are quite certain: The pain in the pneumonia case, when present, is always more severe more distressing, and usually persists for several days whereas that in the uncomplicated appendicitis case causes much less discomfort and is not uncommonl intermittent. Other writers disagree on these points Dunn agrees that the appendicitis pain is likely to b paroxysmal, but Brennemann,[4] although he states tha the pain is less decisive in appendicitis than in th respiratory infections, believes that it is more likel to be paroxysmal in the latter type of disease. Th figures show that in the entire series of lobar pneumonia cases, pain occurred in 34 per cent., as opposed to 84 per cent. of the cases of pneumonia wrongl diagnosed as appendicitis, and in 100 per cent. of th proved cases of appendicitis.

The similarity is even more striking in the figure for vomiting. This occurred in 59.3 per cent. of al the pneumonia cases, as opposed to 76 per cent. of th cases wrongly diagnosed as appendicitis, and 71.4 pe cent. of those wrongly diagnosed as meningitis. Vomiting, in Abraham's series, occurred in 33 per cent. o the cases of lobar pneumonia in adults. The figures in children are not in accord with statements by Dunn who says that vomiting is more pronounced in appendicitis, and by Kerley,[5] who reports vomiting a occurring in less than 10 per cent. of pneumonia cases Still,[6] on the other hand, states that the onset o pneumonia in children is almost always accompanied by vomiting. These figures are to be contrasted with those of uncomplicated appendicitis, in which vomiting occurred in only 60 per cent., and the total sixty-three cases of appendicitis, in which it occurred in only 68. per cent. Diarrhea was uncommon, and is of n significance.

It seems safe to conclude, on the basis of these statistics, that the history of abdominal pain and vomiting is of no value in differentiating the two conditions Furthermore, the frequency of these symptoms in th cases of pneumonia sent in as appendicitis cases indicates unquestionably a causative relation between these symptoms and the mistaken diagnosis. The error i based apparently on the failure to recognize the fac that these symptoms commonly occur in pneumonia.

SYMPTOMS REFERABLE TO CENTRAL NERVOUS SYSTEM

Of the symptoms referable to the central nervou system, there have been listed headache, irritability an delirium. Drowsiness and occasionally convulsion were encountered, but not often enough to warran consideration. Headache was present in 32.4 per cent of the lobar pneumonia cases, and in 57.1 per cent. o those sent in which were wrongly diagnosed as meningitis; while irritability was present in 15.2 per cent of the former and 43 per cent. of the latter. There was marked difference in the two series with respect t delirium, which occurred in 14.5 per cent. of the first series and 85.7 per cent. of the second. It was unquestionably one of the chief causes of the mistaken diagnosis. These symptoms were absent in the true surgical cases.

THE LOOKS OF PNEUMONIA PATIENTS

As time has gone on and we have had the opportunity of observing an increasing number of these atients, we have become more and more impressed ith the value of what we have called the "looks" of ie patient. The children with pneumonia always look xtremely sick, quite the opposite of the surgical atients, who, except in advanced cases of peritonitis, nd not all of these, fail to give this impression. The neumonia patients are fussy and irritable, and show distaste for being examined and a tendency to comlain whenever or wherever touched.

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[2] Pastore, S.: Abdominal Reflexes with Pneumonia, Policlinico (sez. prat.) **27**: 1406 (Dec. 6) 1920; abstr. J. A. M. A. **76**: 276 (Jan. 22) 1921.

[3] Dunn, C. H.: Pediatrics, Troy, N. Y., Southworth Company, **2**: 144.

[4] Brennemann, Joseph: Abdominal Pain in Children, Surg., Gynec & Obst. **34**: 344 (March) 1922.

[5] Kerley, C. G.: Practice of Pediatrics, Philadelphia, W. B. Saunders Company, 1912, p. 254.

[6] Still, G. F.: Diseases of Children, Ed. 3, London, Oxford University Press, p. 378.

RECORD OF CASES OF LOBAR PNEUMONIA AND ACUTE APPENDICITIS

	All Cases of Lobar Pneumonia (Total 145)		Cases of Lobar Pneumonia Sent in as Appendicitis or Acute Abdominal Condition (Total 25)		Cases of Lobar Pneumonia Sent in as Meningitis (Total 7)		Acute Appendicitis (Total 42)		Acute Appendicitis with Abscess (Total 5)		Perforated Appendix with Peritonitis (Total 16)	
Sent to Hospital with Diagnosis of:	Number	Per Cent.	Number	Per Cent.	Number	Per Cent.	Number	Per Cent.	Number	Per Cent.	Number	Per Cent.
Pneumonia	66	45.5	..	....	..	....	..	....	..	....	..	....
Observation	35	24.1	..	....	..	....	..	....	..	....	..	....
Meningitis	7	4 8	..	....	7	100.0	..	....	..	....	..	....
Appendicitis or acute abdominal condition	25	17.6	25	100.0	..	....	42	100.0	5	100.0	16	100.0
Influenza	4	2.7	..	....	..	....	..	....	..	....	..	....
Pleurisy	3	2.0	..	....	..	....	..	....	..	....	..	....
Empyema	2	1.3	..	....		....	..	....	..	....	..	....
Ptomain poisoning	2	1.3	..	....	..	....	..	....	..	....	..	....
Otitis media	1	0.7	..	....	..	....	..	....	..	....	..	....
Chest Symptoms:												
Cold	37	25.7	6	24.0	..	....	..	....	..	....	..	....
Cough	110	75.8	22	88.0	4	57.1	1	2.3	..	....	..	....
Chest pain	64	44.1	10	40.0	3	42.9	..	....	..	....	..	....
Sputum	16	11.0	3	12.0	2	28.6	..	....	..	....	..	....
Abdominal Symptoms:												
Abdominal pain	49	34.0	21	84.0	1	14.3	42	100.0	5	100.0	16	100.0
Vomiting	86	59 3	19	76.0	5	71.4	25	60.0	4	80.0	14	88.0
Diarrhea	6	4.1	1	4.0	..	....	..	....	..	....	..	....
Meningeal Symptoms:												
Headache	47	32.4	7	28.0	4	57.1	2	4.7	..	....	..	....
Irritability	22	15.2	6	24.6	3	42.9	..	....	..	....	..	....
Delirium	21	14.5	1	4.0	6	85.7	..	....	..	....	..	....
No history obtained	5	3.4	..	....	..	....	..	....	..	....	..	....
Looks like pneumonia	141	97.2	25	100.0	7	100.0	..	....	..	....	..	....
Herpes	26	18.0	5	20.0	3	43.0	..	....	..	....	..	....
Chest Signs:												
None on admission	11	7.6	..	....	..	....	..	....	..	....	..	....
Early	46	31.7	14	56.0	4	57.1	..	....	..	....	..	....
Definite	88	60.0	11	44.0	3	42.9	..	....	..	....	..	....
Abdominal signs	33	23.0	19	76.0	..	....	42	100.0	5	100.0	16	100.0
Meningeal signs	11	7.6	3	12.0	4	57.1	..	....	..	....	..	....
Number of cases with white blood count done	143	99.0	24	96.0	7	100.0	35	81.0	5	100.0	12	75.0
White Blood Count:												
Below 15,000	14	9.8	1	4 1	1	14.3	32	91.5	1	20.0	2	16.6
15,000 to 20,000	34	23.8	6	25.0	4	57.1	3	8.5	1	20.0	9	75.0
Above 20,000	95	66.5	17	70.9	2	28.6	..	....	3	60.0	1	8.3

The percentage of white blood corpuscles is based on the cases in which a white blood count was made.

Respirations are always in accord with the textbook icture: short, rapid, shallow, and usually accomanied by the characteristic expiratory grunt; we conder the respiratory movements a very important diferential point. In some instances one sees a difference respiratory excursion on one side as compared with ie other, but this is by no means a constant finding. f much more significance is the tendency of the child costal or abdominal breathing. The former is presit when the seat of the trouble is below the diaphragm, id the latter when the reverse is true. In other words, ere is a definite attempt on the part of the patient to nmobilize, so far as respiratory excursion is conrned, the part primarily affected.

In pneumonia the face is usually flushed, and the ae nasi are dilated. Herpes, if present, is strong idence in favor of pneumonia, but it is so uncommon finding that its absence is of no significance.

The child with appendicitis, as a rule, lies quietly in d, if left alone, complains of nothing, and shows gns of varying degrees of discomfort only when the odomen is palpated. Respirations are quiet, seldom creased, and never appear to be associated with the un.

We have admitted children as lobar pneumonia tients on the clinical picture just outlined in the absence of a reliable history and in the absence of definite physical signs; these have usually been demonstrable later.

Freeman[7] says:

> The best opinion is that a positive diagnosis [of pneumonia] in children can be made without the presence of physical signs in the chest when there exist several of the following symptoms—fever, overactivity of alae nasi, pneumonic type of respiration with a pause at the end of inspiration accompanied by an expiratory grunt, a relationship between respiration and pulse approximating 1 to 3, and particularly if there is the added sign of rigidity of the upper extremities with no rigidity of the lower extremities, an effort on the part of the child to protect a sore chest. . . . Pneumonias have been discovered when no physical signs of their existence have been found; and even after their demonstration by roentgen ray, the determination of the pneumonia by subsequent physical examination has proved negative.

The signs of rigidity of the extremities which he describes we have failed to notice, probably because until recently they have not been brought to our attention.

Heiman[8] reports eight cases in which no physical signs were elicited, but which presented the clinical picture of pneumonia, and in which the roentgen ray revealed the presence of lesions in the lung. Blauner,[9] on the other hand, believes that "central pneumonia does not exist; if pneumonia is there, we can find it." He states that it is not right to make a diagnosis in the absence of physical signs.

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[7] Freeman, R. G.: Pneumonia in Infancy and Childhood Without Physical Signs, Arch. Pediat. **37**: 11 (Jan.) 1920.

[8] Heiman, Henry: A Study of Pneumonia in Infancy and Childhood During Recent Epidemics, Tr. Am. Pediat. Soc. **33**: 117-125, 1920; Am. J. Dis. Child. **20**: 119 (Aug.) 1920.

[9] Blauner, S. A.: Physical Signs of Pneumonia in Children, New York M. J. **112**: 1032 (Dec. 25) 1920.

In a few instances in which we admitted children as pneumonia patients without physical signs we were wrong, the cases turning out to be acute infections, apparently of the upper respiratory tract. But it has been a much more common error for us to admit to the pneumonia service children who, we thought, did not "look like" pneumonia patients, but in whom we believed, after careful search, that signs of early pneumonia could be demonstrated. These suspected signs were usually found high in the axilla, or behind the scapula; but when we observed that several did not develop into anything more definite, we adopted the policy of not hunting for signs in patients who, we thought, did not look the part. Wilcox[10] calls attention to the fact that differences in auscultation and percussion peculiar to certain areas of the chest due to physiologic causes are exaggerated in children. It is interesting to observe that signs which we misinterpreted were usually found in the areas which he emphasizes. On the other hand, when we thought that the case did look like pneumonia, careful search usually revealed signs which later proved to have been those of early consolidation. We invariably spent several minutes merely watching the child as it lay on the bed or examining table before bringing into play the other methods of physical diagnosis, and of the 145 cases the records of 141, or 97.2 per cent., contain the definite statement that the patient "looks like pneumonia."

Admission temperature and pulse rate are always of value. The pneumonia patients seldom show a temperature below 102 F.; usually it is 103 or above, and the pulse varies from 100 to 140. The children with appendicitis, even including those with peritonitis or abscess, but particularly in the uncomplicated cases, show a surprising lack of systemic disturbance; the temperature is frequently not over 99, rarely over 101, and the pulse seldom over 100 to 110. An increase of the respiration-pulse ratio from 1 : 4 to 1 : 3 or 1 : 2 is usually evidence in favor of pneumonia.

Herpes was present in 18 per cent. of the pneumonia cases and in none of the appendicitis cases, and can consequently be used as added evidence in favor of pneumonia, when present; but its absence is of no significance. As differentiating between pneumonia and meningitis, of course, it is of no value.

Lung signs have been classified under the heading of "no signs," early signs and definite signs. The first group is self-explanatory: it includes cases in which after careful search, no definite signs of pathologic change could be made out in the lungs. Eleven patients, or 7.6 per cent., were admitted without signs in the lungs, and all developed them later. The early signs on which we have been most dependent have been slight changes in the percussion note, or in the quality and intensity of the breath sounds or whispered voice. Slight or moderate dulness, usually made out only by light percussion, has frequently been the only clue; at other times a slight change in breath sounds over a small area has been the only suggestive sign, but we have frequently, in the presence of other factors, considered one of these signs, or the two occurring together, sufficient to warrant the diagnosis of lobar pneumonia. The first variation of the breath sound is customarily a slight prolongation of the expiratory murmur with a just perceptible rise in pitch in both phases. The change is usually heard over an area no larger than a half-dollar. Usually the sounds ov the affected area are diminished. If the children a old enough to be cooperative, the change is brought o more clearly by whispered voice, and in cases in whi there is a respiratory grunt, one can often hear, ove the affected area, a blowing sound, following the actu grunt, which is somewhat comparable to the so apical systolic murmur heard in the heart. Thes signs are of much more value over the lower than th upper portions of the lung, and it cannot be too strongl emphasized that they must be interpreted with cautio particularly when heard over the upper lobes, or i cases in which the general picture is not that c pneumonia. More than half the cases of pneumoni wrongly sent in as appendicitis were found to hav signs no more convincing than those just mentione whereas, of the entire series of pneumonia, only 31. per cent. showed only early signs. If those showing n signs are included, however, we find a total of 39.3 pe cent. admitted as pneumonia who failed to show definite signs. The importance of recognizing these earl signs is based on the generally accepted fact that mor definite signs of solidification may appear not at all, o frequently not until late in the disease.

The term "definite signs" includes the cases whic showed unmistakable dulness with varying degrees o bronchial breathing, with or without râles. Change in vocal or tactile fremitus are usually present in thi group, but are seldom made out in the early cases Occasionally a friction rub can be heard before signs even of early consolidation, are present.

EXAMINATION OF APPENDICITIS PATIENTS

Signs in the abdomen are confusing. In reviewin the records, at first we attempted to classify tendernes and spasm according to location, degree and type (voluntary or involuntary); but so much depends on th personal equation of the observer, and the records i many instances were so lacking in careful descriptio with regard to these facts, that it was finally decided t classify, under the general heading of abdominal signs tenderness, spasm or rigidity, irrespective of their location and qualifications. Of the 145 cases of pneumonia thirty-three, or 23 per cent., showed abdominal signs and of the twenty-five cases in which lobar pneumoni was wrongly diagnosed as appendicitis, they wer found in 76 per cent., which much more closel approaches the 100 per cent. figure of the true appendicitis cases.

Tenderness was always present, spasm less frequently. As just stated, no description of the tenderness has been available in either series; but as a resul of studying carefully cases of both diseases, we hav gained the impression that palpation reveals a differen type of tenderness in the two conditions. In pneumonia it seems more severe, more superficial, and i usually not well localized but diffuse over a fairly larg segment of the abdomen, although varying in degre over this area. It has a tendency, like the pain, to b situated higher in the abdomen. Frequently the chil jumps or cries as soon as the abdomen is touched and deeper pressure does not add to the discomfort the part affected seems superficial rather than deep and at times almost suggests a hyperesthesia. Th tenderness in the uncomplicated appendicitis case ma be slight; it is always less impressive than that o pneumonia, and is more readily localized, usually to a small area in the right lower quadrant. It gives the impression of being deeper in the abdomen, and freently considerable pressure must be exerted by the lpating hand before the child shows real signs of scomfort. In the abscess case, tenderness is usually ore acute; in the peritonitis case it is generally diffuse, ut frequently less marked than would be expected. unn[3] states that tenderness is more difficult than in to recognize and localize in the appendicitis case.

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[10] Wilcox, H. B.: Some Peculiarities in the Symptomatology of Childhood, Arch. Pediat. 37: 577 (Oct.) 1920.

What has just been said concerning tenderness plies in a general way to spasm as well. Whether asm, particularly in the pneumonia cases, is volunry or involuntary is frequently difficult to determine, ut at times it can be worked out by palpation at the id of expiration, when, for a brief moment, the uscles are relaxed. With this exception, the abdomal muscles, when involved in the picture, are usually ld more rigidly in pneumonia than in complicated uncomplicated appendicitis. This was usually found cases in which the pneumonia involved one of the wer lobes, or the right middle lobe, although occaonally it was seen in upper lobe infections. When e condition was marked, and particularly when the pe of respiration suggested to us the possibility of tensive pleural inflammation or inflammation of the aphragmatic pleura, peritonitis was usually suspected. is interesting to note that these cases seemed to ow more of a tendency to later development of pyema, and the common association of the two contions is rather striking.

All the patients with acute appendicitis, complicated uncomplicated, were recorded as having tenderness spasm. No further description has been found in y of the surgical records. In seeing these patients fore operation, however, we have been constantly uck by the mildness of the abdominal picture. We n recollect patients in whom spasm could be called esent only by a considerable stretch of the imaginan; and even in cases of general peritonitis, spasm d tenderness have frequently been less prominent an would have been expected had conditions found the abdomen at operation been known in advance.

Another important sign is localized tenderness on lpation through the rectum, which, if present, is ong evidence in favor of appendical inflammation. e have no record of the number of instances in ich this examination was made, but recall several ses in which the presence of pain on rectal examinan was a strong factor in favor of the diagnosis of pendicitis. Fraser[11] calls attention to two signs ich he regards as of significance. The first he calls pposite side palpation": on pressing the hand into left side of the abdomen, if the origin of the pain abdominal, an accentuation is referred to the site of infection; but if the pain is thoracic, no alteration pain is produced. The second, which he calls the llar test," is based on the development of the phragm: irritation of this muscle is referred along distribution of the fourth cervical nerve, and an a of hypersensibility can be marked out. This is ent in high appendicular infections, but is present in europneumonic" conditions.

THE LEUKOCYTE COUNT

The presence of a high leukocyte count is usually ught of as evidence in favor of the diagnosis of a gical condition of the abdomen. We have been prised to find how frequently it is not at all, or only slightly, elevated in these cases. White counts have been arbitrarily listed as less than 15,000; from 15,000 to 20,000, and 20,000 and above. Of the entire pneumonia series, 66.5 per cent. showed a count of 20,000 and above, and 23.8 per cent. between 15,000 and 20,000, making a total of more than 90 per cent. of the pneumonia cases which showed white counts above 15,000.

In contrast with this, the cases of uncomplicated appendicitis showed only 8.5 per cent. above 15,000; none above 20,000, and the unexpected figure of 91.5 per cent. below 15,000. There was no record of a white count in 16.6 per cent. of this series.

These figures are not in accord with the usual belief. Dunn states that in acute appendicitis a polymorphonuclear leukocytosis of about 20,000 is usually present, while Kerley believes that leukocytosis is always present, and Griffith[12] says that there is a rapid increase in the white blood count, particularly of polymorphonuclears.

Three of the five patients with appendicitis with abscess showed leukocytosis of 20,000 and above; while in more than half of those with peritonitis the white count ranged between 15,000 and 20,000. The figures for this series are of less value, as there was no record of leukocyte examination in a quarter of the cases. There is no question, however, that there is a tendency for the count to run considerably higher in the complicated than in the uncomplicated cases.

The value of the white count, then, seems to lie chiefly in its use as a factor in differentiating between uncomplicated appendicitis and lobar pneumonia. The higher the leukocytosis, the greater the likelihood of the case being pneumonia. When abscess or peritonitis is suspected in the presence of a high white count, one must fall back on other features.

MENINGEAL SIGNS

Seven patients of the lobar pneumonia series were sent to the hospital with a diagnosis of meningitis. In most cases the mistake was made partly because of the presence of headache and delirium, but in four there were signs of meningeal irritation; all of these showed some stiffness of the neck, but none showed Kernig's sign or other reflex abnormality. Spinal fluid examination, of course, is the key to the diagnosis, but in view of the recent work of Weed and his co-workers,[13] we were reluctant to perform lumbar puncture if the diagnosis could otherwise be established. It is impossible, if signs of meningeal irritation are present, to distinguish between true meningitis and meningism, without spinal fluid examination, so that the diagnosis rested entirely on the ability to state definitely whether or not lobar pneumonia was present. Here the history of respiratory symptoms, the appearance of the patient, and the demonstration of early signs of solidification were equally important. The leukocyte count is of no value. The presence of meningeal signs must be disregarded until pneumonia has been ruled out.

SUMMARY

1. A series of 145 cases of lobar pneumonia in children, aged from 2 to 15, has been studied to determine the most common sources of error in diagnosis, and the signs and symptoms in early pneumonia

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1. Fraser, John: Abdominal Emergencies of Childhood, Brit. M. J. 73 (Feb. 4) 1922.

[12] Griffith, J. P. C.: Diseases of Children, Philadelphia, W. B. Saunders Company, **1**, 1919.

[13] Weed, L. H.; Wegeforth, Paul; Ayer, J. B., and Felton, L. D.: A Study of Experimental Meningitis, Monograph 12, Rockefeller Inst. M. Res., March 25, 1920.

which are of the greatest value in reaching the correct diagnosis. For purposes of comparison, a series of sixty-three cases of proved appendicitis has been reviewed.

2. Of the cases of lobar pneumonia, 17.5 per cent. had at one time or another been wrongly diagnosed as acute appendicitis or surgical condition of the abdomen, and 4.8 per cent. as cerebrospinal meningitis.

3. A history of cough or pain in the chest points toward a diagnosis of pneumonia, but the absence of respiratory symptoms does not rule out this disease. A history of vomiting, abdominal pain and diarrhea is of no value, as these occur as frequently in pneumonia as in abdominal conditions.

4. The pneumonia patients always seem more ill and present a characteristic general picture not seen in the abdominal cases. If recognized, this is a very important differential point.

5. Pneumonia patients show much more of a systemic reaction, as seen by pulse and temperature chart, than do the abdominal cases.

6. Careful examination of the lungs will frequently reveal a small area suggesting early solidification; but if it is located in the upper half of the chest, or in patients who do not otherwise present the picture of pneumonia, it must be interpreted with caution. Abdominal tenderness and spasm are relatively frequent in pneumonia, but are of a type dissimilar to those found in acute abdominal conditions.

7. A high leukocyte count favors the diagnosis of pneumonia except when peritonitis or appendix abscess is suspected, in which case it is of no value in differentiating the condition from pneumonia.

8. In the presence of symptoms or signs of meningeal irritation, lobar pneumonia should be ruled out before lumbar puncture is done.

HYPERACIDITY OF THE GASTRIC CONTENTS IN CHILDREN *

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AND
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Exhaustive studies, voluminous literature and a great deal of discussion have centered around the condition known as hyperacidity of the stomach in the adult. That a similar condition may occur in the earlier years has evidently not been appreciated, if we are to judge by the attention paid to the disorder as we find it in children.

SYMPTOMATOLOGY

The symptoms, in their order of frequency, that bring the child to the pediatrician, are: abdominal pain that has not been relieved by previous treatment; nausea without vomiting; vomiting at irregular intervals, and loss of appetite.

The pain occurs most often before meals when the stomach is supposedly empty. In many, pain is complained of before the morning meal. In some, the child is awakened early because of the abdominal discomfort. When asked to locate the pain, the child usually places the hand over the abdomen above the umbilicus. In some, the pain is of a colicky character sufficiently severe to cause the child to cry.

Vomiting.—With the pain there may be daily morning vomiting, or the vomiting may occur independently of pain, or the child is nauseated and vomits before the meal or immediately after. Breakfast is usually the meal vomited.

Nausea.—In some there is neither vomiting nor pain, the condition manifesting itself by nausea, most prominent before meal time, which may be relieved by taking food.

Appetite.—The appetite is variable. In most instances it is very defective, and the child has to be urged to eat. In others, the child will be eager for food but is satisfied by a few mouthfuls; a feeling of fulness is complained of, and further feeding must be urged.

Many children with an habitually poor appetite are victims of hyperacidity.

Nausea and Eructation of Gas.—This combination is not infrequently seen, and is almost always associated with an indifferent and capricious appetite. Eructations of gas, and belching may be the only symptoms complained of. I have had mothers tell me that the eructation was so pronounced as to be embarrassing.

Constipation.—This is usually present; probably the small food intake has much to do with this. In those in whom the condition has existed for a considerable time there is malnutrition and anemia due to the defective food intake. In mild cases the appetite alone will be involved.

Etiology.—Dietetic errors will usually be found responsible for the disorder, but not invariably. In addition to the usual bad feeding habits, that of unsuitable food at irregular hours, eating between meals and the liberal patronage of confectionery stores and soda fountains, there will be the story of the habitual use of orange juice in liberal amounts on an empty stomach before the first meal, or the condition may be due to the use of orange juice alone on an empty stomach before breakfast. The orange juice is taken cold and undiluted, and supplies sufficient irritant to produce a hyperacidity.

Stomach.—Hypomotility and pylorospasm, both conditions not uncommon in children, cause delayed emptying of the stomach beyond the four hours that is the normal evacuation time for the runabout child. This gives rise to gastric retention, which causes hyperacidity. We have studied 109 children in regard to this point by means of the roentgen ray, using the stomach tube as a control in several of the patients. We find operative also the short period allowed between the first and second meal of the day. On account of family habits or because the child is a late sleeper, the first meal is delayed and not completed before 8:30 or 9 o'clock. The second meal is given promptly at 12 or 12:30, all of which means that the second meal is given before the first meal has entirely passed through the pylorus, and again there are retention and hyperacidity. In order that there may be a good appetite and normal digestion, there must be no food residue in the stomach when a meal is given. Further, we have found that a rest period or interdigestive period of from half to one hour is required, in order that the stomach functions may be carried on normally. It is to be understood that the rest period refers to an empty stomach.

In sixty-seven recent cases of chronic stomach disorders we have insisted on the test meal and gastric analysis, and have been surprised at the coöperation of the parents. This is to be accounted for probably by the fact that the child is brought independently or is referred by the family physician for a condition which is believed to be serious.

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EXAMINATION OF GASTRIC CONTENTS

Test Meal.—The test meal consists of 2 ounces (60 gm.) of dried bread and 6 ounces (178 c.c.) of weak tea. In one hour the stomach contents are removed by the stomach tube.

The Preparation of the Patient.—The child is wrapped snugly in a rubber sheet, primarily to prevent struggling and secondarily to prevent soiling of the clothing, by material vomited along the sides of the tube and by the profuse secretion of saliva. The child is held firmly by the assistant. After the tube has been moistened in warm water, it is passed to the posterior part of the pharnyx. Older children are asked to swallow, but in the younger it is necessary to pass the tube without cooperation. A certain definite resistance is encountered when the tube strikes the greater curvature of the stomach. Usually the evacuation of the stomach contents begins immediately. The flow is accelerated by coughing, crying and vomiting. It is frequently necessary to begin the evacuation by aspiration. We ind the Hess bulb satisfactory for this procedure.

Technic of Gastric Analysis.—Three separate porions of 10 c.c. of unfiltered gastric juice are placed in hree small beakers. To the first portion three or four drops of phenolphthalein are added, and this is itrated with tenth-normal sodium hydroxid until a deep permanent purple is obtained. The number of cubic entimeters of tenth-normal sodium hydroxid used in itrating is then multiplied by 10, giving the total acidity of 100 c.c. of gastric contents. Three or four drops of alizarin is added to the second beaker, and this is itrated until a permanent violet is obtained, when the eading on the buret is made. This result is subtracted rom the number of cubic centimeters used with henolphthalein as the indicator. This is multiplied by 0 to obtain the amount of combined hydrochloric acid in 100 c.c. of gastric juice. To the third beaker, three r four drops of Toepfer's reagent is added, and this is trated until the red disappears and yellow makes its ppearance. The buret is read and the result multiplied y 10. This gives the amount of free hydrochloric cid in 100 c.c.

Results of Examination of Gastric Contents.—mong sixty-seven cases, forty-four showed a total cidity over 60; thirty-six, over 70; twenty-four, over); three, over 90, and two, over 100. The two cases howing a total acidity over 100 were those in which ere was a food residue remaining from the meal prior the test meal. Of the twenty-three that were under), the findings were: fourteen between 50 and 60; our between 40 and 50; four between 30 and 40, and ne between 20 to 30. We have come to look upon the ormal acidity in children as ranging between 30 d 40.

In the same series we determined the amount of free ydrochloric acid in the gastric contents of fifty-nine atients. Fifteen showed the amount of free hydroloric acid to be between 1 and 10; seventeen, and 20; eight, between 30 and 40; four, between and 50; two, between 50 and 60; three, between 60 d 70, and one, between 70 and 80. There were but ree cases in which we found an absence of free drochloric acid in those investigated.

MANAGEMENT

Three full meals are allowed: breakfast at 7:30 a. m., dinner at 12:30, a cracker at 3:30 and supper at 6 p. m. Raw fruits, fruit juices and condiments are forbidden. Solids and liquids are to be given neither very hot nor very cold. Ice cream and all iced drinks are excluded. Sugar is used scantily. Medication consists of a powder composed of sodium bicarbonate and bismuth subcarbonate, 2 grains (0.13 gm.), and magnesium carbonate, 1 grain (0.065 gm.) is given with a half glass of warm water fifteen minutes before each meal. If constipation is a factor, from 15 to 30 drops of aromatic fluidextract of cascara sagrada is given after each meal, and not in one dose at bedtime.

Results of Treatment.—The outcome of the treatment has been most satisfactory. Children rarely have gastric, pyloric or duodenal ulcers. Malignant disease of the stomach is so rare an occurrence that it can be excluded. They are promptly relieved with few exceptions, but the diet and the medication should be continued for several weeks. We have known relapses to occur a year or more after the cessation of treatment. When there has once been a definite hyperacidity, there is a strong tendency for it to return, and some of these patients are unquestionably in line for surgical procedure later in life.

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ABSTRACT OF DISCUSSION

DR. JOHN ZAHORSKY, St. Louis: I became interested in hyperacidity of the stomach in infants many years ago. I think it was Knoepfelmacher who reported one or two cases of hyperacidity in young children or infants, and I began to study some of these cases. We found, however, that while on the ordinary test meal, or in young children after giving a barley gruel, one can get proof of a hyperacidity in some cases as shown by ordinary test, Toepfer's solution, for example, if one gave this child concentrated milk solution, that is, straight milk or milk containing a great deal of casein, that one could not demonstrate any free hydrochloric acid. In other words, the casein acts as a neutralizer or buffer in neutralizing this hyperacidity. Hyperacidity after an ordinary test meal, as shown by the chemical test, is fairly common; hyperacidity in patients when given a full meal, especially one containing milk, is very rare. Having shown that, I dropped the subject and have not made any test, except that mothers are given, now and then, a paper stained with Toepfer's solution to test the vomitus of the child to see whether the characteristic change appears in this paper. If it does, then they are subjects for further examination. This paper is extremely valuable, but I doubt whether we could accept at once that the hyperacidity in itself was the cause of the symptoms in these cases, especially in those shown by the roentgen ray. One is inclined to think that the hyperacidity is merely the secondary phenomenon, and that there are other factors which need correction first, which Dr. Kerley really has emphasized.

DR. THOMAS C. MCCLEAVE, Oakland, Calif.: The treatment of these patients with pendulous abdomens and general abdominal distress and vomiting consists in raising the beds and having the children sleep in that position on a hard mattress without a pillow. These children treated for this condition always show a condition of enteroptosis. Raising the foot of the bed causes relaxation of muscular spasm and straightens out kinks during sleep, improves the appetite, and causes gain in weight. It is surprising how many children have enteroptosis without symptoms. It is surprising how very universal enteroptosis is in young persons of college age, most of them showing no symptoms, however, referable to that condition. And when one sees how common enteroptosis is in children, it makes one wonder whether the anatomic position of the organs in question has anything to do with the symptoms. In many children the colon is below their iliac crest, and yet they are perfectly well.

Dr. Mary Freeman, Perrine, Fla.: Some one called attention to the fact that cherry red lips indicate hyperacidity, and in my early practice I used blue litmus paper in the mouth to find out whether the saliva was normal or acid. In the majority of cases in which there is disturbance of the alimentary tract I found a very marked hyperacidity; and now I can almost always tell by the cherry red lips and the tongue, when a child is brought to the office or seen for the first time, that there is hyperacidity present. I had used sodium bicarbonate, and I am glad to hear of Dr. Kerley's suggestion of using bismuth. I have also used aromatic cascara after meals. But the blue litmus paper in the mouth will point the direction in which one is going.

Dr. Harry Lowenburg, Philadelphia: That part of Dr. Kerley's paper which deals with the relationship of hyperacidity to anorexia is extremely important and enlightening to me. I think that all of us come in contact with a vast army of children who are brought by their mothers because they will not eat. For my part, I have taken refuge behind the psychic element and have usually confined my advice to a lecture to the parents and to the grandparents and whoever else may form the environment; but Dr. Kerley's reference to hyperacidity as a cause of the anorexia gives us something more tangible to work on, especially since these parents bring the children to us with the hope that we may do something for them aside from reading to them a moral lecture, which usually is of no avail. I think I can plead guilty with a great many others of suspecting worms and many other conditions which perhaps can be ascribed to the hyperacidity to which Dr. Kerley makes reference. My own experience is rather in keeping with that of Dr. McCleave, that is, that not all children who have abnormalities as revealed by roentgen study are the subject of symptoms. I have in mind particularly the son of a physician, who was brought to me by his father, fearing that he had tuberculous peritonitis by reason of the fact that he had large masses in his abdomen, which were readily palpable. In fact, they were so palpable that the boy thought they were bones. This boy proved to have Hirschsprung's disease, of extreme degree, and yet his attitude of living and complexion certainly gave the lie to us who believed that all headaches and obscure pains are due to constipation. I removed from this lad just exactly 17 ounces of feces; and yet he never suffered a symptom. His cecum was so dilated and heavy that it fell over on the left side. The most important part of this paper is the calling of attention to the association of obscure symptoms with the hyperacidity.

Dr. Frank B. Hollenbeck, Lincoln, Neb.: I should like to ask Dr. Kerley what attitude he would assume on the midmorning and midafternoon feeding of milk which is so frequently given in schools in the malnutrition cases.

Dr. Charles Gilmore Kerley, New York: I do not for a moment want to have it inferred that every child who had gastroptosis or abnormalities of the intestinal tract necessarily showed symptoms, or that those cases invariably showed hyperacidity. The point I wish to make is that in these cases of hyperacidity we had these factors present, and the recognition of these factors, plus treatment, is sufficient to give relief very promptly through medication, diet, support of the abdomen, and postural treatment. We not only raise the foot of the bed, but make the child rest on his right side for an hour after meals in the bad cases of stomach ptosis. In addition to that we give a dry meal. We do not give fluid with the meals. We give a dry breakfast and give milk at 11 a. m. and at 3:30 p. m. so as to overcome the overload. The etiology dates back to infancy. They were bottle-fed children, who had been given 8, 10 or 12 ounces of food every two or three hours—a continuous overload with resulting ptosis. There are some children with ptosis that will never show symptoms; others will not until they are 10 or 12 years of age, and others, perhaps, not until they are 25 years old; but when one has such a case with associated symptoms, it is well to recognize it, and then one is in a position to use supportive measures, and carry the case through to a satisfactory conclusion. I have examined a considerable number of ptosed stomachs, tested them out with ordinary meals and with the bismuth test meal, and then we have checked them up. The child has always been given the credit of a normal digestive tract, and when abnormalities are discovered in later life, they have been thought to be due to occupation incorrect posture and other causes. That the gastric intestinal abnormalities of later life are of congenital origin, in part, or have been acquired in childhood has never been appreciated. These patients have been through different hands. They come to me because they do not grow, and cannot keep up play with their fellows. They fail to show proper growth, as their nutrition is always involved. Hyperacidity is invariably a secondary affair. I do not believe that there is such a thing as a primary hyperacidity in a child. In causing hyperacidity in children, two factors are operative—stomach abuses and malposition, and the roentgen ray is the only means we have of registering mechanical defects.

COAGULABILITY OF THE BLOOD DURING PREGNANCY AND IN THE NEW-BORN *

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The coagulability of the blood has been studied by a number of physiologists and clinicians in recent years. The reason for this is the great practical importance of hemorrhage as a complication of both medical and surgical conditions. Of the various branches of medicine, none has a more frequent incidence or more serious forms of hemorrhage than obstetrics.

The hemorrhages that the obstetrician may be called on to deal with fall naturally into two classes: maternal, and those occurring in the new-born. Every pregnant woman may have antepartum, intrapartum or postpartum hemorrhage. The blood loss varies from the few hundred cubic centimeters that are lost after every delivery to serious bleedings that may cause a fatal termination in a few minutes. The frequency of bleeding sufficiently severe to be termed a pathologic loss of blood is variously estimated by different authors, but it is safe to say that such bleeding occurs in about 3 per cent. of all cases. The amount lost varies from 500 c.c. to 2 liters or more. The pathologic significance of such blood loss is, according to Williams,[1] slight in the majority of cases, for he believes that the pregnant woman is protected in some obscure way against the deleterious effects of the hemorrhage which, in the nonpregnant woman, would result in grave symptoms. However, he cites cases in which relatively small hemorrhages gave rise to extremely serious symptoms and even death.

Hemorrhages occurring in obstetric cases may be divided into two groups or classes:

1. In the mechanical group, physical defects or alterations of the tissues give rise to a failure of the usual physical mechanism that checks hemorrhage, although the coagulation mechanism may be perfectly competent. Into this group fall cases of abortion; placenta praevia; abruptio placentae; ruptured uterus; ectopic pregnancy; postpartum hemorrhages due to atony, primary or secondary, of the uterine musculature, cervical tears, and rupture or varicose veins of the vagina and vulva. The mechanical factor is relatively frequent in the child following an insecure tie of the cord or a circumcision with improper suture or no suture at all, as in the children circumcised by mohls.

2. In the chemical type, the underlying factor is a failure of the blood to clot firmly in the normal

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[1] Williams, J. W.: Am. J. Obst. 80:1 (July) 1919.

physiologic time limits under normal conditions. This type of hemorrhage is seen almost entirely among babies. The cases occur practically always during the first two weeks of life. Bleeding occurs in the form of capillary hemorrhages, and may come from the nasal mucosa, stomach, bowel, urinary tract, umbilical cord or from a circumcision wound. The chemical type of hemorrhage is very rare in the mothers, and I have seen it only in women who have suffered from a severe mechanical hemorrhage which so depletes the elements necessary for coagulation in the blood that the patient continues to bleed even after the mechanical factor has been removed. This accords well with the fact that hemophilia is very rare in the female members of a family, but is transmitted through them to the male members.

This work was undertaken to throw some light on several points:

1. To establish some figures for the coagulation time in normal pregnant and puerperal women and in newborn infants.

2. To determine whether differences exist in the coagulation time of the blood of the mother and fetus at the time of delivery.

3. To determine whether hemorrhagic tendencies in the mother could be detected from a study of the coagulability of the blood at or before the birth of the baby, and a postpartum hemorrhage prognosticated before the bleeding began.

4. To determine whether the coagulation time of the baby's blood at birth would give a clue to the probable occurrence of hemorrhages in the next few days.

5. To determine whether the predisposition to postpartum hemorrhage following ether anesthesia in obstetric cases is due to alterations in the coagulability of the blood.

TECHNIC

The technic used was essentially that of Howell,[2] and was adopted so that the results obtained might be compared with his and with figures obtained by others sing his methods. From a study of the literature on oagulation of the blood, one is struck with the muliplicity of methods and their divergent results, renlering the work of the different writers valueless for omparison. The technical difficulties of making ccurate determinations by any method are great nough as it is, and the results obtained are relative, ot absolute, so that a standard technic is desirable to ninimize the discrepancies.

TABLE 1.—COAGULATION TIME OF MOTHER'S BLOOD ANTEPARTUM

Case	Coagulation, Minutes	Calcium, Minutes	Prothrombin, Minutes
1	4.5	5	9
2	4	5.5	6
3	4.5	2.5	11
4	5.5	6.5	3
5	4.5	3	5
6	8.5	8.5	5.5
7	3	5	6
8	6	3	4.5
9	5	4	3.5
Average	5	4.5	5.9

Three factors were determined in these experiments: alcium time, coagulation time and prothrombin time.

The coagulation time was estimated by placing 1 c.c. f whole blood in a tube recently rinsed with physiologic sodium chlorid solution, and tilting the tube to the horizontal every half minute until the tube could be inverted without losing the clotted blood.

The calcium time was estimated by adding 1 c.c. of whole blood to 6 drops of a 0.5 per cent. solution of calcium chlorid and tilting the tubes in the same manner as for the coagulation time, and reading the end point in the same manner.

The prothrombin time was determined by placing 0.5 c.c. of a 1 per cent. solution of potassium oxalate in a centrifuge tube and adding about 4 c.c. of whole blood. This was mixed thoroughly and centrifuged for ten minutes at moderate speed, and the clear plasma was used for the determinations. Seven tubes were rinsed with physiologic sodium chlorid solution and placed in a rack. To Tube 1 was added 2 drops of a 0.5 per cent. solution of calcium chlorid. To Tube 2 was added 3 drops and so on, until the seventh received 8 drops of the calcium chlorid solution. Five drops of the oxalated plasma was added to each tube, and the time and tube noted at which the coagulum first appeared. The end-point was determined by tilting the tubes every half minute, as in the case of the calcium and coagulation time estimation.

TABLE 2.—COAGULATION TIME OF MOTHER'S BLOOD INTRAPARTUM

Case	Coagulation, Minutes	Calcium, Minutes	Prothrombin, Minutes
1	5	4.5	4.5
2	4.5	4	2.5
3	4.5	4	2
4	6	5	4
5	5.5	6.5	4.5
6	3.5	4	3.5
7	5	6.5	6
8	5	3	3
9	4	6	2.5
10	6.5	5	2.5
11	3	2.5	4
12	3	3.5	7
13	4	2	4
14	7	5.5	3.5
Average	4.75	4.43	3.82

The blood was obtained from the mothers by puncture of the median basilic vein, and drawn into a Luer syringe which had been rinsed with physiologic sodium chlorid solution immediately before the blood was drawn. The fetal blood was obtained by puncture of the vein of the umbilical cord, in most cases just before or just after the cord was clamped, but in a few cases from a few minutes to half an hour after the delivery of the placenta. Some investigators have used blood from the cut end of the cord, but this is hardly comparable to blood obtained by venipuncture because of the presence of Wharton's jelly and thrombokinase set free from the cut surface of the cord. In all cases the readings were made immediately after the samples were obtained, and an attempt was made to provide uniform conditions as to temperature and moisture to avoid variations in results due to these factors.

RESULTS

From a study of the figures it would seem that the coagulation time of the blood is not prolonged beyond the normal in pregnant, parturient or puerperal women. Table 1 shows the results of tests made on pregnant women not in labor. It is seen that the average coagulation time was 5 minutes, calcium time 4.5 minutes, and prothrombin time 5.9 minutes. These figures are well below the upper limit of 8 minutes set as the coagulation time of normal blood. Indeed, it would seem that a slight increase in the coagulability of the blood occurs in pregnancy.

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[2] Howell, W. H.: Harvey Lectures, 1916-1917.

Table 2 gives the results of the tests made while the woman was in active labor, and in most cases only a few hours or minutes before the birth of the baby. Theoretically, it might be assumed that the marked physical strain of labor, together with the more obscure, but nevertheless significant, changes in the physiologicochemical constituents of the blood at this time, might have a marked effect on the coagulation time. However, it will be seen from the figures that the average coagulation time was approximately the same as in the preceding series, 4.75 minutes. The calcium time was 4.43 and the prothrombin time 3.82 minutes. These figures are slightly less than those in Table 1; the difference is not striking enough, however, to warrant drawing conclusions.

TABLE 3.—COAGULATION TIME OF MOTHER'S BLOOD POSTPARTUM

Case	Coagulation, Minutes	Calcium, Minutes	Prothrombin, Minutes
1	3	2	10
2	6	5.5	4.5
3	5	5.5	4.5
4	6.5	7.5	4
5	5.5	6.5	4
6	7	8	2
7	7	6	2.5
8	6	6.5	2
9	3.5	4	3.5
10	4	5	2
Average	5.3	5.65	3.5

Table 3 shows the results obtained from the coagulation time determinations on the blood of women during the puerperium and during lactation. The figures indicate that the coagulation time is about the same as for pregnant women and for women in labor. The average coagulation time was 5.3 minutes, calcium time 5.65, and prothrombin time 3.5 minutes.

Table 4 shows the results obtained from the coagulation time determinations on the blood of the new-born babies. The average coagulation time was 4.5 minutes, calcium time 3.75, and prothrombin time 3.5. In this series the blood was obtained from the umbilical cord by venipunture as soon as possible after the delivery of the baby. In two cases the blood was obtained fourteen and thirty minutes, respectively, after the placenta was expelled. The coagulation, calcium and prothrombin time was not materially altered in these cases.

None of the babies of this series proved later to be bleeders, so that a statement regarding the coagulation time in this class of cases at the time of birth cannot be made. However, the opinion is ventured, and is supported to some extent by the work of Rodda, that even in these cases the coagulation time is normal at birth.

The prothrombin time estimation in some of the cases was very difficult, owing to the fact that while a clot formed in these cases, it was not very firm, and it was difficult to determine just when it had reached its maximum density.

COMMENT

It would seem from a consideration of these figures that the blood coagulation time in women before, during or after delivery is well within the normal limits, and that blood taken during labor, just before the birth of the baby, coagulates a little more quickly.

These results accord very well with those of Myer Solis Cohen,[3] who made his coagulation observations on drops of blood in a Stender dish at constant temperature on a water bath. He found that menstruation and pregnancy caused no change in coagulation, and that the puerperium decreased the coagulability of the blood slightly. He found also that the intake of fluids decreased the coagulability of the blood, and that the coagulation time was prolonged after meals.

Weiss [4] found that the coagulation time in the new-born was less than the average for the adult, as measured by the Wright method, and, as was seen in these experiments, was frequently the same as that of the mother's blood. In some instances it was delayed, but in these cases the coagulation time of the mother's blood was also delayed. He also found that breast-fed babies had a longer coagulation time than those fed on cow's milk. He ascribed this to the fact that cow's milk contains more calcium and magnesium than mother's milk.

Rodda [5] found that the average coagulation time in new-born infants was seven minutes, and ranged from five to nine minutes. His method consists in placing a drop of blood between two watch crystals and rolling a lead shot through the drop till the shot is caught by the coagulum. He noted that the coagulation time was progressively prolonged till the fifth day, and that it returned to normal by the tenth day. This corresponds to the clinical observation that most of the spontaneous hemorrhages seen in the new-born occur from the second to the eighth day.

The addition of calcium to the blood seemed to increase the coagulability, but not sufficiently to be accounted a significant factor in the hemorrhages of the new-born. This agrees with the work of Emmel,[6] who found that the calcium content of pig embryos was in excess of that in adults in the proportion of 7 : 5. He noted also that the presence of bile in the blood of these embryos is the primary factor in the increased coagulation time. This, he found, could be overcome by the addition of tissue juice, which neutralized the action of the bile. He noted that the blood platelet count was about the same in the embryos as in the adult pigs. The clots obtained were loose and of the sliding type, as opposed to those in my series, which were as firm as the clots observed in the adult bloods. The babies in this series were all full-term.

TABLE 4.—COAGULATION TIME OF BLOOD OF NEW-BORN

Case	Coagulation, Minutes	Calcium, Minutes	Prothrombin, Minutes
1	5.5	4	3
2	5	3.5	4
3	4	3	5
4	4	2	4
5	4	3.5	4
6	3.5	3.5	2
7	4.5	5	2
8	4.5	4	2.5
9	4	4	4
10	5.5	5	4.5
Average	4.5	3.75	3.5

It is seen from a comparison of the coagulation time of the maternal and fetal blood, as shown in Table 5, that at the time of birth there is very little difference. In most cases, if the coagulation is retarded in one, a similar change is noted in the other, though it may be less marked. These facts would argue that there is probably a free exchange, through the placenta, of the substances that enter into the reaction of coagulation. This, in turn, shows why the hemorrhages of the newborn rarely, if ever, occur on the first day of life, but are usually seen about the fourth day.

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[3] Cohen, M. S.: The Coagulation Time of the Blood as Affected by Various Conditions, Arch. Int. Med. **8**: 684 (Nov. 15) 1911.

[4] Weiss, Hugo: Wien. klin. Wchnschr. **23**: 839, 1910.

[5] Rodda, F. C.: Determining Coagulation Time of Blood in New-Born, Am. J. Dis. Child. **19**: 269 (April) 1920.

[6] Emmel, V. E.: J. Exper. Med. **31**: 177 (Feb.) 1920.

Postpartum hemorrhages have been observed clinically much more frequently in patients who have been under ether anesthesia than in patients who have not been anesthetized. This factor was observed in all cases, but no differences in the coagulation time could be detected in the two groups. It is probable, therefore, that these hemorrhages are due to relaxation of the uterine muscle bundles, thus releasing the constriction on the uterine vessels.

TABLE 5.—COMPARISON OF MATERNAL AND FETAL BLOOD

Blood	Case	Coagulation, Minutes	Calcium, Minutes	Prothrombin, Minutes
Maternal..............	1	3	2.5	4
Fetal..................	1	3	3	No good clot
Maternal..............	2	4	4	4
Fetal..................	2	4	2	4
Maternal..............	3	5	6.5	6
Fetal..................	3	3.5	3.5	2
Maternal..............	4	6.5	5.5	4.5
Fetal..................	4	5	5.5	4.5
Maternal..............	5	3.5	4	3.5
Fetal..................	5	6	7	4.5
Maternal..............	6	5	3	3
Fetal..................	6	5.5	4	3
Maternal..............	7	4.5	4	2.5
Fetal..................	7	4.5	4	2
Maternal..............	8	4.5	4	2
Fetal..................	8	4.5	4	2
Maternal..............	9	6	4	4
Fetal..................	9	4	4	4
Maternal..............	10	3	3.5	7
Fetal..................	10	4	3	5

CONCLUSIONS

1. The coagulability of the blood in women before, during and after labor, as measured by the estimation of the coagulation, calcium and prothrombin time, is well within the limits of normal blood coagulability.
2. Maternal and fetal blood at the time of birth of the baby have practically the same coagulation time.
3. There is no evidence from this series of experiments that pregnancy tends to produce a hemophilic state in the mothers; hence, postpartum hemorrhage can rarely, if ever, be ascribed to this cause.
4. Fetal blood at birth clots with normal firmness and rapidity, so that subsequent hemorrhagic tendencies cannot be detected from coagulation tests at this time.
5. Patients who took ether exhibited the same coagulation time as those delivered without ether. Postpartum hemorrhages, therefore, which are more common in these cases, cannot be explained on the basis of decreased blood coagulability.

Infant Mortality and Prevention in New Zealand.—The esult of a study made by the U. S. Department of Labor (children's bureau) shows a close relation between organized infant welfare work and a striking reduction in the number f infant deaths in New Zealand. The New Zealand rate is ower than that of any other country in the world, it is stated. For 1919, the number of deaths of infants under 1 year of ge was only 45 to every 1,000 live births, as compared with 7 in the United States birth registration area. The credit or this is due to the work of the Royal New Zealand Society or the Health of Women and Children, organized in 1907. opular education in "mother-craft" is also promoted, through ee distribution of pamphlets; publication in the newspapers f a regular column on "Our Babies," and the natural passing on of information among the women of the society.

BATTERY BURNS

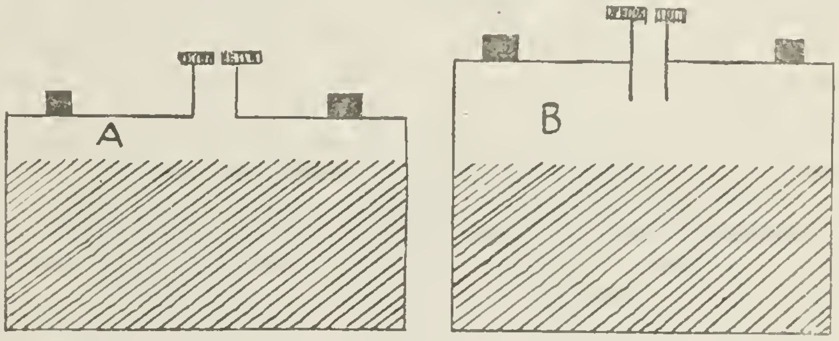
REPORT OF THREE CASES

HARRY S. GRADLE, M.D.
CHICAGO

There have come under my observation, during the last two years, three cases of burns of the eye and adnexa by sulphuric acid from storage batteries. The burn in itself in each case has presented no clinical features unusual to any acid burn; but the interesting feature has been the manner of production. All of the cases have been in mechanics working on the storage batteries of automobiles, and a few brief facts concerning such batteries would not be amiss.

A storage battery consists of an acid-proof cell, containing alternate plates of lead and zinc and filled with dilute sulphuric acid. The cell has an acid-proof cover, through which three vents lead, two of them closed by the usual electrode connections, while the third is for ventilation and is usually closed by a rubber screw-cap with a pinhole aperture in it. Such a battery is continuously charging or discharging, and is never electrically quiet unless completely inert.

During the process of charging, heat is generated by the resistance of the fluids to the electrical current, and hydrogen is given off by an electrolytic change in the sulphuric acid. When the battery is at an electrically low ebb, the amount of heat and hydrogen given off is very minute; but as the point of electric saturation approaches, the heat increases in amount so that a fully charged battery has a temperature at its point of saturation as high as 140 C. (284 F.). At this point, the hydrogen is given off in such quantities that visible bubbles appear in the battery solution, and the battery is said to be "gassing." And this is the dangerous point. An open flame of any sort, whether it is an electric spark, a blow-torch, or a glowing cigaret, suffices to ignite the hydrogen that has been mixed with air, and the gases will burn with an almost instantaneous flame. Were this in the open and unconfined, there would be no danger. But the flame occurs within the small air chamber that lies within the battery cell between the upper level of the sulphuric acid and the cover of the cell. Confined within this small space, the rapidity and intensity of the gas flame is sufficient to be regarded as an explosion, exerting tremendous pressure equally in all directions. The sole vent is the aperture for ventilation (and the cap is usually off), and through this are driven the burned and burning gases and quantities of sulphuric acid that lie near the surface.



Batteries in cross-section, with small dead space (*A*) and large dead space (*B*, dangerous type).

The force is sufficient to drive the mixture several feet into the air, and woe betide the flesh that lies within the range of that hot sulphuric acid with its relatively high specific gravity of 1.350. The distance that the mixture is expelled from the cell depends on the amount of hydrogen present, which, in turn, depends on two factors. First, on account of the extreme lightness of hydrogen, the gas escapes from a charging cell fairly rapidly unless the vent hole is too small or even entirely plugged. Therefore the battery must be actually charging for hydrogen to be present in sufficient quantities to be dangerous. Second, if the cell cover is relatively low and the air vent is flush with the inner surface of the cover, the possible quantity of hydrogen is limited. But if the cell cover is high above the surface of the acid and if the air vent projects three-quarters inch through the cover (as is the case in one make of battery), a large dead space is present in which sufficient amounts of hydrogen may accumulate so that the force of the resultant explosion will blow the entire cell cover off, spattering the acid in all directions. The accompanying diagram shows cross-sections of batteries with small dead space and with large dead space (dangerous type). It is scarcely necessary to add that hydrogen alone and in a pure state is noninflammable, and that the admixture of air or oxygen is essential to the production of a flame. But the explosion of such a mixture is of the most violent type, exerting tremendous force.

REPORT OF CASES

CASE 1.—H. S., July 9, 1920, was using a blow-torch to heat a battery connection for a repair job of soldering. The battery had just been "taken off the line," and was fully charged. An explosion occurred, and hot acid was splashed into both eyes. He washed both eyes with tap water immediately, and ten or fifteen minutes later flushed the eyes with a solution of sodium bicarbonate. Since then he had been keeping the conjunctival sacs filled with a neutral ointment.

July 16, the right eye was practically normal except for a slight conjunctival hyperemia. The left eye showed moderate edema of the lids. The tarsal conjunctiva was swollen and hyperemic, and showed several eroded areas, particularly near the outer canthus. The bulbar conjunctiva was intensely edematous and bloodily suffused. Around the limbus, the conjunctiva was very tense and yellow, and appeared continuous with the cornea. The central portion of the cornea was moderately opaque, but was still translucent. The entire periphery of the cornea was cloudy, yellow and swollen above the normal plane. Irregular small erosions of the surface were present. There was one adhesion of the peripheral cornea to the tarsal conjunctiva of the upper lid, which was easily broken. The anterior chamber was moderately deep. The pupil was partially under the effect of atropin. The iris seemed normal. The fundus could not be seen. The tension of the eyeball was slightly below normal. Vision equaled light perception.

The usual local treatment of atropin ointment, mercurochrome-220 soluble, sodium bicarbonate wash, and sterile petrolatum was ordered. The inflammatory reaction gradually subsided with extensive formation of adhesions between the tarsal and bulbar conjunctiva. These adhesions were broken daily, and attempts were made to prevent further formation by the inserting of various kinds of artificial tissues between the lids. The attempts were not successful, however. August 12, the conjunctiva had lost the charred, white appearance, and was now exuberant. The fornices were contracting with scar tissue. The corneal erosions had disappeared, and the peripheral swelling was subsiding. But the opacity of the cornea was increasing and becoming more dense, both centrally and peripherally.

October 29, the exuberant conjunctiva had quieted down and was replaced with smooth scar tissue. There was one firm symblepharon above and one below, both of which were fairly wide. The cornea was entirely opaque, with smooth, glistening epithelium. Under the slit lamp, the opacity was seen to consist of what seemed to be irregularly round coagulations of the corneal tissue, with dilated lymph spaces and thickened nerve fibers. There was considerable vascularization by fine deep vessels from the scleral limbus. The iris was no longer visible. An attempt was made to cut the adhesions and prevent their recurrence by the implantation of a Thiersch graft, but this was not successful. Therefore, Jan. 26, 1921, the symblepharons were carefully dissected free and egg membrane was sutured in place to prevent the recurrence of the adhesions. This was partially successful.

July 8, 1921, the eye was pale but flushed easily. The conjunctiva was smooth and showed extensive areas of scar tissue. The lower symblepharon was broader than the upper, but neither was sufficiently tight to interfere with ocular motion. The cornea was entirely opaque and was covered with new connective tissue, heavily vascularized from the neighboring limbus. The vision was good light perception and projection. It was not deemed necessary to operate further on the symblepharons.

CASE 2.—L. A., seen in consultation, May 10, 1922, was working on an automobile battery, March 7, when the flame of a blow-torch ignited the free hydrogen, and an explosion occurred. The hot acid was spattered into the right eye. Since then he had had the usual local treatment.

The conjunctiva of the right eye was moderately injected. There was some cicatrical contraction of the scarred lower tarsal conjunctiva and much more of the upper. In the exact center of the upper tarsal conjunctiva was a 4 mm. round nubbin of granulation tissue. The bulbar conjunctiva was slightly drawn over the limbus at the periphery. The corneal epithelium was unbroken. There was a diffuse haze of the corneal tissue well under Bowman's membrane, but there were no defined collections of opaque tissue. It would seem rather that the entire corneal substance was semiopaque. The visible nerve fibers were thickened, and the lymph system was distorted. There was no vascularization visible, even with the slit lamp. The anterior chamber and the iris were normal. The pupil was under the influence of atropin. Fundus details were not visible. The tension of the eyeball was slightly minus. Vision was 0.04

The left eye showed a slight follicular conjunctivitis, but was otherwise normal except for a slight error of refraction.

CASE 3.—P. W. was removing a fully charged battery from the charging bench, when a live wire short circuited on a terminal, causing a spark in the immediate proximity of the air vent of the battery. An explosion followed, and some hot acid spattered into the right eye. The eye was washed immediately with tap water.

When seen about twelve hours later, July 19, 1922, the left eye was normal. There was some edema of the lids of the right eye. There was moderate swelling of the tarsal conjunctiva, with roughening of the surface. There was considerable mucoid secretion. The bulbar conjunctiva was slightly injected along the palpebral aperture. The cornea, anterior chamber, iris, pupillary action, fundus and tension were normal.

A wash of sodium bicarbonate was ordered to be used every few hours, and an ointment containing an iodoform substitute was instilled after each application of the wash. Within a few days, the inflammatory reaction subsided and left the eyelids in a normal condition without any scar formation.

One of the clinical features of these cases that is difficult to explain is the production of the deeper corneal opacity with little or no disturbance of the corneal epithelium. It is barely possible that the cases came under examination so long after the original injury that any epithelial erosion had had sufficient time to heal completely. But in that case there would have been some visible traces left, none of which were found. It is an open question whether the opacity resulted from the heat of the solution that struck the eye or whether it was due to the chemical action that may occur in the short time that elapses before the foreign solution is washed away by the tears and the action of the lids. The heat effect would seem the most probable because of the lack of epithelial erosions and because of the clinical picture of seeming albuminoid coagulation as seen with the slit lamp. Were it the chemical action, there would be either epithelial erosions that would be very slow in healing or else marked opacity and distortion of the surface epithelium, probably accompanied by sloughing, a condition that did not exist in any of the cases. A case illustrating this point came under my observation shortly after the Fourth of July of this year. A boy suffered a burn of the eyeball and eyelids from an explosion of a small can of calcium carbid, and it was impossible to tell from the history whether the injury resulted from the flame or from flying particles of the chemical. The cornea presented a condition identical with that seen in the sulphuric acid burns. Had the corneal condition been due to the chemical, small particles, the result of the chemical disintegration in the form of quicklime, would have been found in the cornea or conjunctiva. But the epithelium was intact, and no foreign matter could be detected. With the slit lamp the same coagulation appearance was seen. Consequently it was not possible for the effect to be produced by any other agent than the flame and its heat. It is well known that the deeper corneal stroma is less resistant to trauma than is the epithelium, and in all probability in these cases the intensity of the fire trauma was not sufficient to injure the epithelium enough to leave permanent traces, but was sufficiently severe to produce the effect on the deeper tissue.

Various degrees of burns of the conjunctiva and lids with all forms of resultant deformities may occur, but that phase of the subject belongs distinctly to the realm of plastic surgery which lies apart from the scope of this paper. It does not seem that there is any immediate therapy that will lessen the severity of corneal involvement of such a burn, and the opacity that results has the tendency to increase in amount and impenetrability until the cornea has lost its major attribute of complete transparency.

METHOD OF PREVENTION

But the prevention of battery burns of the cornea is simple. A protective goggle should be worn by every mechanic who works with charging batteries. The goggle need not be so large that it interferes with work or so close fitting that it prevents the free evaporation of perspiration from the underlying skin, which would result in immediate cloudiness of the glass with diminution of vision. But it should be large enough so that a splash of acid coming from any of the usual working directions would be prevented from reaching the cornea. It is obviously impossible to prevent burning of the skin of the face by a goggle. Further, in every shop in which the possibility of such an explosion exists there should be a large bottle of a sterile saturated solution of sodium bicarbonate and an eye cup. On the occurrence of such an accident, the eye should be flushed thoroughly and repeatedly with eye cups full of the solution in the endeavor to neutralize any free acid that may be present. After that the eye should be filled with sterile borated petrolatum and the victim of the accident sent to the nearest physician. Fortunately, such accidents are not common, but with proper protection they should be eliminated entirely from the repertory of industrial mishaps.

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MERCUROSAL IN THE TREATMENT OF SYPHILIS *

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None of the mercurial preparations used, at present, in the treatment of syphilis are perfect. In the laudable quest for better ones Parke, Davis and Company submit a new mercurial preparation for which several claims have been made. The evidence from the literature that they submit in its favor is of little or no value, since, in practically all cases reported, the patients received arsphenamin as well as Mercurosal. In the first place, they claim that they have a preparation which can be used either by the intramuscular or by the intravenous route. This, of itself, would be advantageous in certain cases in which it would be found impossible to use one of these routes. Secondly, they affirm that the drug has no deleterious effects on the vessel walls. To quote their own words, "Following a long series of intravenous injections in dogs, there was no appreciable effect on the veins at the site of injections." Thirdly, in support of this drug, Parke, Davis and Company say, in advertising in the *Medical Times* and in the Department of Progressive Advertisers, "There is abundant evidence that Mercurosal possesses high spirocheticidal value, and that its administration either intramuscularly or intravenously is not followed by untoward symptoms." Because of these broad claims, it was determined to inquire into them and to find out whether the company had actually evolved a superior mercurial preparation: something that would really add to our armamentarium for the treatment of syphilis. To conduct such a study as this, it is almost necessary to have the patients in the hospital, where they can be observed, not only daily but several times a day; where the urine can be examined daily; where mercurial symptoms can be looked for, once or twice a day, and where one is sure that all directions have been carried out to the letter. Moreover, it is only under such conditions that one can really study the effects on the patients and on the disease. These ideal conditions we have had in the syphilis ward at the Cleveland City Hospital, where it has been possible for us to make all kinds of examinations, including Wassermann tests, dark-field examinations and lumbar punctures, as often as necessary. For our purposes, we have used the drug on thirty-eight different patients, whom we had the opportunity of studying thoroughly. In quite a number of other cases, a few injections were given, but no conclusions could be drawn, inasmuch as the patient would either leave the hospital or refuse treatment, etc. The drug was administered to fifteen patients by the intramuscular route, and to twenty-three patients by the intravenous route, one of these patients receiving part of the drug intravenously and part, intramuscularly.

DOSAGE

The drug was given, as nearly as possible, according to the recommendations of the manufacturers, intramuscularly, in doses of 5 centigrams, and, intravenously, in doses varying from 5 centigrams to 2 decigrams. The drug was generally given every other day by both routes. The manufacturers advise giving it, not oftener than from every three to five days, by the intramuscular route; but we found no difficulty in administering it every second day, into the buttocks.

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* From the Department of Dermatology and Syphilology of the Western Reserve University and of the Lakeside and Cleveland City hospitals.

SYMPTOMS FOLLOWING INJECTIONS

When the drug was given intramuscularly, the patients quite often complained of pain. In Case 10, that of a woman, there was such severe immediate local pain that, to use her own words, she "almost collapsed for a minute or so," and once it was necessary to give her morphin. However, in most of the patients, the symptoms were not any more severe than after the routine use of biniodid, administered by the intramuscular route, the symptoms usually disappearing in a few hours.

USE OF THE DRUG INTRAVENOUSLY

When the drug was administered intravenously, following the directions of the manufacturers, it was injected very slowly. After it had been dissolved in 5 c.c. of sterile, distilled water, it was administered at the rate of 1 c.c. a minute. It was given only in freshly prepared solution. As a rule, the patient did not complain of the local pain caused by the injection. In one instance, a small amount of the drug was injected outside the vein and caused a certain amount of local erythema and edema, with a moderate amount of pain, which lasted for twenty-four hours and then passed away.

EFFECT ON THE VEIN

In four of the twenty-three patients in whom the drug was administered intravenously, a sclerosis of the vein, due to the injection, was noted. In Case 17, a sclerosis gradually developed during a course of ten injections. In Case 24, the sclerosis was so marked after six injections that it was necessary to change the method of administration to that by the intramuscular route as the patient had only one good vein. In Case 34, the vein was gradually sclerosed so that we could give only nine injections; and in Case 23, it was found possible to give the patient the twelve injections intravenously, by which time the vein was so sclerosed that it would have been impossible to give him any more by this route. In this patient, a section of vein was removed under local anesthesia for examination, and the following pathologic report was kindly given us by Dr. Guthrie McConnell, pathologist of the Cleveland City Hospital:

> Mr. M. C. L.: The specimen is a piece of vein from the arm. The section of vein shows the lumen filled mainly with masses of fibrin which show penetration here and there of endothelial cells; the walls of the vein are thickened. In one area, there is a very extensive hemorrhage involving the muscular coat and adventitia. There is a round-cell infiltration in some areas, with an occasional leukocyte.
>
> Pathologic diagnosis: Noninfectious thrombosis.

In none of these four patients, to our knowledge, was any of the drug given outside the vein.

SYSTEMIC EFFECTS OF THE DRUG

The mercurial effect from the drug in certain of the patients seemed to be quite easily achieved. In several cases, we noted a beginning salivation after two or three injections; for example, in Case 20, it occurred after two intravenous doses of 0.05 and 0.1 each. In several instances, patients complained of griping pains in the abdomen. However, in practically none of the patients did we find that the salivation became so marked that it was necessary to stop the Mercurosal for a time, as we often do with other mercurials. We also note in the literature supplied by Parke, Davis and Company that one or two of the writers mention absence of marked salivation from the drug. Diarrhea was not noted. In one patient, Case 30, to whom the drug was administered by the intravenous route, there was a generalized diffuse erythema following the first injection, with no accompanying sore throat or elevation of temperature. The process appeared six hours after the injection, and was gone the next morning. Following the next injection, two days later, a similar reaction occurred, although this was in a patient with a primary lesion, and, therefore, could not be considered a Herxheimer reaction. With all succeeding injections, no systemic reaction was noted. We ascribed the erythematous eruption to the drug itself, as an erythema has already been described as following the use of mercury. In several instances in which the patients were taking the drug by the intravenous route, they complained of weakness for the first twenty-four hours after the injections. This was especially true when doses of 0.2 decigram were employed. Otherwise, there were no especial symptoms following the medication as far as the patient was concerned.

EFFECT ON THE KIDNEYS

Urine examinations of all patients were made regularly, and, in only one patient, was more than a very faint trace of albumin noted. In this case, that of a woman, a very heavy trace of albumin developed after two or three injections. However, careful examination by a urologist demonstrated that there was pus in the kidney, which explained the whole condition.

EFFECT OF THE DRUG ON SYPHILIS

The effect of the drug on syphilis is illustrated in the following cases. Of the twenty-three patients treated by the intravenous route, twelve were improved; eight showed no improvement, and three became worse under the therapy. Ten of the patients treated by the intramuscular route were improved; in two cases, there was no improvement, and three became worse. In all these cases, plenty of opportunity was given for the drug to show its true therapeutic value. Practically all of the patients received at least from ten to twelve injections, unless we found that they were becoming so much worse that it was necessary to change the therapy. With the twenty-three patients under intravenous therapy, a total of 226 injections, or nine for each patient, was given; and by the intramuscular route, in fifteen patients, a total of 160 injections, or ten for each patient, was given. In some instances, for example, if patients became worse, and there was a flaring up of the lesions under therapy, it was necessary to stop at once and change the treatment. For example, one patient (Case 11) developed more patches on the tonsil after five injections of Mercurosal, intramuscularly. These gradually spread over the tonsils and onto the inside of the cheeks, so that, after eleven injections, it was stopped, and the patient was put on mercury rubs, receiving sixteen of them with some benefit, and then seven injections with red mercuric iodid, which cleared up the process entirely. In another patient (Case 14), with a primary lesion, a secondary eruption developed after fourteen injections of Mercurosal. Again, in Case 20, a patch developed in the throat after twelve injections of Mercurosal intravenously. In Case 5, the patient, a man with malignant syphilis, was quite a little worse after taking ten injections. He was then put on mercury rubs. Another patient (Case 1) developed patches in the throat after seven injections of Mercurosal. The treatment was then changed.

COMPARISON WITH OTHER MERCURIALS

Perhaps one way of getting at the true value of this drug would be to compare it with other mercurial preparations. This we attempted to do in as unbiased a manner as possible. We have already cited Case 11, in which the patient had extensive syphilitic lesions in the mouth after eleven injections of Mercurosal, intramuscularly. The drug was then stopped, and the patient was given sixteen rubs and seven intramuscular injections of red mercuric iodid, ⅓ grain (0.021 gm.), each, which cleared up the process entirely. In Case 2, a patient with extensive condylomas, there was no improvement after twelve injections of Mercurosal intravenously, although he improved some after fourteen mercury rubs given later. He was then given eleven injections of red mercuric iodid, ¼ grain (0.016 gm.), intramuscularly, each, which caused a rapid recession of the lesion. In Cases 1 and 8, with secondary eruptions, patches developed in the throat after seven injections of Mercurosal. These patients were then put on mercury rubs, and the patches cleared up. Likewise, in Case 20, a patient with secondary syphilis, there was a recurrence of syphilitic patches in the throat after twelve injections of the Mercurosal, intravenously. This patient was then put on mercury and arsphenamin combined, which do not give us a clear-cut comparison, but which, of course, cleared up the process rapidly. We believe that, in all these instances, the superiority of mercurial ointment, U. S. P., and of red mercuric iodid was shown.

There is still another method for comparing the value of these drugs:

EFFECT ON THE DARK-FIELD EXAMINATION

The manufacturers speak of its high spirocheticidal value, so we endeavored, in the case of patients with primary lesions or with condylomas, to follow up, with dark-field examinations daily, the effect of this drug on the disappearance or continued appearance of the organisms. For example, in the cases in which the drug was used by the intravenous route the following results were observed. In one patient (Case 2) with condylomas, the dark-field examination was still positive after twelve injections of Mercurosal. In Case 8, a patient with a primary lesion, the spirochetes were still present after ten injections of Mercurosal. In Case 7, the dark-field examination of the primary lesion was positive after seven injections of Mercurosal. In Case 34, with a primary lesion, the dark-field examination was positive after eleven intravenous injections of Mercurosal, even with a dose increased to 0.15 gm. In Case 30, with a primary lesion, the dark-field examination was positive after ten injections of Mercurosal. In Case 32, with moist papules of the genitalia and rectum, the dark-field examination was positive after six injections of Mercurosal, and treatment was then changed because the patient was worse. With Mercurosal used intramuscularly in Case 11, after five injections, a patch developed on the tonsil in which spirochetes could be found and persisted until eleven of the injections had been given, when the treatment was changed to mercury rubs and red mercuric iodid, with good effect. In Case 31, with secondary syphilis and extensive condylomas, the dark-field examination was positive after fourteen injections. In Case 33, with a chancre, the dark-field examination was still positive after eight injections; and, as there had been no change in the lesion, the treatment was changed to arsphenamin and red mercuric iodid, the organisms disappearing after two intramuscular injections of biniodid and one of neo-arsphenamin, 0.75 gm., intravenously. From these data, we believe that Mercurosal can scarcely be classed as a very potent spirocheticide, probably not so good as mercurial ointment or red mercuric iodid, administered by the intramuscular route, and certainly not to be compared with the arsphenamins.

EFFECT ON THE WASSERMANN REACTION

In some of our early cases, the Wassermann reaction was negative at the time of admission because of the fact that the primary lesion was only a few days old. For example, in Case 34 and in Cases 30 and 15, the Wassermann reaction remained negative throughout the time that we followed them, a period of about three months. In all our patients, whether they improved or not, we changed to arsenical therapy and other forms of mercury before discharging them to the outpatient department in order to avert the criticism that we had failed to give them thorough treatment. In several instances, the patient had negative Wassermann reactions on admission, which became positive under therapy. For example, in one patient (Case 14) with a primary lesion, there was a negative Wassermann reaction, July 31; a plus-minus reaction, August 14, a three plus reaction, August 24, and a four plus reaction, August 28, although in all this time the patient had received twelve injections of Mercurosal, intramuscularly. In Case 36, the Wassermann reaction changed from negative to positive after four injections of Mercurosal, intravenously. This patient had a primary lesion, although it would hardly be fair to blame the drug in this instance, as four injections would scarcely have had much influence on the Wassermann reaction. In all other instances in which the Wassermann reaction was positive, it remained so throughout the therapy and did not change as a result of treatment with Mercurosal alone.

CONCLUSIONS

We believe, from our careful study of these thirty-eight patients who were followed from day to day in the hospital wards and not merely in the outpatient department of a clinic or in an office, that we can draw certain deductions in regard to the value of Mercurosal as an antisyphilitic remedy. Among the therapeutic effects produced, we noted in four instances a beginning stomatitis after two or three injections, indicating certain mercurial effects from its action. Moreover, according to our records, quite a large number of our patients were much improved from its use. However, careful examination of our figures would not lead us to believe that this preparation is superior to any one of several other old, well-tried mercurials. In seven instances (approximately 20 per cent.), the patients became worse following treatment with the drug; and ten of the patients, almost 25 per cent., showed no improvement. Certainly, comparison of this drug with red mercuric iodid by the injection route, and with mercurial ointment in several instances demonstrated that the latter two remedies had at least an equal, if not a superior, antisyphilitic therapeutic action. Moreover, the drug had far from the high spirocheticidal value which the printed data of its manufacturers led us to expect. In those patients whom we followed with a daily dark-field examination, the spirocheticidal value of the drug was certainly not so high as that expected when using red mercuric iodid or mercurial ointment. The effects on the Wassermann reaction over a short period of time was practically nil. The drug when given intramuscularly seemed to be moderately well tolerated, but not any better than red mercuric iodid. Intravenously, however, in four of twenty-three patients, a sclerosis of the vein developed, this despite claims of the manufacturers that there was no deleterious action of the drug on the vein walls.

In the twenty-three patients treated by the intravenous route, a total of 226 injections, or an average of nine for each patient was given. The total amount of drug given was 26.7 gm., or an average of 1.16 gm. of Mercurosal for each patient. According to the reports of its manufacturers, the drug contains 43.8 per cent. of metallic mercury. Therefore, each one of our patients received an average of 0.508 gm. of metallic mercury by this route while under the treatment.

The fifteen patients treated intramuscularly received a total of 160 injections, an average of not quite eleven injections for each patient. The total amount of drug given was 8.75 gm., or an average of 0.58 gm. of Mercurosal for each patient or 0.254 gm. of metallic mercury.

We find from a table in Sollmann's textbook on pharmacology[1] that, by using a 1 per cent. solution of corrosive mercuric chlorid and giving a daily dose of 1 c.c. for six weeks, the patient would receive, in the six weeks, a total of 0.31 gm. of metallic mercury; or, if mercury cyanid, another soluble preparation, was employed, the patient would receive, using the same dose, 0.33 gm. of metallic mercury. How is this discrepancy to be explained? The patients treated by the intramuscular route with Mercurosal, in eleven injections, received almost as much metallic mercury as a patient under a six weeks' course of mercuric chlorid receives, 0.254 gm. as against 0.31 gm. The patient, on the other hand, if treated intravenously, received 0.508 gm., as against 0.31 gm. Why is it that the disease is not more benefited by Mercurosal? For the benefit of the manufacturers, we can only add here the suggestion of Professor Sollmann that perhaps the drug is excreted too rapidly to become fixed in the tissues and to exercise its beneficial action.

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[1] Sollmann, Torald: Manual of Pharmacology, Philadelphia, W. B. Saunders Company, 1922, p. 932. We are under deep obligations to Prof. Torald Sollmann for many suggestions in the carrying on of this investigation.

Cremation in England.—According to the report of the Council of the Cremation Society of England for 1921, cremations in Great Britain totaled 1,922, as compared with 1,796 in the preceding year. A new crematory was completed during the year, and plans for other crematories have been held up pending reduction in the cost of building. Eleven English towns are at present provided with crematories. Crematories in other countries are listed as follows: France, 6; Germany, 55; Holland, 2; Italy, 28; Denmark, 1; Norway, 3; Sweden, 2; Czechoslovakia, 1; Switzerland, 15; United States, 84, and Argentina, 1. The report closes with Maeterlinck's famous definition of cremation as "an immortal birth cradled in flames."

ENTEROPARESIS *

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NEW YORK

According to the nomenclature of the Bellevue and Allied Hospitals,[1] the term "intestinal neurosis" includes "enteroparesis" and "enterospasm," while "intestinal obstruction" is applied only to mechanical obstruction. Thus, adynamic or paralytic ileus and dynamic or spasmodic obstruction are included under neuroses of the intestine. Ileus, derived from the Greek εἰλεῖν, to twist,[2] was originally applied to the ileum because the ileac loop was most often obstructed. The term ileus is defined as severe colic or acute abdominal pain associated with intestinal obstruction, although by some of us the absence of pain is held to characterize the paralytic type of ileus. It is suggested that the grouping of all mechanical obstructions under "intestinal obstruction," the functional nervous types of disturbed bowel motility under "neuroses," and the obstructions of vascular origin under "thrombosis, etc., of the mesenteric vessels" simply and accurately classifies the more common forms of clinical intestinal obstruction.

Enteroparesis resembles acute dilatation of the stomach and the condition of shock from the standpoint of external cause and symptoms, and it may be that these three conditions are not greatly unlike, physiologically or pathologically. Traumas may give rise to dilatations of the stomach and bowel and to shock, especially such traumas as occur during operations on the abdomen. Either acute dilatation of the stomach or enteroparesis may occur alone;[3] or these two conditions may appear together; or gastric dilatation and paralytic ileus may comprise a part of the

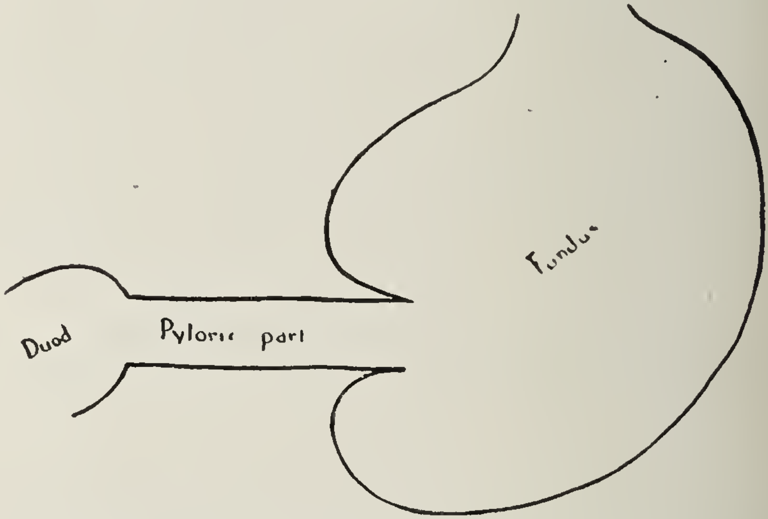

Fig. 1. — Schematic representation of diffuse pyloric spasm and fundal relaxation resembling a pylorofundal intussusception (from a case reported in Proc. Soc. Exper. Biol. & Med. **82**: 1542 [April 21] 1920). The symptoms were anorexia, vomiting, epigastric pain; mass, and tenderness. The condition, believed to be essentially of central vagus origin, disappeared immediately following irritation of the parietal peritoneum at the edges of the abdominal wound. This condition of diffuse pylorospasm and reversed peristalsis can be produced experimentally by clamping the pyloric sphincter, an observation which suggests the pylorus as the source of such impulses clinically, as in pyloric ulcer, cholecystitis and appendicitis.

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* Read before the Section on Gastro-Enterology and Proctology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] The Bellevue Hospital Nomenclature of Diseases and Conditions, 1911.

[2] Dorland, W. A. N.: The American Illustrated Medical Dictionary, Philadelphia, W. B. Saunders Company.

[3] Reinhard (Deutsch. Ztschr. f. Chir., February, 1922) disagrees with the author on this point and holds that "acute dilatation of the stomach is always combined with atony or paralysis of the upper bowel."

syndrome recognized as shock. That shock may occur without either paresis of the stomach or of the bowel seems evident to any one who has seen and operated on a patient with acute perforated ulcer of the stomach.

The temperature in this condition of enteroparesis may be normal, above normal or below normal. The pulse and respiration may be rapid, depending on the severity of the condition. The periphery is cold and pale. The pupils may be dilated, the facial expression distressed, and gulping or emesis may be frequent. Pain may be a distinguishing symptom in intestinal paresis, due to stomach cramp; but this symptom disappears when the stomach dilates. The vomiting of paralytic ileus may be projectile and provocable by the aking of even small amounts of water by mouth. In paralysis of the stomach and bowel, the dilated stomach ills out the upper abdomen, gastric peristalsis does not occur, and from time to time there is an overflow of stomach contents from out of the mouth. From hese acute dilatations of the stomach and bowel, nterospasm differs in that there is very likely to be cute pain localized in the region of the spasm. Enterospasm, like gastrospasm, may be due to local disease or may be a pathologic reflex from some other rgan. All these functional conditions are definite dis-ased conditions that, unabated, go on to kill the patient nd, therefore, demand prompt investigation into the ause of the obstruction followed by the institution of ational treatment, if the patient is to be saved.

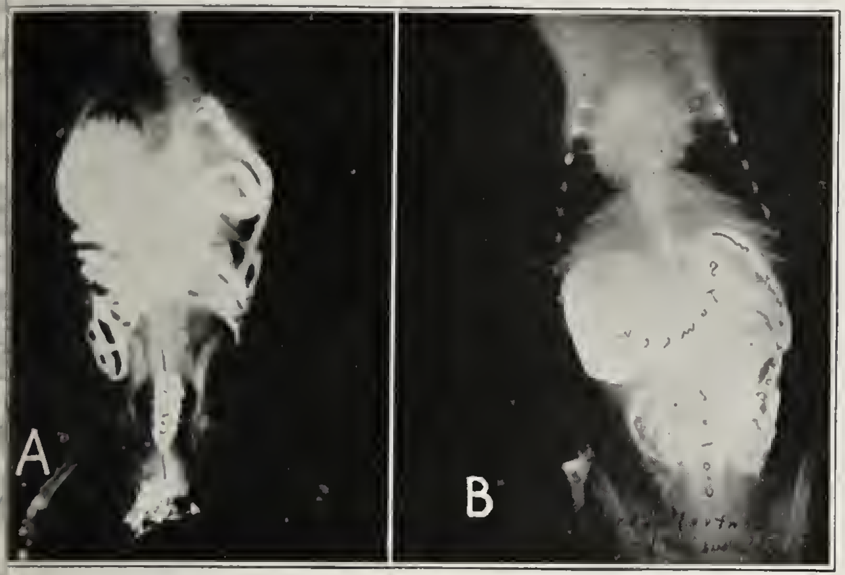

Fig. 2.—*A*, control before stimulation of cervical vagus; *B*, control fter stimulation experiments were concluded.

Enteroparesis may follow mechanical obstruction of he bowel, or interference with the circulation of the ntestine,[4] or it may be associated with infection and oxemia. There undoubtedly are many possible reflex auses of bowel paralysis. Murphy[5] included in his lassification strangulation of the omentum, hepatic nd renal calculi, ovarian compression, and pleuritic nd diaphragmatic irritation. Case 1 of the present roup presents, among other possible etiologic factors, n omental anchorage band across a loop of large owel; Case 3 is instructive from a reflex point of iew in that following acute perforation of the urinary ladder and mechanical obstruction of the ileum there acute suppression of urine. Braun and Legueu[6] have reported instances of acute paralysis of the stomach following ureteral catheterization.

Our own experiments have indicated a relationship between gastric tone and renal trauma. It may be that under certain conditions, stimuli from the kidney arrest the bowel function and stimuli from the bowel check kidney function. We have been studying the motility of the stomach in our gallbladder cases,[7] and are in hope that a typical gallbladder stomach may eventually be described that will supplement our present means of diagnosing gallbladder disease.

Cannon[8] has shown splanchnic inhibition following the crushing of the testicles, and Pottenger[9] has brought out the frequency of viscerovisceral reflexes between the lung and stomach. Other possible reflex causes of paralytic ileus are particularly parietal and visceral peritoneal traumas, such as occur during operations. Contractions have been repeatedly observed in the open abdomen under experimental and clinical conditions until the irritation from handling or from instrumentation reflexly inhibits these movements. It is found that simply rubbing the index finger over the peritoneum at the margin of the abdominal wound often promptly checks peristalsis. Our anesthetist, Dr. Foschee, at Bellevue, has observed that frequently changing the position of the retractors depresses the patient under anesthetic (Fig. 1). Bayliss and Starling[10] thus express their findings on this point:

> The splanchnics bear tonic inhibitory impulses to the intestine. These are accentuated by reflex inhibition of local origin. . . . The most striking method of producing reflex inhibition is stimulation of the intestine itself. If one or both splanchnics be intact, the slightest stimulus applied to the intestine, even a gentle handling of the intestine, suffices to produce a reflex inhibition of the whole length of the intestine.

Mall[11] holds that the inhibitory influence of the splanchnics is superfluous, for the intestine acts without connections of the spinal nerves. There can be no doubt, in view of the investigations on the subject, that the alimentary tube possesses an autonomy, but that in a normal intact animal the stomach and intes-

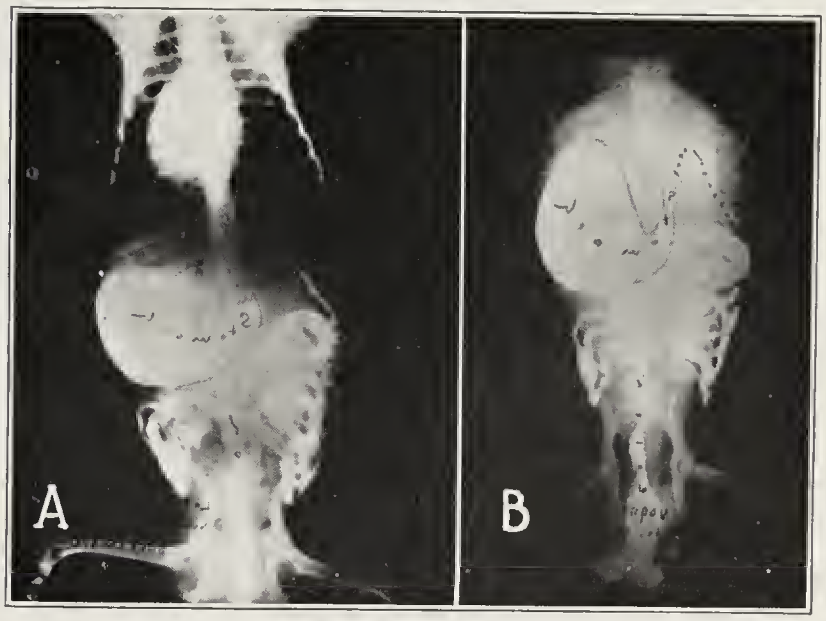

Fig. 3.—Stomach and intestine during stimulation of *A*, right and *B*, left vagus, respectively.

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[4] Barker (Contributions to Medical and Surgical Research, July 12, '19, p. 319) cites the ileus syndrome after mesenteric arterial sclerosis, nd Carlyle (personal communication to the author) holds that entero-resis is the rule after arteriosclerosis of the mesenteric vessels.

[5] Murphy, J. B.: Clinics, August, 1914, p. 621.

[6] Braun and Legueu, cited by von Nieden: Arch. f. klin. Chir., ov. 17, 1921.

[7] Stewart, G. D., and Barber, W. H.: The Gastric Hypermotility Associated with Diseases of the Gallbladder, Duodenum and Appendix, J. A. M. A. **73**: 1817-1820 (Dec. 13) 1919.

[8] Cannon, W. B.: Am. J. Physiol. **30**: 118-127, 1912; **6**: 252, 1902.

[9] Pottenger: Symptoms of Visceral Disease, St. Louis, C. V. Mosby Company, 1919.

[10] Bayliss and Starling: Am. J. Physiol. **24**: 99, 1909.

[11] Mall: Johns Hopkins' Hosp. Rep. **1**: 37, 1896.

tine remain responsive to influences from either a vagal visceromotor or a splanchnic viscero-inhibitory system of nerves.

In the depressed states manifested as bowel or stomach paralysis or in shock, there presumably is injury of nervous tissue. The vagus nerves may be conceived as being affected in these states directly by impulses which depress, or indirectly by inhibiting impulses conveyed through the sympathetic fibers. The pneumogastrics are essentially involved in respiration, circulation and alimentation, and these three functions particularly suffer. The rapid superficial breathing, the rapid weak pulse, and the dilated alimentary tract may very well follow interference with normal vagus control (Figs. 2, 3 and 4). The influence of severe head and bodily injuries and diseases on the medullary centers may theoretically work in this way. Experiments have been carried out on the vagi in the cervical regions with very little trauma and without interfering with the abdomen at all. This is impossible as far as the thoracicolumbar fibers are concerned. After section of the left vagus or the right vagus or of both tenth nerves at the same time in the same animal, the bismuth meal is seen to pass along the alimentary tube at the same rate of time as was observed in the same animals before section. The myenteric and segmentation reflexes remain intact as in the normal individual (Fig. 5). In the paretic state the intestine dilates, and the intrinsic reflexes are lost.

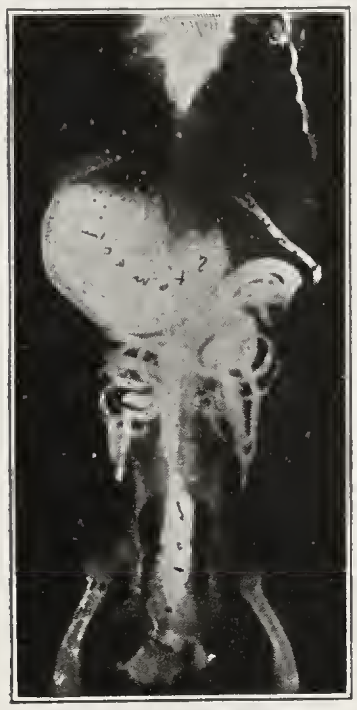

Fig. 4.—Stomach and intestine during stimulation of both vagi.

The observations made in the anesthetized animal through the open abdomen during stimulation of the vagus have been hypertonicity of stomach and intestine characterized by spasm and forcible peristalsis. Figures 2, 3 and 4 represent the conscious animal exposed to the roentgen rays while being stimulated by the galvanic current through the cervical vagus. Pylorospasm and duodenospasm appear under these conditions and at the time the pictures were taken without any appreciable changes in the tension of the stomach as a whole or in the mass of intestine.

It has been suggested that the handling of the organs impairs the neuromusculature and the plexuses of Meissner and Auerbach, which would apply to the traumas of abdominal operations but to only a part of the total cases of stomach and bowel paralysis. Jackson[12] suggests that action on the extrinsic nerves either through vagus depression or through splanchnic stimulation may initiate paralytic ileus by (1) dilating the viscera, (2) obliterating the capillaries, and (3) impairing the elasticity of the smooth muscle. From this point on, the intestine fails to contract even after the restoration of normal extrinsic nerve balance, until the status of the neuromusculature again becomes normal. In instances of marked dilatation unrelieved for from forty-eight to seventy-two hours, spots of gangrene may develop along the antimesenteric border of the obstructed loops. These areas of necrosis have been well described by Van Buren.[13] Personal experiments[14] agree with those of Cannon[15] and of Parham,[16] and the experience of Novak[17] in showing the paralyzing influence of stretching on smooth muscle.

The loss of extrinsic nerve control in these dilated bowel conditions is further borne out in the experience of those working in splanchnic nerve anesthesia. Perrier,[18] using the technic of Kappis, reports failure by himself and others in the ileus cases which he attributes to the "weight of the heavy loops of bowel."

The sharp bends and twists in the dilated loops of bowel and the finding of adhesions about damaged intestine have led to the selection of these characteristics as mechanical causes of obstruction in "ileus" cases. I am inclined to ascribe these findings to overcrowding, and the adhesions to attempts at repair. The kinking at the pylorus in dilated stomach has perhaps attracted most attention, and has been described to be the cause of gastrectasia. Similarly, those interested in intestinal "stasis" have been prone to blame the flexures of the colon for the delay in the bowel contents in these cases, although impaction of feces immediately orad of these sites of bowel suspension must be very rare.[19] (See observation on splenic flexure of Case 1.) All these possible causal factors occur in peritoneal tuberculosis, in which obstruction is not only very uncommon, but diarrhea is the rule. It is probable that these angulations, twists and bands act as contributory etiologic agents along with senility and constitutional disease in the production of enteroparesis.

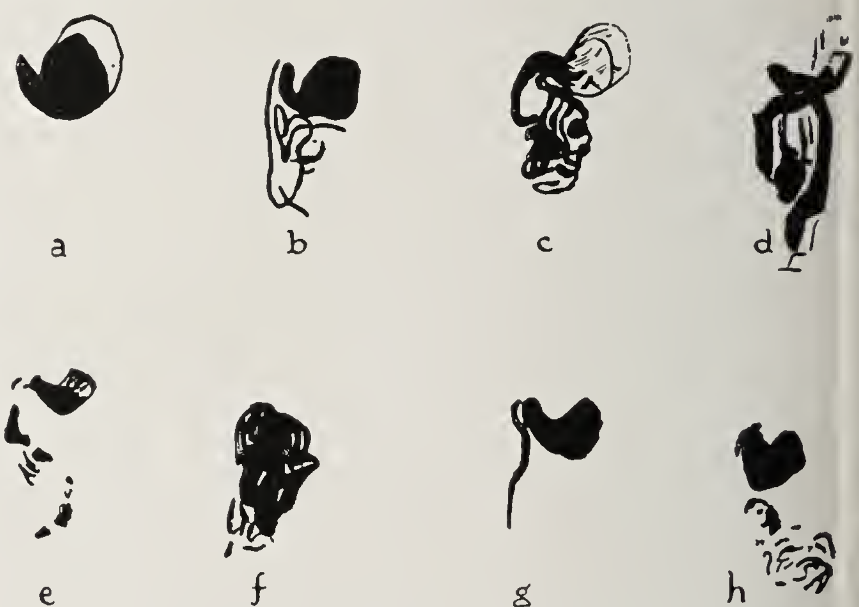

Fig. 5.—Tracings of roentgenograms of dogs before and after vagus section: *a*, stomach five minutes after meal in animal with right vagus in neck severed; *e*, same animal four hours later; *b*, stomach and intestine fifteen minutes after meal in animal after section of left vagus in neck; *d*, same, four hours later; *c*, control of *d*; *f*, control of *e*; *g* and *h*, after division of both vagi, ten minutes and four hours, respectively, after meal.

If we accept as a working hypothesis extrinsic nerve irritation, either vagus depression or sympathetic stimulation, in a susceptible individual, combined vith local neuromuscular depression to explain the nechanism of enteroparesis, it follows that the treatnent in such cases must be directed toward the suport of the general health and nervous equilibrium f the patient and toward the relief of the overdisended bowel. Physostigmin (eserin), atropin and ituitary extract may be tried. Lavage and enemas hould be administered and, if these are ineffectual, leostomy should be performed.

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[12] Jackson, H. C.: Personal communication to the author.

[13] Van Buren, F. C.: Ann. Surg. **72**: 610-615, 1920.

[14] Barber, W. H.: Ann. Surg. **69**: 271-277 (March) 1919.

[15] Cannon, W. B.: Am. J. Physiol. **29**: 264-265, 1911.

[16] Parham, F.: Texas State J. Med., November, 1915.

[17] Novak, Emil: Acute Postoperative Dilatation of the Stomach, J. A. M. A. **77**: 81 (July 9) 1921.

[18] Perrier, C.: Rev. méd. de la Suisse Rom. **41**: 355 (June) 1921.

[19] Professor Senior of the department of anatomy has not found in his experience that there is any diminution in the lumen of the flexures, as compared with that of the remaining colon.

PROTOCOLS

Case 1.—C. A., a woman, aged 55, Italian, who entered the ird surgical division, Bellevue Hospital, Nov. 25, 1921, had allen down a flight of stairs and had broken her arm the receding day. On admission, she complained of epigastric ain, vomiting, and inability to move the bowels. The pain as associated with visible peristalsis, and remained localized n the epigastrium. The vomting was projectile, and was rovoked by the swallowing f small amounts of fluid. The distention of the abdomen vas moderate in degree, and t no time during the patient's stay in the hospital id it become a threatening actor. The temperature remained normal or one degree bove, the pulse averaged 00, and the respirations rom 20 to 30. The periphery vas pale but fairly warm, xcepting during the last day, vhen the patient became lanched and cold. She howed in her expression vidence of extreme intrabdominal pain; and it was is outstanding feature that ompelled operation. The atient was operated on, November 29. The findings vere: stomach, normal; owel from the pyloric phincter to the middle of e ascending colon, dilated; emaining colon, collapsed; n old adhesion, made up in art of parietocolic membrane and in part of great mentum across the middle f the ascending colon distal the dilated bowel, and a arply angulated splenic exure through which gas ould be made to pass with reat difficulty. The contents of the dilated bowel ere gaseous. The significant findings were the normal omach associated with dilated bowel, which began abruptly t the pyloric sphincter and ended mysteriously in the ascending colon. The adhesion was divided, the cecum was fixed to e abdominal wall so that cecostomy could later be performed if desired, and the abdomen was closed. Water was iven by hypodermoclysis and by rectal infusion. Gastric vage was carried out repeatedly. Morphin was administered nd external heat kept up. November 30, after a temporary nprovement, death followed sudden cardiac collapse. Postmortem examination revealed a fatty heart weighing 360 gm., ith slight endocarditis and coronary sclerosis, atheroma of e aorta, small arteriosclerotic kidneys weighing 220 gm., small congested spleen, a small multilobular liver, and a astro-intestinal condition as noted at operation. The splenic exure was opened and a large baggy opening was found, the xact opposite condition one would infer from the sharp ointed flexure seen in the open abdomen. The dilatation of the small and first part of the large intestine remained as described at operation, notwithstanding the division of the omental band.

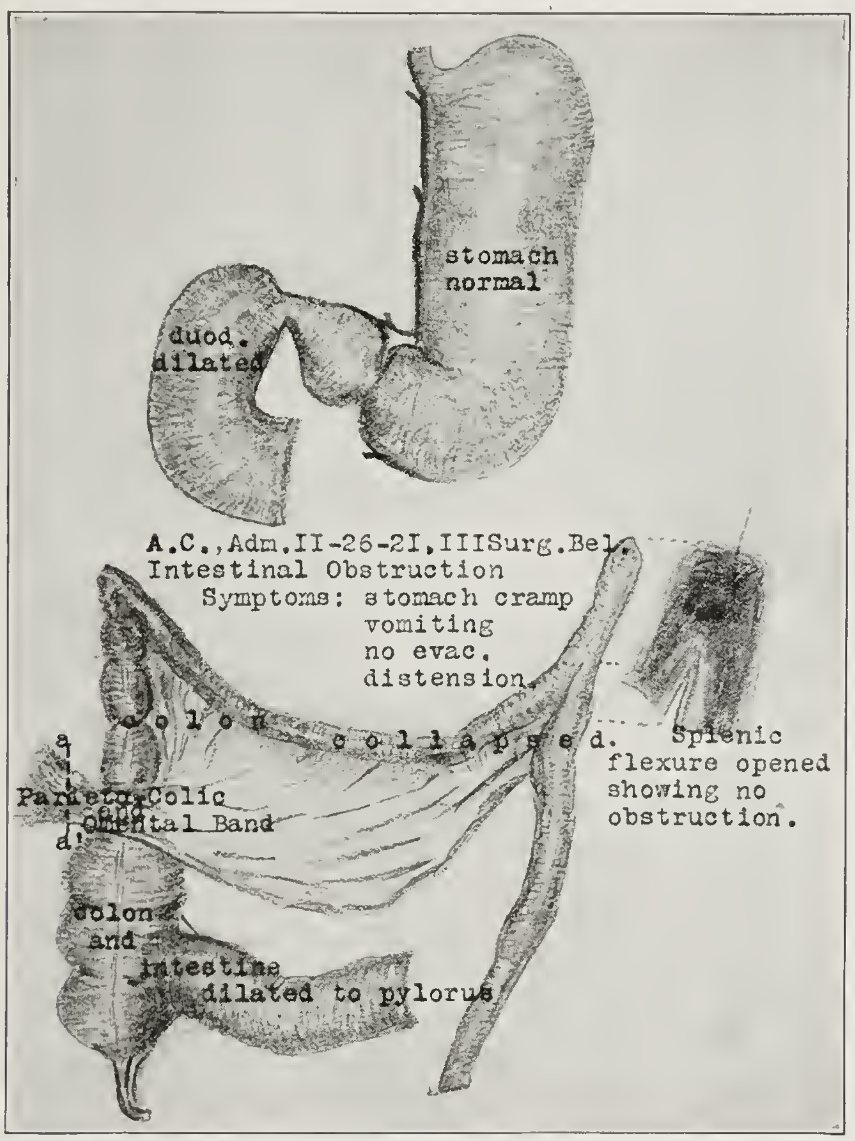
stomach normal
duod. dilated
A.C., Adm. II-26-21, IIISurg. Bel.
Intestinal Obstruction
Symptoms: stomach cramp
vomiting
no evac.
distension.
colon collapsed.
Splenic flexure opened showing no obstruction.
a
Parieto-Colic Omental Band
a'
colon and intestine dilated to pylorus

Fig. 6 (Case 1).—Release of band *a-a'* allowed escape of gas to splenic flexure, and in less amount into descending colon. Cecopexy was performed; cecostomy was not necessary. Necropsy confirmed the foregoing and revealed arteriosclerosis and fatty heart.

To be noted in this case are: (1) peripheral trauma; (2) constitutional impairment of essential organs, and (3) bowel paralysis; (4) the outstanding symptom, pain, and (5) the large baggy splenic flexure, which appeared sharp and obstructive. The trauma and organic disease are believed to have brought on the paralytic ileus and toxemia that brought on the patient's death.

Case 2.—J. P., a woman, aged 30, Italian, developed an acutely distended abdomen five days after an enterocolostomy. While the patient lay comatose in her bed, the wound was reopened and a catheter sutured into the first dilated loop of small bowel that appeared. Relief through discharge of gas and fluid was followed by recovery.

Ileostomy restored the patient by relieving the dilated bowel, while the intestinal tone remained intact. This experience is probably typical of a small proportion of the postoperative ileus cases in which relief is not given by lavage, enemas and other palliative measures.

The enterostomy for postoperative ileus described in Case 3 brings up the problem of the minimum length of the oral loop consistent with life in selecting a distended loop for enterostomy:

Case 3.—S. M., a man, aged 19, Russian, was operated on for acute intestinal obstruction produced by evagination of the terminal ileum through a perforated ulcer of the urinary bladder. The stomach and small intestine were markedly dilated down to the terminal 12 inches of the ileum. The technic consisted in freeing the bowel and repairing the vesical ulcer. From the third to the eighteenth day, enemas were ineffectual, and the patient vomited in the absence of mouth feeding. Pituitary extract brought on a copious bowel evacuation with the expulsion of considerable gas on the fourteenth day, but all other attempts at catharsis resulted in failure. The patient's malnutrition increased, although he was not acutely toxic.

Ileostomy on the eighteenth day revealed: (1) distended stomach and dilated three fourths of the small intestine; (2) collapse of the remaining intestine; (3) mesenteric contraction of the collapsed intestine, and (4) adhesions. After ileostomy, the patient's appetite improved, his nausea and vomiting disappeared, and drainage continued profusely. The site of the stoma was apparently somewhere within the middle third of the small intestine. He declared that he could feel his food rushed out of his stomach and intestine into his dressings. The material recovered from the ileostomy was incompletely digested food. Inanition progressed until his death on the thirtieth day after admission.

ORAD LIMIT OF ENTEROSTOMY

Schilling[20] asks, "How long a segment of small intestine can we resect?" and his study of the literature fails to set any limit. Each case has to be decided by the individual condition. One might similarly ask, "How far orad may one safely make an enterostomy?" In the foregoing instance, the lower limit of the dilated intestine was opened, a point probably within 8 feet of the ileocecal valve, but this site did not allow this patient sufficient working intestine to survive with in his wasted condition.

616 Madison Avenue.

ABSTRACT OF DISCUSSION

Dr. Walter C. Alvarez, San Francisco: Unfortunately, knowledge of the physiology of the digestive tract is at the stage at which we can see more than we can interpret. We have to be very careful how we talk about the action of the vagi and the splanchnics. The less you read about it the more you know; the more you work on it, the less you know. Thomas and his associate spoke well when they said that it causes at least temporary contraction in about 59 per cent. of cases and a temporary inhibition and contraction in another smaller percentage. You can add to the complexity of the situation by saying that it causes contraction of the cardiac region and a relaxation of the fundus in one animal, and another thing in another animal. If you stimulate the vagus with a certain rate of induction current or interrupted galvanic current, you will get a certain type of reaction, and if you use another current and different rate you will get another type. And if you perform one experiment and then in a few minutes another experiment, you will get a different reaction. So I will simply say, as a warning: Do not talk with certainty as to what the splanchnics and vagi will do. Some of these disturbances may be due to a local loss of innervation, just as well as to an increase of innervation. If we cut off the nervous stimuli to smooth muscle it will contract down into a hard knot. And that may be an explanation of many of the spasms we see. A pure paresis of the bowel may not mean stagnation and stasis. Experiments were made in which the smooth muscle fibers of the bowel were excised, leaving only the mucosa and serosa. Animals fed on a perfectly smooth liquid diet did well. If given rough material, they would be likely to die. An experiment which I made years ago and which, perhaps, throws a little light on this disturbance was one in which I pinched the bowel in the region of the ileum by means of an elastic. The lumen of the bowel was in no way disturbed and was not closed. After about seven hours, I opened the abdomen of this animal in a bath of salt solution where peristalsis could easily take place, and was surprised to find that there had been absolutely no passage of material through the pinched area. Powerful waves of peristalsis would come down to within perhaps 25 cm., and then would die out or meet with waves coming in the opposite direction. This probably explains why at operation we sometimes find a bowel which will not allow material to go by, possibly because it has been pinched by adhesions or damaged in some way. If you want to avoid marked paresis or reduce the danger of paresis in operations, you must not purge the bowel beforehand. In regard to cases of acute gastric dilatation, you probably all know the value of turning the patient over on his abdomen This measure saves life in a great many such cases.

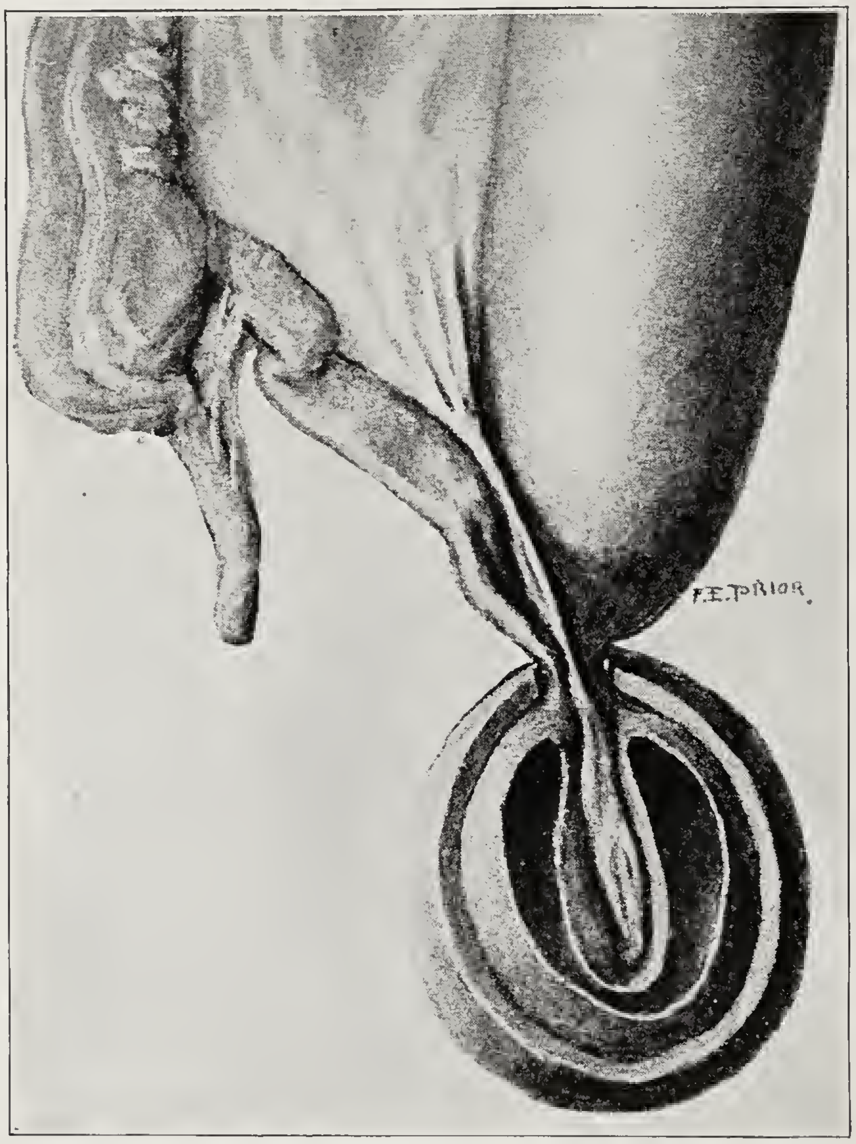

Fig. 7 (Case 3).—Semidiagrammatic drawing of intestinal obstruction produced by the passage of the ileum into the urinary bladder through a perforated fundal ulcer.

Dr. Leon T. LeWald, New York: I want to augment two points Dr. Alvarez mentioned. First, he suggested that, in acute dilatation of the stomach, we turn the patient over on the abdomen. I have advocated putting in a stomach tube and using pressure, keeping it up either from a vacuum electric pump or from the vacuum produced by water running. The stomach being paralyzed, no matter how long you wash it out, it wil not remain contracted, bu will dilate. But by using a negative pressure you wil successfully reduce it. I have seen the same thing at operation in the case of the lower bowel. Secondly, a point that bears on the same subject is that I have seen exactly what Dr. Barber has mentioned — gastric dilatation due to shock; and he particularly mentioned it as due to renal shock. In roentgenographing cases for ureteral calculus, we have seen the stomach markedly dilated and, in a case of rupture o the kidney, the stomach wa enormously dilated, almos to the degree that one would expect to see in the very severe cases of acute dilatation of that organ. Anothe reflex cause, mentioned by Dr. Barber, such as gall-bladder disease, is seen in the form of gastric residu due to pyloric spasm. A to the other reflex causes referred to, we have seen those from chronic appendicitis. Some of the conditions described in the discussion of Dr. Lichty's pape were of that type, giving in the roentgen-ray findings almos the appearance of a duodenal ulcer.

Dr. W. H. Barber, New York: I confess that I do no know anything about this vagus nerve function, but I have tried to make some observations on it and to keep them in line with what the authorities have said in regard to the subject. As to the experiment of excising the smooth muscle leaving only the mucosa and serosa and then having the intestine contract, I do not see how contraction can occu without some muscle left to do the contracting. In regard to turning the patient on his abdomen in case of acute gastric dilatation, I think many of us have found that this measure does relieve such conditions. I recall a case in which there was an enormous dilatation of the stomach following repai of a perforated colon. By turning the patient on his face with pressure on the upper abdomen and with lavage, th condition was promptly relieved.

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20. Schilling: Arch. f. Verdauungskr., December, 1921.

CARCINOMA OF THE RECTUM AND PELVIC COLON

AGE- AND SITE-INCIDENCE AND PROPHYLAXIS *

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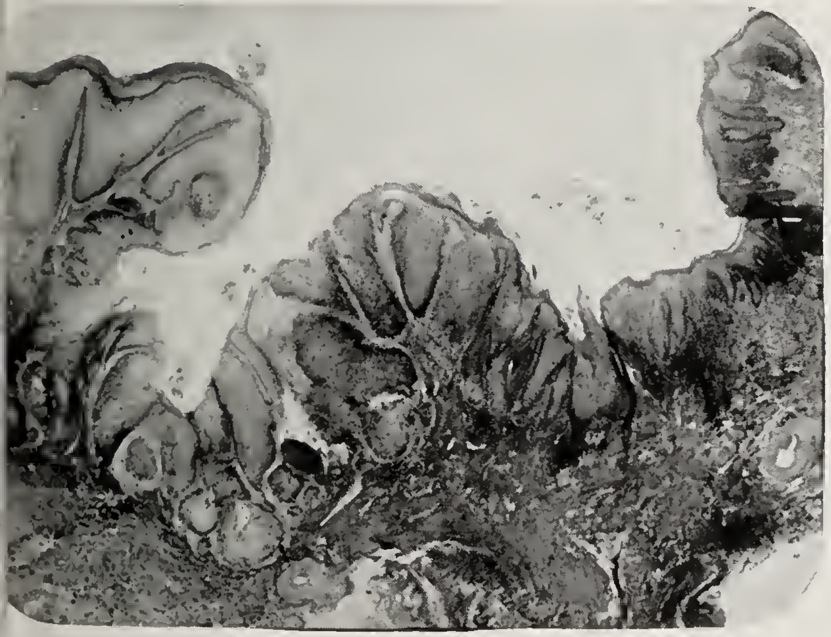
CHICAGO

In 7,174 cases of carcinoma of the rectum which I ave compiled, the majority of the patients were derly, as might be expected: 1,442, from 41 to 50; 072, from 51 to 60, and 1,783, from 61 to 70—or most 75 per cent. at ages from 41 to 70 years. On e other hand, 235 were less than 30, and forty less an 20 years of age. It is the latter group that I all consider more especially.

The proverbial reference to rectal carcinoma in the ung is the patient (aged 13 years) of the llinghams;[1] but malignant growths in the lower wel have been found several times in still younger bjects, as well as in some a few years older: for ample, 11 years, two; 12 years, five; 13 years, two ore; 14 years, three; 15 years, three; 16 years, two, d 17 years, seven.

For other organs, gastric carcinoma has been encoun- red at 13 and at 14¾ years; carcinoma of the liver ith metastases at 12, and carcinoma of the appendix the same age. In the mammary gland we find ses at ages approximating the rectal cases, though ese are less numerous: 11 years, sarcoma, one; rcinoma, two; 13 years, one; 15 years, one, 16 ars, one.

Warthin[2] states that of 2,000 specimens of malig- nt growths examined in the pathologic laboratory the University of Michigan, 195 were from subjects from 1 to 30 years. The only ones in which the ctum was involved were two of 29 and 30 years; ough carcinoma of the ear was found as early as 4 ars, and of the skin of the leg at 11. The time limit rbids citations from other organs, but it is apparent that the possibility of malignant disease, even at comparatively tender ages, should be borne in mind.



ig. 1 (Case 1).—Basal-cell carcinoma or squamous epithelioma, htly reduced from a photomicrograph × 18.

As regards the site in general, of 1,670 cases, the growth was in the ampulla in 1,250, and in the anal canal in 178. That is to say, a total of 1,428 subjects had their cancerous tumors within reach of the examining finger; in the remaining 16 per cent. they were higher up the bowel or at the rectosigmoid junction. So far as the site in the bowel itself is concerned, the anterior wall is generally involved—487 of 824 cases; the posterior in 250, and the lateral wall in only eighty-seven.

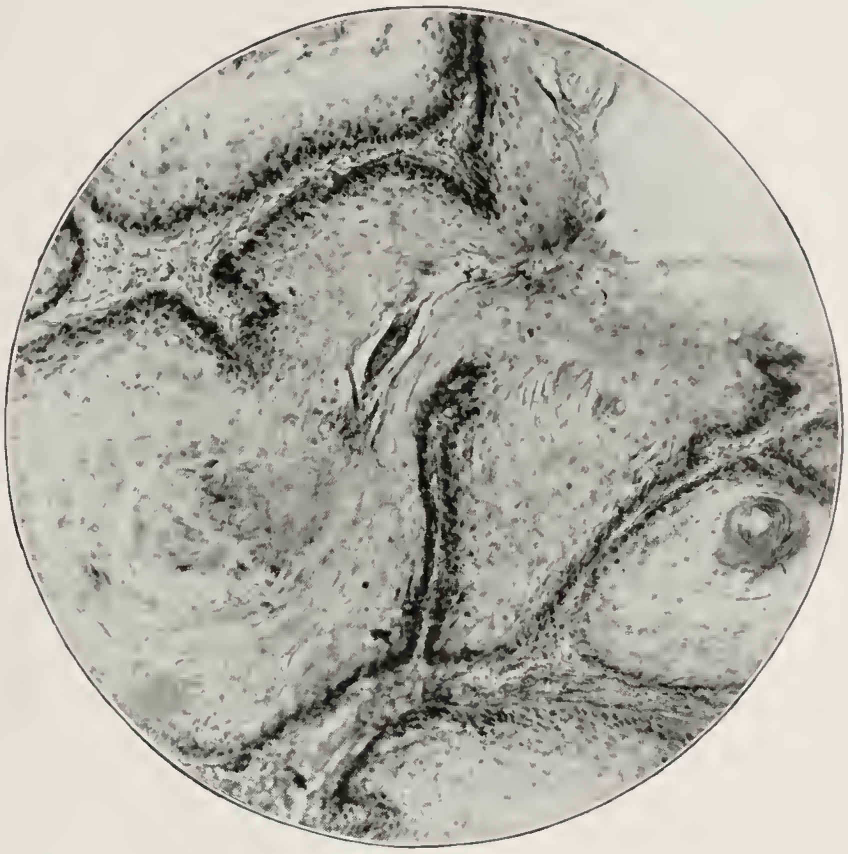


Fig. 2 (Case 1).—Basal-cell carcinoma or squamous epithelioma, slightly reduced from a photomicrograph × 90.

Coming now to carcinoma of the pelvic colon, it, too, is sometimes encountered at an early age: boys of 9, 14 and 15 (two), and a girl of 12 (Philipp[3]), though the average again is from 52 to 53 years.

Every proctologist knows that examination in rectal carcinoma is urgently needed. In 104 patients seen in Paris, eighty-five had been treated for weeks or months for constipation, hemorrhoids or colitis, without any examination whatever. Of twenty-three recent ones from this country, fourteen had never been palpated. There is less excuse for this since, as just shown, 84 per cent. of 1,670 patients were within reach of internal palpation. Again, of the 491 examples referred to by Lynch,[4] 69 per cent. were within 4 inches of the anus.

Internal palpation alone, or combined with proctoscopy and sigmoidoscopy, is our chief reliance in diagnosis, because none of the serum and other tests so far introduced have proved reliable. Moreover, this simple method requiring only a finger-cot and some lubricant, both omitted if necessary, was successfully used in 108 of the 151 instances referred to by Foges,[5] a few years ago.

It is absurd, it seems to me, to give bleeding, pain and diarrhea as early diagnostic features of carcinoma

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* Read before the Section on Gastro-Enterology and Proctology at Seventy-Third Annual Session of the American Medical Association, Louis, May, 1922.

[1] Allingham, William, and Allingham, H. W.: The Diagnosis and eatment of Diseases of the Rectum, Ed. 6, New York, 1896.

[2] Warthin, A. S.: The Occurrence of Malignant Neoplasms in the ung, Arch. Int. Med. **15**: 444 (March) 1915.

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[4] Lynch, J. M.: Cancer of the Rectum and the Pelvic Colon, J. A. M. A. **69**: 1775 (Nov. 24) 1917.

[5] Foges, A.: Wien. med. Wchnschr., Oct. 3, 1913.

of the rectum. By the time they are in evidence, the damage is generally done. The principal remedy, I believe, as I have often pointed out in the last decade, consists of repeated, systematic examinations after the so-called "cancer age" is reached. The time of life at which malignant tumors are found may be less than long ago, or more careful examinations are made; or, lastly, more instances are placed on record. At any rate, it would seem that they could be begun profitably at a considerably younger age than has been the custom. Of course, this would hold good for any other organs liable to invasion and accessible to exploration.

It is not rehash but education that is needed. We know that chronic irritation plays a part in the causation of cancer; that cancer never begins in healthy tissue, and that it is curable in the precancerous and early stages. Some preexisting condition, then, is necessary for its start. Shall we tell this to the people and help them to avoid the terrible disease, or shall we sit idly by? Shall we voluntarily begin educating the public, or shall we wait till the public compels us to do it? That is the important question.

We must educate people to get rid of any ailment or condition they may have which fosters the development of cancer. We know that extracting an infected tooth or removing a diseased tonsil or an infective hemorrhoid may relieve neuritis of the arm or pain in the region of the stomach, and so on. Since this is true, is it not true also that, if we had recognized and removed the diseased tooth, tonsil or hemorrhoid earlier, the neuritis or paragastric pain would not have developed? If this holds good with reference to benign disease, it should *a priori* hold good in malignant conditions as well.

The members of this section know that such continued examinations are usually wise when persons have been operated on for hemorrhoids or fistula; carcinoma sometimes appears years afterward in the scar. We should tell people that "flivvers" and other makes of automobiles are overhauled constantly, as are watches; is there any good reason why they should neglect their own bodies? About the only medical inspections fashionable so far are those of the eyes and teeth.

Such advice, however, must be couched in temperate terms, so as not to alarm the people at large—cancerophobia is almost as bad as the dire affection itself. But we should remind them of the saying of Benjamin Franklin: "In times of peace prepare for war," though I would change this to: "In time of health prepare for disease."

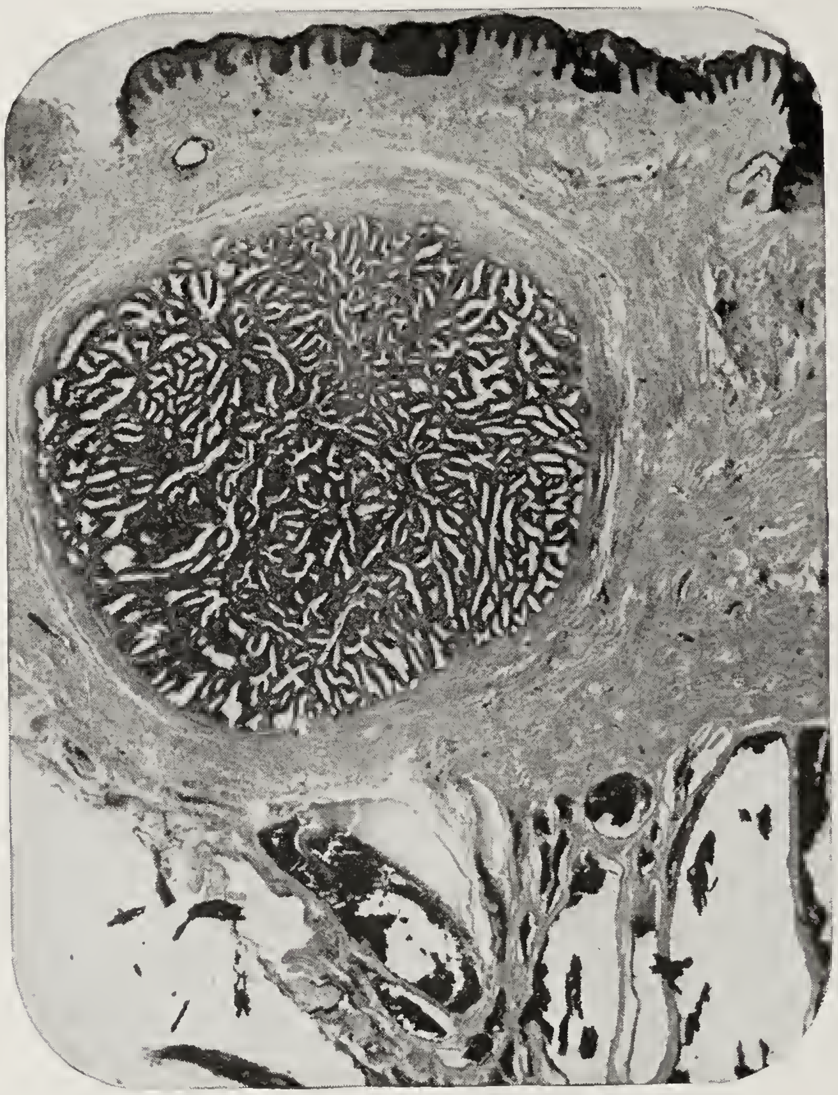

Fig. 3 (Case 2).—Adenoma or malignant adenoma; ×16.

In common with other physicians, I have come across cases of insidious development, in which carcinoma or sarcoma was discovered accidentally during the search for some entirely different—often benign—condition. But, as Kipling writes: "That is another story."

REPORT OF CASES

Case 1.—A man, aged 53, had an inveterate pruritus ani for six years, and diabetes for three. In the left posterior anal quadrant of the perianal skin were two small fissures. As the edges of both of these were very hard, and in one were undermined and constantly discharging a small amount of pus, and neither would yield to local treatment, I advised excision. The laboratory report (of the one with undermined edges) was "basal-cell carcinoma." This is a very unusual site, for we know that the vast majority of these neoplasms are situated above the clavicle; consequently I submitted the specimen to another laboratory, the report from which was "squamous epithelioma" (Figs. 1 and 2).

Case 2.—A woman, aged 50, had a growth, the size of a small pea, on the edge of a hemorrhoid. The report from one laboratory was "adenoma"; and from another, "malignant adenoma." The question now is: "When doctors disagree, who shall decide?" (Figs. 3 and 4).

31 North State Street.

ABSTRACT OF DISCUSSION

Dr. William M. Beach, Pittsburgh: Cancer has been the riddle of the ages. One out of every eleven human beings is subject to cancer or has cancer at some time in his life. Everybody who discusses the subject of cancer says: Observe the early symptoms of cancer and then we shall have a chance to do something. The question is: What are the early symptoms? It is said that about 3 per cent. of all cancers are out of sight and therefore cannot be observed by the surgeon. So it is a difficult matter to determine on a set of symptoms. However, in cancer of the rectum and pelvic colon the chief symptom registered is that of sudden constipation occurring in a person who has previously been normal in this respect. As Dr. Pennington has said, these patients who come to us have cancerophobia. Physicians are duplex personalities. These people want the truth, yet we shall have a camouflage. It is almost death to a person to tell him that he has cancer. We have to get around it some way and evade the answer. The important part of Dr. Pennington's paper is that in which he dwells on the education of the public on this question. I would say: Educate the profession with reference to cancer, especially when located in the rectum and colon. Any physician can examine the rectum and locate a cancer if it is there, but he may not be energetic enough to do it. We cannot make a complete examination of any case and leave out rectal examination, when having in mind a disease of this kind. The author details at some length what public education on this subject should be. Surgeons tell us that when moles and "lumps" appear on the surface they should be removed. In the same way, anything wrong about the anus or rectum should be attended to. Any pathologic condition here is a potential or possible factor in the development of cancer.

Dr. Ralph W. Jackson, Boston: In spite of persistent study of the problem of cancer of the rectum and rectosigmoid, we cannot feel much more optimistic about it than we did ten years ago, for, though the percentage of relief from recurrence may be greater than formerly, such relief, in most cases, involves a permanent colostomy, which to many patients is almost as much of a calamity as death. The almost symptomless and insidious onset of cancer in these parts puts the patients on the verge of hopelessness for a permanent cure when they come to us. Prophylaxis and early diagnosis offer the only hope. Prophylaxis can mean very little when we know so little of the real etiology of cancer. We can do little more in this matter than educate the public to less belittling of the necessity for regular alvine function, thus lessening the important causative factor of unduly prolonged pressure of constipated feces at the rectosigmoidal juncture, the commonest site of such cancers, and to less belittling of pathologic changes of the anus, which may be the beginning of the less common anal epithelioma. Early diagnosis may mean somewhat more, but here we have to educate the laity and the profession. They both belittle persistent alteration of previous bowel regularity, which is the one suggestive symptom of cancer, almost irrespective of age. This can be overcome only by the creation of a more or less general cancerophobia or by enforced general physical examination. General cancerophobia is not a nice thing, but it is better than the disease itself, and general enforced examination can come only as the result of increased paternalism, which most of us think has already overrun this country. We have harped on the neglect and reluctance of the general practitioner to make simple rectal examinations, usually adequate for diagnosis, till the subject is threadbare; yet it is as true as ever. Dr. Pennington has spoken of the site-incidence of cancer of the rectum, but not of the differing possibilities of metastasis from the various sites. Mr. Ernst Miles of London has classified three zones of spread, viz., upward, lateral and downward. Cancer at or above the rectosigmoidal juncture is most likely to metastasize through the retroperitoneal lymphatics and possibly through the portal system to the liver and, perhaps, to the spleen; cancer of the ampulla is most likely to spread by continuity to the surrounding pelvic structures, and cancer of the anus is most likely to metastasize through the perineal and inguinal lymphatics to the groins. These facts will influence our prognosis, our decision as to the nature and extent of operation, and the necessity for laparotomy.

Dr. John D. Stewart, New York: Dr. Pennington has brought up one of the biggest questions in major surgery today. Early diagnosis in conditions like this is of paramount importance. Age is something we cannot pay too much attention to, otherwise we are in danger of failing in diagnosis. Patients frequently consult us with long standing ulcerative affairs. They are much more likely to have a malignant condition develop in a location like that, than would be the case if everything were perfectly normal. We know that a man who smokes a pipe incessantly with a fissure on his lip is more likely to have an epithelioma develop there than the man who takes proper precautions. As to the age of persons with cancer of the rectum, I have seen patients with adenocarcinoma of the rectum whose ages varied from 17 to 82. Allingham reported a case at the age of 13. I believe that the majority of patients with cancer of the rectum whom I have seen in the last two years have been well under 50. Past the age of 70, malignant conditions of the rectum are exceedingly rare. The most frequent location of cancer of the rectum is at the rectosigmoidal line, which from the operative standpoint is unsatisfactory. About 62 per cent. of cases of cancer of the rectum are found at this junction. Unfortunately, in cancer of the upper rectum and sigmoid, pain and hemorrhage are not present until the condition is well advanced. If any one should ask what is the earliest symptom of cancer of the rectum, I would say that constipation probably comes first. However, in cases that are low down in the anal canal, there is pain from the very onset.

Dr. Louis J. Hirschman, Detroit: If the life insurance companies, the medical departments of the army and navy, and industrial concerns which require physical examination of applicants for insurance or position in the service would spend less time on questions of heredity and more time on definite and detailed provisions for exact and thorough examinations of all the cavities of the body, we would get somewhere. The older physicians were not instructed properly in these matters, and the younger are not interested because that branch of medical practice is so poorly compensated that the examination is not made thoroughly. Detailed examination by the army, the navy, or the industrial concern, with information that thorough examination has been made, will help to detect many potential carcinoma cases early. Let us forget the term cancer age, because if a patient is not in the "cancer age," the possibility of cancer in his case is forgotten. Every patient is a potential cancer patient, no matter how old or how young. Every patient who complains of disturbed physiology of the gastro-intestinal tract should be thoroughly examined with the possibility of cancer in mind. The presence of hemorrhoids or fissures or polypi is not a contraindication to the presence of carcinoma a little farther in.

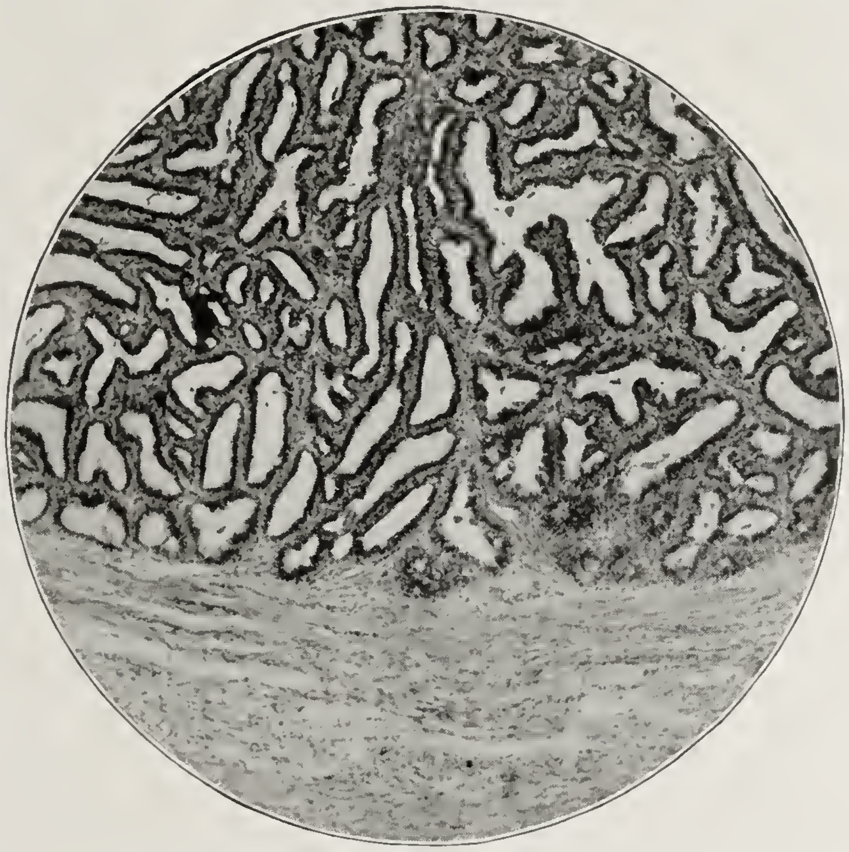
Fig. 4 (Case 2).—Adenoma or malignant adenoma, slightly reduced from a photomicrograph × 60.

Dr. John L. Jelks, Memphis: The statement that any physician could make the diagnosis must be refuted, because proctologists know good physicians who make these examinations and do not discover cancer even in the rectum. Sometimes even proctologists might overlook a small, even already malignant tumor if examining the patient in a hurry. The symptoms in many cases are nil. In early, in middle or in late cancer, of course if one had a symptom one would look for the cause. But one cannot depend on it. Adenoma, which has been considered nonmalignant by so many, is a potential cancer. The profession is as derelict as the laity. Think of the great numbers of the profession who do not come to these meetings, and many of whom do not even read cancer articles. Therefore, let us remove potential cancers even though they are considered benign.

Dr. A. L. Levin, New Orleans: I have been making a study of syphilis of the gastro-intestinal tract with the view of finding a possible frequency of mistaken diagnosis. I have found several very interesting cases in which a mistake was made by leading surgeons, a syphilitic lesion having been mistaken for cancer.

Dr. J. R. Pennington, Chicago: The general practitioner is entitled to the same information as the specialist; consequently, I intended that this paper should contain statistical and other information not readily obtained by the average physician. Dr. Hirschman is to be commended for his valuable suggestions, and were they put into practice by insurance companies and others they would do much for the control of this dreaded disease.

A CLINICAL AND ROENTGENOGRAPHIC STUDY OF GASTROPTOSIS

OBSERVATIONS IN ONE THOUSAND GASTRO-INTESTINAL PATIENTS *

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AND
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BIRMINGHAM, ALA.

The roentgen ray has added much to exactness in the diagnosis of gastro-intestinal diseases, and from it we have learned many things that are helpful in treating conditions about which we formerly did a great deal of guessing. The general use of the roentgen ray, however, has not been without some misinterpretations of its findings. This is particularly true of gastroptosis, which, though only an incidental part of a general bodily habitus and always associated with enteroptosis, is being treated as a separate entity by many who seem not to understand the underlying etiologic factors of visceroptosis.

Much of the misconception regarding gastroptosis comes from the teachings of textbooks on anatomy and physical diagnosis which assert that the normal position of the stomach is in the upper left quadrant of the abdomen, the dome lying in the vault of the diaphragm, and the lower border about 2 inches above the umbilicus. Anatomists formed their opinions regarding the normal position of the abdominal viscera from necropsy findings made on cadavers lying on their backs, and they were correct in their statements regarding the average position of the stomachs of persons in the supine position. They seemed not to learn, however, that the stomach is a highly mobile organ, and that the normal stomach of a perfectly healthy person while standing may rest in the false pelvic cavity, but when he lies down may gravitate to the upper left quadrant of the abdomen. Diagnosticians fell into the same error because their examinations of the abdomen were also made on patients in the supine position.

Before the advent of the roentgen ray there was a lot of "poetry" about locating the position of the stomach and other abdominal viscera. If one will attempt to outline a stomach by percussion, auscultatory percussion, with or without inflation, or by splashing sounds (Obrasztow's method), and check up his findings by the roentgen ray, he will be forced to admit a very large percentage of error. With the roentgen ray the location of the stomach in various positions of the body can be studied with exactness.

ROENTGEN-RAY STUDIES OF GASTROPTOSIS

In our roentgen-ray studies on gastroptosis, the most important findings have been the marked degree of mobility of the stomach, which is affected by the position of the individual, by the weight of the stomach contents and by the tension or relaxation of the abdominal muscles. We have endeavored to determine the normal position of the stomach in a study of 1,000 cases, and have come to the conclusion that in the supine position the textbook teachings are correct; but in the upright position there is a wide normal variation depending on the anatomic make-up of various types of individuals. Indeed, there seems to be as much difference in the size, contour and position of the stomachs of men as there is of their mouths.

We have also come to the conclusion that so far as gastric digestion is concerned, it matters very little whether a stomach is in the high position or in the brim of the pelvis, so long as its muscular tonus is good and the intra-abdominal pressure is normal. We have repeatedly found patients whose stomachs in the upright position were as low as it is possible to be, and yet who had no evidences of gastric indigestion. We have found others, with a marked degree of gastroptosis, who complained of various digestive symptoms, yet after the relief of the gastric atony or with the use of a properly fitting abdominal supporter, and after a few weeks' regimen of hyperalimentation and abdominal exercises, all their discomfort disappeared though the position of their stomachs was not changed. Indeed, the location of the stomach seems to have but little to do with the performance of its normal function; and in our opinion there is no one normal position of the human stomach.

The position of the stomach depends to a great extent on the type of the individual. In the so-called normal human type of average height and weight the stomach will be in the so-called normal position, i. e., the lowest point of the greater curvature being above the umbilicus. The same is true of stout persons, as a rule. On the other hand, in the slender person with the long flat or narrow chest and with the slender abdomen, in the standing position, the stomach almost invariably will be found in the left lower quadrant of the abdomen, a position entirely normal with this type. The position of the stomach will vary from these two extremes as there are differences in the size and shape of the chest and abdomen.

It is not the position or the shape of the stomach that the physician need be concerned about but its tonus. If the muscular tonus of the low lying stomach is good, there are no symptoms. However, the roentgen ray has demonstrated the fact that the stomach in the high position is more frequently normal in tone than one that is found low in the abdomen. We have repeatedly observed on fluoroscopic examination of persons in the standing position that the atonic stomach would be changed into a hypertonic one when the patient contracted his abdominal muscles, thus increasing the intra-abdominal pressure. It would seem from this observation that the problem in dealing with gastroptosis is not with efforts to treat the stomach so much as with measures to strengthen and develop the abdominal muscles, or to increase intra-abdominal pressure temporarily by means of properly fitting abdominal supporters.

INFLUENCE OF BODILY HABITS

Perhaps the most important contributions to the literature on visceroptosis have been the series of

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* Read before the Section on Gastro-Enterology and Proctology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

articles by Goldthwait.[1] In his Shattuck Lecture he classifies man into three anatomic types: (1) the normal type with the moderately full and rounded thorax and upper abdomen, with costal arch from 70 to 90 degrees; (2) the splanchnoptotic (Glénard), congenital visceroptotic (Goldthwait) or carnivorous (Bryant) . e., the slender individual with the flat chest, the costal arch being an acute angle, a narrow upper abdomen and bulging lower abdomen; and (3) the herbivorous (Bryant) of heavy build, broad back and large skeleton with excessive fat throughout the body. Goldthwait ays much stress on posture, and blames the relaxed muscles and ligaments for many of the ills which are usually ascribed to visceroptosis. He says that "the body is most intimately related in its different parts so hat no one can be used wrongly without the whole uffering. For this reason if these various groups of symptoms are to be considered as purely local and istinct lesions, the results re sure to be unsatisfactory. The body as a whole should be considred and not just the chest r abdomen or other part."

Mills,[2] in a comprehenive roentgen-ray study of he form and position of he stomach, concluded hat "certain types of phyque are constantly assoiated with certain types f visceral topography, onus and mobility." He assifies them into two ominant ones: (1) hypersthenic habitus, the indidual of massive build ith stout thick chest and ng abdomen; and (2) sthenic habitus, characrized by fraility of build, ng, narrow, shallow orax and short abdomen, ith relatively wide pelvis. e adds to this two major pes, sthenic and hypohenic, and declares that e build of nearly all individuals will fall within these ur groups, though he further subdivides the bodily pes with their accompanying peculiarities into subpes tending to the four major types.

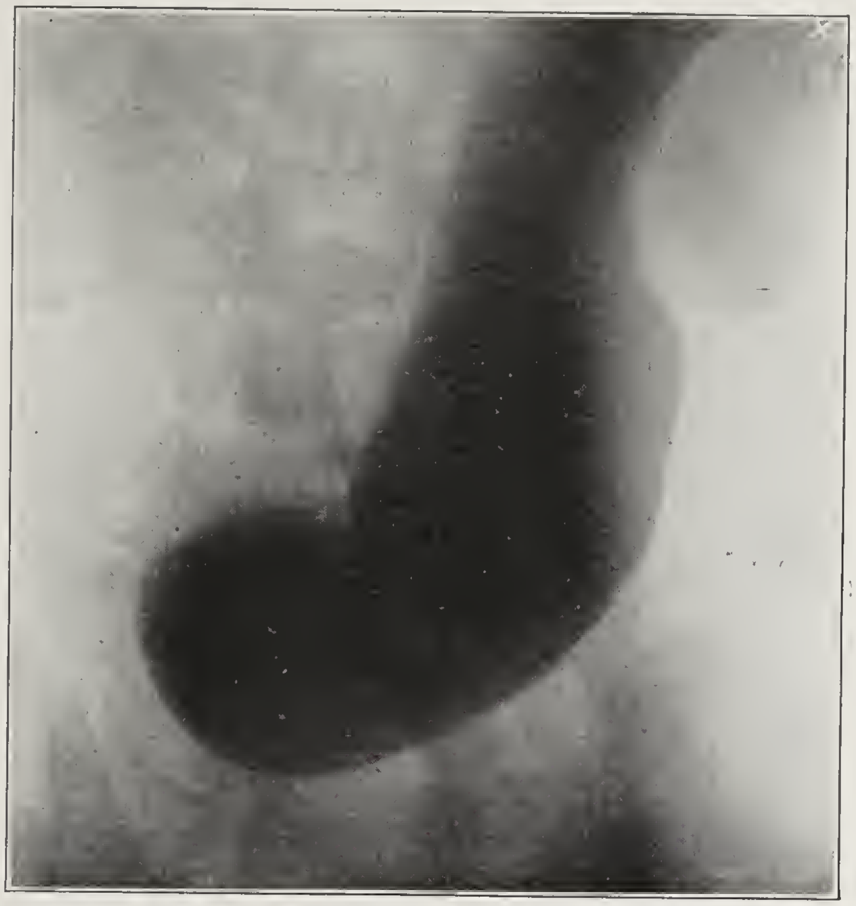

Fig. 1.—Gastroptosis: stomach 2½ inches below umbilicus; relaxed abdominal muscles.

ETIOLOGY

Gastroptosis is a condition, not a disease. It is so equently found that it can hardly be called an omaly: It should be termed a physical characteristic. our opinion gastroptosis, which we reiterate is erely one phase of a bodily habitus in which there general visceroptosis, is nearly always of hereditary gin. Therefore, in searching for the etiologic factors gastroptosis, the ancestry of the individual is the st important thing to be considered. It is probable that certain races have gastroptosis more than others, and that the mendelian law applies to the form and position of stomachs as well as to the color of the eyes, and to other family and racial characteristics.

If two persons with visceroptosis marry each other, all their children probably will have a low position of their stomachs and other abdominal viscera. If a narrow chested person with the long, slender abdomen marries one of the so-called normal or stout type, it is probable that in their offspring the abdominal viscera will be in a position between the so-called normal and the extreme visceroptosis, unless one or the other should be of the dominant type. If it were possible to mate human beings of different types as the Austrian monk did the Andalusian fowls, it is probable that the positions of their descendants' stomachs could be foretold with the same degree of accuracy as the varying colors of fowls can be determined before they are born.

If the science of eugenics could be applied in mating the stout human beings with the slender habitus enteroptoticus type, it is probable it would result in marked racial improvement for the reason that the slender types as a rule have brighter minds and more agile bodies, while the thick, broad types have better mental poise and greater physical endurance.

In our opinion, what is called gastroptosis is normal with a large proportion of men and women who go through life without any digestive symptoms. It is an accepted fact, however, that the person with gastroptosis is more likely to have gastric disturbances than one of the normal type, just as the man with cardioptosis, or the so-called "congenital" heart, under the stress and strain of military service develops functional cardiac symptoms. Indeed, the same type of individual inherits cardioptosis, nephroptosis, gastroptosis or enteroptosis, as he does a more or less unstable nervous system. If such a person lives within his limitations he or she can be as efficient and as happy as one of the so-called normal type. Indeed, there seem to be certain advantages which the highly strung, slender person has over a person of the phlegmatic or stout type. Many of the most brilliant, the most efficient and the most useful men and women of our acquaintance belong to the type who have gastroptosis. It would be interesting to have roentgenograms made of the stomachs of the 100 leading medical men in the United States. In thinking over the bodily characteristics of the most celebrated physicians of our acquaintance, we are convinced that at least half are of the habitus enteroptoticus type, and that the roentgen ray would reveal that perhaps the majority have gastroptosis.

Indeed, it seems that the more highly developed the race, the more likely it is to have visceroptosis. There are no statistics to prove it, but we have the impression that the English, the Scotch and their descendants in America will show a larger proportion of persons with visceroptosis than will be found among the Teutonic and Latin races. In the study of our cases we have also been impressed with the high percentage of gastroptosis among patients of Jewish descent.

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[1] Goldthwait, J. E.: An Anatomic and Mechanistic Conception of ease, Boston M. & S. J. **172**: 881, 1915; The Real Significance of ceroptosis, Pennsylvania M. J. **17**: 523 (April) 1914; Orthopedic nciples in the Treatment of Abdominal Visceroptosis and Chronic stinal Stasis, Surg., Gynec. & Obst. **16**: 587 (June) 1913.

[2] Mills, R. W.: The Relation of Bodily Habitus to Visceral Form, ition, Tonus and Mobility, Am. J. Roentgenol. **4**: 155-169 (April) 7.

Patients will frequently give a history of falls or injuries to the abdomen which they have been told is a cause of "fallen stomach," but in the light of our present knowledge it would seem that trauma plays but little, if any, part in producing gastroptosis.

Oschner, in a recent communication, says: "I believe that one of the frequent causes of gastroptosis and enteroptosis is the extreme gaseous distention of the abdomen due to faulty feeding during the infant's first year of life, with overstretching of all the ligaments which normally should support the stomach and intestines." The same thought has occurred to us,and one of the questions that we ask all our gastro-intestinal patients is: "Did you have digestive disease during infancy?" We have found many cases in which the symptoms date back to improper feeding during the first years of life. We are convinced, however, that the digestive disease in infancy is more responsible for atony of the stomach and intestines, which causes the symptoms usually ascribed to gastro-enteroptosis, than it is in bringing about ptosis of the abdominal viscera.

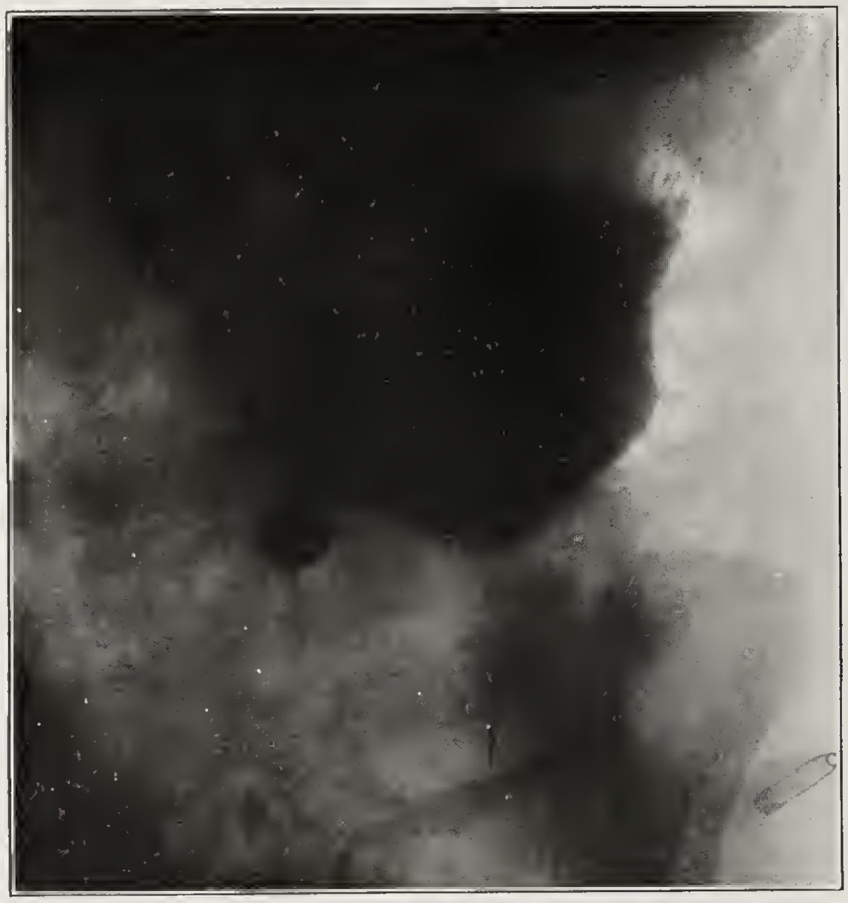

Fig. 2. — Effect of voluntarily contracting abdominal muscles in increasing gastric tone, stimulating peristalsis and elevating stomach to level of umbilicus.

OBSERVATIONS FROM A STUDY OF 1,000 PATIENTS

In a series of 1,000 patients studied by us during the last eighteen months, roentgen-ray examinations in the standing position disclosed that in 551 (55.1 per cent.) the lower border of the stomach was more than 2 inches below the umbilicus. These were all adult white patients, most of them native Alabamians, though a few were from Mississippi, Tennessee, Georgia and Florida. The ancestral lines of the great majority of whites in these states came from England, Scotland and the North of Ireland; and they conform to the physical characteristics of the English and Scotch, who are likely to be tall and slender, though hardy races physically.

Dr. Frank Smithies[3] reports that in a recent study of the position of the stomach in 600 persons, gastroptosis was noted in 198. It is presumed that Smithies' patients were from Chicago, in which city there is a large proportion of population of Teutonic and Slavic ancestry, while in our series of cases a very large proportion descended from the English and Scotch. This view of visceroptosis being a radical characteristic is also held by John Bryant of Boston, who in a recent personal letter said: "The thin type of humanity which is particularly subject to visceroptosis is certainly more frequent in the streets of this country than in the streets of Hamburg or Berlin."

It seems that gastroptosis is less frequent in males than in females. In our series of 1,000 patients, 532 were males and 468 females; of the 551 who had gastroptosis, 226 were males and 325 females. In Smithies' series of 300 males, only thirty-six had gastroptosis, while of 300 females, 165 had gastroptosis. The biologic fact that the female of the species is never so well developed physically as the male seems to apply to human beings. Unquestionably, deficient muscular development with associated relaxation of all the ligaments of the body has much to do with the occurrence of gastroptosis.

The age decades were not taken in the study of the first 500, but in the last 500 cases, they are: seven between 10 and 19; sixty-five between 20 and 29; ninety-five between 30 and 39; sixty-six between 40 and 49; twenty-nine between 50 and 59, and eleven between 60 and 69 years. We feel that no importance can be attached to age in gastroptosis in this series because all of our patients were adults and the proportion in this study is practically the same as those with the normal habitus.

Child-bearing has always been mentioned as an important etiologic factor in gastroptosis, and undoubtedly it does have some relation to the relaxed abdomen; but it is doubtful whether it has any bearing on visceroptosis. In our series, out of 325 females, only 182 have children, and there are 226 males, so that only about 58 per cent. have borne children. We think it likely, however, that women who have borne children are more prone to have digestive symptoms, because they often have relaxed abdomen with a consequent lowered intra-abdominal pressure.

SYMPTOMS

Gastroptosis is not a disease entity, and therefore is not responsible for the symptoms usually described as resulting from or associated with that condition. Persons of the type whose stomachs lie low in the abdomen undoubtedly are more predisposed to functional gastric disturbances than are the persons of the so-called normal and herbivorous types (Goldthwait): the "sthenic" and "hypersthenic" types (Mills). The "asthenic" or "hyposthenic" individuals are also more susceptible to nervous disturbances. It is also to be remembered that the men or women with gastroptosis are mentally more alert and physically more active than are the "sthenic" or "hypersthenic" types.

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[3] Smithies, Frank: Gastroptosis, in Ochsner's Surgical Diagnosis, Philadelphia, Lea & Febiger 2: 609, 1921.

The symptoms usually ascribed to gastroptosis may be due to many causes both intragastric and extragastric, and they are the same without relation to the position of the stomach. In other words, the person with gastroptosis may have any gastric or intestinal disease, though he is especially predisposed to atony of the stomach and intestines. A study of the records of our 551 patients who had gastroptosis shows that 345 complained of gaseous eructations that come on at varying times after meals; fifty-eight gave a history of sour belching, and 105 had vomited at some time. These are not different, however, from the symptoms of which the 449 complained who did not have gastroptosis. Their symptoms are those that are usually seen in atony of the stomach from any cause.

Constipation, usually of the atonic variety, was present in 389 of the 551; diarrhea was present in twenty-six, and 136 reported their bowels as being regular. It is significant that 200 had indicanuria, which, when considered with the fact that more than two thirds were constipated, would seem to indicate that intestinal toxemia is an important factor in the symptoms usually ascribed to gastroptosis.

The nervous symptoms are those which predominate in our series of patients who had gastroptosis. Out of the 551, 340 gave a history of being nervous. Headache was complained of by 279. Vertigo was another annoying symptom with many of them. Muscular weakness and the general fatigue syndrome were prominent complaints with many, though our records are not complete on this important syndrome in visceroptotic patients.

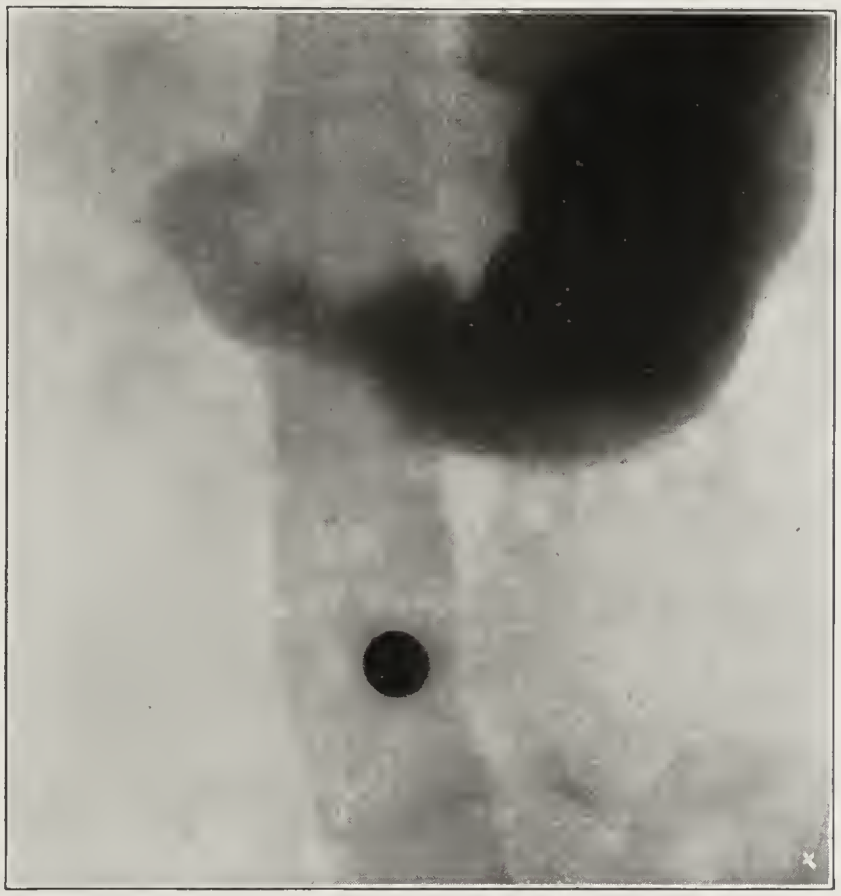

Fig. 3.—Horizontal position, patient on back, showing how completely the stomach regains the normal position. It is unnecessary to elevate the foot of the bed, as is commonly practiced.

LABORATORY FINDINGS

The laboratory records of the 551 patients with gastroptosis may be of interest. Of the 551, only seventy-eight were found to have what is called normal degrees of hydrochloric acidity, that is, from 20 to 30 points; fifty-six had low acidity, and twenty-three achylia, while 247 had an increase in the amount of hydrochloric acidity. These figures are not very different in proportion than those obtained by Rehfuss in persons who gave no history of indigestion. They show that hyperchlorhydria is of about the same frequency among persons with gastroptosis as those who believe themselves normal.

Urinalysis revealed albumin in eight, sugar in nine, indican in 200; while in the 449 whose stomachs were in the so-called normal position, there was albumin in twenty-one, sugar in thirteen and indican in 160. This would seem to indicate that those who have visceroptosis suffer more from intestinal toxemia, while those of the stout type are more prone to nephritis and diabetes. Occult blood was found in the stools of 169 of the 1,000, ninety-one of the 551 with gastroptosis, and seventy-eight of the 449 with the high position of the stomach. Nearly all of these were ulcer or cancer patients.

Until the past year we did not make routine Wassermann tests, getting specimens only in the cases in which there was reason to suspect syphilitic infection. Of the 1,000 patients, 509 had one or more Wassermann tests, and of that number only seventeen were positive. We doubt whether any of the other patients would have had positive Wassermann reactions if the test had been made with them. This leads us to make the irrelevant statement that syphilis plays a very small part in the etiology of the gastro-intestinal diseases among the better class of people in Alabama and surrounding states.

The fact that the Wassermann reaction was positive in nine of the 551 gastroptosis patients, while plus in only eight of the 449 who did not have gastroptosis, cannot be of any significance.

TREATMENT

The mere fact of finding on roentgen-ray examination that a patient's stomach is low down in the abdomen does not necessarily mean that he needs treatment directed toward that organ. If his physical poise is good and his abdominal muscles well developed, or if he has sufficient fat in the retroperitoneal spaces to keep the intra-abdominal pressure high enough for gastric and intestinal function not to be interfered with, he needs no treatment though his stomach rests on the brim of the pelvis. If, however, as is frequently the case, the person who has gastroptosis is undernourished and he has relaxed abdominal muscles, he should be given treatment directed toward improving nutrition and with the effort to develop every voluntary muscle in the body, particularly those of the anterior abdominal wall. Such patients are usually in a state of chronic fatigue, and the psychasthenic element also demands attention. In other words, it is the patient as a whole and not the stomach that should receive the physician's attention.

The treatment of gastroptosis is not so much a matter of medicine as of educating the patient. He should be taught that gastroptosis is a part of visceroptosis, which in turn is associated with an inherited bodily habitus.

Psychic treatment is very helpful, particularly systematic encouragement, pointing out the fact that many of the happiest, most efficient and most useful men and women in the world are those of slender, more or less frail bodies, with visceroptosis, who live within their physical limitations.

The visceroptotic individual should be taught the essentials of diet and nutrition: that if he would be comfortable he must eat a full diet, with a liberal quantity of butter, cream and other fats; plenty of the starchy and green vegetables, and the cereals; and 1 or 2 quarts of milk a day. Bryant has pointed out that eggs and meats increase the toxemia in the visceroptotic individual, whom he calls the "chronic intestinal invalid." Sufficient proteins may be obtained from the milk and the legumes (beans, peas, etc.), though a small portion of tender meat (beef, lamb, chicken or fish) may be allowed once a day. Particularly should the patient with the habitus enteroptoticus be taught the diet and other measures to overcome constipation and correct intestinal stasis and the resulting toxemia.

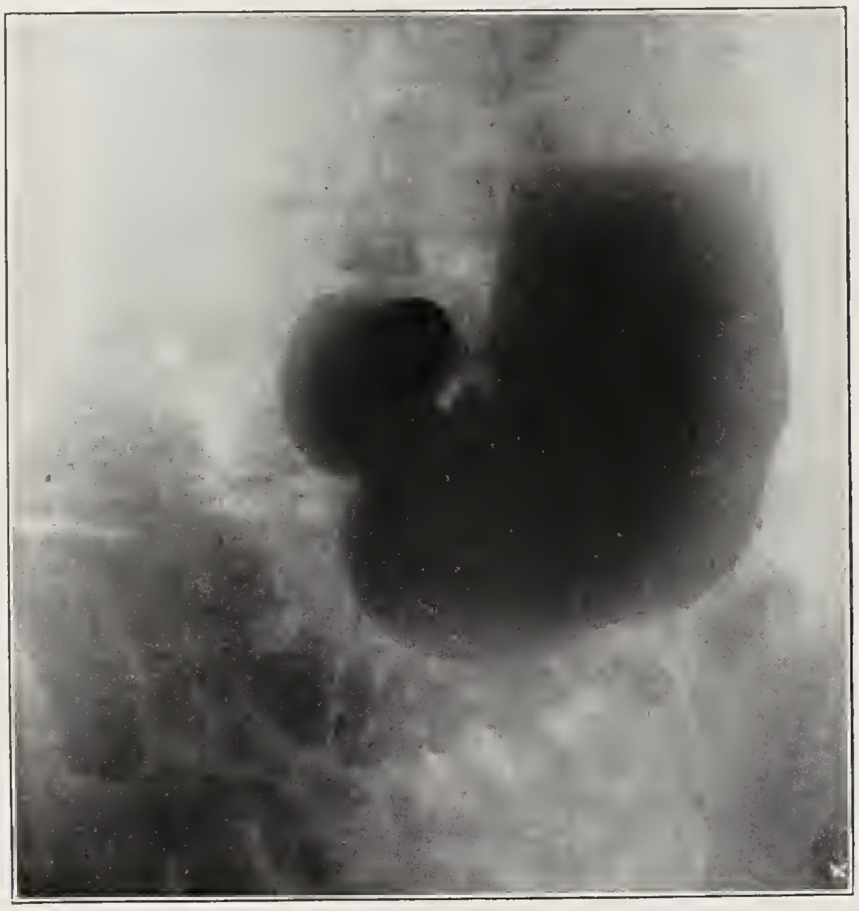

Fig. 4.—Gastroptosis is usually associated with general visceroptosis. The colon is very low on the pelvic floor.

THE REST CURE

Rest in bed for a period of from four to six weeks is necessary in many cases. A "rest cure" in an infirmary or sanatorium is best when the patient can afford such treatment. It is difficult to treat visceroptotic patients in their homes because it seems almost impossible for them to carry out in their accustomed environment the daily regimen required to increase nutrition and to develop the muscles. While the patient is in bed, his physician has the opportunity of directing his reading and of giving him daily talks on what he should do to get well, and of pointing out the routine to follow to keep well after his return to his home. In rare instances very intelligent patients have carried out the treatment successfully at home.

Many clinicians have the foot of their visceroptotic patients' beds elevated from 2 to 4 feet, while some advise the knee-chest position several times a day in order to get the stomach in what they call the normal position. We have proved by many roentgen-ray examinations that the normal curve of the lumbar (spine) and the contour of the abdomen with the very smooth surfaces of the viscera and parietal peritoneum are sufficient to allow the stomach and intestines in the visceroptotic person to glide into the upper portion of the abdomen. It is, therefore, wholly unnecessary to have the patient lie in an uncomfortable position with his head down and feet up in order to elevate the abdominal viscera.

The physical training of most persons is neglected, and the physician who treats visceroptosis must educate his patients regarding the exercises which tend to develop every voluntary muscle of the body. Especial attention should be paid to deep breathing exercises and those that develop the chest and abdominal muscles.

EXERCISES

There are many good systems of exercises in treating visceroptosis, any of which may be used. We have modified a group of exercises of considerable vogue with the idea of using every large group of voluntary muscles in the body, and have taught the movements to many patients, who report that they enjoy their morning exercises and bath, followed by massaging the entire surface of their bodies with the palms of their hands. One advantage of these exercises is that they require no apparatus, and they can be carried out in a very small room, most of them in a sleeping car berth. The patient begins with four of each exercise and increases one each day until he or she is taking sixteen of each before the morning bath. They may be repeated at night, provided one is not too much fatigued.

OPERATIONS NEVER INDICATED

The operation of fixation of the stomach for gastroptosis is mentioned only to be condemned as irrational, meddlesome surgery. The stomach is a very mobile organ, and no part of it should ever be fixed as is the effect in all the various types of gastropexies proposed for gastroptosis. Roentgen-ray examinations by many different observers disclose that the operation does not permanently elevate the stomach, and many cases have been reported in which the patients were in worse condition after the operation than they were before they

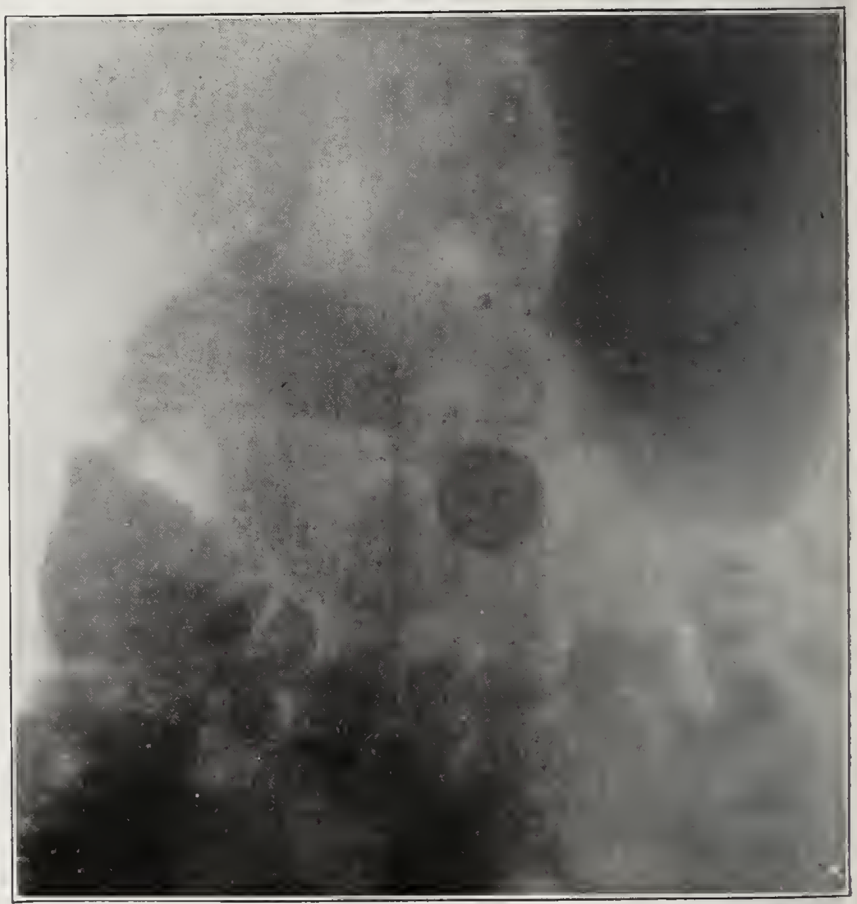

Fig. 5.—Effect of the dorsal position in elevating the stomach and colon several inches.

were subjected to an operation which is not without serious danger to life. Our view that gastropexy is never a justifiable operation has been so pronounced that we sent questionnaires [4] to a number of prominent surgeons and gastro-enterologists asking their opinion of the merits of gastropexy. Replies were received from all but two, and without exception they condemned the operation. Among the surgeons who consider gastropexy an unjustifiable operation may be mentioned Drs. J. M. T. Finney, W. J. Mayo, Joel E. Goldthwait, Stuart McGuire, George E. Brewer, W. D. Haggard, Hugh Cabot, H. A. Royster, Charles A. L. Reed, W. W. Crawford, James E. Thompson and Louis Frank.

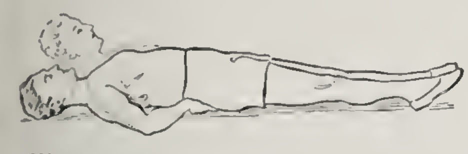
Fig. 6.—Exercise in the horizontal position: The chin is touched to the chest.

The following gastro-enterologists heartily disapprove of any method of gastrofixation: Drs. Max Einhorn, George Roe Lockwood, John Bryant, Thomas R. Brown, Charles D. Aaron, Joseph Sailer, Julius Friedenwald, John A Lichty, William Gerry Morgan, Horace W. Soper, Sidney K. Simon and Franklin W. White. There can be no question that the consensus of opinion among both surgeons and gastro-enterologists is opposed to any operation which proposes to elevate and fix the stomach in any given position in the abdomen.

ABSTRACT OF DISCUSSION

Dr. John Bryant, Boston: Dr. Harris states that gastroptosis is of hereditary origin. I have done a certain amount of work on the anatomic aspect of this question, and I have not been able to find the stomach low in the fetus. It is a wholly acquired condition. On the other hand, I think it is true that it is a familial trait. Members of families through various generations are subject to visceroptosis. Dr. Harris referred to the question of a high degree of development in relation to gastroptosis. I think it is a question whether the people with a so-called high degree of development are not somewhat undifferentiated. Many of their reactions are the same as those of children. One reason why they are brilliant is that they put everything into what they are doing and go the whole distance without thinking what is going to happen. There are many things in the anatomic field which suggest that visceroptosis is a reflection of an arrested development. As regards treatment, from a general point of view I think that visceroptosis is an indication of easy fatigability of the individual. If that is true, the treatment is adequate rest, and it must come often enough to catch the person before he gets too tired. It is well known that the curve of fatigue is a parabola. It starts almost flat, then increasingly falls. In order to keep these people going and improve their condition with the least possible waste of time, one has to order enough rest periods to catch the patient before he begins to go down hill. From a practical point of view, I have found that perhaps the most valuable thing in the whole field of treatment is a five minute rest period in every half hour. That may sound extreme, but you can get many people to give up that much time when they would not think of giving up an hour in the middle of the day. And I think five minutes every half hour is infinitely more valuable than a longer rest period in the afternoon.

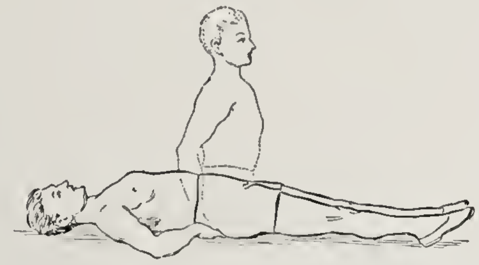
Fig. 7.—Exercise for strengthening the abdominal muscles: The body is raised from the horizontal to the sitting position, the legs being kept straight.

Dr. A. L. Levin, New Orleans: I should like to ask Dr. Harris if, in his cases of gastroptosis or enteroptosis, he has made observations a year after carrying out the line of treatment suggested—diet, rest and exercises—to determine whether the low position of the stomach or intestines has been corrected; in other words, whether he has made exact pictures to demonstrate that his treatment succeeded in causing the intestine or stomach to lift itself upward so that the intestinal toxemia is relieved. After the symptoms are removed by treatment, we should see then that the stomach and intestines have lifted themselves, thereby relieving the toxemia, if the latter is due to this cause. If we find the stomach and intestines still low and yet the condition is improved, then the malposition of the organs is not the cause of the pathologic condition.

Dr. Anthony Bassler, New York: In answer to Dr. Levin, I will say that in gastroptosis, chronic intestinal toxemia is present in more than 50 per cent. of all cases. If, in that 50 per cent. of cases, you permit the toxemia to continue, the largest proportion of the cases will eventually revert to former conditions, no matter what you have done for the patient in the way of rest, abdominal support, physical measures, diet, etc. I think that neglect of intestinal toxemia is the reason why so many of these patients return after a conscientious effort to overcome the ptosis had been made. Another thing: I do not believe that it is possible to feel that a case of ptosis is what may be called cured until the stomach is in normal position; and our experience is that we succeed in restoring the stomach to its normal position only when we can keep the patient under observation for at least six months and the elimination of the intestinal toxemia, if present, is accomplished. There must be continuation of effort on the part of that person when he is up and around. I believe that the test of a cure in these people is what may be termed a riding stomach. After the increase of fat and of intra-abdominal pressure, the building up of the patient and all that sort of thing, you can never be sure that a ptosis patient is permanently well until, without any abdominal support, the stomach is higher in the standing position than in the prone. That sounds ridiculous, but it is true: when, after treatment of a case of gastroptosis, the stomach is higher in the standing position than in the prone, you can depend on it that the patient will remain well.

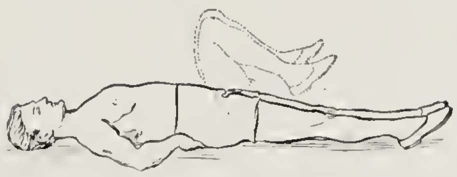
Fig. 8.—Flexion of thighs, bringing knees up to chest.

Dr. Leon T. LeWald, New York: The question has been raised as to congenital and acquired gastroptosis. I have made a great many observations on infants and children. Some of this work was done with the late Dr. Pisek, and, more recently, with Dr. Kerley. Surprisingly few observations on young children have been recorded, and many of the conditions which we think of as occurring only in adults we do see in children; and, in a considerable number of cases, we have observed gastroptosis in early childhood. We believe that some of those cases are definitely acquired from overfeeding, particularly in those children subsisting largely on milk, having extra meals of milk at school in addition to their ordinary meals. The proof of this is still somewhat vague, but there is no question as to the number of cases we have seen of gastroptosis in young children. While a

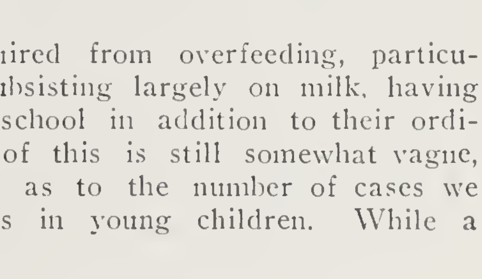
Fig. 9.—With the knees extended, the legs are raised to the vertical position.

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[4] The replies to this questionnaire will be published in another article entitled "The Irrational and Unjustifiable Operation of Gastropexy."

large number of adult cases of gastroptosis yield fairly readily to changes in the mode of living, proper diet, and the wearing of a support, I know of several instances in which surgical relief was the only solution of the problem. One point was not brought out by Dr. Harris: not only the degree of ptosis, but also the functioning of the ptosed organ is not always taken into account. A small group of cases can be relieved only by operative procedure.

Dr. John L. Jelks, Memphis: I want to ask Dr. Harris if he has found a psychic element to contend with in these cases. Is it not, in his opinion, a misfortune, for a woman especially, or any patient who is already neurotic, to learn that a condition of visceroptosis exists? Also, if he does not believe that in some cases the patient needs psychotherapy as much as other treatment? Many of these patients are married women who have borne children; others have had tumors removed; some have gone through a long period of illness in which a great deal of fat has been lost, not only intra-abdominally, but the extraperitoneal fat cushions have been destroyed or markedly reduced. Also the modern dress, which prevents continued development of the abdominal parietes, undoubtedly has had a great deal to do with many of the cases I have encountered; and I see a good many of them in connection with toxic and abdominal cases. I should like to know also whether, in the majority of cases wherein one notices an indicanuria and other indications of toxicity, Dr. Harris does not also note adhesions.

Dr. Charles D. Aaron, Detroit: Twenty-five years ago I presented a bandage for the treatment of gastro-enteroptosis. I have been using that bandage up to the present time without making a single change in it. The results are marvelous. Symptomatic treatment as laid down by Dr. Harris, plus the fitting of a bandage, will bring about a clinical recovery. Whether or not the stomach or intestine is back in position, I do not know. We may not be able to restore anatomic arrangement, but we can restore the physiologic condition. I am led to believe, and I think all of you will agree with me, that if you put a suitable bandage on the patient, this, by lifting the abdomen, will relieve the tension on the mesentery. It is the tugging on the delicate nerves in the mesentery that induces neurasthenia and nervous symptoms, not the toxemia. The relief of that tension does away with the symptoms. If you send the patient to the instrument maker, you send her to a concern whose business it is to sell a bandage. It is your duty to fit that bandage yourself; and if you fit it today, in a week from now it will not fit, because the abdomen has been held up, the mesentery has contracted, and there is still tension. Patients who, when they first came into my office, could not walk have been able to walk after wearing one of these bandages for a short time. If you fit it properly, it will do the work. This bandage and every bandage fitted for the relief of gastro-enteroptosis should extend just from the symphysis to the umbilicus and not higher, and pressure should be firmly exerted on the small intestine. If you make a pad for the small intestine, you will raise the transverse colon easily, and that will raise the stomach.

Dr. G. R. Satterlee, New York: I agree with Dr. Harris in the main. I agree with him also as to the familial tendency toward enteroptosis. I have had quite a little experience with this condition, starting in some surgical work and finally coming to the conclusion that we were not, strictly speaking, doing surgery, but suspension. For four or five patients who were going down hill very rapidly, surgical suspension seemed to be the only thing to start them on the right road. One interesting familial case was that of a mother and daughter. The mother went down hill very rapidly with gastro-enteroptosis. She had a suspension operation on the stomach. Her daughter had a similar condition, with homologous roentgenograms which could scarcely be distinguished from each other. The daughter was treated by posture and abdominal support; both are well today. Dr. Harris did not say very much about the effect of posture. In our work, we now believe that posture is a very important factor in the treatment of gastro-intestinal invalidism. I hardly believe that we can get along without corset support in a great many of these cases. The corset support is important, not from the uplift of the intestine entirely, but largely from the effect on the spine. Corsets are all made so that they have a stiffening effect on the spine. Then the patients are taught to sit properly and not bend over and force the abdominal contents down. That is very important, and should be attended to early and often in children. It hardly seems possible that enteroptosis does not cause symptoms in quite a percentage of cases, but, just as Dr. Harris has said, the condition may be present without any symptoms being manifested. Thorough treatment of these patients and treating them from every angle is, of course, necessary. A great deal of nerve tire and disability is caused by another factor which has not been touched on, and that is focal infection. Posture must have some effect on these patients because we have had quite a large number with enteroptosis who have been in a badly run-down condition, and yet were completely relieved by a properly fitting corset or even by posture alone. It is not infrequent to find a gain of 30 pounds after postural treatment. The fitting of this corset must be done under the supervision of the physician. It must be made exactly right, with spring pads, the essential thing being to get the viscera in the proper position before the corset is applied and to avoid postures which may dislocate them.

Dr. Seale Harris, Birmingham, Ala.: Regarding the question of abdominal support, the properly fitted abdominal supporter is very helpful. But the visceroptotic person should not be condemned to wearing an abdominal support all his life. The idea should be to use an abdominal supporter as a temporary measure until the patient can, through proper exercises, get an increasing abdominal pressure and also some fat to help raise the stomach and to increase the intra-abdominal pressure. As to visceroptosis not being hereditary because it has not been found in the fetus, the fetus has not assumed the upright position. If men were to go on all fours, there probably would not be any gastroptosis. When they assume the standing position, with the stomach distended, descent of the stomach takes place. Therefore, I think the condition is hereditary. Dr. Bryant's view that the condition is a fatigue syndrome is very important, for fatigue is practically always present in those cases. In instructing my patients in regard to rest, I also try to give them some physical exercises and deep-breathing exercises and also exercises to develop the abdominal muscles. I instruct stenographers and other office workers to take five or six deep breaths and draw in the abdominal muscles at an open window every hour each day. It gives rest and also helps posture. It is very necessary to have these patients assume the proper posture with the shoulders thrown back and the abdomen pulled in, and after a time they will assume that position naturally. This increases the intra-abdominal pressure and helps very much. As to the position of the stomach one year after treatment, we have not enough data of value in the way of statistics; but in the majority of patients with visceroptosis whose symptoms have been relieved we find the stomach still low down in the abdomen. I do not think the position of the stomach has anything to do with the symptom. It is a question of tonus and intra-abdominal pressure. However, in a few of the cases the roentgen ray shows that the stomach has ascended 2 or 3 inches. But the psychic element is very important, and we should impress on the patient the fact that it does not make any difference if the stomach is low. Dr. LeWald's remarks about the condition in infants and children is very interesting. Dr. Ochsner has suggested that the distention of the stomach and intestines in infancy causes visceroptosis. I think that gastro-intestinal diseases in infancy cause atony but not visceroptosis. I do not believe that any operation for fixing the stomach or the colon or any other highly mobile viscus of the abdomen is going to do anything but injure, because it interferes with function, and furthermore, if you study the case with the roentgen ray after the operation of gastropexy you will find the stomach still low. Dr. Aaron spoke of the desirability of the physician himself fitting the abdominal supporter. The important thing is to have a type of supporter which will fit tightly over the lower part of the abdomen and loosely higher up.

Clinical Notes, Suggestions, and New Instruments

AN EMERGENCY UNIVERSAL SPLINT FOR FRACTURED LONG BONES

H. C. Masland, M.D., Philadelphia

In former publications,[1] I have described a series of splints for the absolute reduction and fixation of acute fractures in the continuity of the major long bones. These splints are the implements of the surgeon.

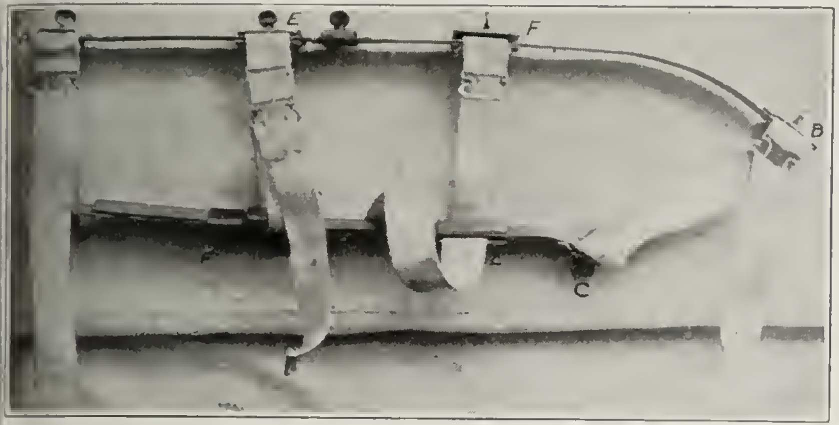

Fig. 1.—Ends bent for thigh or arm fracture. Similar letters indicate similar parts in the two illustrations.

The splints illustrated in Figure 1 and 2 are not in any way to be considered as substitutes for those previously described, nor are they for the permanent treatment of fractures. They are for use in the factory, mine, patrol wagon, etc. They are for emergency use to give comfort during the delay that occurs while the patient is being transported to the hospital or other place where he receives corrective treatment.

FEATURES OF SPLINTS

The one splint set is adjustable so that fixation of a fracture of any of the major long bones may be secured. The metal strips are bendable to conform to the shoulder or buttock, yet of ample strength for rigidity. For application to the shoulder and buttock, the external splint may be made longer than the internal, thus giving added support to the head of the bone, as in the regulation Thomas splint. Side slipping of the splint arms is prevented by clamping the straps, after tightening, in the brackets. There are straps in the end brackets and additional straps that may be applied around the limb and clamped to the splint arms when and where needed. The splint may be applied over the clothing, or when this is not feasible, padding of any convenient material may be applied under the main pressure points. The splint may be carried compactly in a first aid outfit.

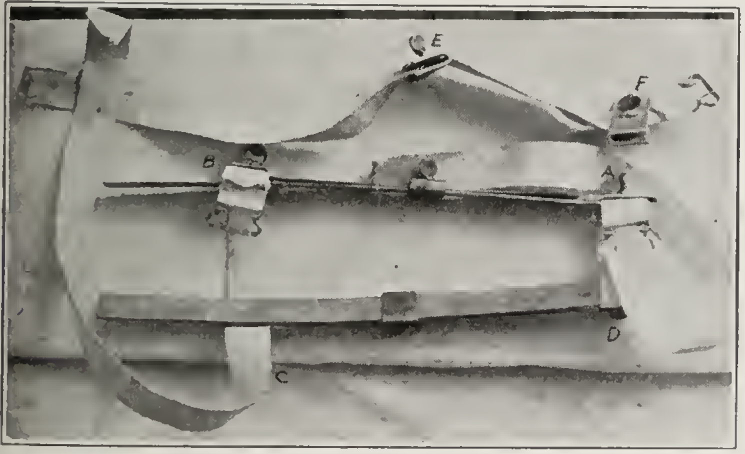

Fig. 2.—Straight shortened splint for leg or forearm. *A, B, C, D,* and strap brackets; *E, F,* strap clamp brackets attachable where indicated.

2130 North Nineteenth Street.

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[1] Masland, H. C.: Pennsylvania State M. J. **25**: 161 (Dec.) 1921; Ann. Surg. **76**: 110 (July) 1922.

FRACTURED CLAVICLES

T. K. Richards, M.D., Boston

The method here advocated is a slightly modified clavicular cross, or T splint. The cross as commonly applied is made of ordinary splint wood with two widths of board forming the upper bar of the T across the shoulders, with the long arm of the T extending to the lower thoracic vertebrae, the whole splint being carefully padded and held in place by sheet wadding and bandages or webbing straps binding each shoulder tightly to the outer end of the double boards. The lower end of the T is held to the back in a similar manner.

The changes are the result of treating fifty fractured clavicles, and are that:

1. The width of the cross bar of the T is of a width corresponding to the width of the shoulder at the axilla (that is, the distance from the superior aspect of the shoulder to the lower edge of the posterior axillary fold) and of a length about 2 inches shorter than the width across the shoulders because the points to be fixed are the shoulders. They must be held back and up. By having the cross piece the width of the shoulders at the axilla, it is impossible to move the shoulders within the apparatus. This is not the case when a wide cross piece is used.

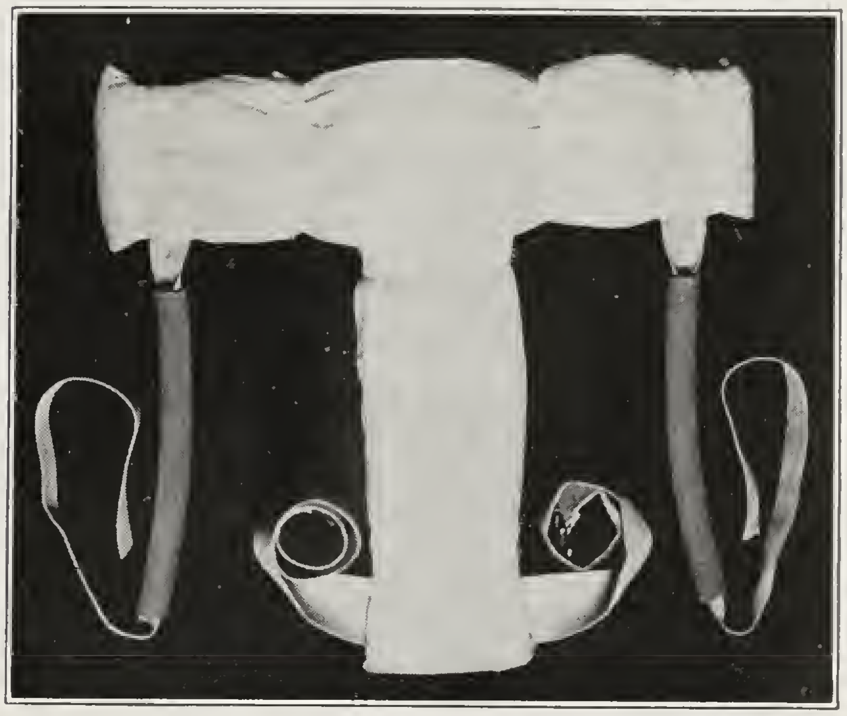


Fig. 1.—Anterior view of clavicular cross, or T splint.

2. There is no padding over the shoulders where the straps or bandages hold the shoulders to the cross bar; instead, webbing straps from 1 to 2 inches wide (according to the patient, adult or child) are used, over which have been slipped pieces of heavy rubber tubing from one-half to three-fourths inch in diameter and about 8 inches in length. These are to be adjusted so as to take the pressure of the straps off the anterior axillary folds and the anterior superior aspect of the shoulders. The advantages are that it does away with padding, which soon becomes foul with perspiration; the skin is easily cleaned and powdered without removal of the apparatus; it does not chafe, and these straps can be put on more firmly and with less disability than when padding is used.

3. The straps and buckles encircling the shoulders are tacked to the lower border of the cross bar, the buckle end up, and at a point at least an inch toward the median line from the point adjacent to the posterior axillary fold. This makes the back pull on a slight diagonal and helps to keep the straps in place. The strap which acts as a belt is also tacked to the long arm of the T (Fig. 1).

ADVANTAGES

The whole apparatus is in one piece, and can be applied by one pair of hands. When it has once been fitted, the rubber tubing containing the strap holds the shoulder at a point inside the head of the humerus, which aids in keeping the apparatus in place. The buckles, being low, do not interfere with the roentgen ray. In some persons in whom, because of marked fulness over the caracoid process, it is difficult to keep straps inside the head of the humerus, another strap running across the chest between the arm pieces may be necessary to prevent the arm strap slipping over the point of the shoulder. In most cases this is not necessary.

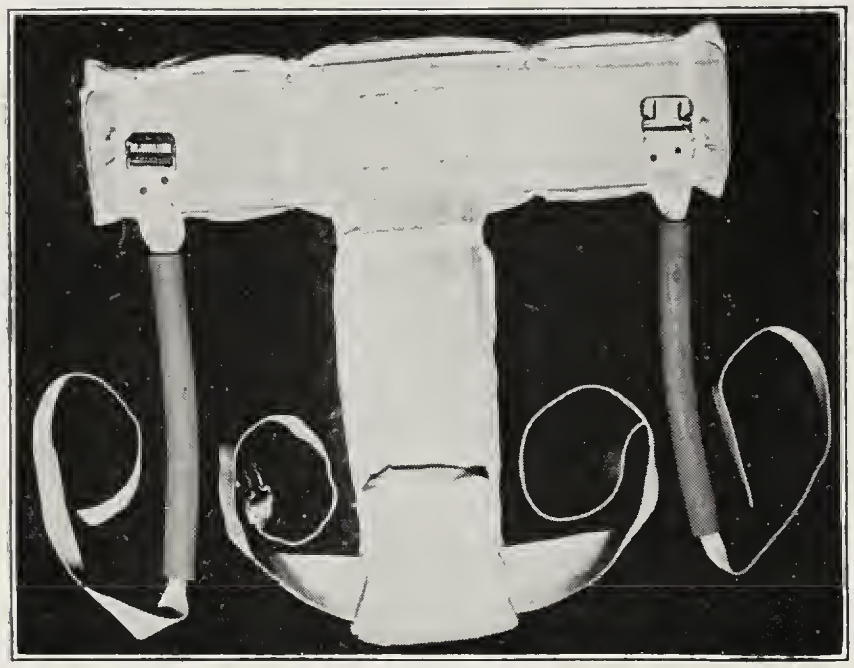


Fig. 2.—Posterior view. Rubber tubing covers the arm straps; the buckles are at the lower border of the splint.

The advantages of the clavicular cross or T splint over the Sayre and Velpeau dressing are:

1. There is full use of the arm at all times.
2. There is no danger of nerve or circulatory injury, of which two cases were seen this summer when a Sayre and Velpeau were used.
3. The shoulders are held more nearly level, and the broken ends are immobilized.
4. The site of injury is open for inspection at all times, and foul smelling pads are done away with.

The advantage of the cross over the army barrel stave splint is that the long arm of the T prevents the dropping of one shoulder. The advantages over the method of sand bags and rest flat in bed are that the patient is up and around, while the end-results are practically the same.

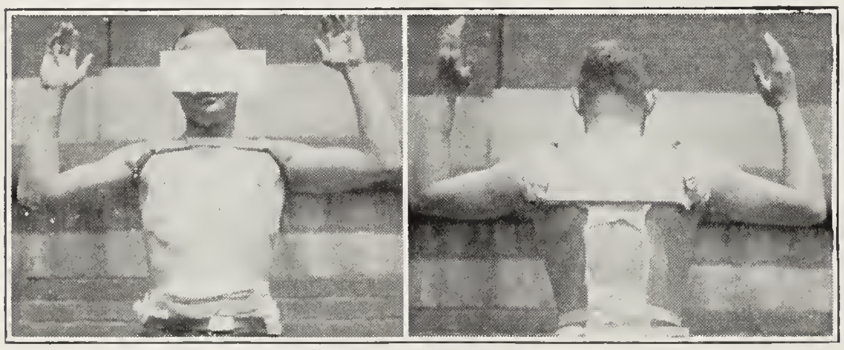


Fig. 3.—Lack of deformity and disability twenty-one days after injury. The front view shows the diagonal backward pull of the arm straps within rubber tubing; it also shows the strap between the two arm pieces across the chest, which prevents the arm pieces from slipping over the shoulders. The apparatus is shown just as the patient wore it.

In a series of fifty cases treated with the apparatus, only one patient was encountered who complained of the cross being uncomfortable. This was a midshaft oblique fracture plus multiple contusions and abrasions of the legs and trunk. The patient was treated by rest in bed for ten days followed by a figure-of-eight flannel bandage between the shoulders across the back, and a sling. The end-result was excellent.

In all the others there were no complaints after the apparatus was finally adjusted. The patients who had been treated first with a Sayre and Velpeau all complained of their arms, the elbow, especially, being uncomfortable; and they were most grateful for the comfort and freedom allowed by the cross. No slings were used at all; the pull from the arm on the outer fragment is taken by the shoulder straps.

In most cases, union was firm in three weeks, at which time the cross was removed. In greenstick fractures in children, two weeks after reduction was usually sufficient. In rare cases in which there was any doubt about solid union in three weeks, the cross was removed and a figure-of-eight bandage between the shoulders applied until union was firm.

CONCLUSIONS

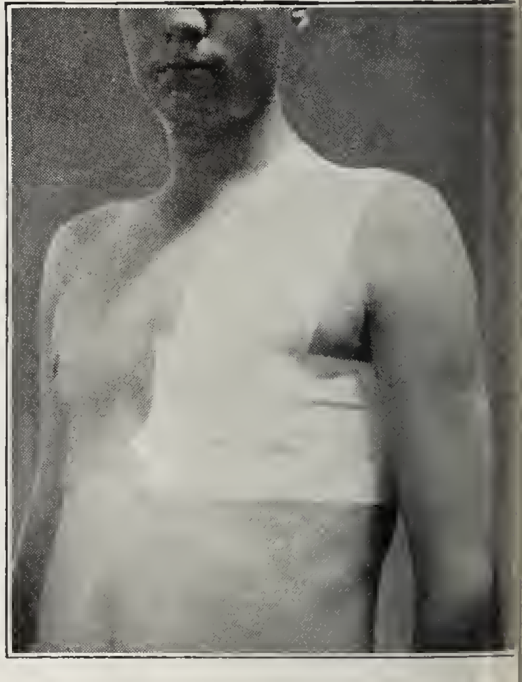
1. A T splint, of which the width of the cross bar is the width of the shoulders at the anterior axillary line and the length of which is a little shorter than the width between the shoulders, padded with sheet wadding and held in place by webbing straps covered with rubber tubing, holds the fragments of fractured clavicles in position.
2. It enables the patient to be up and about with nearly full use of his arm.
3. It does away with any danger of injury to nerves and blood vessels from tight bandaging.
4. It is comfortable, easy to keep clean, and prevents the chafing of the skin.
5. When the apparatus is removed, the function of the shoulder as well as the other joints of the arm is present, and the minimum time is lost before the patient can resume his daily work.
6. The cosmetic results are excellent.

520 Commonwealth Avenue.

IMMOBILIZATION OF THE UPPER THORAX

Hugo O. Altnow, M.D., Mandan, N. D.

The practitioner usually does not attempt to immobilize the upper chest, by adhesive tape, in pleuritic inflammation or injury, because he believes that it cannot be effectively accomplished. I entertained this idea for some time.



Application of adhesive tape in immobilization of upper thorax.

A few years ago, while reading C. F. Hoover's article in "Oxford Medicine" on "The Respiratory Excursion of the Thorax," I hit upon the simple and effective method here described. The physiologic principle involved is taken from the article mentioned: "The mechanism for the ventilation of the anterior or upper lobes is provided for by the scaleni and the intercostal muscles. The scaleni anchor the first rib, and the intercostals, each in turn, elevate the rib below. This elevating movement occurs from the first to the fourth rib, inclusive, and provides for the ventilation of the upper lobes. In the ribs below, the inspiratory elevation is greatly accentuated by the lateral 'bucket handle' movement of the ribs from the fifth to the tenth, inclusive. The latter movement to a large extent, accomplishes the ventilation of the lower lobes."

From this description, it occurred to me that immobilization of the upper chest could be accomplished by preventing the upward movement of the first to fourth ribs, inclusive by fixation of the bandage below the fourth rib anteriorly and posteriorly. The adhesive tape is started in front as low down as the sixth rib, and is brought up over the shoulder

As the patient holds the chest in full expiration, the posterior pplication of the strap is completed with as much downward ressure as possible. Two straps applied in this manner are sually sufficient. A horizontal strap helps in anchoring the nds of the two main straps. The accompanying photograph urther illustrates the manner of application.

Clinical experience with several cases of upper lobe pleuisy, in which this method of fixation of the chest was tried, as proved its effectiveness. The patient experienced almost immediate relief in each instance in which this method of reatment was employed.

THERAPEUTIC APPLICATION

The method is applicable in:

1. Upper lobe and apical pleurisy occurring in the course f tuberculosis, pneumonia and those due to other infections, when relief from distress is necessary.

2. Fracture of the four upper ribs or other injury of the upper thorax, when immobilization of the chest is desirable.

3. Apical tuberculosis, to augment Nature's attempt at fixaion of the affected apex.

HEMOPERITONEUM WITH BLUISH DISCOLORED UMBILICUS: REPORT OF CASE

H. Melmuth Sternberg, M.D., Jersey City, N. J.

History.—S. F., man, aged 61, a German saloonkeeper, was admitted to the hospital, Sept. 5, 1922, with the comlaint of "enlarged abdomen." The family history was esseniaily unimportant. He denied all acute infectious diseases nd venereal disease. He was the father of one grown son; is wife denied any miscarriages. Twenty-five years before, e suffered with nonbleeding hemorrhoids, which spontaeously disappeared. Seven years before, he was troubled with varicosities and edema of the lower extremities. He dmitted that he indulged heavily in beer, wine, tobacco and offce. He also enjoyed a voracious appetite, which he atisfied freely.

Prior to three months before his entrance into the hospital, e had no complaints. He noticed that his appetite became oor and he was constipated. He complained of pyrosis, elching of gas, fulness after eating, borborygmus and loss f weight and strength. Six weeks before, his abdomen ecame distended. For this, he was twice successfully reated with drugs. A third reappearance failed to subside nder free catharsis. The abdomen became so enlarged that espiration was interfered with. September 2, the patient oticed a small amount of "black blood" in the stool. At no ime was there any hematemesis or jaundice. September 3, bdominal puncture by Dr. Kopetchny yielded a dark, anguineous fluid under pressure. The patient entered the ospital two days later.

Physical Examination.—The man was heavy set, weighing 10 pounds (95.4 kg.), and of muddy complexion, with the ypical hepatic facies. The temperature was 98 F.; pulse, 00; respiration, 24; blood pressure, 120 systolic, 90 diastolic. here were no signs of hemorrhage or shock. The abdomen was symmetrically enlarged. There was shifting dulness in ie flanks. A fluid wave was demonstrable. The umbilicus was prominent. Below it and surrounding it, in a half-moon, iere was evident a bluish black area, on a level with the est of the skin, and containing yellow and green spots. uperficial veins of the abdomen were sparse. The liver and pleen were not palpable. Hemorrhoids were present. Both xtremities showed varicosities and pigmented skin.

Laboratory Findings.—Examination of the urine revealed: pecific gravity, 1.026; very slight trace of albumin; occaional granular casts; negative as to bile and sugar.

Blood tests revealed: red blood cells, 2,880,000; poikiloytosis and anisocytosis; hemoglobin, 58 (Tallqvist); blood otting time, two minutes; white blood cells, 9,400; polyorphonuclears, 74 per cent.; lymphocytes, 26 per cent.

The fluid aspirated from the abdomen was bloody, with a ecific gravity of 1.02. One third of the volume was comsed of cells. Cultures and smears were negative. It was negative for bile and special cells. A smear showed blood cells, all types (normal).

September 8, the abdomen was again punctured by Dr. Hamill, and 7,000 c.c. of serosanguinous fluid was removed. September 9, the patient died.

Necropsy Findings.—The patient had entered the hospital with a diagnosis of atrophic cirrhosis. Because of the hematoperitoneum, malignancy of the abdomen was suspected. A partial necropsy revealed a small cirrhotic liver, with a right lobe joined to the right leaf of the diaphragm by a large, soft, fungating cauliflower mass, which was ulcerated in parts and oozed blood from its center. Microscopically, this was shown to be an adenocarcinoma of the liver. No other focus was demonstrable.

COMMENT

In 1919, Dr. Thomas S. Cullen observed and described the presence of a bluish black discolored umbilicus in a few cases of tubal pregnancy, in which the abdomen contained an abundant quantity of free blood. Dr. Emil Novak[1] has recorded two cases of tubal abortion with this sign. The discoloration is ascribed by Dr. Cullen to the imbibition of blood by the umbilicus from the peritoneum. This subject has received further consideration by Dr. Cullen.[2] He believes that this sign may be of great value in cases in which the bleeding has been slow but persistent, and the clinical symptoms are not very evident. The interest in this case lies in the presence of a bluish discolored umbilicus in a man with hemoperitoneum due to adenocarcinoma of the liver.

St. Francis Hospital.

A CASE OF KNOTTED AND IMPACTED URETHRAL CATHETER

M. J. Fox, M.D., and J. C. Sargent, M.D., Milwaukee

D. S., a white man, aged 22, entered Milwaukee County Hospital complaining of an impaction of a self-inserted, soft rubber urethral catheter. The family history was unimportant. The patient denied any venereal disease or unusual sexual practices. He stated that on one occasion, one year before, for no apparent reason, he found himself unable to void, and was relieved by catheterization by a physician. There had been no subsequent trouble until the present illness. Aug. 23, 1922, without apparent cause, he was again unable to void, and after a continence of twelve hours, the discomfort of a distended bladder impelled him to insert a rubber tubing and empty the bladder. He could not withdraw the rubber tube. It seemed solidly fixed, and the slightest traction resulted in agonizing pain in the region of the bladder neck. Becoming alarmed, he consulted a physician, who made several attempts to withdraw the tube, but, because of the excruciating pain, was unsuccessful. Following this, some blood appeared at the meatus, and in several hours, swelling and edema of the penis occurred. A dribbling of urine around the catheter soon developed and continued. On the second day after this accident, the patient presented himself at the Milwaukee County Hospital. He complained only of the impacted catheter. Urine was dribbling constantly around the tube. He seemed comfortable.

The general physical examination was entirely negative. A soft rubber tube, about the size and consistency of a No. 20 soft rubber catheter, protruded 3 inches from the meatus. Urine dribbled slowly around the tube. The penis was moderately swollen and edematous. The scrotum and contents were normal. The prostate was swollen and excruciatingly tender. The rubber tube was solidly fixed within the urethra, and the slightest traction resulted in severe pain. The systolic blood pressure was 120; diastolic, 75; temperature, 100; pulse, 84; respiration, 20.

The patient was anesthetized with chloroform for a moment, during which the rubber tube was withdrawn. It was so tightly fixed that, before it gave way, it seemed that the rubber would break. Considerable bleeding followed for several minutes, but recovery was uneventful, and the patient left the hospital four days later, apparently in perfect health.

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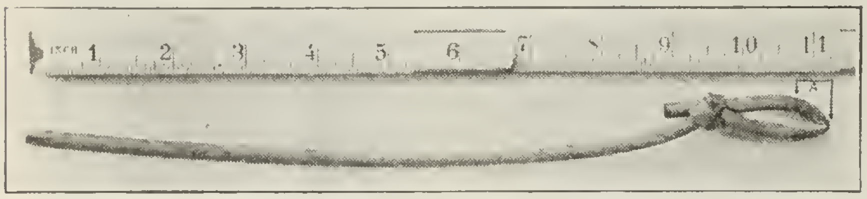
[1] Novak, Emil: Bluish Discoloration of the Umbilicus in Diagnosis of Ruptured Extra-Uterine Pregnancy, J. A. M. A. **78**: 643 (March 4) 1922.

[2] Cullen, T. S.: Surg., Gynec. & Obst. **35**: 257 (Sept.) 1922.

The ready passage of a No. 30 sound proved the urethra entirely free from stricture. The prostate by rectum was of normal size.

COMMENT

This case was deemed peculiarly interesting because it was the result of a remarkably odd and unusual accident. By the illustration, it can be seen that the rubber tube, curling within the bladder, tied itself in a perfect slip knot, and in such a manner that traction served only the purpose of tightening the knot. The loop of the catheter, *A*, showed a definite deposit of urinary salts on its surface. Apparently on the day of the accident, the actual knot was withdrawn into the prostatic urethra, only the tip of the loop remaining within the bladder.



Appearance of catheter when withdrawn: *A*, loop with deposit of urinary salts.

Just why the patient introduced the rubber could not be ascertained. Certainly the retention was not due to any obstruction. If there actually was retention, it must have been hysterical. It is of course possible that the introduction of the tube was prompted by a perverted sexual sense.

Milwaukee County Hospital—Wells Building.

A NEW IRRIGATOR PROVIDING REGULATED FLOW AND TEMPERATURE OF CONTENTS

John Cooke Hirst, M.D., and W. W. Van Dolsen, M.D.,
Philadelphia

Associate Professor of Gynecology, Graduate School of Medicine of the University of Pennsylvania, and Assistant Obstetrician, St. Agnes Hospital, Respectively

Every physician has felt the need of some improvement in the methods in general use, and in the apparatus employed for irrigation, so that the rate of flow shall be controlled with exactness and the fluid contents of the can be kept at a constant temperature. Such a need is filled by the irrigating apparatus herein described, which has given entire satisfaction in actual practice.

The apparatus consists of a reservoir built on the vacuum principle, so that it retains for periods of time the heat of the liquid contents. The outflow is regulated by a dial which is numbered from 10 to 80 and fitted with a handle and an arrow, so that when a continuous irrigation is ordered, the nurse or other attendant, by grasping the handle, moves the arrow to the number on the dial corresponding to the number of drops a minute ordered by the physician, and feels free to go about her other work, knowing that no more nor less than the desired number of drops a minute can reach the patient.

Tap water, sodium chlorid or sodium bicarbonate solution will flow at the rate indicated. Glucose, 5 per cent. solution, because of its higher specific gravity, will flow slightly more slowly. However, it is obvious that this may be easily regulated.

The points of advantage of the apparatus are these:

1. It will retain the temperature of the fluid contents at any given point for a period long enough to make it possible for the contents to be emptied, even at a very slow rate.

2. The intake is large enough so that the can may be cleaned and filled easily.

3. There is built in a device, consisting of a false bottom fitted with a valve to regulate the head pressure of the solution, so that the outflow remains the same regardless of the amount of fluid in the container. The rate of flow is no greater when the container is filled to capacity with 1½ quarts (liters) than when only an ounce or two remains.

4. A most important difference is the regulating device, which consists of a series of vents drilled to varying diameters in a movable dial. When it is desired to allow 60 drops a minute to flow to the patient, the arrow on the face of the dial is moved, thereby moving the vent drilled to allow for that number each minute on the inner surface of the dial, so that it comes into direct line with the flow from the container to the ouflow nipple, and at once prevents the passage of any greater or less number of drops a minute. The advantage of this accurately controlled flow is obvious, particularly when it is desired to introduce a given amount of fluid in a certain time. When the dial is set and the container filled, no other attention is required by the attendant. Because of the measured flow, the time when the can will be empty may be foretold to the minute, thus economizing the nurse's time and making watching unnecessary. There is also provided a separate outlet for a large caliber continuous flow, should this be desired. Because of this feature, the instrument can be used for either douche or enema.

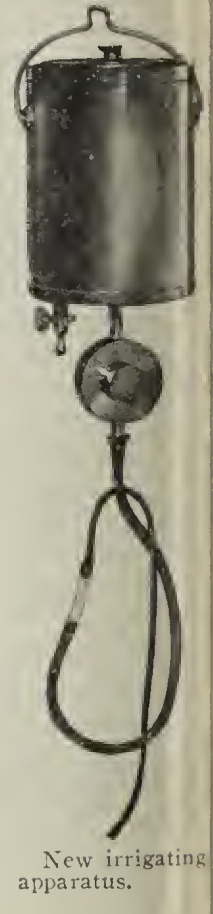
5. The entire apparatus is constructed of nickeled brass, which makes it resistant to the corrosive action of salt water. Because it may be boiled, it may be used for the irrigation of infected wounds, or for other purposes when sterility of container and fluid must be maintained.

Because of the possibility of slow rate of flow, it is particularly useful in the irrigation of wounds when prolonged contact with the fluid used is desirable, without constant refilling of the container.

6. There is no need of pinching, compressing or otherwise maiming the rubber tubing in an effort to regulate the rate of flow. This, of course, will greatly prolong the life of the tubing.

The construction of the apparatus is presented in the accompanying illustration. It has proved thoroughly satisfactory in practice, and has been a means of economizing greatly the time of the nurse in a ward where several of these containers have been in use at the same time. The time of refilling may be accurately foretold, and it gives the surgeon a feeling of confidence to know that the shocked patient for whom he has ordered a regulated drip will not receive a low enema instead, through the slipping of a clamp or other regulating device. This defeats the entire plan of treatment, and necessitates changing the damp, soiled bed.

The container is provided with a removable handle by which it may be suspended conveniently at any given height, although the elevation does not affect in any way the rate of flow. This is controlled absolutely by the vents in the dial and by the device to reduce head pressure to a constant level. Should it be desired to provide a visible flow and verify the number of drops discharged, it can easily be done by inserting, in the rubber line, a glass bulb with visible drip. The apparatus may be depended on, however, to function properly. The device has proved its value in actual use. It is our hope that this apparatus will solve for others, as it has for us, problems of irrigation. It has been so helpful to us that we would not willingly be without it.



New irrigating apparatus.

1823 Pine Street.

Place of Hospital in Community.—Each hospital as an institution should be accepted by its own particular public much the same as its schools, churches, financial centers, etc. If hospitals are ever to reach the heights of efficiency they must be relieved of the stigma of being classed as charitable institutions, and signs are already appearing to lead us to hope that in this respect changes for the better are coming about.—N. E. Edmus and M. LeJeune, *Hospital Social Service* **3**:350 (May) 1921.

Special Articles

REPORT OF THE COMMITTEE ON LYE LEGISLATION[*]

SECTION ON LARYNGOLOGY, OTOLOGY AND RHINOLOGY, AMERICAN MEDICAL ASSOCIATION

Your Committee on Lye Legislation begs leave to report progress. The work has been largely in way of a survey of the situation on which to plan a campaign for the public welfare. The situation may be briefly summed up under the following heads:

1. The public, even the medical public, does not realize that caustic alkaline preparations are used in the household from packages insufficiently labeled.

2. The packers of cleansers (mistakenly) claim their diluted preparations to be harmless, and refuse to put any warning on their packages.

3. The lye packers oppose legislation because it would hurt sales.

4. Moral suasion is useless, partly because the lye packers believe an unfair advantage would be given diluted preparations.

5. Moral suasion exerted on the packer is and always will be a failure, unless some one can show the packer how corporate dividends can be increased by a "scare" label such as the druggist is compelled to use on poisons. Legislation would be fairly and equally applicable to all, whereas the philanthropic packer, if any could be found, would suffer if he adopted a label that would make his preparation seem more dangerous than others.

6. The need for special legislation hinges partly on the definition of "poison" in the laws at present in force. In the Pennsylvania statute, a poison is defined as any substance that will cause death when used in quantities of 60 grains or less. Your committee here presents 60 grains for the judgment of the section as to the lethal effects of such a quantity. The poison statutes in most states, however, consider only deaths. They take no account of a life of misery that can follow a cicatricial stenosis of the esophagus, nor of the indirect deaths by nephritic, bronchial and other complications. Philip B. Hawk, professor of chemistry in Jefferson Medical College, furnished the following statement:

> Holland gives the ordinary fatal quantity of sodium or potassium hydroxid as one-half ounce (15.5 gm.), but states that 30 grains (2 gm.) may prove sufficient. This is probably as accurate a general statement as can be made. The fatal dose depends on many circumstances, such as age of the person, amount of food in the stomach, and promptitude of treatment. This is especially true of alkali, whose chief action is not systemic but corrosive, and hence much influenced by dilution with water or gastric contents. All corrosives are especially dangerous to the eyes, and small amounts entering the respiratory passages may be fatal.

In the opinion of your committee, special legislation is needed.

7. The opposition, direct and by lobby, to lye legislation uses the argument that lye accidents are rare. To obtain data on this subject, your committee sent out inquiries to 1,448 esophagoscopists and surgeons and obtained from them reports of 490 cases. When it is considered that these questionnaries reached not more than 1 per cent. of the medical profession, the results are appalling, in showing how frequently this awful calamity befalls little children. Apart from this, infrequency is a poor argument. Prussic acid is a very rare cause of accidental death (much less frequent than lye, by the way), but the infrequency does not release the druggist from putting a "scare" label on it.

8. The editor of The Journal, in a personal letter to the chairman, made a comment to the effect that "publicity is needed." This seems to your committee the keynote of the situation. Legislatures will follow the people, not lead them. If the public can be informed of the danger, a demand for legislation will follow. The public press is afraid to give publicity on this subject. At least one medical publication refused to publish, in connection with a case report, a reproduction of the label of a lye preparation that had caused death. The Journal of the American Medical Association published the label along with a report of the case. The committee urges that every member of the American Medical Association report every case of lye burn, giving the name of the preparation causing the accident, with a note as to how much, if any, warning was given on the label. It is requested that a clipping of such publication be sent to your committee and that an opportunity be afforded the committee to obtain a stock of reprints for distribution.

9. The last outstanding feature of your committee's investigation is the confirmation of a statement made by a chairman of this section eleven years ago, to the effect that the public does not know lye preparations are poisons because such preparations are inadequately labeled.

Your committee acknowledges with thanks the courteous and efficient cooperation of Dr. Edward Martin, commissioner of health, state of Pennsylvania, and the kindly help of Dr. George H. Simmons, editor of The Journal of the American Medical Association.

On the foregoing survey, plans are being laid for a campaign, in the effort to prevent needless suffering on the part of little children. The support and suggestions of members are solicited.

Respectfully submitted.

Chevalier Jackson, Chairman,
Fielding O. Lewis,
George W. Mackenzie.

MAJORITY REPORT OF THE COMMITTEE ON ESTIMATING COMPENSATION FOR EYE INJURIES

SECTION ON OPHTHALMOLOGY, AMERICAN MEDICAL ASSOCIATION

Section 1.—The report of the committee deals only with the computation of compensation for loss in visual efficiency, the result of eye injuries.

Section 2.—Compensation shall be computed upon the degree of loss in efficiency to those essential factors of vision capable of being measured: i. e., Factor A, central visual acuity for distance or for near; Factor B, peripheric vision, or visual field; Factor C, binocular single vision.[1]

Section 3.—The total *economic* loss of the essential factors of vision of *both eyes* shall be considered as *total permanent disability*.[2]

Section 4.—The total *economic* loss *in one eye* of Factor A, Factor B and Factor C shall be reckoned as 100 per cent. loss, entitling the injured to the full compensation awarded for industrial blindness or total permanent disability for *one eye*.

The loss of Factor C with *irremediable diplopia* (Factors A and B remaining intact) shall be reckoned as 50 per cent. loss, entitling the injured to 50 per cent. of the award for total permanent disability for *one eye*.[3]

Section 5.—The compensation value for the loss to the *essential factors* of vision of *one eye* shall be:

Factor A: Industrial loss of central visual acuity for distance or for near,[4] 50 per cent. compensation.
Factor B: Industrial loss of field of vision, 25 per cent. compensation.
Factor C: Industrial loss of binocular single vision, 25 per cent. compensation.

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[*] Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] The former are essential functions of each eye separately and individually; the latter is an important function of perfect vision requiring both eyes. Depth perception is recognized as an important faculty of binocular single vision, but is included under Factor C for the reason that, for all practical purposes, it exists as long as the visual acuity of either eye is not reduced below industrial (economic) blindness, or there is no loss of binocular single vision.

[2] Section 3 is modified by Sections 8, 9 and 10.

[3] Section 4 is modified by Sections 8, 9, 10 and 11.

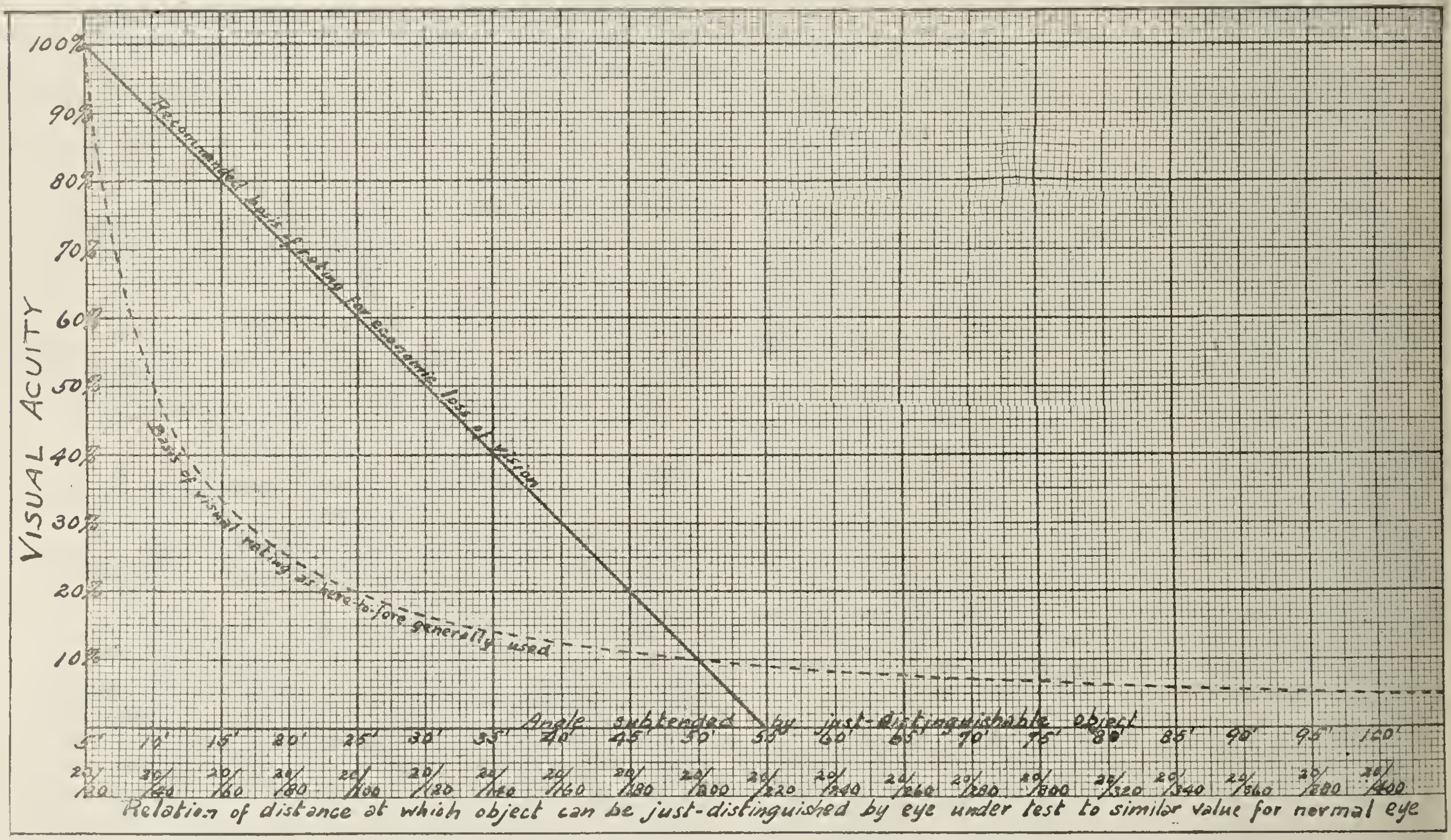
[4] Compensation shall be computed upon the loss in visual acuity for distance in those occupations in which the working distance is greater than an arm's length. Compensation shall be computed upon the loss in visual acuity for near in those occupations in which the working distance is at arm's length or less.

Compensation in per cent. for partial loss to Factor A will be found in Tables 1 and 2; for Factor B, in Table 3; for Factor C, in Table 4.

SECTION 6.—Following injuries involving both eyes, compensation shall be computed on a basis of loss to Factor A and Factor B for each eye separately, according to Section 5. The total compensation shall be the sum of that computed for loss to each eye alone, additional compensation of 25 per cent to be awarded in cases of loss of Factor C.

If the compensation for each eye is greater than 70 per cent., the foregoing rule shall be modified, and additional compensation shall be awarded; such compensation shall be increased in proportion to the increased seriousness of the visual loss, reaching as a maximum that awarded for total general disability or total industrial incapacity.

SECTION 7.—In case of an injury to an eye in which the vision has been defective prior to such injury, compensation shall be awarded only for such portion of the disability as may be reasonably attributed to the accident. In case there exists no record of visual acuity before injury, then it shall be assumed that there was in each eye visual acuity of 20/20.



Bases of visual rating with respect to economic loss of vision.

SECTION 8.—The foregoing computations for compensation for eye injuries do not take into account any cosmetic defect which may result: for this additional compensation shall be awarded.

SECTION 9.—Certain types of ocular injuries may result in disabilities, the value of which cannot be computed by any established precedent. Such are disturbances of color vision, disturbances in adaptation to light or dark, metamorphopsia, entropion, ectropion, lagophthalmos and epiphora. In such cases, additional compensation shall be awarded.

SECTION 10.—Compensation shall not be computed until all adequate and reasonable operations and treatments known to medical science have been attempted to correct the defect; further, at least three months shall elapse after the last visible trace of inflammation has disappeared before the examination, on which final compensation is to be computed, shall be made, except in cases of paralysis of extrinsic ocular muscles, optic nerve atrophy, sympathetic ophthalmia, and traumatic cataract. In such cases at least twelve months and not more than sixteen months shall intervene before the examination shall be made on which final compensation is to be computed.

SECTION 11.—The best possible visual acuity for distance or for near (with correcting glasses if necessary) shall be used in the computation of compensation. If there exists a difference of more than 4 diopters of spherical correction between the two eyes, the best possible acuity of the injured eye without glasses, or with lenses of not more than 4 diopters spherical difference from the fellow eye, shall be the visual acuity on which compensation shall be computed.

SECTION 12.—*Industrial blindness for distance*[5] (0.0 per cent. D. V. A.) shall be the ability just to recognize a character which subtends a 55 minute angle at 20 feet and whose component parts subtend an 11 minute angle (V = 20/220).

Industrial blindness for near[6] (0.0 per cent. N. V. A.) shall be the ability just to recognize a character subtending a 55 minute angle at 14 inches and whose component parts subtend an 11 minute angle (V = 14/154).

Distance visual acuity of 100 per cent.[7] shall be the ability to recognize a character which subtends a 5 minute angle at 20 feet and whose component parts subtend a 1 minute angle (V = 20/20).

Near visual acuity of 100 per cent.[8] shall be the ability to recognize a character which subtends a 5 minute angle at 14 inches, and whose component parts subtend a 1 minute angle (V = 14/14).[9]

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[5] The unit for industrial blindness for distance (V = 20/220) is the approximate average of the units used throughout the United States to represent industrial blindness. The visual angle subtended by the characters representing industrial blindness vary between 50 and 60 minutes, the average being 55 minutes.

[6] The unit for industrial blindness for near is based on the same ratio as that for distance; i. e., a character subtending an angle eleven times as great at 14 inches, or V = 14/154.

[7] The unit for standard visual acuity for distance has been established by usage and is a character subtending a 5 minute angle, and whose component parts subtend a 1 minute angle.

[8] The unit for standard visual acuity for near is established as 14/14, or ability to discern characters which subtend a 5 minute angle, and whose component parts subtend a 1 minute angle at 14 inches.

[9] Visual acuity for distance shall be determined at 20 feet, using any test conforming to the Snellen standard, the chart having an illumination of not less than 3 foot candles and no direct light to be within 26 degrees of the line of vision.

Visual acuity for near shall be determined at 14 inches, using any test conforming to the Snellen standard, the chart having an illumination of not less than 3 foot candles.

TABLE 1.—FACTOR A: COMPENSATION FOR LOSS TO CENTRAL VISUAL ACUITY FOR DISTANCE

Visual Acuity at 6 Meters and 20 Feet		Visual Acuity in Percentage	Visual Angle at 20 Feet in Minutes	Compensation in Per Cent. for Loss to Visual Acuity
6/6	20/20	100	5.0	0
6/6	20/30	95	7.5	2.5
6/12	20/40	90	10	5
6/15	20/50	85	12.5	7.5
6/18	20/60	80	15	10
	20/70	75	17.5	12.5
6/24	20/80	70	20	15
	20/90	65	22.5	17.5
6/30	20/100	60	25	20
	20/110	55	27.5	22.5
6/36	20/120	50	30	25
	20/130	45	32.5	27.5
6/42	20/140	40	35	30
	20/150	35	37.5	32.5
6/48	20/160	30	40	35
	20/170	25	42.5	37.5
6/54	20/180	20	45	40
	20/190	15	47.5	42.5
6/60	20/200	10	50	45
	20/210	5	52.5	47.5
6/66	20/220	0	55	50

TABLE 2.—FACTOR A: COMPENSATION FOR LOSS TO CENTRAL VISUAL ACUITY FOR NEAR

Visual Acuity at 14 Inches	Visual Acuity in Percentage	Snellen Type Approximate Equivalent	Compensation in Per Cent. for Loss to Visual Acuity
14/14	100	D = 0.37	0
14/21	95	D = 0.50	2.5
14/28	90	D = 0.75	5
14/35	85	....	7.5
14/42	80	D = 1.00	10
14/49	75	D = 1.25	12.5
14/56	70	....	15
14/63	65	D = 1.50	17.5
14/70	60	D = 1.75	20
14/77	55	....	22.5
14/84	50	D = 2.00	25
14/91	45	....	27.5
14/98	40	D = 2.50	30
14/105	35	....	32.5
14/112	30	....	35
14/119	25	D = 3.00	37.5
20/126	20	....	40
14/133	15	D = 3.50	42.5
14/140	10	....	45
14/147	5	....	47.5
14/154	0	D = 4.00	50

TABLE 3.—FACTOR B: COMPENSATION FOR CONCENTRIC CONTRACTION, OR THE EQUIVALENT THEREOF, OF THE VISUAL FIELD OF ONE EYE *

Contraction to 65 degrees equals 0.00 per cent. compensation
Contraction to 60 degrees equals 2.08 per cent. compensation
Contraction to 55 degrees equals 4.16 per cent. compensation
Contraction to 50 degrees equals 6.25 per cent. compensation
Contraction to 45 degrees equals 8.33 per cent. compensation
Contraction to 40 degrees equals 10.40 per cent. compensation
Contraction to 35 degrees equals 12.50 per cent. compensation
Contraction to 30 degrees equals 14.58 per cent. compensation
Contraction to 25 degrees equals 16.66 per cent. compensation
Contraction to 20 degrees equals 18.75 per cent. compensation
Contraction to 15 degrees equals 20.83 per cent. compensation
Contraction to 10 degrees equals 22.91 per cent. compensation
Contraction to 5 degrees equals 25.00 per cent. compensation

* To obtain the amount of concentric contraction of the visual field of one eye, determine the amount of contraction for form at each of at least four of the principal meridians. The mean of the four represents the concentric contraction or equivalent thereof of the visual field of one eye.

TABLE 4.—FACTOR C: COMPENSATION FOR LOSS OF BINOCULAR SINGLE VISION *

	Compensation, Per Cent.
Presence of binocular single vision	0
Total loss of binocular single vision	25

* The presence or absence of binocular single vision for distance shall be determined by the Worth binocular single vision test. The presence or absence of binocular single vision for near shall be determined by the Bishop Harmon diaphragm test.

Nelson M. Black, Chairman,
Harry S. Gradle.

ILLUSTRATIVE CASES INDICATING METHOD OF COMPUTING COMPENSATION

Case 1.—Ditch digger suffers injury resulting in corneal leukoma reducing visual acuity for distance in one eye to 20/140. Acuity in fellow eye, 20/20. Binocular single vision and visual fields unaffected.

Consulting Table 1: Visual acuity for distance of 20/140 equals 40 per cent. acuity and allows 30 per cent. compensation. Computation:

Loss to factor A = 60 per cent. = compensation 30 per cent.
Loss to factor B = 0 per cent. = compensation 0 per cent.
Loss to factor C = 0 per cent. = compensation 0 per cent.

Total compensation ....30 per cent.

Case 2.—Laborer whose occupation is beyond arms' length receives injury resulting in traumatic cataract. Visual acuity following extraction or absorption of opaque lens, with + 12.00 = + 2.00 axis 135 = 20/20. Visual acuity of fellow eye is 20/30, with correction of + 0.50 axis 90° is 20/20. Acuity of injured eye with + 4.00 = + 2.00 axis 135 is less than 20/220, or industrial blindness. Binocular single vision is lost, but visual field of injured eye is intact.

Consulting Table 1: Visual acuity for distance of 20/220 equals 0.0 per cent. acuity and allows 50 per cent. compensation.

Consulting Table 3, Binocular single vision is lost, allowing 25 per cent compensation. Computation:

Loss to factor A total = compensation 50 per cent.
Loss to factor B total = compensation 25 per cent.
Loss to factor C total = compensation 0 per cent.

Total compensation ....75 per cent.

Case 3.—Die maker injured by through and through injury from steel splinter. Resulting visual acuity for near, 14/112. Binocular single vision unaffected. Field of vision impaired equivalent to concentric contraction of 40 per cent.

Consulting Table 2: Visual acuity for near of 14/112 equals 30 per cent. acuity, and allows 35 per cent. compensation.

Consulting Table 4: Concentric contraction of visual field to 40° allows 10.4 per cent. compensation.

Computation:

Loss to factor A = 70 per cent. = compensation 35 per cent.
Loss to factor B = 0 per cent. = compensation 0 per cent.
Loss to factor C = partial = compensation.... 10.4 per cent.

Total compensation ....45.4 per cent.

Case 4.—Carpenter received penetrating orbital injury from splinter of wood lacerating external rectus resulting in convergent strabismus with irremediate diplopia. Visual acuity for distance, 20/20. Binocular single vision lost. Visual field unaffected. This is covered in Section 4 and allows 50 per cent. compensation, additional compensation for cosmetic defect to be determined by board or commission.

Case 5.—Laborer receives burn of both corneas followed by dense leukoma. Resulting visual acuity of right eye, light perception. Visual acuity of left eye, 20/120. Visual field, intact.

Computation for right eye:

Loss to factor A = total = compensation................ 50 per cent.
Loss to factor B = total = compensation................ 25 per cent.
Loss to factor C = total = compensation................ 25 per cent.

Right eye total compensation........................100 per cent.

Computation for left eye (See Table 1):

Loss to factor A = 50 per cent. = compensation..........25 per cent.
Loss to factor B computed with right eye = compensation. 0 per cent.
Loss to factor C = 0 = compensation.................... 0 per cent.

Left eye total compensation.......................... 25 per cent.

He would be entitled to 100 per cent. of the compensation allowed for the total loss of the essential factors of one eye for the right eye, plus 25 per cent. for the left eye. Additional compensation should be allowed for cosmetic appearance of right eye.

Percentage of Benign Gastric Tumors.—Benign tumors of the stomach are rare and constitute only 1.3 per cent. of all gastric tumors that have come to operation.—Eusterman and Senty, *Surg. Gynec. & Obst.*, January, 1922.

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SATURDAY, NOVEMBER 25, 1922

A STUDY OF COMMERCIAL VITAMIN PREPARATIONS

The studies of the physiology of nutrition in recent years have firmly established the indispensability of those food factors known as vitamins for the welfare of the animal organism. A student of the subject[1] has reminded us lately that, in order to appreciate the view that has been established by recent researches on foods and nutrition, it is essential to understand fully the great advantages we now enjoy in being able to think of foods in an entirely different way from what was possible a few years ago. Ten years ago the crude comparison of alimentation with the stoking of an engine seemed satisfactory to most teachers. This is no longer a suitable figure, he adds, for conveying to the student of nutrition the conception which it is desired he should gain. Little more than a decade ago it was supposed that a chemical analysis of a food for protein, carbohydrate, fat and mineral salts was sufficient to reveal its biologic properties. Certain standards of composition had become established on the authority of experts, and it was believed that if any food fulfilled the requirements of these standards with respect to total digestible nutrients, available energy and protein content, it could be counted on to meet the nutritive requirements of the body. Today we recognize the need of essentials which are not indicated by such a classification. At least three play a part in human nutrition.

Although many causes might be assigned to the alleged physical deterioration of the human race in modern times, some persons have felt justified in asserting that the chief factor lies in the unwise choice of food. Consequently, there has been a quite natural tendency on the part of those interested in human betterment to make very specific recommendations as to the improvement of the diet. There is no reason to believe that the requisite supplements which might improve the supposedly defective rations of mankind cannot be secured from widespread natural food sources. This is as true of vitamins as it is of other food factors which may now and then be furnished in quantities below the optimum. Nevertheless, the well meaning nutrition enthusiast (sometimes called a food faddist), as well as the omnipresent food faker, has hastened to promote special products which might contain or be supposed to furnish the desired food components in uniquely valuable form. This suffices to explain the recent form of quackery that has used the remarkable story of the vitamins in physiology as a device to promote the sale of nostrums. Thus, too, because yeast contains vitamin B, the word yeast has been used by the promoters to conjure with in their advertising propagandas.

The Council on Pharmacy and Chemistry has already issued statements in The Journal[2] embodying its judgment as to the therapeutic possibilities and limitations of so-called vitamin therapy at the present time. No serious student of the subject can fail to recognize the ridiculousness of the recent attempts to supply alleged vitamin-bearing preparations as cure-alls. It is doubtful whether any latent, not to say more evident, avitaminosis is prevalent in this country. Without prejudging the question as to whether commercial vitamin preparations, as contrasted with less manipulated natural food products, are frequently or even occasionally desirable for therapeutic purposes, it should nevertheless be insisted that such preparations as are offered should at least not be fraudulent. It may well be debated whether laxative drugs should be used in so widespread a fashion as has come to be the practice in America; but no one will contradict the thesis that the products offered for sale should fully meet the requirements which the labels on them suggest. Furthermore, they should never be marketed under fraudulent or exaggerated claims.

Inspired by a similar attitude toward products claiming therapeutic potency or specific nutritive properties, Bailey[3] of the Connecticut Agricultural Experiment Station has conducted an investigation of a large number of commercial vitamin preparations publicly offered for sale. The attitude of the examiner has been similar to that long held by the Connecticut station with respect to diabetic foods, viz., that they should be offered under as definite statements regarding their substance, quality and strength as can be made, and that they should not be offered under declarations that foster the practice of unwise self-medication. A statement of proximate composition, within reasonable limits, enables a physician or dietitian to decide whether or not a particular brand of diabetic food is suitable for the patient; or at least it furnishes a basis for intelligent determination of the patient's tolerance. So, in the case of vitamin preparations, the Connecticut report adds, biologic methods of testing have been so far perfected that a reasonable statement of potency can be declared; and the burden of responsibility properly rests with the manufacturer to ascertain and declare the potency of his product as a reasonable guide to its intelligent use. Bailey concludes that the indiscriminate offering of vitamin-bearing remedies under labels suggesting wide curative or remedial properties places them at once in the category of the ordinary "patent medicine."

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[1] McCollum, E. V.: The Newer Knowledge of Nutrition, New York, the Macmillan Company, 1922, p. 361.

[2] Yeast Preparations and Vitamin B Concentrates: Report of the Council on Pharmacy and Chemistry, J. A. M. A. **78**: 1146 (April 15) 1922. Yeast Preparations: Report of the Council on Pharmacy and Chemistry, ibid. **79**: 135 (July 8) 1922. Therapeutic Research into the Clinical Field of Yeast Preparations: Report of the Council on Pharmacy and Chemistry, ibid. **79**: 1354 (Oct. 14) 1922.

[3] Bailey, E. M.: The Potency of Some Commercial Vitamine Preparations as Compared with That of Dry Brewers' Yeast, Bull. 240, Connecticut Agric. Exper. Station, 1922. A copy of this report can be secured without charge by addressing a request to the Connecticut Agricultural Experiment Station, New Haven, Conn.

This is not the place in which to repeat details of this important investigation of the widely heralded commercial vitamin preparations. The report states that apparently many manufacturers are not entirely convinced of the efficacy of their vitamin preparations unassisted, and have therefore added various medicaments of established reputation in therapeutics for good measure or to insure a reaction of some description. The comparative estimates of the potency of the products were made by Bailey on the reasonable assumption that a preparation which, in 100-milligram doses, does not exhibit the potency shown by 100 mg. of a good grade of dry brewers' yeast, employed under comparable conditions, does not justify a claim of superior therapeutic value as a source of water-soluble B vitamin. On this basis nearly half of the advertised products failed conspicuously, while still others showed only inferior content of the vitamin. A few of the products equaled good brewery yeast in potency. Only two or three products among nearly two dozen examined showed any superiority of "concentration" over ordinary yeast. The lesson is obvious, quite aside from the absurdity of the consumption of "patent medicines" claimed to contain vitamin B, and apart from any recital of the unwarranted claims, of which a characteristic example was recently cited in The Journal.[4]

THE PROPORTIONS OF THE NUTRIENTS IN THE FOOD OF CHILDREN

Successful experience is a good guide in more than one department of human affairs; and it still remains in many respects the most dependable index of adequate nutrition. A recent writer,[5] deploring the loss of physical prestige which he believes to be threatening a nation exposed to changed conditions of living, recommends a system of diet involving the borrowing of the best elements in those several systems which have been thoroughly tested in human experience and have been found successful. Some time must elapse, he concludes, before a full appreciation of the importance of approximating the optimum in the character of the food supply can be expected; but when appreciated at its full value, our knowledge in the field of the science of nutrition will be regarded as our most precious possession.

Large interest must consequently center in the statistics which Holt and his co-workers in New York have been collecting with respect to the food requirements of children. Some of their published data have been reviewed from time to time in The Journal. The facts were secured by a careful study of the actual food intakes of a large number of healthy children from 1 to 18 years of age. They are valuable not only in showing what the total energy needs apparently are, but also in indicating the outcome of actual dietary habits with respect to the intake of the different types of nutrients. The proportion of the energy intake consumed as protein shows the least variation, more than half of the values being between 14 and 16 per cent. According to the latest compilation of the percentage distribution of calories in the food of adolescents,[6] "it is evident that in the mixed diet commonly taken by children the calories are distributed with surprising regularity." According to Holt and Fales, the results may conveniently be expressed as protein, 15 per cent.; fat, 35 per cent., and carbohydrate, 50 per cent. of the calory intake. In other words, healthy children were found to take, on the average, virtually half their calories as carbohydrate, a little more than one third as fat, and only one sixth as protein. Since 1 gm. of fat has two and one-fourth times the caloric value of 1 gm. of protein, it is evident that in these proportions the amounts of fat and protein are about equal, while the amount of carbohydrate is a little more than three times as great as either the fat or the protein.

It is unwise to push standardization too far in any field, particularly in practical dietetics. Recent studies are showing that the organism can successfully utilize the foodstuffs in greater variety of proportions than was assumed in earlier days. Nevertheless, the dictates of experience may be relied on to give direction to therapeutic feeding. In considering what constitutes a well balanced ration, Holt and Fales remark that when the distribution cited is deviated from to any marked degree for a long period, that is, when what seems to be a proper balance of the diet is disturbed, various undesirable results may follow. If the protein is reduced much below 15 per cent. of the caloric requirement, the nutritive need may not be met. If the fat given supplies much less than 35 per cent. of the total calories, it usually happens that the carbohydrate intake is excessive, and disturbance of digestion may follow. If the fat given supplies too high a proportion of the calories, the fat tolerance of the child may be exceeded and digestive disturbance may result from the excess of fat. High fat with high protein forms a food combination likely to cause constipation. Low fat with high carbohydrate is likely to cause looseness of the bowels. A large carbohydrate intake means a reduction in the necessary protein and probably equally important fat. Such a wealth of experience cannot profitably be overlooked in the planning of a regimen for children.

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[4] Susto—Nee Vinol Powder, J. A. M. A. **79**: 1538 (Oct. 28) 1922.

[5] McCollum, E. V.: The Newer Knowledge of Nutrition, New York, the Macmillan Company, 1922, p. 433.

[6] Holt, L. E., and Fales, Helen L.: The Food Requirements of Children, V, Percentage Distribution of Calories, Am. J. Dis. Child. **24**: 311 (Oct.) 1922.

THE "PROPAGANDA FOR REFORM" IN GERMANY

It is unfortunately true that many members—all too many—of our profession still fail to grasp the widespread significance of the labors of the Council on Pharmacy and Chemistry of the American Medical Association in the interest of decent pharmaceutic practice. We are confident that few, if any, thoughtful American physicians would welcome a return to the days when the labels on many drug preparations meant little to the untutored dispenser, and when the simplest compounds or mixtures were allowed to be distributed freely, without challenge, in the guise of proprietary remedies heralded to contain mysterious and novel potencies of which only the fortunate "discoverer" was aware.

It has, indeed, been a difficult task, involving considerable self-sacrifice on the part of leaders in science in this country, to keep up the fight for the truth—the unconcealed truth—in all that pertains to the practice of medicine. An effort toward the same end was made in Germany before the war, when a similar movement was inaugurated there. At a meeting of the German Congress for Internal Medicine in 1911, a German Council on Pharmacy and Chemistry, Die Arzneimittelkommission des Kongresses für innere Medizin, was organized.[1]

At the present time, it comes as both encouragement and satisfaction to those who have lent their efforts to the propaganda for reform to learn that in Germany, in spite of the demoralizing effect of the war, efforts toward the establishment of a council on pharmacy and chemistry are again being made. A commission of the German Aerztevereinsbund, including such well known leaders as Professors Heffter, Klemperer, Lenhoff and Schwalbe, has issued an appeal[2] directed particularly against the misleading or fraudulent advertising still so common in many medical journals. Every "conscientious and scientifically educated physician" is urged, on the basis of obvious propriety, never to prescribe a drug of which the chemical nature (and particularly the chemical ingredients) as well as the pharmacologic action are not known through reputable journals or textbooks. The physician is further warned to be at once suspicious toward advertisements which exhibit exaggerated statements, and he is expected to demand of the professional journals to which he subscribes that they keep their columns free from such objectionable advertisements.

To acquaint the German medical profession with the methods of the Council on Pharmacy and Chemistry of the American Medical Association and the changes that have been brought about in the United States, the journal of which Dr. Schwalbe is editor recently published a lengthy article[3] that detailed the organization, aims, objects and accomplishments of the Council. To any one who has observed the conditions on the continent, such admonitions and such leadership in the direction of reform seems most timely. Here, in the United States, where two decades of experience have pointed the way—the incontrovertible way—to honesty in professional performance and ideals, the plight of others must serve to continue our steadfastness of purpose. The work of the Council on Pharmacy and Chemistry of the American Medical Association deserves more than lethargic approval from the thousands of members of our Association; it should command their active support and open cooperation.

ARE MITOCHONDRIA IDENTICAL WITH BACTERIA?

About thirty years ago, the attention of biologists was directed by Altmann[4] to certain structures in the cytoplasm which he believed to be elementary micro-organisms and to represent the only living constituent of this portion of the cell. Subsequently these granules, visible in the living organism and stained only by special processes, were termed mitochondria. As they have been assumed to play an important physiologic part in the cell, the mitochondria have been the subject of increasing study and have had a large variety of functions assigned to them. Thus, a recent writer[5] has asserted without hesitation that, physiologically, mitochondria are organs of elaboration. In them, through some unknown physicochemical phenomena, most of the products of cell activity may be formed. The product, whatever may be its specific nature, has its origin in a granular mitochondrium or in a rod mitochondrium. Each product is surrounded by a mitochondrial exterior surface inside of which it develops slowly; the exterior surface remains until the product has reached its state of maturity.

Portier[6] has supported the assertoin that mitochondria are symbiotic micro-organisms. Since the cell has come to be considered as the "vital unit" in the tissues, it would force, as one writer[7] has expressed it, a complete readjustment of current ideas of the organization of living matter and the application to it of the laws of physics and chemistry, if it were actually demonstrated that virtually all cells contain structures endowed with independent vitality such as is represented by bacterial inclusions. In pathology, he adds, these views, if verified, would have a distinct bearing on our conception of the significance of *Rickettsia* bodies in typhus fever, trench fever and other conditions, and would leave us in some doubt regarding the criteria to be employed in the identification of microorganisms the nature of which remains obscure.

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[1] The German Council on Pharmacy and Chemistry, J. A. M. A. **62**: 1271 (April 18) 1914.

[2] Aufruf an die Aerzte! Deutsch. Arch. f. klin. Med. **140**: 253 (Sept.) 1922.

[3] Puckner, W. A.: Die Bekämpfung des Geheimmittelschwindels in Amerika durch die Abteilung für Pharmakologie und Chemie der American Medical Association, Deutsch. med. Wchnschr., Oct. 6, 1922, p. 1352.

[4] Altmann, R.: Die Elementarorganismen und ihre Beziehungen zu den Zellen, Leipzig, 1890.

[5] Guilliermond, A., in Marshall's Microbiology, Ed. 3, Philadelphia, P. Blakiston's Son & Co., p. 20.

[6] Portier, P.: Les symbiotes, Paris, 1918.

[7] Cowdry, E. V., and Olitzky, P. K.: Differences Between Mitochondria and Bacteria, J. Exper. Med. **36**: 521 (Nov.) 1922.

Amid this uncertainty, reassurance comes from the new studies of Cowdry and Olitzky[7] at the Rockefeller Institute for Medical Research. A direct comparison which they have made between mitochondria and bacteria in the living condition reveals microchemical differences which can be attributed only to fundamental dissimilarities in chemical constitution. The spores and capsules characteristic of bacteria have not been noted in mitochondria; motility due to flagellar action has not been observed. In fermentation or disease, bacteria tend to increase, whereas the mitochondria in cells tend to decrease, and there is no reason to believe that mitochondria possess the power of independent and characteristic growth apart from cells. The theory of "symbiotes" thus remains without convincing support, while the possible importance of the widely present mitochondria in cell physiology still looms large.

PLACENTAL PERMEABILITY

Since the pioneer studies of William and John Hunter in the eighteenth century, the placenta has been known to act as an obstructive organ. The mother's blood, as such, does not enter the fetus, nor is the reverse phenomenon possible; nevertheless, the mechanism of interchange between the maternal and the fetal organism is by no means entirely familiar. In an excellent essay on the nutrition of the fetus, Slemons[1] has reviewed the antagonistic hypotheses as to how substances, either nutrient or excretory in character, pass through the placental partition. In the main, two antagonistic theories have developed: One, the vitalistic, assumes that the wall of the chorionic villus takes n active part in the placental interchange; the other, he mechanistic, regards this wall as a passive, semiermeable membrane conforming with the laws of smosis and diffusion.

There is general agreement among physiologists that nsoluble substances do not pass the placenta. As Slemons reminds us, the formed elements of the blood re confined to that circulation in which they originate; onsequently, an infant whose mother is suffering rom leukemia presents a normal blood picture. Moreover, cinnabar, barium sulphate and other insoluble ompounds, when introduced into either the mother r the fetus, are effectually confined within the circuation in which they are introduced. There is, however, an active interchange of other types of substances, ncluding sugar, amino-acids, urea and other nitrogenus compounds occurring in the blood. In order to ascertain further to what extent physicochemical processes can explain the transfers or lack of penetration, as the case may be, Shimidzu[2] has studied the permeability of the placenta for dyestuffs of widely different properties in pregnant animals when both mother and fetus could be experimentally examined at any period. The outcome, so far as the special products investigated are concerned, was the demonstration that the placenta acts as an ultrafilter. The power of the dyes to pass through the placenta runs parallel to the colloidal state of their solution in the serum, especially to their ability to spread in a gel of high percentage. In view of the size of the colloidal particles which can pass the placenta, it is inferred that proteins must be decomposed into their components in order to pass from the mother to the fetus. The facts at hand corroborate Slemons' conclusions, based on the study of human data of a different sort, in showing that during the latter part of pregnancy, at least, the placental partition is passive and behaves like a semipermeable membrane; the facts at hand, in other words, support the mechanistic hypothesis of placental function. Thus, the amino-acids, from which fetal protein is built, and glucose, which supplies the requisite energy for tissue construction, pass freely to the new organism in accord with the principles of diffusion. While in the mother's blood, these substances are not more accessible to her own tissues than to the fetus; and probably the quantity of them that reaches the fetus is regulated by the rate of their consumption in its body. When, owing to disease of the excretory organs, large quantities of waste products accumulate in the mother's blood, their concentration has been shown to be always the same in both maternal and fetal circulations at the same time. One may agree with Slemons, therefore, in the belief that, not unlikely in the presence of such maternal complications, intra-uterine death may be explained on the basis of an inefficient removal of fetal waste.

Current Comment

THE MORTALITY FROM CANCER

Statistics again indicate a rise in the mortality from cancer. The returns for 1921 compiled by the Bureau of the Census show that more than 76,000 deaths were due to cancer in the death registration area. Assuming that the death rate from cancer was the same for the remainder of the United States, the number of deaths from cancer in the entire country in 1921 was 93,000, which is 4,000 more than the number estimated for 1920. The cancer death rate in the registration area in 1921 was 86 per hundred thousand, against 83.4 for 1920. THE JOURNAL has pointed out[3] that a part of the reported increase in cancer is probably due to changes in the sex and age composition of the population. A state, for example, having comparatively more women or aged persons would be expected to have a higher mortality rate from cancer. The Census Bureau makes allowance for this difference in the sex and age distribution of the population by using "adjusted" rates when comparing one state with another, but gives no data on the "adjusted" cancer rates for the preceding year. The highest "adjusted" cancer rate for 1921 was in Massachusetts (99.6 per hundred thousand); the lowest in South Carolina (47.6). When separate "adjusted" rates were calculated for the white and colored population, the highest rate for white people was found in New York (95.9), and the lowest in Tennessee (51.5). The highest adjusted cancer rate for colored people was also in New York (90.6), and the lowest for colored people in Florida (36.4). In commenting on these figures, the Department of Commerce says that the white and colored races seem equally susceptible to cancer, but both races seem less susceptible in the South than in the North. Statistics sometimes lead us astray by their apparent clearness, which later is found to be a mere mirage. In this instance, the strict interpretation of figures fails to consider that "we find the cancer death rate highest in the most advanced communities, and lowest in the most backward, not because 'cancer is a disease of civilization,' but simply because in the former localities the statistics come nearer reflecting the actual facts."[4] The Bureau of the Census possibly found more cancer in New York and Massachusetts because in those states there are more hospitals, more physicians, and more intense efforts to diagnose cancer.

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[1] Slemons, J. M.: The Nutrition of the Fetus, New Haven, Yale niversity Press, 1919.

[2] Shimidzu, Y.: On the Permeability to Dyestuffs of the Placenta of the Albino Rat and the White Mouse, Am. J. Physiol. **62**: 202 (Oct.) 1922.

[3] The Statistical Evidence of Cancer Increase, editorial, J. A. M. A. **69**: 2117 (Dec. 22) 1917.

HUMAN EFFICIENCY

In his presidential address before the Section of Physiology at the Hull meeting of the British Association, E. P. Cathcart[5] of Glasgow called attention to the importance of distinguishing clearly between mechanical or muscular efficiency, and industrial or productive efficiency, in discussions of human performance. Both features involve physiologic factors, so that they are fundamentally related. The proportion of energy converted into mechanical or external muscular work in the use of the contractile tissues has often been measured under a variety of conditions of performance. Generally speaking, the efficiency with which work is done satisfactorily in the engineering sense is about 25 per cent. Industrial efficiency involves something more—usually a consideration of the output. None of these aspects of human endeavor can be adequately considered solely from the statistical standpoint, because the organism involved is a complex of many parts in which maintenance and self repair through the combined cooperation of circulation, respiration and nutrition play a significant part. All investigators are agreed that the foremost factor influencing both mechanical and industrial efficiency is fatigue. Cathcart defines this as the "antithesis of efficiency." It is the diminished capacity for doing work—the failing ability to carry on. He has given special prominence to four features of work which affect efficiency and the genesis of fatigue. They are speed, load, rhythm and rest. The effect of undue variations of some of these has long been recognized. It is known, for example, that when a load becomes excessive, the efficiency rapidly falls away; but this is all too often overlooked by those who are concerned with the ultimate results. Less well recognized is the fact that a submaximal effort may be inefficient. The rhythm which experienced workers tend to acquire as a habit of work is merely an example of a conditioned reflex; it is the outcome of one of the most fundamental properties of the nervous system, and is a potent factor in the prevention of fatigue. Finally, it should be noted that rest is not always secured best by mere quiescence. A change of posture or the substitution of a new type of work may be equally efficacious in the attempt to carry on. These are a few of the features of the problem of industrial efficiency the quest of which involves the welfare of the individual, the nation and the race.

THE ORIGIN OF CERTAIN TYPES OF BLOOD CELLS

The special significance recently accorded to the lymphocytes of the blood lends interest to the problem of their origin. It has long been known that lymphocytes accumulate in chronic inflammatory areas in which the active infective agent, frequently, is no longer present, and it has been surmised that they may give off ferments which react on the disordered tissues. The experiments of J. B. Murphy and his collaborators, who asserted that the leukocyte is concerned in the resistance and susceptibility of mice to cancer grafts, have led to numerous statements regarding the rôle of these blood cells in immunity. They are challenged, however, by the investigations of F. C. Wood of the Crocker Foundation laboratory, so that the question remains an open one.[1] In an elaborate review of the origin of the cells of the blood, Sabin[2] has contended that the sharp separation of the blood-forming organs into two groups, bone marrow and lymph glands, as Ehrlich thought, has not been borne out. She believes that the lymphocytes arise in the bone marrow as well as the so-called lymphoid tissue. Lee[3] has lately demonstrated that the thoracic duct is at least an important avenue for the entrance of small lymphocytes into the blood stream; for when the duct was ligated intrathoracically in experimental animals, there was an immediate large reduction of this type of cells in the blood. Only with the establishment of a collateral circulation of the thoracic lymph did the number of small lymphocytes approach the blood normal. With respect to another type of blood cell, the megakaryocyte, which Wright showed to be the precursor of the platelets, the latter arising as fragmented parts of the cytoplasm, Minot[4] regards heir presence in the blood as indicative of a bone arrow under intense physiologic strain. The megaaryocyte is commonly seen as an occasional cell in the eripheral blood of patients with myelogenous eukemia. In general, Minot believes, the presence of these giant bone marrow cells in the blood stream s not to be looked on as indicative of a desirable type of marrow regeneration, but more often as indicative of a marrow disintegration, recovery from which may, owever, occur.

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[4] The Incidence of Cancer, editorial, J. A. M. A. **78**: 1818 (June 10) 1922.

[5] Cathcart, E. P.: The Efficiency of Man, Lancet **2**: 547 (Sept. 9) 1922.

[1] Karsner, H. T., and Ecker, E. E.: The Principles of Immunology, Philadelphia, J. B. Lippincott Company, 1921, p. 171.

[2] Sabin, F. R.: The Origin of the Cells of the Blood, Physiol. Rev. **2**: 38 (Jan.) 1922.

[3] Lee, F. C.: Changes in the Number of Small Lymphocytes of the Blood Following Ligation of the Thoracic Duct, J. Exper. Med. **36**: 247 (Aug.) 1922.

[4] Minot, G. R.: Megacaryocytes in the Peripheral Circulation, J. Exper. Med. **36**: 1 (July) 1922.

THE PHYSIOLOGY OF THE BONE MARROW

During all periods of life there must be a more or ess continual formation of red blood corpuscles, the ematopoiesis being greatly accelerated under condiions of stimulation such as are caused by hemorrhages nd certain other pathologic states. It is generally greed that in the adult the seat of formation of the rythrocytes is the red marrow of the bones. Most f the evidence regarding this important function has een derived from histologic studies; and much remains o be learned. Among the debates, for example, is the uestion as to whether the red blood corpuscles are ntravascular or extravascular in origin. A recent eviewer[1] has remarked that the study of the blood t the present time has passed beyond the morphologic tage and is part of the development of modern experinental cytology. In this study, it is added, the anatonist and the pathologist meet on common ground. Some of the difficulties inherent in the experimental nvestigation of the function of the bone marrow have een mastered by Drinker and Lund[2] by an elaborate echnic involving actual perfusion of the bone marrow. n this way it has become possible to follow more dequately the movements of the red cells from the atter, and to appreciate some of the factors concerned n their genesis. It has become clear thereby that the apillaries conducting blood in the bone marrow of the nammal in a condition of normal blood formation are losed structures, lined throughout with endothelium, nd not in communication with the marrow parenhyma. Under conditions of active red blood-cell fornation, the extremely delicate walls of these capillaries re grown through by irregularly placed red cells in arying stages of maturity. According to Drinker and is colleagues, the normal mature erythrocytes are elivered to the blood stream through the extraordiarily thin endothelial membrane lining the capillaries. This process, he states, must occur constantly and under he influence of such slight difference in pressure etween the outside and inside of the blood vessels as o cause no actual vascular rupture. The perfection of method of studying a tissue like a marrow-containing one under physiologic conditions subject to variation t the will of the investigator is likely soon to bring ew knowledge into a field still awaiting extensive ultivation.

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1. Sabin, Florence: On the Origin of the Cells of the Blood, Physiol. ev. **2**: 38 (Jan.) 1922.
2. Drinker, C. K.; Drinker, K. R., and Lund, C. C.: The Circulaon in the Mammalian Bone-Marrow, with Especial Reference to the actors Concerned in the Movement of Red Blood-Cells from the Bonearrow into the Circulating Blood as Disclosed by Perfusion of the ibia of the Dog and by Injections of the Bone-Marrow in the Rabbit d Cat, Am. J. Physiol. **62**: 1 (Sept.) 1922.

THE PANCREAS AND CARBOHYDRATE METABOLISM

As it has been demonstrated experimentally that injection of suitably prepared extracts of the pancreas can prevent or reduce the hyperglycemia which results after extirpation of sufficient pancreatic tissue,[1] it has become desirable to ascertain the mechanism whereby this interesting and important result is accomplished. Is the potency restricted alone to those instances of increased content of blood sugar associated with inadequate pancreatic function and therefore in a sense specific for pancreatic diabetes, or is it more general in its manifestation? Light has been thrown on this question by the recent studies of the group of physiologists at the University of Toronto who are engaged, under the leadership of J. J. R. Macleod, in the extensive investigation of the control of abnormalities of carbohydrate metabolism. They[2] have just reported that when an animal has received suitable doses of pancreatic extracts to which the name of "insulin" has been given tentatively, a variety of procedures which ordinarily provoke hyperglycemia and often glycosuria fail to do so. In other words, the pancreatic hormone, if we may so designate it for the present, may in some way inhibit the development of hyperglycemia in animals subjected to conditions, such as piqûre of the fourth ventricle of the brain, dosage with epinephrin, and asphyxia, which otherwise cause it. All the facts now available, therefore, point to the conclusion that the action of the hormone on carbohydrate metabolism is fundamental. It apparently matters not whether there is much or little glycogen stored in the tissues. Furthermore, since the pancreatic hormone influences the excretion of ketone substances, the mobilization of fats and the respiratory quotient, the behavior must be interpreted to mean that the effective component is essential in the regulation of the series of intermediary metabolic changes that culminate in the complete utilization of both fat and carbohydrate. One is impelled to ask whether the hormone actually stimulates glycogenesis to the extent that it takes glucose away from the systemic blood. Only further experiments can furnish a correct answer.

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1. A Pancreatic Hormone in Diabetes, editorial, J. A. M. A. **79**: 1428 (Oct. 21) 1922.
2. Banting, F. G.: Best, C. H.; Collip, J. B.; Macleod, J. J. R., and Noble, E. C.: The Effects of Insulin on Experimental Hyperglycemia in Rabbits, Am. J. Physiol. **62**: 559 (Nov.) 1922.

Good Health Record for 1922.—The *Statistical Bulletin* of the Metropolitan Life Insurance Company shows that, for the first nine months of 1922, the health record is better than that of any year in its history except last year, and the death rate is only slightly higher than for last year. The death rate for communicable diseases dropped 28 to 40 per cent., except for measles, influenza and pneumonia. The outstanding favorable feature in the drop is the tuberculosis record, the rate for the white race being 101.2 per hundred thousand, which is slightly less than for last year, while the rate for negroes has declined from 278.7 to 255.6. Deaths from alcoholism, exclusive of those due to wood alcohol poisoning, numbered 202 for the nine months, this being eighty more than during the whole year of 1921. Suicides and homicides have increased among white policy holders. The lowest mortality rate ever recorded was in September of this year. The automobile accident death rate, however, was the maximum recorded, being 16.5 per hundred thousand.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARKANSAS

Medical Association of the Southwest.—At the seventeenth annual convention of the association held in Hot Springs, October 16-18, the following officers were elected for the ensuing year: president, Dr. Frederick H. Clark, Dawson Springs, Ky.; vice presidents, Drs. Clinton K. Smith, Kansas City, Mo., Williston H. Addington, Altoona, Kan., R. E. House, Ferris, Texas, and J. H. Buckley, Hot Springs, Ark., and secretary-treasurer, Dr. Edward H. Skinner, Kansas City, Mo. The next annual meeting will be held at Kansas City, Mo., in October, 1923.

CALIFORNIA

Personal.—Dr. Percy T. Phillips, Santa Cruz, was reelected president of the state board of medical examiners at a meeting in Sacramento, October 17. Dr. Harry V. Brown, Glendale, and Dr. Charles B. Pinkham, San Francisco, were reelected vice president and secretary, respectively.——Dr. John A. Reily, director of the state department of institutions, has resigned to take up his former position as superintendent of the Southern California State Hospital, at Patton.——Dr. Richard H. Creel has arrived in San Francisco, to take the place of Dr. Friench Simpson as medical officer in charge of the quarantine station of the U. S. Public Health Service. Dr. Simpson is returning to Washington, D. C.——Dr. Henry E. Morrison has been appointed medical superintendent of the Sacramento Hospital to succeed Dr. Edouard S. Loizeaux, who resigned recently.——Dr. Irving S. Zeimer, Stockton, has been appointed county health officer of San Joaquin County.——Dr. David Starr Jordan, San Francisco, has sailed for Japan. He will return to Stanford University in December.——Dr. Arthur S. Baker has been appointed district health officer for Whittier.——Dr. Frank E. Blaisdell, city physician of San Francisco, has resigned after two years' service and has gone into private practice at Santa Paula.

COLORADO

Hospital News.—Pliny O. Clark has resigned as superintendent of the Presbyterian Hospital, Denver.——A new addition will be erected for the Union Printers' Hospital Home and Tuberculosis Sanatorium, Colorado Springs, at a cost of $125,000.——The Haxtum General Hospital, Haxtum, has been reopened recently.

CONNECTICUT

State Health Commissioner Resigns.—Dr. John T. Black, Hartford, has resigned as state health commissioner. Governor Lake has appointed Dr. Stanley H. Osborn to succeed Dr. Black.

Yale University News.—Dr. Arthur Bliss Dayton, associate in medicine at the Yale School of Medicine, New Haven, has been granted a year's leave of absence to serve as professor of medicine at Hunan-Yale College of Medicine. He is now in Changsha.——The annual report of the treasurer of Yale University, New Haven, for the year, published, November 19, records an unusually large number of gifts, made to meet the conditions of the $3,000,000 subscribed to general endowment by Mrs. Stephen V. Harkness. As a result of these contributions and the establishment of six new professorship funds in memory of John W. Sterling, of almost $250,000 each, the total of Yale's endowment funds is shown to be $32,662,011, an increase of $6,985,001 in the last year. Gifts for building and other nonpermanent funds received in the same period aggregated $1,651,290; while gifts to income amounted to $740,642. Included in the latter were contributions of $185,000 from the General Education Board and $30,000 from the Commonwealth Fund, to enable the Yale School of Medicine to provide funds for the reconstruction of two wards in the New Haven Hospital, and to build laboratories in that institution, with which the medical school is affiliated; $70,000 more from the Commonwealth Fund toward the expenses of the department of surgery; and $286,664 received through 9,493 contributors to the Alumni Fund, the principal of which was also increased by $147,060.——A new section of the report is devoted to a summary of the work of the department of university health which last year gave 2,757 medical examinations, 915 orthopedic examinations, 1,929 dental examinations, and 9,012 consultations of various kinds.——Another section dealing with the work of the bureau of appointments shows that the total value of scholarships, fellowships and loans to students during the year was about $200,000, while in addition self-supporting students reported to the bureau that they had earned during the school year and in vacation time more than $170,000.

DISTRICT OF COLUMBIA

Clinics to Be Resumed in Public Schools.—Under the auspices of the Washington Tuberculosis Association, active resumption of seventeen nutrition clinics was effected, November 6. The success of the clinics during the last two years has convinced those in charge that they are a vital necessity in the community. It is proposed that this work be adequately provided for by the regular public school appropriation; but, until such provision can be made, the tuberculosis society will continue the work. During the summer period, this work will be continued at the local summer camps for children.

Campaign for University Funds.—A get-together meeting of Howard University, Washington, was held, November 8, for inaugurating a campaign to raise $500,000 for the school of medicine. For the first time, it is stated, the faculties of the junior college, schools of liberal arts, applied science, music, religion, law and medicine conferred as to how the entire university may cooperate with the school of medicine in securing the conditional gift of $250,000 offered by the General Education Board of New York, provided the university raises a like sum. President J. Stanley Durkee presided at the dinner. It was suggested by one of the members of the faculty that each one pledge not less than one month's salary to the endowment fund. Approximately $50,000 is all that is now in hand toward the amount needed.

New Buildings Dedicated.— The cornerstone of the new building of the National Academy of Sciences and of the National Research Council, at Washington, was laid, with a simple ceremony, October 30. This building occupies an entire block north of the Lincoln Memorial and is designed to house the offices of the two organizations and to provide exhibition space for the material representing certain of the achievements of science. The present building will represent an expenditure of more than $1,000,000, which was provided by the Carnegie Corporation of New York. It is expected to be ready for occupancy in the fall of 1923.——With impressive ceremonies attended by many distinguished army officers, the cornerstone of the new $500,000 medical school building at Walter Reed General Hospital, Washington, was laid, November 13, by Brig.-Gen. Walter D. McCaw, commandant of the Army Medical School. The new structure is expected to be ready for occupancy by April 1, 1923. It will contain a memorial tablet to members of the medical service who lost their lives in France during the World War. Another building will be erected parallel to the one now under construction, in the near future, and the two will be joined by a central structure containing an amphitheater.

ILLINOIS

Diphtheria and Scarlet Fever at White Hall.—When twenty cases of diphtheria and twelve of scarlet fever were reported recently at White Hall in Greene County, three members of the medical field staff of the state department of public health, who were promptly detailed for duty there, took nose and throat cultures from 800 schoolchildren and teachers. In all suspected and known cases of communicable disease, quarantine was established and observation maintained, with the result that the situation is rapidly clearing up.

State Health News.—The schools at Rockbridge, Jersey County, were recently closed on account of the prevalence of diphtheria.——The Red Cross at Rock Island has contributed $500 to the local board of education, to supply milk and crackers to the undernourished children of the schools. ——The health authorities at Princeton have begun a systematic search for diphtheria carriers.——A health organization has been perfected in the Twenty-Third District, composed of the counties of Monroe, St. Clair, Madison and Randolph.——An epidemic of smallpox now exists at Rock Falls, and an order has been issued for general vaccination.

Personal.—Dr. James M. Neff, Chicago, was the principal speaker at a banquet of the Kankakee County Medical Society in that city, November 8.——Dr. Adelbert M. Austin, Mendon, has been appointed health superintendent of District 18, which comprises the counties of McDonough, Hancock, Adams, Pike and Brown.——Dr. Harlan W. Long, head of the Peoria U. S. War Veterans' Bureau, has received the French bronze medal of honor for work in epidemics. Dr. Long served as major, M. C., U. S. Army, during the World War, and the French Ministry of Social Hygiene and Welfare awarded the medal in recognition of his services in treating influenza in southern France.

Chicago

Institute of Medicine.—The Pasteur lecture for 1922, of the Institute of Medicine of Chicago, was delivered by Dr. Jacques Loeb of the Rockefeller Institute, November 24.

Work on New Laboratory Started.—Ground has been broken for the new laboratory of the department of hygiene and bacteriology of the University of Chicago, which when completed will be devoted to bacteriologic and chemical research. It will be erected at a cost of $50,000.

Painters Inaugurate Health Campaign.—Under the auspices of the Chicago Painters' District Council, a health campaign will be conducted among union painters for the purpose of decreasing occupational diseases and injuries, it was announced, November 12. Members of the union will be examined by physicians at regular intervals as part of the campaign.

Medical Library Contracts Let.—Contracts amounting to almost $500,000 have been let for the medical research library to be erected in connection with the medical group of the University of Illinois. The building will comprise five stories of library and laboratory facilities, with adequate equipment for all kinds of medical research. The institution will be erected south of Cook County Hospital. It will be in Gothic style, finished in brick and stone.

Sex Hygiene Lectures for Parents.—Lectures will be given by members of the board of education to instruct parents of schoolchildren in morality, ethics and sex hygiene, it was announced, November 17. The lectures will be given at night in the school buildings. Trustees who will lecture are Drs. Klarkowski, Sadie Bay Adair, John Dill Robertson, Mr. Hart Hanson and J. Lewis Coath. There are approximately fifty community centers and thirty evening schools, in addition to the parent-teacher organizations in Chicago.

Personal.—Dr. John W. Birk, president of the Lakefield Hospital board, gave a dinner to the staff of the institution, November 16, following his return from an extensive hunting trip.——Prof. D. Pahle, assistant professor of physics at the University of Frankfort, Germany, arrived in Chicago, November 18. Under the auspices of the American Society for the Control of Cancer, he will give a series of demonstrations of the deep-therapy roentgen-ray machine at the Norwegian-American Hospital. Dr. Pahle is assistant to Dr. Dessauer.

Proposed Health and Safety Commission.—An ordinance was introduced at a meeting of the city council, November 15, to create a health and safety commission composed of the chief of police, the health commissioner, the building commissioner and two civilians. The purpose of the commission was set forth as follows:

> It shall be the duty of the commission to make a complete and comprehensive survey of all premises and neighborhoods in which it is alleged or suspected that prostitution is carried on, for the purpose of enforcing the health, sanitary, safety and police regulations, and for the purpose of securing the maximum protection for the public against the dangers of prostitution, disease, fire and accident existing therein.

Under the measure, the commission would be given power to enforce all laws, ordinances and regulations pertaining to vice and prostitution.

LOUISIANA

Personal.—Dr. W. W. Knipmeyer has been appointed health director of Natchitoches Parish.——Dr. Louis A. Meraux has been appointed head of the St. Bernard Parish Health Board.——Dr. Gaston Trosclair, Thibodaux, has been appointed U. S. Surveyor of Customs.

MARYLAND

Diphtheria Outbreak in County School.—State health officers are combating an outbreak of diphtheria among the schoolchildren of Hyattsville. Fourteen cases have already been reported to the state department of health. Dr. Victor H. DeSomoskeoy, recently appointed deputy state health officer, and public health nurses are taking cultures and administering antitoxin. Efforts are being made to isolate carriers of the disease.

Hospital News.—Bids have been taken on the construction of a marine hospital at Baltimore. The estimated cost of the project will be $189,000.——The Peninsula General Hospital, Salisbury, recently moved into its new building, which when completed will cost approximately $140,000.——The first unit of the Louisa Parsons Nurses' Home of the University of Maryland was dedicated, November 16. Governor Ritchie delivered the dedicatory address. The money for the erection of the institution was raised during 1920 by subscription. It is named for the first superintendent of the nurses' home of the hospital.

MASSACHUSETTS

Antituberculosis Association.—At the annual meeting of the Lawrence Antituberculosis League Drs. Harold M. Allen, Carl H. Eidam, William H. Merrill, Henry F. Dearborn, George B. Sargent, George W. Dow and Nicholas J. Scarito were appointed directors. Dr. Alexander L. Siskind was elected vice president.

Health Department Activities.—Owing to the widespread interest in the Schick test and the prevalence of diphtheria, the department of public health is sending form letters addressed to the "head of the family," to houses where diphtheria is or has been, asking whether proper steps have been taken by the other members of the household to protect themselves by the injection of antitoxin, with advice to talk the matter over with the family physician. Further information is offered on request.

MICHIGAN

Personal.—Dr. Rita B. Tower, Flint, sailed, November 4, on the White State liner *Cedric* for Liverpool, enroute to Bombay, India, for missionary work in that country. Eleven Methodist missionaries, recruited from California, Oregon and other Western states, sailed with Dr. Tower.——Dr. Hugh Cabot, Ann Arbor, spoke on "The Management of Small Calculi in Kidney and Ureter" at a meeting and banquet given by the medical staff of the Geneva City (N. Y.) Hospital, November 9. More than 100 physicians were present at the dinner.

MISSOURI

Personal.—Dr. John R. Caulk, St. Louis, has been elected president of the Southwestern Branch of the American Neurological Association.——Dr. Warren P. Elmer, St. Louis, for seventeen years connected with the teaching staff of St. Louis University Medical School, has been appointed associate professor of medicine, Washington University School of Medicine.——Dr. Willard Bartlett, St. Louis, spoke on "The Choice of an Operative Method Especially Suited to the Individual Goiter Patient," before the Peoria (Ill.) City Medical Society, October 20.

Hospital News.—A $50,000 residence has been donated to the Methodist Church at Joplin, to be converted into a hospital building. Plans are under way to build an annex and open the institution early in the new year. Joplin, at present, has only one hospital, St. John's, a 100-bed institution.——City officials of St. Louis are preparing to submit for the approval of the people a bond issue for public improvements amounting to $76,000,000. Included is an item of $5,000,000 for hospital facilities. The director of public welfare recently declared at a hearing, that 300 patients are sleeping on the floors of the City Sanatorium for the Insane; that the City Hospital is overcrowded, and that the Koch Hospital for the Tuberculous, built to house 100 patients, is now caring for 1,000 persons. With the $5,000,000, it is planned to erect an addition to the Koch Hospital and to the City Sanatorium; to continue development of the Training School for the Feebleminded; to make additions to the City Hospital, and to erect a new morgue, a manual training school for Bellefontaine Farm, a building at the Girls' Farm, a negro hospital and a smallpox isolation building. Dr. W. W. Graves, president of the St. Louis Medical Society, assured the committee that the proposition would have the unanimous support of the medical society.

MONTANA

Dr. Rhoads a Senator.—Dr. Harmon T. Rhoads, Choteau, president of the Medical Association of Montana, has been elected to the state senate. Dr. Rhoads has served two terms in the lower house of the Montana legislature.

NEBRASKA

Medical Women Organize.—At a meeting of women physicians at the office of Dr. H. Kathleen Sullivan, Omaha, November 7, the Omaha Women's Medical Society was organized. The membership will be limited to women.

Personal.—Dr. Clinton H. Smith, Big Springs, has been in the Smith Hospital, Hanna, Wyo., for the past three months, suffering from septic poisoning, following infection of one thumb.——Dr. Ira O. Church, Belvedere, has been appointed county health officer of Geary County, Kan., with headquarters at Junction City, to succeed Dr. Clarence Kinnaman, who has been appointed state epidemiologist.

NEVADA

Nevada State Prohibition Act.—At the annual meeting of the Nevada State Medical Association the following resolution was passed:

> Whereas, The Nevada state prohibition act forbids the use of alcohol and alcoholic liquors by the medical profession in the treatment of diseases, and
>
> Whereas, The majority of the physicians of the United States believe that alcohol is a necessary and essential therapeutic agent in the treatment of disease, and
>
> Whereas, This fact has been recognized by the National Prohibition Act by virtue of its provision permitting the use of alcohol and alcoholic liquors by the medical profession, and
>
> Whereas, There appears to be no sound or valid reason that there should be any difference between the state and federal law in this respect, now therefore be it
>
> *Resolved,* That it is the sense of this association that the Nevada prohibition act be amended so as to permit the use of alcohol by the medical profession of this state in the treatment of disease, and be it further
>
> *Resolved,* That the officers of this association in its behalf use their utmost endeavors at the next session of the legislature of the state of Nevada, to secure an amendment to the Nevada prohibition act in conformity with the view of this association as herein expressed.

NEW JERSEY

Decoration for Dr. Nittoli.—The French government has awarded the distinguished service medal to Dr. Rosco M. Nittoli, Elizabeth, for services rendered during the World War, when attached to Base Hospital No. 67.

Gift for Pediatrics.—Dr. William P. Watson, Jersey City, consulting medical director of the Prudential Insurance Company of America, has donated the sum of $5,000 for the establishment of a permanent fund, to be known as the Dr. William Perry Watson Foundation in Pediatrics, to the College of Physicians and Surgeons of Columbia University, New York, his alma mater. The annual income of this fund will be given in cash to the member of the graduating class showing the most valuable work in the study of the diseases of children during a regular course at the college.

NEW YORK

Deaths from Alcoholism Increase.—An increase in the death rate in New York state for the first seven months of 1922 was recently reported by the health department. The rate up to the end of July last was 13.9; while a year ago the same period showed a rate of 12.7, a difference equivalent to 7,083 deaths. Deaths from alcoholism showed a marked increase as compared with last year, numbering 172 as against 83. The greatest increase in deaths from this cause was in New York City.

Hospital News.—Mr. Boris Fingerhood has been appointed superintendent of the United Israel Zion Hospital, which recently opened at Brooklyn.——The Suffolk Board of Supervisors adopted a resolution, recently, to complete the infirmary building of the county tuberculosis sanatorium at Holtsville, at a cost of $85,000 and to erect a building for the employees, at a cost of $7,000.——A new mental clinic, the fortieth now in operation under state hospital auspices, has been established in Batavia, by the Rochester State Hospital. The first clinic was held, October 9, with two physicians and a social worker from the state hospital in charge.——The staff of the Bushwick Hospital, Brooklyn, gave their annual dinner, November 9. The dinner was the occasion of starting a campaign to raise funds toward the building of a new home for the Jewett Training School for Nurses.

Society News.—An extensive program has been arranged by the Rochester Academy of Medicine for the coming winter. Among the speakers will be Drs. Haven Emerson and Henry Dwight Chapin, both of New York; Prof. F. G. Banting, University of Toronto, and Dr. Joseph Earl Moore, Johns Hopkins Hospital, Baltimore, delivered the first lecture, November 22, on "A Clinical Study of the Course of Syphilitic Infection as Modified by Pregnancy."——Prof. John R. Murlin, Ph.D., University of Rochester, addressed a special meeting of the Rochester Medical Association, November 10. His subject was "Progress in the Preparation of Pancreatic Extracts for the Treatment of Diabetes Mellitus."——At a meeting of the Medical Society of Queen's County, recently, a resolution was passed recommending that every physician, attending, associate or complementary, at a hospital shall become a member of the society.——The American Society for the Control of Cancer, in connection with National Cancer Week, held a meeting under the auspices of the New York Academy of Medicine, November 18. Dr. Howard Canning Taylor spoke on "Cancer from the Educational and Public Health Standpoint."

New York City

Reception for Serbian Reconstruction Workers.—The International Educational Committee, of which Dr. Rosalie Slaughter Morton is founder and chairman, gave a reception on the afternoon of November 12, at the Hotel Leonori, to Dr. Alice Barlow-Brown of Winnetka, Ill., and Dr. Gladys Pateick Shahovitch of Los Angeles to welcome them home after five years' war and reconstruction work in France and Serbia.

Personal.—Dr. Henry Heiman has been appointed consulting pediatrician to the Mount Sinai Hospital, New York.——Dr. Jacob Sobel has been appointed attending pediatrician to the Beth David Hospital, New York.——A testimonial dinner will be given for Dr. Ernest R. Birkins, at the Hotel Astor, January 20, to commemorate the completion of his forty-fifth year of service with the public schools of Manhattan.——Dr. Joseph B. Stenbuck sailed recently on the *Pittsburgh* for Bremen. He will take graduate courses in Berlin.

Appointments at Medical College and Hospital.—The following appointments have been made at the New York Homeopathic Medical College and Hospital: dean, Israel S. Kleiner; emeritus professor of ophthalmology, Dr. George W. McDowell; emeritus professor of surgery, Dr. William Tod Helmuth; emeritus professor of pathology, Dr. Louis Heitzmann; professor of bacteriology, Dr. Archibald McNeil; professor of ophthalmology, Dr. Edwin S. Munson; head of the department of surgery, Dr. William Francis Honan, and head of the department of gynecology, Dr. Joseph H. Fobes.

Follow-Up of Typhoid Cases.—In 1921, the department of health initiated the procedure of following up recovered typhoid fever patients two months after the termination of quarantine, in order to discover any carriers who might have been missed in previous examinations. Since that time, in 219 cases that were terminated according to the usual routine, and in which negative stools had been obtained, four persons were found with positive stools. The department of health considers this a clear indication of the necessity of making this procedure a regular part of the routine for the detection and control of carriers.

Report of Special Committee on Whooping Cough Vaccine.—A committee composed of Dr. J. J. Blumenthal, Dr. Robert J. Wilson, Dr. Louis I. Harris and Dr. William H. Park, appointed by the health commissioner to consider the value of whooping cough vaccine, has submitted its report. It was the judgment of the committee that a definite pronouncement on the question of its preventive value should be deferred until a special study, which has just been inaugurated by the bureau of laboratories, is completed. The report states that, in the judgment of the committee, pertussis vaccine seems to be a symptomatic remedy which has appeared to have some value in abating the severity and frequency of the paroxysms. The committee is unanimous in its recommendation that whooping cough, in view of its serious complications and sequelae, and its high mortality rate, should be regarded as a major communicable disease, and that parents and physicians should be instructed and urged to recognize that strict quarantine is as essential in this disease as in other major communicable diseases.

Hospital News.—A clinic for the treatment of goiter and other diseases of the thyroid gland has been opened at the New York Hospital.——The Laura Franklin Hospital, one of the institutions consolidated in the new Fifth Avenue Hospital, has been sold by the latter institution to Dr. Morris Less, who plans to remodel the building and conduct a private sanatorium there.——At a recent meeting of the state board of charities, the incorporators of the Community Eye and Ear Infirmary, who have applied for a license to establish a dispensary at 283 East Broadway, were given a hearing. Opposition to the plan has been voiced by the Medical Society of the County of New York, Beth Israel Hospital and the Good Samaritan East Side Dispensary, on the ground that another dispensary is not needed on the East Side. The decision of the New York Federation of Jewish Charities will be accepted by both sides, it is announced.——A syndicate of New York physicians has purchased the southeast corner of One Hundred and Third Street and Fifth Avenue, as a site for a private hospital, to be erected at a cost of $1,500,000. The syndicate will incorporate under the name of the Physicians' Medical Hotel Company. It proposes to erect an eight-story fireproof structure of the hotel type, containing all the latest features and equipment of a private hospital of the highest order. Only pay patients will be admitted to the institution.

NORTH CAROLINA

New Milk Rules Passed.—The Carteret County Board of Health has recently issued strict milk rules and regulations which are to be rigidly enforced, beginning December 1. In order that the dairymen and farmers may be able to comply with the regulations, free tuberculin tests will be made by the state veterinarian.

NORTH DAKOTA

Mental Hygiene Survey.—During August, September and October, the National Committee for Mental Hygiene was engaged in conducting a mental hygiene survey throughout the state. Following these surveys, which have been made in several states, recommendations are made to the governor and legislature for appropriate action. Dr. Thomas H. Haines, consultant for the National Committee for Mental Hygiene, and Ward G. Reeder, assistant professor of school administration in the Ohio State University, with a psychologist and two social workers, conducted the work in North Dakota.

OHIO

Narcotic Thieves Raid Physicians' Offices.—The offices of Drs. James B. Poling and Enos G. Burton in the American Bank Building, Lima, were ransacked recently by narcotic thieves. Entrance was gained from the roof of an adjoining building. The same offices were ransacked several weeks ago.

Physicians Indicted by Grand Jury.—Indictments charging five Toledo physicians with violation of the Harrison Narcotic Law were returned by the federal grand jury, October 30. The indicted are: Addison D. Hobart, James C. Price, John A. Gardner, Charles H. Mills and Peter E. Kern. All are charged with illegal disposition of narcotics. Dr. Samuel J. Derbyshire, Lima, was indicted on the same charge.

Social Service Directory for Cincinnati.—The Helen S. Trounstine Foundation has just issued a handbook of Social Service Research of Cincinnati and Hamilton County. Information is supplied concerning 264 organizations functioning for the good of the public. The handbook was prepared by Miss H. D. Stecker and Miss E. L. Remelin. Complete information is furnished relative to hospitals, dispensaries, number of beds, available hours, type of service given and similar matters.

OREGON

Personal.—Dr. George Rebec has gone to Europe for one year.——Dr. Alexander Reid, Stanfield, has been appointed railroad physician in the absence of Dr. Raymond Logan, who has gone to Chicago for graduate study.——Following the resignation of Dr. Abram L. Houseworth, Marshfield, who moved to Los Angeles, Dr. Edward B. McDaniel, Portland, was elected president of the state medical association for 1924.

PENNSYLVANIA

Premedical Course Discontinued.—The Lafayette College of Liberal Arts faculty has voted to discontinue the two-year premedical course, but has announced that those students who entered this year will be able to continue their premedical work through the second year. No new men will be enrolled. This step was taken because of the crowded condition of the college, and to give vacancies in the freshman class for those who expect to attend for four years.

Hospital News. — The new nurses' home was formally turned over to the Citizen's General Hospital, New Kensington, October 24. This building, which was erected at a cost of $125,000, was the gift of Mr. and Mrs. Kinlock. The citizens of New Kensington in a six-day campaign raised $175,000 in addition for the institution, of which $80,000 will be used to liquidate indebtedness and $70,000 for an endowment fund.——Representatives of 123 welfare agencies of Dauphin County, at a joint meeting in Harrisburg, October 12, unanimously adopted a resolution endorsing the proposition for a county tuberculosis hospital.——A prenatal clinic was established, October 19, at the Williamsport Health Center, under the direction of the state department of health. Dr. John B. Nutt is in charge of the clinic.

Police Surgeons' Convention.—Physicians and surgeons of the police and fire departments of nearly every large city in the country attended a convention at the Bellevue-Stratford, November 20-21. The purpose of the convention was to establish a national association of such medical directors in order that uniform methods may be attained in improving the health conditions of all the police and firemen in cities of the first class, such as Philadelphia, New York, Chicago, Detroit, Cleveland, Kansas City, San Francisco and New Orleans. The new methods will also be used by the doctors in charge of prisoners. Dr. Hubley R. Owen, chief surgeon of the Philadelphia Police Department, who proposed the "national association," succeeded in getting the council to appropriate $1,000 for the purpose of bringing the convention to Philadelphia.

Philadelphia

Aesculapian Club of Philadelphia. — The 1922 Traditional Banquet was held, November 16, at "Le Trianon," the club house having been found inadequate for the accommodation of the large number that attended the banquet.

Personal.—Dr. Alfred G. Stengel, professor of medicine, University of Pennsylvania, addressed the Rochester (N. Y.) Medical Association, November 1, on the subject of "Treatment of Compensated Cardiac Disease."——Dr. Edward B. Krumbhaar, Philadelphia, has been made a corresponding member of the Mexican Society of Biology.——Dr. Israel Bram, Philadelphia, will deliver a lecture before the Brooklyn (N. Y.) Cardiological Society, November 27, on "The Heart in Graves' Disease."——August Krogh, professor of zoophysiology in the University of Copenhagen, winner of the Nobel prize in Physiology and Medicine in 1920, accepted an invitation of the acting provost and trustees of the University of Pennsylvania to deliver two lectures before the medical schools of the institution, November 14 and 15. The lectures were held in Houston Hall, and were illustrated by lantern slides and moving pictures. The subjects discussed were "The Nervous and Hormonal Control of Capillary Contractility" and "The Exchange of Substances Through the Capillary Wall."

TEXAS

State Rights to Compel Vaccination Upheld.—The U. S. Supreme Court upheld the courts of Texas, November 13, in the case of Rosalyn Zucht, who brought suit against San Antonio officials after she had been excluded from school owing to her not being vaccinated. Judge Brandeis held that it is within the police power of a state to provide for compulsory vaccination, and that this power could be delegated to a city for the promulgation of regulations under which the law should become operative.

Association News.—At the annual meeting of the Texas Surgical Society, held recently, Dr. Frank C. Beall, Fort Worth, was elected president; Drs. Charles S. Venable, San Antonio, and George V. Brindley, Temple, vice presidents; Dr. Harold L. D. Kirkham, Houston, secretary, and Dr. John B. Smoot, Dallas, treasurer. Dr. John T. Moore, Houston, presided at the meeting.——The Texas Methodist Hospital Association was recently organized for the purpose of taking charge of the hospital movement in the Methodist Church as far as it relates to Texas. The Rev. Walter J. Johnson, Dallas, was elected president of the organization, and Dr. John W. Torbett, Marlin, treasurer.——The Tri-State Medical Association (Arkansas, Louisiana and Texas) will hold its annual session in Marshall, Texas, December 5-6.——A series of clinics will be held in connection with the meeting of the Southwest Texas District Medical Society, in January, it is announced by the staff of the Robert Green Memorial Hospital, San Antonio. A complete program will be published later. Morning clinics will be divided among the various hospitals and the afternoon sessions will be held at the Green Memorial Hospital.

UTAH

Health Clinics.—At a meeting of the executive committee of the Utah Public Health Association, November 9, Dr. J. R. Morrell, Ogden, Senator Leroy Dixon, and Dr. Robert J. Sears of the University of Utah, were appointed to a committee to consider the work of the traveling health clinic as a basis of determining the extent of tuberculosis in the state. It is expected that a state sanatorium will eventually have to be provided for tuberculous patients.——Diphtheria clinics will be conducted every Saturday morning in Salt Lake City from now on, it is announced, under the auspices of the city board of health. The clinics will be held in the Emergency Hospital.

VIRGINIA

Personal. — Edgar Sydenstricker, Lynchburg, has been appointed director of all health activities under the control of the League of Nations, it is announced. Mr. Sydenstricker was formerly editor of the Lynchburg *Advance,* and at present is statistician of the U. S. Public Health Service.——Dr. Perkins Glover, Arvonia, has been elected president of the Buckingham County Medical Society.

Virginia Leads in Births.—The state bureau of vital statistics has just completed its annual report, in which Virginia registered 70,299 births in 1921, the largest number ever recorded for that state. This is 4,289 in excess of 1920 and 9,806 more than were registered in 1919. The rate for 1921 was approximately 30 per thousand population, as compared with a rate of 24.3 for the whole registration area of the entire country.

WASHINGTON

Personal.—Dr. Alice M. Smith, Tacoma, has been appointed a member of the state institutional board of health under the state code, which decrees that one member of the board shall be a woman.

WISCONSIN

Fine for Violation of Harrison Narcotic Law.—It is reported that Dr. Albert F. Ottow, Beloit, was fined $500 in the United States district court, Madison, November 17, when he pleaded guilty to issuing narcotic prescriptions to addicts. The judge stated that only the fact that he had never been arrested on a similar charge averted a more severe penalty.

CANADA

Academy of Medicine of Toronto. — The annual academy dinner was held, October 2, the night preceding the first stated meeting. Nearly 200 fellows attended. President W. H. Harris delivered his inaugural address following the banquet. A memorial was presented by Dr. Hugh B. Maitland on the death of Prof. J. J. MacKenzie. Dr. Frank C. Neal, Peterborough, president of the Ontario Radiological Society, also gave an address.

Personal.—Dr. Beverly Hannah, for many years on the staff of the Hospital for Sick Children, has been appointed physician-in-chief of the Riverdale Isolation Hospital, Toronto.——Dr. Frank H. Pratten has been appointed medical superintendent of the Queen Alexandra Sanatorium, Byron, East Middlesex.——Dr. Fred L. Grasett has recently returned from England to his home in Toronto.——Dr. George H. Stevenson has been appointed assistant superintendent at the Ontario Hospital, London.——Dr. Jennie Smillie was appointed a delegate to the International Conference of Medical Women in Geneva.——Dr. Elizabeth L. Kitcley has been appointed medical inspector of rural schools, with residence at St. Catharines.——Dr. James W. Ross has returned to Toronto, following three years at the Mayo Clinic, Rochester, Minn.——Gen. John T. Fotheringham, M.D., returned to Toronto in October, following a tour of the United States and Canada.——Dr. Sylvester E. Charlton, mayor of Galt, has been elected president of the Union of Canadian Municipalities.——Dr. Samuel Johnston, chief of the anesthetic department of the Toronto General Hospital, and president of the American Inter-State Association of Anesthetists, read a paper at the First Congress of Anesthetists held in Columbus, Ohio, October 30-November 1. ——Dr. Lorne F. Robertson, Stratford, has returned from Toronto, where he went for surgical treatment for a throat infection.——Dr. Reginald Morton, London, England, graduate of Trinity Medical College, Toronto, gave the scientific address before the first stated meeting of the Academy of Medicine, Toronto, October 3, on "Recent Advances in Roentgen-Ray Therapy."

GENERAL

American Sanatorium Association.—The midwinter meeting of the association will be held in Buffalo, December 8-9. This meeting will be devoted to questions of heliotherapy, roentgen-ray and artificial light therapy.

National Tuberculosis Association. — It is announced by the association that a banner and certificate of merit will be awarded to the state which makes the highest per capita seal sale for 1922. The contest is so arranged that every state has an equal chance to win.

Trainmen Fight Tuberculosis.—The Brotherhood of Railroad Trainmen started a nation-wide campaign against tuberculosis, November 11. Each member of the union, which has a membership of 180,000, is paying 25 cents a month to the antituberculosis fund. This provides about $500,000 a year for the campaign.

Tour to the A. M. A. Session.—Dr. Malcolm C. Rose, 152 West Forty-Second Street, New York, is chairman of the touring committee of the Medical Society of the State of New York, which is arranging a trip to California for members and friends of the society. This tour will be scheduled to take place during the Annual Session of the American Medical Association in San Francisco, June 25-29.

Suit Brought Against Prohibition Law.—On November 18, the Association for the Protection of Constitutional Rights, a group of physicians, brought suit against what they believe and are advised by counsel as an encroachment by Congress not authorized by the prohibition amendment. The action is to determine whether it is within the power of Congress to authorize the limitations placed by the national prohibition act and the regulations made thereunder on the right of a patient, on the advice of a physician, to avail himself of alcoholic liquors for the relief and cure of disease.

American Committee for Vienna Relief.—The treasurer, Prof. A. C. Noe, University of Chicago, has requested that, if any one desires to contribute money for the relief of the destitute middle class in Austria, he will accept it and transmit it without expense to the Distribution Committee in Vienna. The help of the American Relief Administration and that of the Quakers have been withdrawn, it is announced. Discarded clothing and shoes will be accepted for transportation by Dr. Karl Koessler, University of Chicago, 5729 Ellis Avenue, Rickett's Laboratory, Suite 21-25, Chicago.

Near East Relief.—The American Red Cross has purchased from the War Department 100 Lister water purification bags to be sent to the Near East for use in the refuge zone in Greece. The consignment will arrive in Greece coincident with the arrival of Dr. R. M. Taylor, Red Cross medical director of the Near East Relief. The consignment, in addition to the bags, consists of 10,000 tubes of lime, 1,000 yards of rubber sheeting, 1,500 pounds of enamel ware, 98 tons of drugs and medicines, 500 pounds of surgical instruments, 1,000 pounds of medical tablets and 1,300 pounds of gauze and plasters; valued at $18,000.

State Legislation for Vision Conservation.—The National Committee for the Prevention of Blindness, Inc., announces that if any state legislation is needed which provides either directly or indirectly for the prevention of blindness and the conservation of vision, steps will be taken at once to formulate bills and to arouse public opinion in their favor, before the legislatures in some forty states meet, in January. The national committee for the prevention of blindness will be glad to be of service to any state or local organization considering state legislation and will send the field secretar to any state seriously contemplating such legislation, h. time permitting.

Retirement of Government Employees. — A bill recently passed the Senate, providing that every government employee retiring under the civil service law shall be examined every year after the date of his retirement under the direction of the Commissioner of Pensions, by a medical officer of the United States, to ascertain the nature and degree of his disability. If examination shows that the annuitant has recovered and is physically able, he shall again be placed in the government service. The proposed law also provides that, in case retired government employees fail to appear for medical examination after receiving instructions to do so, their annuity shall cease.

National Research Council's Medical Fellowships.—Early this year the Rockefeller Foundation and the General Education Board jointly pledged to the National Research Council the total sum of $500,000, payable annually through a period of five years in sums not to exceed $100,000 a year, or the administration of medical fellowships through its ivision of medical sciences. A special board for adminis- ering these fellowships is composed of the following mem- ers, with the chairman of the division of medical sciences f the National Research Council (at present, Dr. F. P. Gay, rofessor of bacteriology, University of California) as chair- nan, ex officio; David L. Edsall, professor of medicine and lean of the medical school of Harvard University; Joseph rlanger, professor of physiology, school of medicine of Vashington University, St. Louis; G. Carl Huber, professor f anatomy and director of the anatomic laboratories, Uni- ersity of Michigan; E. O. Jordan, professor of bacteriology, niversity of Chicago; W. G. MacCallum, professor of athology and bacteriology, Johns Hopkins University; Dean ewis, professor of surgery, Rush Medical School, Chicago; afayette B. Mendel, professor of physiologic chemistry, ale University, and W. W. Palmer, professor of medicine, olumbia University. This board has outlined certain reg- lations to govern decisions in connection with the appoint- ent of fellows and the method and place of their work. he most essential points decided on are:

1. The fellowships are designed primarily for research as funda- ental to a teaching career in one of the medical sciences. For the tter reason, it is prescribed that the fellow must work where facilities r, but not obligations in, teaching are afforded.
2. The fellowships are for full time, and basal salaries of $1,800 for nmarried men and $2,300 for married men have been determined. alaries in either of these grades may be larger than the minimum, epending upon the number of dependents and the locality chosen by e candidate for work.
3. The place of work and the subject chosen for investigation are etermined by the candidate with due consideration for the feasibility the plan proposed. It has been decided that the work may be car- ed out either in this country or abroad.

The first fellows have been appointed and are now at work. n spite of the fact that the funds for these fellowships enerously donated by the Rockefeller Foundation and Gen- ral Education Board were not available and that announce- ents concerning the fellowships could not be made until elatively late in the year, numerous applications have been eceived and twenty-six candidates have already been ccepted. The work is now being carried out in various edical centers, as follows:

arvard	7	Iowa	1
olumbia	3	Northwestern	1
hicago	3	Cornell	1
opkins	3	Yale	1
incinnati	2	Leipzig	1
hio	1	N. Y. Post-Graduate Hospital	1
alifornia	1		

LATIN AMERICA

Bubonic Plague Holds Ship.—Discovery of a case of bubonic ague aboard the Spanish transatlantic liner *Barcelona* sulted, November 10, in the vessel, with 264 passengers oard, being quarantined at Mariel for one week.

Brazilian Journal Changes Editor.—Dr. J. P. Fontenelle s become editor of *Folha Medica* of Rio de Janeiro. The sistant editors are Drs. Gustavo Lessa and Carlos Sa. nprovements in appearance and contents are promised by e new editor.

Dental Clinics in Montevideo.—Four dental clinics are now operation at Montevideo, according to Dr. R. Schiaffino, ief of the Uruguay school medical corps. During the year 21, 1,870 schoolchildren were treated. So far, treatment s been limited to pupils admitted during the year, not more an 12 years of age.

Personal.—Dr. Luis V. Velasco has been appointed dean the Salvador Medical School. Dr. Velasco will also present his country at the Latin-American Medical Con- ess in Havana.——Dr. Carlos Guillén has been appointed rector general of the Rosales Hospital with full charge of l matters.——Prof. F. Krause, of the University of Berlin, now in Mexico City, giving a course of lectures on nerve rgery.——Dr. F. Castillo Nájera has been appointed exican minister to China. He left for his post via San ancisco.

Brazilian Centennial Exposition.—The Medical Department the U. S. Army has on exhibition at the Brazilian Cen- nnial Exposition, held at Rio de Janeiro, a display of mili- ry medical specimens recently prepared and shipped at the rection of Surgeon-General Ireland. The exhibit is housed in e War Department section of the United States building and under the immediate charge of Major Roland F. Walsh the Army. The exhibit consists of certain pathologic ecimens, four mounted specimens showing gunshot wounds, d four mounted specimens of influenzal pneumonia, statis- al charts, photographs of pathologic specimens and a transfusion set from the Army Medical Museum; one battalion dispensary equipment and six laboratory chests from the Medical Supply Depot, Washington, D. C.; views of the hospital and assembled personnel and photographs and charts illustrative of the various activities, particularly physiotherapy, occupational therapy and war surgery, from Walter Reed General Hospital; pamphlets, photographs and charts from the Army School of Nursing showing the courses, methods of teaching and work of the students; the various graphs and charts from the office of the Surgeon-General, relating chiefly to the composition of the medical department units and their activities in the theater of operations. The pathologic specimens are duplicates and will be donated to the Oswaldo Cruz Institute at Rio de Janeiro at the close of the exposition.

The American Conference on Leprosy.—At the invitation of the government of Brazil, this conference was held at Rio de Janeiro, in October, with the minister of foreign affairs presiding. Paz Soldán reported on conditions in regard to leprosy in Peru; Foresti in Uruguay; Aberastury in Argentina; Carbonell in Venezuela, and Torre Diaz in Mexico. Denney described the organization of the leper asylums in the United States. J. I. Uribe spoke on behalf of Colombia, Pérez Cisneros of Cuba, Estrada Coelho of Ecuador, J. Ricalde of Paraguay, Carlos Faller of Guatemala and Galvao Bueno of Costa Rica. The *Brazil-Medico* gives a number of conclusions voted by the assembly. One was to the effect that these conferences for study of leprosy should be held every four years, and that the various governments should be urged to organize on a solid basis the medical and social care of lepers and their families, appropriating funds for that purpose. The conference voted in favor of leper colonies but also of isolation in the home if it can be made effectual. The colonies must be equipped to conform to modern and humanitarian views for the physical and moral welfare of the lepers. National centralization of the oversight over leprosy was advocated and the systematic application of the most approved methods of treatment. Chaulmoogra oil esters were commended for prolonged use, but their employment was not endorsed as a definite therapeutic procedure. Search for a prompt and positively effectual remedy must be continued, and medical schools must include the subject of leprosy in their teaching; how to recognize, treat and prevent its spread. This conference on leprosy was proposed by the second South American medical congress held at Montevideo last year. Dr. C. Chagas, chief of the national public health service of Brazil, was president of the committee of organization, assisted by Dr. E. Rabello, inspector of the national prophylaxis of leprosy, and Dr. O. Silva Araujo, secretary of this service.

FOREIGN

Physicians Needed for the Belgian Congo.—Our French exchanges state that the Belgian authorities are asking for French physicians to take service in the Belgian Congo. They want physicians who have taken the course in tropical medicine, and they offer a 40,000 francs salary.

British Medical Association.—The first council dinner of the association was given, October 25, with Dr. R. A. Bolam in the chair. The toast of the commonwealth was given by Sir William Macewen, president of the British Medical Association, and acknowledged by Sir Anthony Bowlby, president of the Royal College of Surgeons of England.

Typhoon Casualties.—The American Red Cross in China is appealing for funds following the typhoon disaster in Swatow in September, where 20,000 lives were lost. Thousands of injured are in need of medical attention and food. It is stated that it is the most serious disaster that has befallen China in recent years. Funds are needed to purchase food and medical supplies. Checks or cash should be sent to Dr. W. W. Peter, China Central Committee, American Red Cross, 4 Quinsan Gardens, or to the China Press.

The Nobel Prize.—It was announced last week in The Journal that Prof. Albert Einstein, of the University of Berlin, had been awarded the Nobel prize in physics for the year 1921. Since then, it has been announced that Prof. Neils Bohr, of the University of Copenhagen, has received the prize in physics for 1922. The Nobel prize in chemistry for the year 1921 has been awarded to Prof. Frederick Soddy, of the University of Oxford, and for the year 1922 to Prof. F. W. Ashton, of the University of Cambridge. It is announced from Stockholm that since it has been decided not to award the Nobel prize in medicine for 1921, the prize will be added to the special medical fund. The 1922 prize is reserved for next year. The prize this year amounted to 122,500 Swedish kronor, approximately $35,000.

Annual Meeting of French Orthopedic Society.—This was one of the numerous medical gatherings at Paris in October. The attendance was large and the discussions spirited. Seven French members were elected and five from other countries, Dr. Audet of Canada, Jentzer of Geneva, Ledent of Liége and van Neck and de Mees of Brussels. The main subject discussed was operative treatment of tuberculous vertebral disease to stiffen the spine. It was introduced by Estor of Montpellier, who had collected the experiences of seventeen French surgeons in this line. Only this small number had attempted these operations out of the 300 consulted, and the interventions totaled only ninety-one. Children of course do not require these operations, and he agrees with Roux of Lausanne, Sorrel, Calvé and others that they should not be attempted for adults until the lesion is cured, generally about the third year, as they are merely a "safety bolt against recurrence."

Copenhagen Medical Society Celebration.—At the recent celebration of the one hundred and fiftieth anniversary of the founding of the Copenhagen Medical Society, a number of honorary members were elected, six in Denmark, five in other Scandinavian countries and twelve elsewhere. The latter group includes Prof. Abraham Flexner of New York and Dr. W. J. Mayo of this country, Sir James Mackenzie and Dr. John Chiene of Scotland, Dr. A. Calmette and Dr. P. Marie of Paris, Dr. A. Depage of Belgium, Dr. H. Sahli of Switzerland, Dr. W. Einthoven of the Netherlands, Dr. H. Kümmel of Hamburg, Dr. M. Rubner of Berlin and Dr. A. Eiselsberg of Vienna. The Danish honorary members elected are Profs. B. Bang, O. Bloch, C. J. Salomonsen, C. O. Jensen, A. Krogh and S. P. L. Sörensen. Those in the other Scandinavian countries are Profs. A. Holst of Christiania, K. Petrén of Lund, J. Berg of Stockholm, R. Tigerstedt of Helsingfors and G. Magnusson of Iceland. All are listed as professors except Calmette, who is director of the Paris Pasteur Institute, and Dr. Mayo. The celebration included a collection of historical portraits, a cantata written for the occasion, a reception at the city hall, an address by Rovsing, president of the Danish Medical Association, and the gala meeting where Scheel, the president of the Copenhagen society, delivered the historical review of the one hundred and fifty years, and read some of the numerous congratulatory telegrams received from near and far. The addresses are reproduced in the *Hospitalstidende* for October 11.

Personal.—Dr. K. C. Middlemiss has been appointed lecturer in infectious diseases in the Victoria University, Manchester, England.——Prof. W. W. Stifler has accepted an appointment from the China Medical Board of the Rockefeller Foundation as visiting professor of physics at the Canton Christian College for the academic year 1922-1923. He has been connected with the Peking Union Medical College since its organization, as head of the physics department, and dean of the Premedical School in Peking. Following his year in Canton, Professor Stifler will return to the United States.——Dr. Robert Platt has been appointed demonstrator in pathology and bacteriology at the University of Sheffield, England.——Dr. E. L. Gros, chief of the American Hospital, Paris, with Drs. C. O. Mailloux and M. L. King, sailed for Cherbourg on the *Olympic*, November 4.——Drs. Vincent Van Peski, Louis Herly, T. H. Beer and Prof. H. J. Hamburger sailed, November 4, for Rotterdam.——Sir Alfred Keogh, M.D., was awarded the gold medal of the Institution of Mining and Metallurgy on the occasion of his retirement from the rectorship of the Imperial College of Science and Technology, "in recognition of his great services in the advancement of technological education."——Dr. Michael Francis Cox was elected president of the Royal College of Physicians of Ireland, recently.——Sir A. Griffith-Boscawen is the newly appointed minister of health of England.——Sir David Wallace has been reelected president of the Royal College of Surgeons of Edinburgh.——Dr. Thomas Beaton, senior assistant physician of the Bethlehem Royal Hospital, London, is visiting America at the suggestion of Sir Frederick Mott to investigate the methods of the mental hygiene organizations in this country. England has recently established a national council of mental hygiene.

Deaths in Other Countries

Sir James Galloway, senior physician to Charing Cross Hospital, London; veteran of the Boer and World wars; author of several novels; died, October 18.——Dr. **Edward C. Hort**, bacteriologist, October 14, at Cannes, France.——Dr. **Herbert Langton**, October 12, at Brighton, England aged 61.——Dr. **Charles H. Evans**, late R. A. M. C., in London October 21.——Dr. **Bratul Kumar Ghosh**, a Hindu practitioner of Sheffield, England.——Lieut.-Col. **Patrick Murphy** Bombay Medical Service (retired), was killed in the sack of Smyrna by the Turks, September 13, aged 78.——Dr **Roberto Wernicke**, professor emeritus at the University o Buenos Aires, who introduced modern methods of experimental medicine and bacteriology into Argentina, one of th founders and a president of the Argentine Medical Association.——Dr. **Emil Holmgren**, professor of histology at th Karolinska Institut at Stockholm, author of nearly 100 work on this specialty and other scientific subjects and of the larg "Manual of Histology" published in 1920, aged 56.——Dr **Christian Sibelius**, professor of psychiatry at Helsingfors who has published much on mental disturbances from poisonings, spinal cord tumors, etc. The *Finska Handlinga* calls him the leading psychiatrist of Finland; aged 56.——Dr. **E. de Albertiis**, of the surgical clinic at the Universit of Naples, aged 45.——Dr. **Marcelino Mendoza**, of Mexic City, former army physician, professor of hygiene in th Army Medical School and author of a textbook on this subject.——Dr. **Karl Weil**, professor emeritus of surgery at th German University at Prague, aged 78.——Dr. **Ezequiel Dias** director of the branch at Bello-Horizonte of the Institut Oswaldo Cruz, of which he was one of the founders.

Government Services

Survey of Biologic Production

The U. S. Public Health Service has begun a study o the methods used in the United States in the manufactur of biologic products. Passed Assist.-Surg. W. T. Harriso started a tour of the country this week to investigate thi subject, going to Toronto, Canada; Boston; New York, Otisville and Pearl River, N. Y.; New Brunswick, N. J.; Philadelphia, Swiftwater, Glenolden, Ambler and Mariette, Pa. Asheville, N. C.; Buffalo, and Baltimore.

Camp Held for R. O. T. C.

Three hundred and eighty-eight students of the medica department Reserve Officers Training Corps attended th camp held at the Medical Field Service School at Carlisl Barracks, Pa., according to information just given out b the Surgeon-General of the Army. Units from most of th medical schools of the country were represented. The lis of attendance follows:

Name of College, State and Unit	No. of Student
Cornell University Medical College, N. Y.—medical	21
Albany Medical College, N. Y.—medical	3
University of Pennsylvania School of Medicine, Pa.—dental	22
Georgetown Univ. School of Medicine, Washington D. C.—medical.	2
George Washington Univ. Med. School, Washington D. C.—medical	20
Jefferson Medical College of Philadelphia, Pa.—medical	26
Johns Hopkins University Medical Department, Md.—medical	5
Vanderbilt University Medical Department, Tenn.—medical	31
Western Reserve University School of Medicine, Ohio—medical	3
Ohio State University College of Medicine, Ohio—medical, dental, veterinary	28
Rush Medical College, Ill.—medical	3
Northwestern University Medical School, Ill.—dental	20
State University of Iowa College of Medicine, Iowa—medical, dental	56
University of Minnesota Medical School, Minn.—medical, dental.	62
St. Louis University School of Medicine, Mo.—medical, dental	57
Kansas State Agricultural College, Kansas—-veterinary	11
Baylor University College of Medicine, Texas—medical	1
Washington University School of Medicine, Mo—medical	17
Total	388

U. S. Veterans' Bureau News

The medical division has recently issued a manual entitle *Hygiene and Efficiency for the Tuberculous*, by the assistan clinical director. This manual was prepared as a preliminary study and is to be used as a working basis for a course in hygiene for the tuberculosis hospitals and vocational schools.——A large number of special male employee in physiotherapy are being employed by the medical divisio to do work, especially in hydrotherapy, at the various clinic and hospitals. These men are chosen from the Civil Servic eligible list of reconstruction assistants.——A conference o all subdistrict managers and medical officers of District was held, November 16-18.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Oct. 30, 1922.

Epidemic Encephalitis

The ministry of health has issued an important report on epidemic (lethargic) encephalitis, for which one of its medical officers, Dr. Allan Parsons, is mainly responsible. The immense mass of material that has accumulated in the comparatively short time since the disease was first observed in this country has been garnered and lucidly arranged. In an introduction, Sir George Newman, principal medical officer of the ministry, states that the report will probably be of the greatest value as a storehouse of statistical information, and that in it have been collected facts and figures that cannot be found in any similar report. The possible relations to influenza, poliomyelitis and "epidemic hiccup" are fully discussed. The general opinion regarding the low infectivity of the disease is confirmed, and the transmission from the mother to the new-born child is noted. Difficulty in differentiating the condition from tuberculous meningitis, cerebral tumors and cerebral hemorrhage is mentioned. A section on the pathologic anatomy is contributed by Dr. MacNalty. The lesions are held to be definitely inflammatory, consisting of cellular infiltration of the perivascular lymphatic sheaths and of certain areas of gray matter, particularly in the pons and basal nuclei. The view is adopted that the disease is due to a filtrable virus. Dr. Perdrau contributes a chapter on the cerebrospinal fluid. He considers that in the acute stage the changes are pleocytosis, varying with the severity of the disease, and a small increase in the total protein content, not keeping pace with the pleocytosis (dissociation cyto-albuminique); the cells present are lymphocytes. In the subacute or chronic stage, the fluid is virtually normal.

The Church and Psychotherapy

At the church congress held at Sheffield, Dr. Chandler, lately bishop of Bloemfontein, described the church system of therapeutics as consisting of the sacramental rites of confession, unction or the laying on of hands, and communion. Physicians had made the criticism that such healing was illusory and superficial, dealing only with symptoms and not penetrating to deep underlying moral causes. In many functional nervous disorders, there was an underlying moral cause, a repressed complex resulting from some moral struggle. He believed that the cause ought to be dealt with by a skilled confessor before the symptoms were touched at all. The priest in confession ought to be able to supply, with equal effectiveness and under more rigorous safeguards, the services which the psychanalyst strove to render. It was claimed that psychanalytic treatment differed from spiritual direction in securing a more complete and radical cure, so that repetition was not necessary. This might be true in the case of sudden violent and emotional shocks, in which the struggle between instinct and the ethical code had driven the instinctive reaction underground and produced a neurosis. In such cases, of which war shock was a typical instance, the reassociation or breaking into consciousness of the repressed complex might be all that was required. But, in the more usual cases, there was necessity for repeated treatment, in the way either of precaution or of cure, and this was best done by the sacrament of confession. Afterward, the physical symptoms might well be treated more directly by the further sacramental rite of unction or of the laying on of hands. The reconsecration of the body to the Divine which was thus effected came as a natural and proper sequel to the absolution previously received. Finally, the whole nature of the man was strengthened spiritually and bodily, and built up by the sacrament of communion.

THE PSYCHOLOGY OF CONVERSION

A discussion of the psychology of conversion was opened by Dean Inge, who criticized the view that conversion was always or even usually a sudden event. But Dr. William Brown, Wilde reader in mental philosophy at Oxford, argued that conversion was not primarily psychologic: it was religious, which meant that it belonged to a realm beyond the reach of psychology. Psychology could not explain the distinctive religious experience, and had to do only with the pathologic. It could explain deviations, errors and evil, but it could not explain normal appreciations, truth or goodness. He believed that it was better for conversion, or the turning away from the naturalistic to the religious, to come gradually, but there were certain temperaments in which the gradual process was impossible. In these cases, conversion was frequently preceded by melancholia, which was a sign of maladjustment and of unsolved conflicts in the subconscious. The fact that the mystical experience came suddenly did not mean that it was pathologic, although, in the case of sudden conversions, the danger of pathologic characters linking themselves to the normal process was greater. He profoundly disagreed with the psychanalytic theory that explained religious experience as a regression to the infantile attitude of mind.

French Guests of the Rockefeller Foundation

Several members of the medical faculty of the recently reconstituted French University of Strasbourg are visiting Great Britain as the guests of the Rockefeller Foundation to study the organization and teaching methods of British universities and medical schools, with a view to the coming reorganization of their own university. They will study work in their respective subjects at some of the London medical schools and at the Universities of Cambridge, Oxford and Glasgow. The arrangements are being made by the Medical Research Council on behalf of the Rockefeller Foundation. The party consists of Drs. Georges Weiss, dean of the faculty and professor of biophysics; Leon Blum, professor of clinical medicine; Paul Bouin, professor of histology; Camille Duverger, professor of ophthalmology; Pierre Masson, professor of pathologic anatomy; Maurice Nicloux, professor of physiologic chemistry, and Lucien Pautrier, professor of dermatology. The deputation has visited the United States with the same object.

National Milk Conference

A national milk conference, called by the National Clean Milk Society, supported by the British Medical Association, the Royal Institute of Public Health, the Royal Sanitary Institute and the Federation of Medical and Allied Societies, has been held at the Guildhall, London. Sir A. Griffith-Boscawen, minister of agriculture, who took the chair at the first session, said that the nations which consumed the most milk per capita were the most virile. Dr. R. S. Williams, research professor of dairy bacteriology, University College, Reading, opened a discussion on clean milk, in which he showed how the clean milk campaign had made considerable progress in certain parts of England. An animated discussion on the pasteurization of milk was opened by Prof. Georges Dreyer of Oxford. He said that though comparatively low temperatures of 60 C., or rather more, for twenty or thirty minutes would kill the bacteria in milk, it was better to have a temperature of from 130 to 135 C. for fifty or sixty seconds. The antiscorbutic vitamin would probably be the only vitamin affected, but boiling for a short time seemed to be less harmful to this vitamin than exposure to a lower temperature for a longer time, while reheating was fatal to it. Pasteurization would not make sanitary precautions on the farm less necessary. He considered that dried milk offered the best solution of the problem of milk distribution in cities.

Dr. Charles E. North of New York said that at the infant milk stations in New York about 25,000 babies were fed on pasteurized milk from one source of supply. Since the adoption of pasteurization, the death rate of infants in New York had been reduced from 165 to 70 per thousand. Dr. Eric Pritchard said that the decrease in infant mortality in this country in the last twenty years corresponded to the increasing use of sterilizing methods, though that was not the only factor. The application of heat was the simplest method of sterilization, and the food value of milk suffered in no degree. Mr. Nathan Straus, formerly president of the New York department of health, considered the flash point system of commercial pasteurization inefficient, as the milk flowing through the chamber was not all subjected to the pasteurizing temperature. To be rendered innocuous, the milk should be retained for twenty-five minutes at from 145 to 160 F. Dr. Robert Hutchison strongly favored pasteurization. All the milk at the Great Ormond Street Hospital was pasteurized in the hospital's own plant. In the case of outpatients, in the absence of pasteurization, scalding of the milk in a double-jacketed saucepan was recommended. He had never seen a case of scurvy from the use of either pasteurized or dried milk.

Demand for Grant for Cancer Research

The Federation of Medical and Allied Services, of which Sir Berkeley Moynihan is chairman, has decided to urge the government to allocate $2,500,000 to cancer research. In moving a resolution to that effect, Mr. Lockhart Mummery, senior surgeon to St. Mark's Hospital for Cancer, pointed out that it was part of the function of the state to protect against disease. With regard to cancer, it had done practically nothing. The most recent returns showed that the disease was responsible for a mortality per annum of more than 1 per thousand. It had been calculated that cancer caused 25 per cent. of the deaths of persons more than 45. It attacked the worker rather than the drone, the strong rather than the weak, the useful rather than the useless. In his private practice, 68 per cent. of cancer patients were incurable when first seen, and in hospital 83 per cent. The obvious remedy was to find a method of prevention, but so far they had failed even to suggest one. At present, the only funds available for research had been contributed by a few generous individuals, but the sum was not nearly large enough. A government grant of $2,500,000—one twelfth of what we spent in a single day during the war—would go far toward solving the problem. This hope seems rather optimistic, for, in the aggregate, an immense sum must now have been spent all over the world on cancer research. Great discoveries cannot be made to order, however much money is provided; they require the time and the man. Subsidized laboratory workers, however able and industrious, elaborate knowledge rather than make discoveries.

Mosquitoes and Malaria in England

Malaria as an indigenous disease had not appeared in England for many years, until, during the war, a few cases were recorded in which the malady had been contracted in the country. Since 1917, the government has conducted a systematic inquiry as to the occurrence of malaria in England. The problem is concerned with relapsing cases among ex-soldiers who contracted the disease abroad, and with new cases arising in this country. The latter are usually due to the former. Since 1917, there has been a rapid decrease in both classes of these cases. During the year ending February 28, last, the cases of exotic malaria notified numbered only 1,644, as compared with 4,168 in the previous year and nearly 16,000 in 1919. These figures show that most of the patients who contracted malaria abroad during the war have recovered. The number of new indigenous cases detected in 1921 numbered only twelve, as compared with thirty-six in the previous year and 103 in 1919. Nine of them originated in a village in Kent, and the remainder in other countries toward the southeast of England.

Col. S. P. James, medical officer to the ministry of health and an authority on malaria, points out that, although the dryness of the seasons in the parts of the country concerned was without precedent, *Anopheles maculipennis* was prevalent not only in the dwellings of those who contracted the disease during the year, but also in various localities where the prolonged drought brought about abolition of breeding places. The anopheles had adapted itself to the adverse conditions. When nearly all breeding places in an area had dried up, there was a great increase in the larvae found in the few permanent breeding places that remained. Failing more suitable places, the species breed freely in rivers and in great collections of water, such as pools in abandoned quarry pits. In previous years, sources of this kind were repeatedly examined for larvae without success, but this year they appeared to act as "mosquito sanctuaries," enabling the insects to tide over the period of drought.

PARIS

(From Our Regular Correspondent)

Oct. 27, 1922.

Aid for Russian Physicians

The great distress of Russian physicians has resulted in the launching of a movement in the United States and England looking toward definite action in their behalf. In France, considerations of a political nature associated with the unfavorable outcome of the Genoa Conference, coupled with the fear that money and clothing if sent might not reach their destination, have paralyzed, for the most part, all initiative along this line. But this state of things appears to be undergoing a change. Dr. Hartmann of Paris, president of the Association for the Establishment of Medical Relations between France and Allied and Friendly Foreign Countries, stated that the association has opened a subscription in favor of Russian physicians, and the *Presse médicale* has published a special appeal for help. This appeal reproduces an extract from the report of J. A. Gorter, the delegate from the Netherlands to the Comité international des secours russes, which gives a startling account of the pitiable situation of scientific workers in Petrograd.

The Need of Medical Specialists for the Chemical Industries

In the chemical industries in France in which toxic substances are handled, industrial accidents are frequent. At the congress of industrial chemistry, recently held in Marseilles, Dr. Paul Cazeneuve of Lyons emphasized the need of specially trained physicians in these industries. But he raised the question whether recently graduated physicians, or even older physicians, are sufficiently prepared to be equal to the demands that would be made on these medical specialists. The toxic accidents are of a very special and variable character, often of a masked type that has to be ferreted out before treatment can be begun. The physician should, therefore, be specially prepared for the task by graduate courses.

The ordinary course in legal medicine is entirely inadequate, and it was for this reason that the late Dr. Brouardel recommended that special graduate courses be established in Paris, leading to the degree "médecin légiste" (medicolegal expert). Such special courses have been established at Lille and Lyons. Toxicology occupies a prominent place in the curriculum, but it emphasizes, more particularly, criminal poisoning. In planning courses for specialists in chemical establishments, the emphasis should be quite different. They need to know rather about accidents caused by benzin, carbon bisulphid, anilin, phosphorus pentasulphid, etc. The special courses in legal medicine should, therefore, include two different types of instruction in toxicology, one designed to train the medicolegal expert, properly so called, and the other intended to prepare the "factory physician"—to use a term employed in some foreign countries. Cazeneuve referred to the work that has been done in the United States, where "the heads of large American manufacturing plants have accorded to the factory physician a prominent place in their establishments, holding, as they do, that his daily assistance and his vigilant and enlightened watchfulness are just as necessary for the increase of production as the experimental laboratory for raw materials and the laboratory for the study of technical problems."

A New Postage Stamp with the Likeness of Pasteur

At the instance of M. Paul Laffout, undersecretary of state for the mail and telegraph service, a postage stamp with the likeness of Pasteur is to be introduced.

Pulmonary Tuberculosis and the War

Dr. V. de Lavergne has just published a report on the part played by the army medical corps in combating tuberculosis during the war. From August, 1914, to June, 1919, there were 40,000 deaths from pulmonary tuberculosis (30,000 deaths throughout the provinces and 10,000 in the army). In addition, 110,000 men were discharged from the service for the same cause, making a total of 150,000 patients with pulmonary tuberculosis. Before the war, men in the service suffering from tuberculosis were *"réformés No. 2"*; that is, they were discharged without any indemnity. It was specified that, under certain circumstances, the length or the fatigues of the service might be of such a nature as to entitle one to an indemnity, but officers and men who had taken part in colonial expeditions were about the only ones to benefit by this clause. The vast majority of soldiers discharged on account of tuberculosis were dismissed without receiving an indemnity. The same conditions prevailed during the first months of the war. In March, 1915, Landouzy called attention to the injustice and danger associated with this manner of dealing with the tuberculous. Landouzy's initiative resulted in the issuance of a ministerial circular calling attention to the fact that *"réforme No. 1"*; that is, discharge with indemnity, can be granted on account of sickness contracted in the service or aggravated by it. The number of indemnities granted the tuberculous increased very much in the later years of the war, especially during the period from 1917 to the end of the war.

	Discharge No. 2 (without Indemnity)	Discharge No. 1 (with Indemnity)
From Aug. 2, 1914, to Nov. 1, 1915....	65,519	85
From Nov. 1, 1915, to March 1, 1916...	4,442	280
From March 1, 1916, to Dec. 31, 1916..	3,068	1,405
From Jan. 1, 1917, to May 31, 1917....	2,173	1,656
From June 1, 1917, to end of war.....	10,673	20,161

Later, the principle of granting an indemnity was given even wider application, ending in the law of March 31, 1919, which allows the granting of an indemnity to all ex-service men who, since the war, have contracted tuberculosis.

Oct. 1, 1920, there were 80,918 ex-service men drawing allowances for pulmonary tuberculosis. Of these 80,918 men, 49,603 had been granted a disability of from 1 to 45 per cent., 9,381, from 50 to 80 per cent., and 17,447, from 80 to 100 per cent. It can be definitely stated, therefore, that of these 80,918 men there were 17,447 who were suffering from pulmonary tuberculosis, and about 50,000 in whom tuberculosis was cicatricial, dormant or merely suspected.

The Book of Good Health

Under the title "Kitab Eç-Cih'ha," which signifies, in Arabian, "Book of Good Health," the collaborators of the Pasteur Institute of Algiers have just published a small work intended for the Mussulmans of northern Africa. The advice and the prescriptions that it contains are edited in the style that the followers of Islam appreciate: that of the *sourates* (stories of the orient); and each chapter is headed by an epigraph, a citation from the prophet. The exordium or introduction reads somewhat as follows: "In the name of Allah, who is merciful and compassionate, may health rest upon you, O reader! We have written this book to teach you to preserve the most precious of gifts—the gift which may bring you all other gifts in the world and aid you to merit the blessings from above. We have written this book to teach you to safeguard the health of your body." The titles of the seven chapters that follow are: Be clean.—Fulfil your duties as a father.—Learn how to protect yourself against contagious diseases.—The preventable diseases.—How to treat wounds.—Diseases of domestic animals.—The duties of chiefs.

The booklet makes reference to the words of Mahomet: "Cleanliness is the sword of the believer. If any evil overtakes you when you have not performed your ablutions, blame no one but yourself."

The passage of the Koran, "Allah creates beings that you know not of," has been introduced in the chapter on contagious diseases; the beings that man knows not of are the micro-organisms.

The Restorer of Youth

In a previous letter, I mentioned that the president of the congress of surgery would not permit Dr. Serge Voronoff to present to the congress his communication on grafts of the genital glands (The Journal, Nov. 11, 1922, p. 1704). Voronoff lost nothing by it, for since then the daily press has showered praises on him. The illustrated supplement of a popular journal even contained, on its first page, a picture which shows Voronoff about to perform an operation. Under the picture we read the modest legend: *"L'homme qui rend la jeunesse"* (The restorer of youth).

BELGIUM

(From Our Regular Correspondent)

Liége, Nov. 8, 1922.

Lead Poisoning

Just now, when the League of Nations has interested itself in the problem of the use of white lead, a vigorous campaign has been launched in Belgium to bring about the complete suppression of this product. Dr. René Sand has agreed to give the idea wide dissemination through public lectures. The labor unions recently published leaflets calling attention to the dangers of lead poisoning, and demanding the organization of a thorough system of prophylaxis against such industrial diseases. Parallel with these endeavors, medical science continues its attempts to induce the public authorities to adopt strict regulations for the lead industries.

At a recent meeting of the Academy of Medicine, Herman touched upon the matter. He regards air-borne lead poisoning as probable. These conclusions are based on (1) the presence of lead in a disk of filter paper placed in a drier above a layer of white-lead paint, and (2) the lead reaction, secured seventeen times out of twenty with slips of filter paper suspended at various heights in a room freshly painted with white lead. Herman stated that a current of air may carry extremely minute particles of lead products, even after remaining a long time in a given spot. To intercept these minute particles, it is necessary to interpose a tampon of cotton, which retains them in the felt of its fibers, where their presence can be shown by chemical analysis. A practical conclusion of the highest importance is therefore imperative: During the use of white-lead paints, microscopic droplets containing lead are produced. These remain suspended in the air sufficiently long to allow them to penetrate the respiratory passages (mouth and nose) of the workmen.

Inoculation Against the Rinderpest, or Cattle Plague

The rinderpest, or cattle plague, is causing terrible ravages in eastern Africa at present, in spite of the vigorous campaign undertaken against it in the form of sanitary measures and inoculation with immunized blood serum. Van Saceghem, director of the Veterinary Institute of Ruanda-Urandi, asserts that macerated fecal matter of bovines that have recently recovered from the plague will prevent intestinal localizations in sick cattle to which it is administered by mouth. The product is not, however, infectious. It renders new stock immune to infection by the buccal route. In September, 1920, Nicolas and Ruijard discovered the innocuousness of excrement taken two days after defervescence from animals convalescent from the inoculated infection. A bovine to which 2 kg. was administered gave no reaction, but was not immunized. Van Saceghem sees in fresh macerated fecal matter of cured animals a new remedy against rinderpest. All that is needed, he states, is to administer daily doses to the sick cattle. He also found that the blood of infected animals, administered in fairly large doses (100 c.c.), by mouth, had a certain immunizing effect, but a subcutaneous injection of virus a month later was found to produce the disease. These facts deserve to be carefully studied, since they may have great practical value.

Inspection of Milk

The Commission de médecine vétérinaire recently issued a report in which it is held that a systematic and regular examination of milch cows, with a view to discovering, more particularly, what animals are suffering from mammitis, should be instituted. If tuberculous mammitis is found, the animal should be slaughtered. Parts of the animal affected by streptococcic mammitis should be destroyed. Milk from cows suffering from ordinary, nonspecific mammitis should not be sold to consumers until the animals fully recover. The commission likewise emphasized the conditions that must be realized in order to secure healthy milk. Absolute cleanliness should surround the milking operation. With this object in view, the commission recommends the reestablishment of competitive tests for dairies, based on scientific facts, in which cleanliness of the cows should weigh heavily in the scale of points. The water supply of cattle should be pure, being examined regularly for its bacteriologic content. Milk, having been strained and cooled immediately after it is drawn, should be protected against all contamination. It should not be subjected to any deceptive alteration, but should be furnished to the consumer just as it comes from the cow.

Physical Education

Dr. Gravelines, head of the sanitary service of the restored regions of Belgium (Eupen-Malmédy), has published the details of the plan that he has worked out for the organization, on a wide scale, of a system of physical education. He proposes that, beginning with the age of 8, every male child shall pursue a course of physical education, to be carried out under exclusive charge of instructors officially appointed and under the general control of a national institute constituting a subdepartment of the department of national defense. The courses in physical education would be regarded as preliminary to military training. Medical control bearing on such matters as the index of robustness (physical fitness), respiratory capacity, chest expansion, cardiac excitability and the power of performance would be applicable to the pupils of the higher grades, beginning with the sixteenth year. A permanent record card would set forth the medical examiners' findings for each year. These record cards will make it possible to divide the young men into classes. Their general robustness and their physical training will affect to a great extent their assignment after entering the military service.

BUENOS AIRES

(From Our Regular Correspondent)

Sept. 30, 1922.

University Conditions

Conditions at medical schools have not as yet become fully stabilized. Thus, at the Rosario school, at a meeting of the executive board, a quarrel arose between a medical student and the dean, and eggs were thrown at the assembly table. As the board suspended the guilty parties for different periods, the students went on strike. The high school pupils followed suit, and the students in the Córdoba medical school also did not attend classes for twenty-four hours. The situation is still anomalous. Without passing on the merits of the case, the president of the university has sent strong letters both to the students and to the executive board of the medical school, asking them to put an end to their conflict.

At La Plata, the students asked the dean of the medical school, a young physician, Dr. Cortelezzi, to attend a meeting called by them. Although he had been appointed at their request and he answered fully all charges made against him, this new court, typical of a world out of joint, asked for his resignation; and he complied very meekly with their request.

At Córdoba, following an ultimatum by the students, the executive board of the medical school has decided to import eight German professors. This action seems a reflection on scientists in this country, where there is no scarcity of teachers. So far, the results secured by foreign professors here have not been overly brilliant. Curiously, there prevails still, among uninformed people, a superstitious belief to the effect that scientists are made only in Germany and that competence is assured provided the appointee is a German.

In the Buenos Aires school, conditions are infinitely better, and no difficulties have been found. The harm caused by the present elective system in appointing executive boards may be thus summarized: Professors are reluctant to vote against the students' wishes, and so keep away from elections. Some professors bid for the students' good will. So far, these influences have not caused serious consequences, but in the last election two physicians were appointed who did not belong to the school. Afterward, it was shown that one of them, the secretary of the public health assistance department, was elected after appointing several interns, not according to the regulations in force but as demanded by the interns themselves. It is important to give publicity to these facts, as this revolutionary virus, now on the decline here and probably soon to die, is beginning to spread to neighboring countries—Chile, Peru and Uruguay. This agitation is one of the after-effects of the World War, and is also due to the demagogic policy of the previous administration.

Malaria

Malaria prevails in an enormous area in the north of this country. In the last years, the disease has made heavy inroads in other regions, such as El Chaco, where about 25,000 persons have been attacked by the disease. In

Formosa, malaria has become endemic. In all these places, attempts are made to control the disease. The curative and preventive measures instituted by the national department of public health have proved successful, when given a fair trial.

Public Health Stations

A sanitary station is being completed at San Luis. It is similar to those recently opened at La Rioja and elsewhere. There will be a babies' dispensary connected with it. Similar stations are being planned for Paso de los Libres, Mercedes (Corrientes) and Las Cuevas (Mendoza), to insure prophylactic and disinfecting measures on importations from Brazil and Chile. Another station will be located at Salta. The sanitary station at La Quiaca, charged with the supervision of passengers and freight from Bolivia, is about to be enlarged. A station for the study of malaria is to be opened at Famaillá (Tucumán).

Smallpox

Sporadic smallpox cases continue to develop in Buenos Aires and nearby places. In the capital itself, however, cases have been very rare, and there seems to be no danger of an outbreak. In the provinces, a decrease in the disease is reported.

Lectures

Several foreign professors have given courses of lectures. Professor Nonne of Hamburg discussed neurosyphilis.——Prof. Pierre Abrami of Paris gave several lectures on malaria and hemoclastic shock.——Professor Faure gave two lectures, on hysterectomy and on the surgical treatment of cancer. They were illustrated with moving pictures.

BUDAPEST

(From Our Regular Correspondent)

Nov. 5, 1922.

The Influence of High Frequency Current on the Organs of Circulation

Dr. Paul Grosz, roentgenologist in a large provincial town in Hungary, has investigated the action of high frequency currents on the volume, frequency and tension of the pulse, on the tracings of the heart and on blood pressure. The research was carried out thus: In a number of cardiac patients and in a few healthy persons he determined immediately before and after each treatment, lasting from ten to twenty minutes, the area of cardiac dulness, the frequency, volume, tension and rhythm of the pulse, and the blood pressure. On an average, the pulse rate diminished after the high frequency treatment by five beats a minute, and the blood pressure rose 8 mm. of mercury. The largest fall in the blood pressure (systolic) was 12 a minute, and the greatest rise, 25. He uniformly noted an increase in the tension of the arteries. As regards the important question whether a single treatment can remove a certain amount of cardiac dilatation, he found that, in a measure, this question can be answered in the affirmative.

He described one of his cases, an aortic insufficiency, with marked dilatation to the left and a heaving apex beat, which permitted of the precise localization of the left border by palpation. Here he could satisfy himself that, after the application, sinistral dilatation was distinctly reduced, the apex beat being less violent and having appreciably receded.

Dangers of Phosphoric and Hydrocyanic Acid Vapors

Dr. Schnellen, medical adviser in a large match factory, made experiments on animals with the vapors of phosphoric acid and hydrocyanic acid, with findings in perfect accord with those of Wayschall, Yanote and Lehmann. Hydrocyanic acid, when given in the strength of from 0.03 to 0.04 per cent., has no effect on cats after three or four hours' exposure. As soon as the strength of the vapor is raised to 0.05, and the animal is immersed in it for an hour and a half, grave symptoms appear, such as deep respiration, increased salivation, dilatation of the pupils, cramp and vomiting. If the animal is kept in this atmosphere for from two and a half to five hours, death ensues. If the strength of the vapor is raised to 0.12 or 0.15 per cent., death occurs within thirty minutes, accompanied by the foregoing symptoms. In calculating the amount of hydrocyanic acid necessary to destroy life, the dose is found to vary from 1 mg. of the acid to 5 mg. for each kilogram of body weight of the animal. For man, it is calculated that 60 mg., or from 0.8 to 1 mg. for each kilogram of the body weight, would be a minimal lethal dose.

For phosphoric acid, it is found that doses of from 0.6 to 0.4 per cent. for a quarter of an hour render the animal quiet (Lehmann's experiments). After twenty minutes' immersion, the saliva is emitted from the mouth, with vomiting, and feebleness and unsteady movements are noted. An immersion lasting half an hour causes death. If the animal is allowed to remain fifteen minutes in the saturated receptacle, it requires two days in the open air to recover.

Involvement of the Ovaries in Mumps

Dr. Streplinger of Debreczen, at a recent medical meeting, stated that he had found that the genital glands were affected by mumps, infection occurring in twenty-six of sixty-six cases. The region over the ovaries was sensitive to pressure, and was more or less painful. He suggested that possibly mumps may be responsible for some of the pathologic changes observed in later life, and he suggests that this region be carefully observed in girls, and local measures applied on the slightest symptom of inflammation of the ovaries or their environment. By warding off or overcoming inflammation in the early stage, we can safely guarantee that the ovaries escape injury.

Sanitary Hairdressing

The sanitary board of the Council of Budapest has submitted to the public health department of the ministry of health a series of regulations for the formation of a register of sanitary hairdressers and barbers, it being proposed that any failure to comply with the regulations be followed by the removal of the name of the offender from the register. The board recommends, among other things, that regular customers provide their own toilet requisites; that all shelves and fittings be made of glass; that the use of powder puffs be discarded in favor of powder pulverizers; that a barber or hairdresser refuse to serve a customer who is apparently suffering from any skin or hair affection; and that all razors and combs be kept for five minutes in a 5 per cent. solution of sodium bicarbonate. The board insists also that hair curlers and tongs used in ladies' hair dressing establishments be boiled ten minutes.

PRAGUE

(From Our Regular Correspondent)

Oct. 31, 1922.

Lectures by Dr. Hrdlicka

Dr. Alois Hrdlicka of Washington is giving a course of lectures on anthropology, with special reference to Czechoslovakia, at the Prague medical faculty, on invitation from the Czech university. Dr. Hrdlicka was born in Humpolec, a small town in Bohemia, in 1869. At the age of 13 he emigrated to America with his father. Following his graduation in medicine, he returned to Europe for the first time, in 1896, when he began to study anthropology in Paris. He also visited his native country. His career is well known in the United States, his position in the Washington National

Museum making him one of the leading Czechs in America. Dr. Hrdlicka has always maintained warm relations with Czech scientists, having become a member of the Czech Academy of Sciences in Prague. He has also created a foundation for the study of anthropology at Prague university, which has conferred on him the honorary degree of doctor of philosophy. During the war, he took an active part in the movement for the liberation of his native land, and he has greatly aided the political leaders of the Czechoslovak revolution through his acquaintances in American scientific circles. The course of lectures which he is delivering now in Prague has been made an occasion for an ovation to this famous American scientist for his promotion of interest in a science which, up to today, has not received the attention which it deserves. Dr. Hrdlicka has also visited the new medical faculties at Brno and Bratislava, where his addresses have aroused similar enthusiasm.

Social Hygiene

At the fifth session of the delegates of the National Council of Social Hygiene, October 18, further important steps toward the coordination of private health and social agencies were taken. The Moravian association for the care of the young, which presented a large child welfare exhibit last month in Brno, was admitted as a member of the council. Through this provision, all the child welfare agencies are now organized under the council, forming a special group. The council has decided to undertake a cooperate drive in 1923. The spring drive will be made by the Czechoslovakian Red Cross, in cooperation with the antituberculosis league, the association for combating venereal disease, and the temperance league. The second drive will be made in early winter, and the funds obtained will be shared by the child welfare organizations. It is planned to make the second drive a seal sale campaign. The second point of discussion was the erection of a common building for all the associations participating in the council. A committee of seven representatives was appointed to carry out the project. The Czechoslovakian Red Cross is willing to furnish the site for the building, and the Red Cross and the antituberculosis league will probably be able to contribute a million crowns each. The architect will begin work on the plans immediately. The council will endeavor to spread the idea of concentration into the field. A circular letter, which has been approved by all the participating organizations, will be sent to all the local branches of the council, November 1, in the name of each respective organization. It will call for coordination in local branches along the lines followed by the central organizations. Finally, the preparation of a diet of social and public health workers is being planned for the spring of 1923, on the occasion of the antituberculosis congress in Prague. Annual meetings of all members of the council are to be held at approximately the same time, and all the delegates will assemble to discuss the concentration and coordination of social and public health work in the field.

New Venereal Disease Law

The daily press is devoting much attention to the new venereal disease law which was enacted, August 22, abolishing all brothels and the system of reglementation of prostitution. It was a mistake on the part of the parliament that the law was enacted at the date of its publication, and that the rules and regulations could not be published at the same time, because it could not be anticipated what changes the parliament would make in the law. As a result, some parts of the law were carried through at once, while, as to the rest, the authorities are waiting for the publication of the rules and regulations. The enemies of the law are, of course, using these facts in the campaign against this law. A part of the press maintains, for instance, that prostitution on the streets has considerably increased since the publication of the law. Some voices were heard in the press in defense of reglementation of prostitution. The partisans of the abolition system maintain that the increase of prostitution on the streets is due to the resistance of the police, which was against the law from the beginning of its preparation, and wishes now to demonstrate that the system of abolition is impossible in practice. The Czech Association for Combating Venereal Disease has issued a proclamation stating that it stands behind the law; that it has participated in its preparation, and that it supports all the provisions of the law. In the meantime, the ministry of health has prepared the rules and regulations for the law, and has started organizing dispensaries for treating venereal patients.

BERLIN

(From Our Regular Correspondent)

Nov. 4, 1922.

Death of Oscar Hertwig

Oscar Hertwig, biologist, who for many years was director of the Anatomicobiologic Institute of the University of Berlin, died, October 27, at the age of 73. He was a pupil of Gegenbaur, Haeckel and Max Schultze, and became Schultze's assistant in Bonn. In 1875, he established the nature of the impregnation process in the ovum of the sea urchin as a purely morphologic process. This discovery overthrew all the conceptions that had been advanced up to that time, and it remains to this day uncontested. Virchow's dictum *"omnis cellula e cellula"* was thus extended, and we could say *"omnis nucleus e nucleo."* Hertwig's second great contribution was his textbook on embryology, published in Jena in 1855, the first to expound clearly, from a strictly chronological standpoint and with a thorough consideration of the developmental phases, the processes of maturation of the ovum, fecundation or impregnation, segmentation, formation of germinal layers, and the development of the various organs.

In 1888, he was called to the University of Berlin as the director of the newly founded Anatomicobiologic Institute. Here he published a large number of articles and monographs, and was a frequent contributor to the *Archiv für mikroskopische Anatomie und Entwicklungsgeschichte.* The results of many of his researches are published in the "Handbuch der vergleichenden Entwicklungsgeschichte der Wirbeltiere." His "Elements of Embryology" is also well known as a textbook. In his book "Allgemeine Biologie," he combined the fundamental principles of cellular transmission of hereditary characteristics with the theory of evolution. He was also the publisher of "Zeit- and Streitfragen der Biologie" (mooted questions of biology). It seems almost tragic that, during the last years of his life, he felt compelled, as a strictly objective investigator, to take a stand against Darwinism, in opposition to his teacher Haeckel. His works devoted to this polemic question, "Das Werden der Organismen" and "Abwehr des ethischen, sozialen und politischen Darwinismus," passed through several editions in a short time. Only a few weeks ago, Hertwig had a clearly worked-out article in No. 37 of the *Deutsche medizinische Wochenschrift* on "The Theory of Heredity: Its History and Significance for the Present." It was doubtless the last article from the pen of this great scientist.

Effect of Social and Economic Conditions on Births and Mortality

The question has often been raised whether the percentage of children dying before reaching maturity is influenced by the number of children in the family, or by the social and economic position of the parents. A short time ago, the social hygienists Reiter and Helm stated, on the basis of their investigations, that the favorable or unfavorable economic situation of the parents exerts almost no appreciable effect on the prospects of children as far as length of life is concerned. The Heidelberg hygienists Dresel and Fries have been testing this finding by a series of investigations conducted in the Hygienic Institute. Their special purpose was to determine the birth rate and the child mortality among the various social classes of Heidelberg, and they reach the following generalizations: The birth of children is largely dependent on the vocation or profession and on the social or economic position of the parents. When there is a high birth rate, there is often a heavy child mortality, though not necessarily. Besides the economic and social position of the parents, the mode of living exerts a marked effect on child mortality. The income, the housing conditions, defective preparation of young women for motherhood, and disturbed social relations between mother and child, owing to the necessity of the mother's seeking industrial employment, along with the resulting undeveloped sense of responsibility and suppressed desire for a more normal, healthy existence, with consequent careless modes of living, exert a harmful effect on the conditions of growth as affecting the children.

Personal

Adolf Loewy, professor of physiology at the University of Berlin, has been appointed director of an institute at Davos, Switzerland, for research on the physiologic effects of residence in high altitudes as pertaining to the treatment of tuberculosis. Professor Loewy was born in Berlin in 1862, and received his education in Berlin and Vienna, having been a pupil of du Bois-Reymond. He devoted himself for a time to physiology in Vienna, and was later an assistant in the laboratory of animal physiology connected with the Berlin agricultural college at Zuntz. In 1895 he became a member of the medical faculty of the University of Berlin. The same year he received a medal from the Smithsonian Institution at Washington. Of his numerous writings, I will mention: "Ueber Respiration und Zirkulation," 1895; "Blutzirkulation beim Menschen," in collaboration with Schrötter, 1906; "Höhenklima und Bergwanderungen," in collaboration with Zuntz, Caspari and Müller, 1906; "Lehrbuch der Physiologie," in collaboration with Zuntz, 1909, and "Seeklima und Seebäder," 1910.

During the last few weeks, Dr. Baruch, vice president of the Central Relief Committee and president of the New York committee, visited Munich, Stuttgart, Darmstadt, Tübingen, Dresden, Vienna and Berlin, where he contributed to the relief of those in distress. The medical faculty of the University of Tübingen, where Baruch was once a student, conferred on him the title of doctor *honoris causa*. For the needy of Berlin, Baruch left 500,000 marks as a gift of the committees he represented.

Professor Hellpach of Karlsruhe, who was for many years editor of the *Aerztliche Mitteilungen,* the official organ of he so-called Leipzig League (a league of German physicians or the protection of their economic interests), has been chosen *Kultusminister* (of public instruction, etc.) of Baden. Hellpach has been politically active for many years, and is one of the leaders of the democratic *Landespartei.* He is 44 years old. In 1906 he became an instructor in the polytechnical school in Karlsruhe, where, after the war, he accepted he chair of applied psychology and pedagogics. He has been devoting himself of late to the problems of technical ndustrial education, and has been collecting material for a arge work on the scope of the educational task of secondary chools, viewed from a critical and technical standpoint. He was a member of the *Landeschulkonferenz* of Baden and he *Schulkonferenz* of the German empire.

Marriages

Charles Sidney Burwell, Jr., Baltimore, to Miss Edith Mary Churchill of New York, October 10.

William Andrew Lee, Fergus Falls, Minn., to Miss Lucille L. Moses of Mankato, Minn., recently.

Frank C. Johnson, to Miss Frances Adele M. Smith, both of New Brunswick, N. J., October 21.

Alfred Smith O'Connor, to Miss Frances Willard Hull, both of Worcester, Mass., October 18.

John A. Campbell, Colston, to Miss Harriet Lippincott Zell, both of Baltimore, November 9.

George M. McCreight, to Miss Maurine McTherrin, both of Des Moines, Iowa, recently.

Constantine P. Faller, Jr., to Mrs. Mary Boas Boll, both of Harrisburg, in October.

Richard S. Major, Pittsburgh, to Miss Cornel Gilbert of Cincinnati, October 21.

James O. Ritchey, to Miss Helen Hare, both of Indianapolis, recently.

Deaths

Andrew Walker McAlester, Sr., Columbia, Mo.; St. Louis Medical College, 1866; chairman of the medical education board, and at one time president of the Missouri State Medical Association; professor of surgery, 1873-1910, dean of the department of medicine, 1880-1910, emeritus dean and professor, 1910, University of Missouri; formerly superintendent of the Parker Memorial Hospital; first health commissioner and president of the state board of health, 1901-1905; represented Missouri at the Vienna Exposition; aged 81; died, November 2, at the Boone County Hospital, from acute dilatation of the heart.

John Dwyer, New Rochelle, N. Y.; New York Medical College, 1861; formerly on the staff of the New York State Immigrants Hospital, Wards Island, and health inspector of the New York Board of Health in 1870; served during the Civil War as a correspondent for the New York *Herald;* member of the Medico-Legal Society of New York; founder and vice president of the Celtic Medical Association; died, November 14, aged 91, from heart disease.

Charles Edward Stewart Webster, Jr., Philadelphia; Columbia University College of Physicians and Surgeons, New York, 1902; served during the World War, first with the French army and later with the American Expeditionary Forces, and the American Red Cross in Russia; honorably discharged with rank of major, 1919; aged 45; died, November 5, at the Lankenau Hospital, from pneumonia.

James Mitchell Reese, Phillipsburg, N. J.; Bellevue Hospital Medical College, New York, 1883; member of the Medical Society of New Jersey; member, and at one time president, of both the school board and the board of trade; for many years surgeon for the Pennsylvania, Delaware and Lackawanna, and the Lehigh Valley and Central railroads; died, November 5, aged 64, from heart disease.

Curtis G. Kenyon, Hollywood, Calif.; Medical Department, University College of San Francisco, 1873; member of the Medical Society of the State of California; formerly president of the board of Clara Barton Hospital, Los Angeles; for twenty years on the staff of the St. Luke's Hospital, San Francisco; died, November 9, in Los Angeles, aged 76, from injuries received in an automobile accident.

Thomas Lynn Sutton ⊕ Zanesville, Ohio; Johns Hopkins University, Medical Department, Baltimore, 1916; served in the U. S. Navy during the World War; on the staffs of the Good Samaritan and Bethesda hospitals; aged 32; died, November 4, at the Grant Hospital, Columbus, from a fractured skull, received in an automobile accident.

Roderick MacNeill, Charlottetown, Prince Edward Island; University of Pennsylvania, School of Medicine, Philadelphia, 1872; member, and at one time president, of the Medical Council of Prince Edward Island; formerly president of the Maritime Provinces Medical Association; died, October 17, aged 82, from senility.

Ernest M. Keys, Alameda, Calif.; College of Physicians and Surgeons, Keokuk, Iowa, 1878; formerly president of the Alameda County Medical Association; at one time member of the board of education and of the board of health; for twenty years surgeon of the Southern Pacific Railroad; died, November 2, aged 65.

John H. Riley, DeKalb, Ill.; Baltimore University School of Medicine, 1899; member of the Illinois State Medical Society; formerly on the staff of St. Elizabeth's Hospital, Chicago; at one time surgeon on the Red Star liners; died, November 8, aged 47, at the Wilgus Sanitarium, Rockford.

Lucius Frank Hoyt, Jefferson, Iowa; Hahnemann Medical College and Hospital of Chicago, 1889; member of the Iowa State Medical Society; died, November 1, aged 64, from carcinoma of the shoulder, following the removal of his arm one year ago for roentgen-ray burns.

Daniel Francis Frederick, Ashley, Pa.; University of Pennsylvania, School of Medicine, Philadelphia, 1917; member of the Medical Society of the State of Pennsylvania; served in the M. C., U. S. Army, during the World War; died, October 21, aged 29, from chronic nephritis.

William Seward Hunter ⊕ Norton, Kan.; Hering Medical College, Chicago, 1904; served during the World War; aged 43; was found dead in the Park Hotel, Arapahoe, Neb., November 3, from an overdose of morphin sulphate, presumably self-administered.

Vincent Sebastian Marraffino, New York; New York Homeopathic Medical College and Flower Hospital, New York, 1922; served in the M. C., U. S. Army, during the World War; died, October 31, aged 26, from acute edema of the larynx.

Robert Emmett Marshall, Elwood, Ind.; Central College of Physicians and Surgeons, Indianapolis, 1903; member of the Indiana State Medical Association; aged 47; died, November 5, at a hospital in Indianapolis, following an operation.

Edgar Williams Watkins, Washington, D. C.; National University Medical Department, Washington, D. C., 1896; member of the Medical Society of the District of Columbia; aged 65; died, November 2, at the Garfield Memorial Hospital.

Richard Ferdinand Noth ⊕ American Falls, Idaho; Denver and Gross College of Medicine, 1903; state health officer, and chairman of the school board; formerly member of the city council; died, October 29, aged 43, from pernicious anemia.

Jacob Benjamin Walker, Louisville, Ky.; Medical Department, University of Louisville, Louisville, Ky., 1872; formerly adjunct professor of obstetrics at his alma mater; died, October 24, aged 76, following a nervous breakdown.

Walter A. Scott ⊕ Niagara Falls, N. Y.; Syracuse University, College of Medicine, Syracuse, N. Y., 1892; member of the American Roentgen Ray Society; died, November 6, aged 51, from acute dilatation of the heart.

Charles Francis Hyland Tafel, Unadilla, N. Y.; Long Island College Hospital, Brooklyn, 1908; formerly demonstrator of anatomy at his alma mater; died, November 6, aged 38, in a hospital at Asheville, N. C.

Archibald Arthur Frederick Stewart Beatty, New York; Detroit College of Medicine and Surgery, Detroit, 1900; on the staff of the Harlem Hospital, where he died, October 21, aged 47, from cerebral hemorrhage.

Charles Mathias Linehan, Dubuque, Iowa; Rush Medical College, Chicago, 1901; member of the Iowa State Medical Society; on the staff of the Finley and St. Joseph's Mercy hospitals; died, October 29, aged 45.

Frank C. Hess, Cadiz, Ind.; Medical College of Ohio, Cincinnati, 1881; member of the Indiana State Medical Association; died suddenly, November 4, aged 66, from cerebral hemorrhage and heart disease.

Willard Stiles Stevens, Iron River, Mich.; University of Michigan Medical School, Ann Arbor, 1897; died, November 6, aged 49, at the Presbyterian Hospital, Chicago, from gastro-esophageal ulcer.

Marcus M. Lown, Rhinebeck, N. Y.; Albany Medical College, Albany, N. Y., 1877; member of the Medical Society of the State of New York; died, November 13, aged 72, following a long illness.

William Hay Halbert, Lebanon, Tenn.; Eclectic Medical Institute, Cincinnati, 1888; died, November 5, aged 75, from paralysis and senility.

Charles Burich Graf, New York; Eclectic Medical College of the City of New York, 1899; aged 54; died suddenly, November 12, in the railroad station at Philadelphia, from heart disease.

Henry Clay Doan ⊕ Humboldt, Iowa; University of Michigan Medical School, Ann Arbor, 1884; formerly county coroner; died suddenly, November 6, aged 67, from cerebral hemorrhage.

John F. Hobson ⊕ Cleveland; Charity Hospital Medical College, Cleveland, 1868; for many years president of the board of education; died, November 7, aged 79, from pneumonia.

Volney A. Hoard, Rochester, N. Y.; New York Homeopathic Medical College, New York, 1881; member of the Medical Society of the State of New York; died, November 7, aged 63.

Austin F. Olmstead, Green Bay, Wis.; Homeopathic Hospital College, Cleveland, 1874; died, November 5, aged 79, from injuries received when knocked down by a hospital truck.

John Osborne Teasley, Lilly, Ga.; Atlanta College of Physicians and Surgeons, Atlanta, Ga., 1906; member of the Medical Association of Georgia; died, October 28, aged 45.

Elias C. Fleming, Hurlock, Md.; College of Physicians and Surgeons, Baltimore, 1878; member of the Medical and Chirurgical Faculty of Maryland; died, October 31, aged 68.

Susie L. Burkett ⊕ Chicago; Harvey Medical College, Chicago, 1905; specialized in gynecology; died, November 3, aged 47, from carcinoma of the stomach and liver.

Trintis V. Miller, Silkeston, Mo.; Barnes Medical College, St. Louis, 1904; served in the M. C., U. S. Army, during the World War; died suddenly, November 7, aged 41.

Thomas U. Gourley, Phillipsburg, Mo.; Missouri Medical College, St. Louis, 1883; member of the Missouri State Medical Association; died, October 12, aged 67.

J. R. Henderson, Sandersville, Ga.; University of Georgia Medical Department, Augusta, Ga., 1880; died, September 29, aged 65, from cerebral hemorrhage.

Lycurgus Wellington Taylor, Petersburg, Tenn.; Vanderbilt University, Medical Department, Nashville, Tenn., 1877; died, November 3, aged 77.

William McMinne Hanna, Aurora, Ill.; Rush Medical College, Chicago, 1886; Civil War veteran; died, November 4, aged 82, from senility.

E. B. Weldon, Inman, Ga.; Medical College of Georgia, Augusta, Ga., 1871; Civil War veteran; died, October 14, aged 79, from senility.

Henry A. Mackaman, Bowerston, Ohio; University of Wooster Medical Department, Cleveland, 1877; died recently, aged 76, from senility.

Arthur Monteith Cole, Akron, Ohio; University of Wooster Medical Department, Cleveland, 1875; died suddenly, November 8, aged 67.

Theodore Parker Stanton ⊕ Chariton, Iowa; Rush Medical College, Chicago, 1879; died, October 26, aged 69, from cerebral hemorrhage.

William Pearl Abell, Princeton, Ind.; Kansas City Hahnemann Medical College, Kansas City, Mo., 1908; died, November 11, aged 46.

William Y. Wells, Laketon, Ind.; Indiana Medical College, Indianapolis, 1873; aged 82; died, November 10, from heart disease.

Henry C. Dale, Chicago; Bennett Medical College, Chicago, 1884; died, November 15, aged 66, from cerebral hemorrhage.

Benton Haynes, Grand Isle, Vt.; Bellevue Hospital Medical College, New York, 1865; died, October 2, aged 86, from pneumonia.

Martin Bowen Arnold, Chicago; Eclectic Medical Institute, Cincinnati, 1864; died, November 12, aged 87, from pneumonia.

Walter Irving Blanchard ⊕ Farmington, N. H.; Dartmouth Medical School, Hanover, N. H., 1884; died, October 31, aged 60.

Reuben Eves Phillips, Rochester, N. Y.; United States Medical College, New York, 1881; died, November 8, aged 73.

Jacob Ervin Fisher, Indianapolis; Medical College of Indiana, Indianapolis, 1903; died, November 7, aged 57.

The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other General Material of an Informative Nature

BI-OXO-DYN NOT ADMITTED TO N. N. R.

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following report.

W. A. Puckner, Secretary.

Bi-Oxo-Dyn is put out by "Bi-Oxo-Dyn," Savannah, Ga. According to the information furnished the Council by W. F. Kennedy, Jr., who states that he is the originator and maker of this product, the quantitative composition of Bi-Oxo-Dyn is:

"Bismuth Hydroxide....................14 per cent.
"Iodine .... 2 per cent.
"Dioxide (Borated) ($H_2O_2 + H_3BO_3 + H_2C_4H_4O_4$).......................½ to 1 per cent.
"Menthol ....3¾ grains to ounce
"Hydrastine ....½ gr. to ounce
"Petrolatum ....*q. s.*, to ounces 1"

The following statement bearing on the composition of Bi-Oxo-Dyn appears on the trade package:

> "Bi-Oxo-Dyn. Iodized petroleum of Bismuth Dioxide and Iodine. Chloral, 3 per cent., Iodine, 2 per cent., Dioxide (non-toxic)."

Relative to the iodin content it is claimed that Bi-Oxo-Dyn "is an iodized petroleum of 2 per cent. iodine. . . ." With reference to the dioxid constituent of the preparation, the advertising circular declares that the "Di-Oxide that enters into Bi-Oxo-Dyn is identical with Hydrogen Di-Oxide. This valuable Di-Oxide is in turn borated." The following statement with reference to the dioxid said to be contained in the product is given in a letter sent by W. F. Kennedy, Jr., to the Council: ". . . the Dioxide that is used as the antiseptic in Bi-Oxo-Dyn is obtained from Hydrogen Dioxide (Strong Sol.) treated with Anhydrid; this is in turn borated."

From the various claims submitted it is to be inferred that Bi-Oxo-Dyn contains 2 per cent. of free (elementary) iodin and 0.1 per cent. of hydrastin, 3 per cent. of chloral hydrate, 14 per cent. of bismuth hydroxid, 1 per cent. of menthol in a petrolatum base, and from ½ to 1 per cent. of a compound of succinyl peroxid and boric acid.

The A. M. A. Chemical Laboratory reports that Bi-Oxo-Dyn contains no free iodin but that it contains combined iodin in the form of iodid ions. The presence of hydrogen peroxid or other peroxids could not be demonstrated. If present, their amounts must be minute. Since it is known hat peroxids, particularly hydrogen peroxid and succinyl peroxid, are unstable in the presence of organic matter, the presence of peroxids in a mixture of the character of Bi-Oxo-Dyn would not be expected. In a circular addressed to "Physicians Who Think" Bi-Oxo-Dyn is designated as a "Urethral Bland—Rectal Lubricant" and it is stated:

> "Bi-Oxo-Dyn is of inestimable value for injecting into the inflamed urethra and is recommended in specific urethritis and uterine hemorrhage and painful chordee."

In this circular instructions are given for the use of this ndefinite, complex and irrational hodgepodge in:

> "Urethritis (Acute and Chronic), Prostatorrhea—Prostatis (Acute or Chronic), Cystitis—Vaginitis (Male or Female), Fistulas, Piles, Orchitis, Epidymitis, and Bubo."

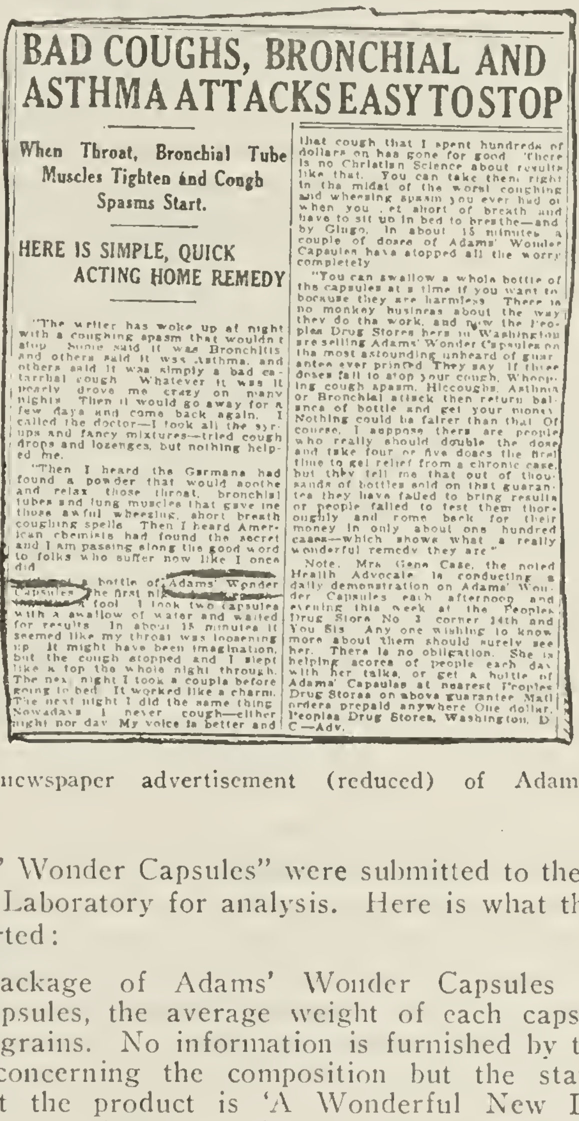
The Council declares Bi-Oxo-Dyn inadmissible to New and Nonofficial Remedies because (1) the statements of its composition are indefinite, misleading and incorrect; (2) the therapeutic claims are unwarranted; (3) the name is not descriptive of the composition of the product and is misleading, and (4) Bi-Oxo-Dyn is a complex, irrational mixture, the marketing of which is detrimental alike to the nterests of the public and of scientific medicine.

ADAMS' WONDER CAPSULES

The Earle Chemical Company Brings Benzyl Succinate into the "Patent Medicine" Field

"Adams' Wonder Capsules" are sold, although, apparently, not made, by the Earle Chemical Company, Inc., of Wheeling, W. Va. This same concern puts out a line of "patent medicines": "Hypo-Cod," "Gray-Tabs" and "Phos-Pho Vitamine."

In some of the newspaper advertisements of Adams' Wonder Capsules, women and girls are urged to call at some local drug store and "talk about their ailments with a kindly, motherly woman of the experience and sympathetic understanding of Mrs. Gene Case, the noted Health Advocate." The public is told, further, that "Mrs. Case has been giving free treatments daily" and those who call on her are in no way "obligated or importuned constantly to try some expensive long weary treatment." This "noted Health Advocate," it appears, recommends "Adams' Wonder Capsules" for girls and women "who are troubled with Periodical pains, cramps and headache at Menstrual time, or who have Neuritis, Neuralgia, Stomach, bowel or bladder pains. . ."



BAD COUGHS, BRONCHIAL AND ASTHMA ATTACKS EASY TO STOP

When Throat, Bronchial Tube Muscles Tighten and Cough Spasms Start.

HERE IS SIMPLE, QUICK ACTING HOME REMEDY

"The writer has woke up at night with a coughing spasm that wouldn't stop. Some said it was Bronchitis and others said it was Asthma, and others said it was simply a bad catarrhal cough. Whatever it was it nearly drove me crazy on many nights. Then it would go away for a few days and come back again. I called the doctor—I took all the syrups and fancy mixtures—tried cough drops and lozenges, but nothing helped me.

"Then I heard the Germans had found a powder that would soothe and relax those throat, bronchial tubes and lung muscles that gave me those awful wheezing, short breath coughing spells. Then I heard American chemists had found the secret and I am passing along the good word to folks who suffer now like I once did.

"[illegible] a bottle of Adams' Wonder Capsules the first ni[illegible] fool. I took two capsules with a swallow of water and waited for results. In about 15 minutes it seemed like my throat was loosening up. It might have been imagination, but the cough stopped and I slept like a top the whole night through. The next night I took a couple before going to bed. It worked like a charm. The next night I did the same thing. Nowadays I never cough—either night nor day. My voice is better and that cough that I spent hundreds of dollars on has gone for good. There is no Christian Science about results like that. You can take them right in the midst of the worst coughing and wheezing spasm you ever had or when you get short of breath and have to sit up in bed to breathe—and by Gingo, in about 15 minutes a couple of doses of Adams' Wonder Capsules have stopped all the worry completely.

"You can swallow a whole bottle of the capsules at a time if you want to because they are harmless. There is no monkey business about the way they do the work, and now the Peoples Drug Stores here in Washington are selling Adams' Wonder Capsules on the most astounding unheard of guarantee ever printed. They say if three doses fail to stop your cough, Whooping cough spasm, Hiccoughs, Asthma or Bronchial attack then return balance of bottle and get your money. Nothing could be fairer than that. Of course, I suppose there are people who really should double the dose and take four or five doses the first time to get relief from a chronic case, but they tell me that out of thousands of bottles sold on that guarantee they have failed to bring results or people failed to test them thoroughly and come back for their money in only about one hundred cases—which shows what a really wonderful remedy they are."

Note. Mrs. Gene Case, the noted Health Advocate, is conducting a daily demonstration on Adams' Wonder Capsules each afternoon and evening this week at the Peoples Drug Store No. 3, corner 14th and You Sts. Any one wishing to know more about them should surely see her. There is no obligation. She is helping scores of people each day with her talks, or get a bottle of Adams' Capsules at nearest Peoples Drug Stores on above guarantee. Mail orders prepaid anywhere. One dollar. Peoples Drug Stores, Washington, D. C.—Adv.

Typical newspaper advertisement (reduced) of Adams' Wonder Capsules.

"Adams' Wonder Capsules" were submitted to the A. M. A. Chemical Laboratory for analysis. Here is what the laboratory reported:

"The package of Adams' Wonder Capsules contained twenty capsules, the average weight of each capsule being about 5.1 grains. No information is furnished by the manufacturer concerning the composition but the statement is made that the product is 'A Wonderful New Discovery' . . . discovered by chemists in Germany during war.' The capsules contained a coarsely granular, white, odorless powder which, under the microscope, was seen to be in the form of hexagonal rhombohedra, although many of the crystals were broken and irregular in shape. The material was compared with known specimens of benzyl succinate; the two were seen to have the same crystalline structure.

"The powdered and dried crystals melted at 46 C., the same temperature at which a specimen of known benzyl succinate melted. The crystals also responded to other tests for this substance. As a result of the examination, it was concluded that Adams' Wonder Capsules are simply capsules of benzyl succinate."

Incidentally, it is of interest to note that the claim made by the exploiters of this preparation that Adams' Wonder Capsules were "discovered by chemists in Germany during the War" is untrue. Benzyl succinate was first prepared by Italian chemists over forty years ago (Zanna and Guareschi, *Gazz. chim. ital.* **17**:256, 1881), but its therapeutic properties were discovered by American pharmacologists about 1920.

Correspondence

THE QUESTIONABLE VALUE OF PRESENT-DAY MORTALITY STATISTICS

To the Editor:—One cannot help being impressed by the casual way in which most hospitals regard the accuracy of their assigned cause of death, as expressed in the regulation death certificate. Particularly can this be observed in any large city hospital in which chronicity of all grades is treated. In some hospitals, in order to comply with the regulations of the "Manual of the International List of the Causes of Death," when an elderly man or woman dies as the result of senile changes, general arteriosclerosis or cardiorenal disease, it is more than likely that the death certificate will contain as the cause of death, "chronic myocarditis." Statistics, then, compiled from these data, contain such cases as cardiac deaths, thus falsely raising the general mortality rate for this type of disease. Then, too, the physician sees, in the course of a year, many sudden deaths, carelessly assigned to "acute cardiac dilatation," when it is not unlikely that the death may have been due to nerve palsy, coronary blocking, massive cerebral hemorrhage, or any one of many other conditions which might have been causative of a patient's death.

I have also seen a lack of appreciation, on the part of interns, visiting physicians and others, of the importance of the information set forth in the death certificate, when it becomes known that a needy family will be deprived of life insurance if an accurate cause of death, such as syphilis, alcoholism or tuberculosis, is assigned.

In the courses on ethics in our medical schools, it would appear that not sufficient stress is laid upon the absolute necessity of the physician's furnishing, faithfully and truthfully, any information which, in his opinion, was the determining cause of death. Professional veracity must not countenance juggling of death certificates, even though needy and blameless persons suffer by telling the truth.

In some localities, the assignment of the cause of death is, under certain conditions, in the hands of lay civil officers, and as a result little confidence can be placed in any mortality statistics from this source.

How often does the physician, practicing in a hospital, see at postmortem that he has made gross errors in his diagnoses, even though the patients in question have been carefully and conscientiously studied? Such errors may be eliminated from the death certificate by the systematic performance of necropsies. Until all hospitals are awake to the fact that, from the standpoints both of teaching and of the advancement of medical learning, a strenuous attempt should be made to raise (and, in some instances, to bring into existence) their postmortem percentages, it can hardly be expected that clinical and pathologic diagnoses will coincide with any degree of accuracy. It seems evident that the administrators and visiting staffs of most hospitals do not have the courage of their convictions, in regard to the advisability of postmortem examinations on a large percentage of their deaths, or that they are not convinced of their duty to the cause of medical education.

When it is stated that the Philadelphia General Hospital, which handles from eighteen to twenty thousand patients annually, has increased its postmortem percentage, in three years, from 10 per cent. to 51.35 per cent., it should be clear that any hospital, making an intelligent attempt, could succeed in improving this most important branch of medical teaching and at the same time increase the accuracy of its mortality statistics.

The utter disregard, on the part of most hospitals, of a serious attempt to confirm accurately the cause of death by postmortem examination is appalling. One cannot help being impressed by the utter worthlessness of present-day civilian mortality statistics.

Joseph C. Doane, M.D., Philadelphia.

APPARATUS LEAK AS A CAUSE OF FALSE LOW BASAL METABOLISM READINGS

To the Editor:—Basal metabolism determinations having become of the widest clinical use, it is well for all concerned in the performance of the test to be informed about every pitfall which may be encountered.

As a general proposition, whenever a leak occurs in the apparatus used for the test, it will give an apparent increase in oxygen consumption, and consequently a false positive reading. This is, apparently, because a certain degree of positive pressure in the machine is developed by each exhalation, a certain amount of air being forced out at each respiration; whereas, inhalation does not create a negative pressure sufficient to cause the same amount of intake through the leak. The variation from the true consumption of oxygen is dependent on the amount of air escaping through the leak.

Usually the presence of a leak in the apparatus is easily determined, and no test should be performed without a preliminary test of the machine. A good routine to follow is to test the machine by closing the circuit and placing a weight on the spirometer bell at the time when the patient is put on the bed for the preliminary test. If the reading of the scale has changed by the time the patient is ready for the test, there is a leak, this change in the reading showing a loss of air from the chamber.

Recently, an experience with a leak which caused an intake of air and a consequent false low reading has shown that leaks are not always productive of false positive readings.

In this case, a metabolism test had been made by a technician, with a resulting low reading which apparently did not correspond with the clinical aspect of the case. A test of the machine, a portable Benedict apparatus, demonstrated a leak present, the chamber losing air when the motor was idle but showing an increase in volume, amounting to 80 c.c. per minute, with the motor running. This increase in volume within the oxygen chamber demonstrated that the machine was taking in air under the influence of the circulating motor, this continuing during the metabolism test, and explaining the seemingly low oxygen consumption of the patient.

Failure to locate the leak by the usual methods, including immersion of all accessible parts in water, led to a procedure which I have not seen recommended as a method of locating leaks, but which is convenient and easily applied when there is difficulty and may be used to test parts of some machines which are accessible in no other way. This consisted simply in filling the apparatus with illuminating gas, in the same manner as it is filled with oxygen, and, while pressure was applied on the spirometer bell, a lighted match was carried over the machine until a flame revealed the leak of gas. Of course, with this procedure the soda lime should be removed beforehand, and afterward a thorough ventilation of the apparatus is necessary.

In this instance, the leak was located in a brass pipe leading from the oxygen chamber into the blower, the influence of suction from the blower being sufficient to draw air in from the exterior.

Kenneth M. Lynch, M.D., Dallas, Texas.

Untreated Cancer of Prostate.—The average duration of cancer of the prostate, if untreated, is approximately three years.—Bumpus, H. C., Jr.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

THE OZIAS HOSPITAL ASSOCIATION

To the Editor:—I have recently been in receipt of one or two letters from the Ozias Hospital Association ["a Business Trust" — "Chas. O. Ozias, Chairman of Board"] of Kansas City, Mo., relative to the hypodermic method for the cure of cancer, devised by Dr. Chas. O. Ozias. In these letters they are requesting physicians to form a committee of one hundred to bring patients to Kansas City for demonstration of the value of this method. Can you give me some information about Dr. Ozias and his activities?

Fred Wilkerson, M.D., Montgomery, Ala.

Answer.—Charles O. Ozias was graduated in 1892 by the Kansas City Medical College, receiving his Missouri license the same year. From 1893 until 1914 Dr. Ozias practiced in Warrensburg, Mo. He then moved to Kansas City.

In an advertising sheet put out by the "Animal Therapy Co." which exploits the "R.-H. Lymph Compound," a nostrum that was long ago refused recognition by the Council on Pharmacy and Chemistry, there are testimonials credited to Ozias, when he was at Warrensburg, telling of three "cures" in cases of pulmonary tuberculosis, and two "cures" in cases of epilepsy, following the use of the "R.-H. Lymph Compound." This was in 1911.

In a *Bulletin* issued as an advertising sheet by one Sweeny of Pittsburgh, who for years has been the exploiter of a nostrum, "Anti-Tuberculous Lymph Compound (Sweeny)," there is a testimonial credited to Charles O. Ozias of Warrensburg, Mo., describing his "cure" of a case of generalized tuberculous infection in six weeks' time with the use of Sweeny's "Anti-Tuberculous Lymph Compound." This was in 1912.

In a typewritten letter, signed Chas. O. Ozias and written to a Boston physician, it was stated that the writer was about ready to announce a "CURE" for paralysis following poliomyelitis. This was in 1918.

In a letter sent to a layman by Ozias and forwarded to us, statements appeared indicating that Ozias was compounding a "serum" for cancer. This was in 1919.

In the circular letter referred to by Dr. Wilkerson and widely distributed to physicians over the country, Ozias states that he is the "originator" of " a medicinal treatment for the effective cure of cancer by the hypodermic method." He offers to treat a hundred cancer patients before a committee of physicians, stating that as soon as the committee passed favorably on the merits of the treatment, the matter would be brought to the attention of Lord Atholstan who has offered a prize of one hundred thousand dollars for an effective cure of cancer. This is in 1922.

What will Charles O. Ozias be doing in 1923?

BARBITAL ADDICTION

To the Editor:—In Queries and Minor Notes (The Journal, Nov. 11, 922, p. 1709) antipyrin salicylate is reported as being useful in the reatment of barbital (veronal) addiction. Please give dosage and method, as I have a case of veronal addiction. Please omit my name.

W. F. S.

Answer.—Fog (*Ugesk. f. Læger* **79**:370 [March 8] 1917) treated a case of addiction by gradually substituting antipyrin salicylate in the powders which were being taken until he patient was getting no barbital at all.

PRESERVATION OF BLOOD

To the Editor:—1. I am desirous of sending to our state laboratory blood of a diabetic patient for the purpose of having made a percentage ugar test. Please inform me as to the best method of preserving blood. . Is a test of this kind reliable?

J. M. Covington, M.D., Wadesboro, N. C.

Answer.—1. Blood may be preserved for at least four days or blood sugar determinations by adding solution of formaldehyd, U. S. P., in the proportion of 1 drop to 5 c.c. of oxalated blood. The dropper employed should give 30 drops per cubic centimeter. A convenient method of obtaining the oxalated blood is as follows: To the tip of a perfectly clean, dry serologic pipet, the usual serologic needle is attached by means of a short piece of pure gum tubing. A small pinch of powdered potassium oxalate (20 mg. of the oxalate is sufficient for 10 c.c. of blood) is dropped into the upper end of the pipet, and allowed to run down into the tip. The upper end of the pipet is connected with a rubber suction tube, which is in turn connected with a short glass mouthpiece. The needle is inserted into the median basilic vein, and by suction the pipet is filled with blood.

2. Percentage estimations of blood sugar, when properly made, are reliable and practical.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Alabama: Montgomery, Jan. 9. Chairman, Dr. Samuel W. Welch, Montgomery.

Arizona: Phoenix, Jan. 2. Sec., Dr. Ancil Martin, 207 Goodrich Bldg., Phoenix.

Colorado: Denver, Jan. 2. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

Delaware: Wilmington, Dec. 12-14. Sec., Dr. P. S. Downs, Dover.

District of Columbia: Washington, Jan. 9. Sec., Dr. Edgar P. Copeland, Stoneleigh Court, Washington.

Hawaii: Honolulu, Jan. 8. Sec., Dr. G. C. Milnor, 401 Beretania St., Honolulu.

Illinois: Chicago, Jan. 9-11. Supt. of Registration, Mr. V. C. Michels, Springfield.

Indiana: Indianapolis, Jan. 9. Sec., Dr. W. T. Gott, Crawfordsville.

Kentucky: Louisville, Dec. 5-7. Sec., Dr. A. T. McCormack, State Board of Health Bldg., Louisville.

Louisiana: New Orleans, Dec. 7-9. Sec., Dr. Roy B. Harrison, 1507 Hibernia Bank Bldg., New Orleans.

Maryland: Baltimore, Dec. 12. Sec., Dr. J. McP. Scott, 141 W. Washington St., Hagerstown.

Minnesota: Minneapolis, Jan. 2-4. Sec., Dr. Thomas S. McDavitt, 539 Lowry Bldg., St. Paul.

New Mexico: Santa Fe, Jan. 8-9. Sec., Dr. R. E. McBride, Las Cruces.

North Carolina: Durham, Dec. 12. Sec., Dr. Kemp P. B. Bonner, Raleigh.

North Dakota: Grand Forks, Jan. 1. Sec., Dr. G. M. Williamson, 860 Belmont Ave., Grand Forks.

Ohio: Columbus, Dec. 6-8. Sec., Dr. H. M. Platter, Hartman Hotel Bldg., Columbus.

Oklahoma: Oklahoma City, Jan. 9-10. Sec., Dr. J. M. Byrum, Shawnee.

Rhode Island: Providence, Jan. 4-5. Sec., Dr. Byron U. Richards, State House, Providence.

Texas: Waco, Nov. 28-30. Sec., Dr. T. J. Crowe, Dallas County Bank Bldg., Dallas.

Virginia: Richmond, Dec. 5-8. Sec., Dr. J. W. Preston, McBain Bldg., Roanoke.

West Virginia: Charleston, Jan. 9. State Health Commissioner, Dr. W. S. Henshaw, Charleston.

Wisconsin: Madison, Jan. 9-11. Sec., Dr. John M. Dodd, 220 E. Second St., Ashland.

Alabama July Examination

Dr. Samuel W. Welch, chairman, Alabama State Board of Medical Examiners, reports the written examination held at Montgomery, July 11-14, 1922. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 26 candidates examined, 25 passed and 1 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Birmingham Medical College	(1915)	79.6
Emory University (1922) 78.3, 80.2, 80.7, 81.6, 82.5, 84.5, 88.6, 88.8		
Tulane University (1921) 77.6, (1922) 75, 80.2, 83.2, 83.8, 84.9, 85, 86.7, 87.2		
Dartmouth Medical School	(1905)	88.4
Jefferson Medical College	(1921) 85.3, (1922)	85.5
Meharry Medical College	(1922) 80.2,	82.6
University of Tennessee	(1922)	88.3
Vanderbilt University	(1921)	79.6
FAILED		
University of Alabama	(1909)	66.4

Dr. Samuel W. Welch also reports that from May 2, 1922, to June 6, 1922, eight candidates were licensed by reciprocity. The following colleges were represented:

College	Year Grad.	Reciprocity with
LICENSED BY RECIPROCITY		
Emory University	(1919)	Georgia
Kentucky University Medical Dept	(1906)	Kentucky
Louisville Medical College	(1904)	Kentucky
Coll. of Phys. and Surgs., Baltimore	(1882)	Missouri
University of Mississippi	(1910)	Mississippi
Memphis Hospital Medical College	(1910)	Mississippi
University of Tennessee (1897) Tennessee	(1905)	Kentucky

Nebraska June Examination

Mr. H. H. Antles, secretary, Nebraska State Department of Public Walfare, reports the written and practical examination held at Lincoln, June 6-8, 1922. The examination covered 10 subjects and included 100 questions. An average of 70 per cent. was required to pass. Of the 41 candidates examined, 40 passed and 1 failed. Seven candidates were licensed to practice as chiropractors. Seven candidates were licensed by reciprocity, and one candidate received an osteopathic license by reciprocity. The following colleges were represented:

College	Year Grad.	Number Licensed
PASSED		
College of Physicians and Surgeons, Chicago	(1897)	1
University of Illinois	(1922)*	1
Creighton University	(1922)	21
University of Nebraska	(1922)†	17
FAILED		
University of Nebraska	(1922)	1

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
George Washington University	(1909)	S. Dakota
Rush Medical College	(1921)	Illinois
State University of Iowa College of Medicine	(1920)	Iowa
Southern Homeopathic Medical College	(1902)	Maryland
University of Michigan Medical School	(1915)	Michigan
Meharry Medical College	(1918)	Tennessee
University of Vermont	(1903)	New Hamp.
Osteopath		Illinois

* This candidate has finished the medical course and will obtain the M.D. degree after he has completed a year's internship in a hospital.

† This candidate will receive the M.D. degree in February, 1923.

Miscellany

ON THE MENTAL LIFE OF A PROFESSOR OF MEDICINE

[Being part of a personal letter written by Prof. Friedrich Müller of Munich to Prof. Graham Lusk of New York, and published with the permission of both.]

Dear Dr. Lusk:—. . . I hope you have received my Leiden adress upon "Problems of Metabolism."[1] I felt compelled to put together my ideas on the subject of protein metabolism. I cannot completely accept the dynamic theory of protein metabolism of Rubner or of Grafe, and I wished to express the idea that it is essentially a *chemical* problem. Many favorite theories which have come down from Carl Voit are no longer valid in the light of modern chemistry. I am keenly interested as to how you will handle this problem in the next edition of your "Science of Nutrition." The analysis of the specific dynamic action will be an especially difficult point. I can interpret it only as a problem of internal chemical work.

You write in a recent letter that Benedict [S. R.] holds it to be an anomaly that I, as a clinician, should concern myself with these physiologic problems. The responsibility for this belongs not alone to my training in Voit's laboratory but also and especially to the circumstance that, as physician at the sick bed, my attention is constantly called to the significance of problems of metabolism, and because the physiology of metabolism has been stimulated to a remarkable extent through a study of the pathology of metabolism at the bedside of the sick man.

You should read the new book of Petrèn on diabetes. It suggests a number of new problems. On the other hand, I do not believe that the new English experiments on the subject of carbonic acid and oxygen tension in arterial and venous blood will inform us further. We are investigating the blood of the arteries and veins of the arm. The metabolism of the arm and of the hand is of very little importance in comparison with that of the liver and the kidney or even of the heart. Oh, if we could only compare the blood of the aorta with that of the inferior cava and the hepatic vein! The new experiments of Starling are of much greater clinical importance and are fit to establish upon a new foundation our views concerning circulatory disturbances and heart disease.

The clinical teachers are forced to follow the progress made by the pure sciences, chemistry, physics and physiology, because they throw some light upon the processes of disease in man. But we do not approach the sick bed as physiologists, but rather first of all with love toward the sick man and with an intense desire to help him. I believe that this human fundamental element must be inborn or one will never be the right kind of a physician. The clinical teacher must be primarily a good and experienced physician, and not one whose entire interest and experience are of the laboratory. He who does not heartily interest himself in his patient will never be a good clinician. This human, or, if you will, humanitarian, side of our profession is not only the most beautiful but also the most interesting part of it. It assumes an interest not only for the body but also for the mental individuality of the patient, and I can assure you that my afternoon consultation hours, in which I see patients from all the countries of the world, are to me at least as interesting as the work in my laboratory.

Personal contact with the patients during my consultation hours widens my mental horizon not only from a medical but also from an intellectual point of view, for difficult medical cases and interesting personalities from all classes of society come to me during these hours. I therefore find myself out of sympathy with the new American system of "full-time clinicians," which limits the activity of the clinician to a ward in the hospital and forbids private practice among those who do not wish to go to a hospital. I feel that the forbidding of private practice is not in accord with Holy Writ, as expressed in I Timothy, chap. 5, vs. 18.[2]

In the laboratory we are still working on purely chemical problems, on the diazo reaction, on the nucleins, cholesterin, etc. All these matters are related to the problems of the physician, to fever and to gout. Besides this, work in physics is being done along the line of acoustics. As regards interpretation of the problems of auscultation and percussion, I feel that we have progressed very favorably and, using the method of Otto Frank, have replaced the former purely empiric impressions with clear-cut physical measurements.

To one method of approach in medicine I am fundamentally opposed, that of philosophical speculation, which to my great regret I find constantly increasing. But, of course, I do not include herein the wonderful psychologic ideas which, from a phylogenetic basis, have been developed by Karl von Monakow.

Friedrich Müller.

Munich, Aug. 10, 1922.

MEDICINE IN ECUADOR

Surgery was held even in greater contempt than medicine in the Ecuador of colonial times, says Dr. J. F. Heinert, president of the Médico-Chirurgical Society of the Guayas, and as late as 1737, a royal decree enjoined surgeons from attending medical meetings. Even as late as 1785, a prominent Ecuadorian physician, Dr. Santa Cruz y Espejo, stated in his "Reflections on Smallpox" that there were plenty of prominent people at Quito, but not even a mediocre surgeon. The first surgeon in the city was Dr. Juan del Castillo, who practiced in 1706; Dr. Basilio Meneses was granted a surgeon's license in 1731; in 1785, there were two surgeons, and about the same time a barber, Manuel Coronado, after studying in private, applied for admission as a surgeon and passed the examinations with much success. The first protophysician, Dr. J. M. Ulloa Campos, was appointed in 1794; the second protophysician (1800), Dr. Bernardo Delgado, was also the surgeon-general of the Quito national guard and professor of medicine in Santo Tomás University. During the Independence War, a number of surgeons were on duty, among them, Dr. Manuel Herrán, Surgeon-General of the Army; an Englishman, Col. Charles Moore, and a Mexican, Dr. J. T. Araujo. The first board of health was organized at Guayaquil in 1821. The first medical society, "Sociedad Médica del Guayas," was organized, March 24, 1835. When the Charity Hospital was reopened in a new building, one of

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1. Müller, Friedrich: Deutsch. med. Wchnschr., 1922, Nos. 16 and 17.

2. "For the scripture saith, Thou shalt not muzzle the ox when he treadeth out the corn. And, The laborer is worthy of his hire."

the provisions in its charter required the appointment of a professor of medicine and a professor of surgery to care for the patients. The first amphitheater was built in 1837. Finally, medical teaching was reorganized in 1838, prescribing a six year course in medicine, in charge of four professors. The school of obstetrics (rather, midwives) was founded in 1847, a woman, Sra. Cipriana Casanova, being placed in charge, with the assistance of Dr. Acevedo, professor of anatomy, surgery and obstetrics at the Medical School. Another professor and surgeon-general of the army, Dr. Rafael Barahona, furthered much the progress of medicine through his work as a clinician and a physiologist. Dr. José Illesca, the most noted surgeon of his epoch in Quito, performed with success the first herniotomy in February, 1868, although with many misgivings and risking, as he said, "his reputation for the sake of surgery, humanity and religion." Sisters of Mercy were placed in charge of hospitals in 1870. Much work on the treatment of cancer with condurango was done in 1869-1871. The first maternity hospital was established in 1872. Two French physicians, Drs. Gayraud and Domec of Montpellier, were brought over in 1873 and 1874, respectively, to reorganize medical teaching and take charge of the San Juan de Dios Hospital. In their work "The Capital of Ecuador from a Médico-Chirurgical Standpoint," published afterward, they commented on the absolute lack of equipment at Quito on their arrival. They introduced perineal section and lithotripsy in Ecuador, and also several operations for cancer.

The Guayaquil Medical School was organized in 1877. The first professor of surgery was a noted surgeon, Dr. Alejo Lascano, a former pupil of Velpeaux and Nélaton.

The first reference to Pasteur and Lister's discoveries was in an address by Dr. L. Cárdenas in June, 1891, in Quito. The Médico-Surgical Hospital Society was founded in Quito in 1895, and the first medical journal, *Revista Médico-Quirúrgica,* began its career in 1896. With the advent of President Alfaro in 1895, a number of physicians were sent to take postgraduate courses in Europe, which step did much for medical progress in Ecuador. American surgery first made its influence felt through Dr. T. Martínez Aguirre (1887-1910), who had graduated in the United States.

Book Notices

General Medicine. Edited by George H. Weaver, M.D., Lawrason Brown, M.D., Robert B. Preble, A.M., M.D., Bertram W. Sippy, M.D., and Ralph C. Brown, B.S., M.D. Cloth. Price, $3. Pp. 715, with 104 illustrations. Chicago: The Year Book Publishers, 1922.

The section on general medicine of the year book series has been developed so that it represents the opinions of a number of specialists in various phases of the subject. In the present volume, Dr. George H. Weaver is responsible for infectious diseases and endocrinology; Dr. Lawrason Brown for diseases of the chest except the heart; Dr. Robert B. Preble for diseases of the blood, blood vessels, heart and kidney, and Drs. B. W. Sippy and R. C. Brown for the digestive system and metabolism. This volume is marked by the careful selection of articles abstracted and by numerous editorial notes.

Clinical Diagnosis. Case Examination and the Analysis of Symptoms. By Alfred Martinet, M.D. With the Collaboration of Drs. Desfosses, G. Laurens, Léon Meunier, Lutier, Saint-Cène, and Terson. Authorized translation by Louis T. de M. Sajous, M.S., M.D. Volume I: Physical and Laboratory Diagnosis. Volume II: Analysis of Symptoms. Cloth. Price, $14 net. Pp. 1388, with 905 illustrations. Philadelphia: F. A. Davis Company, 1922.

This work is published in two volumes, the first dealing with the systematic examination of the various systems of the body and the second with analyses of symptoms associated with various diseases. The book is written in the pleasant style usually adopted by French writers of medicine, and the American translator has done well his share of the work. The section on mistaken diagnoses contains valuable hints regarding the causes for error. In fact, the chief value of this work is its practicality, its inclusion of minor details regarding methods and procedure which are absent from most textbooks on diagnosis. Methods of palpation are excellently illustrated by line drawings; apparatus used are thoroughly illustrated; stains and solutions are never mentioned without an accompanying formula. Throughout the text appear comparative tables for differential diagnoses. To the man in the field, this work should be a valuable, practical aid.

Medical Coloradoana. A Jubilee Volume in Celebration of the Semi-Centennial Anniversary of The Colorado State Medical Society, 1871-1921. Containing the titles of the scientific and literary contributions to medical literature by the members of the medical profession residing in the state of Colorado. Cloth. 1922.

In honor of their semicentenial the Colorado State Medical Society has just published a striking jubilee volume. It includes excellent portraits of the founder and of the deceased presidents of the society. In the form of historical notes is given the origin and development of the organization and its constituent branches. There is a list of medical periodicals published in Colorado, and finally a list of titles of books and papers published by the medical profession of Colorado in many important American publications. The list indicates that Colorado has fully contributed its share to the medical literature of this country. The volume is a valuable contribution to the history of Colorado.

X-Ray Dosage in Treatment and Radiography. By William D. Witherbee, M.D., Radiotherapist, Presbyterian Hospital, New York, and John Remer, M.D., Radiotherapist, New York Hospital. Cloth. Price, $1.75. Pp. 87, with 3 illustrations. New York: The Macmillan Company, 1922.

The purpose of this little book is to describe the method of measurement of roentgen-ray exposures which Witherbee and Remer have developed. The method has proved in practice reliable, and should be known to workers in this field. The booklet furnishes a reliable guide to the method, although it seems that the description of it could have been made much more simple than that which the authors have furnished.

The Old English Herbals. By Eleanour Sinclair Rohde. Cloth. Price, $7 net. Pp. 243, with 18 illustrations. New York: Longmans, Green & Co., 1922.

In a stately and beautifully illustrated volume, the author presents a study of old herbals, from the Anglo-Saxon period to the end of the seventeenth century. Her literary style is attractive, her knowledge complete, and her subject one of interest to all who have followed the developments of modern therapy. There are numerous anecdotes of medieval English anatomists and botanists. An excellent appendix gives complete bibliographic references to available herbals to which the author has had access. The fact that the preparation and study have been carried out under the guidance of Dr. and Mrs. Charles Singer vouches for the accuracy of the work.

Manual of Physio-Therapeutics. By Thomas Davey Luke, M.D., F.R.C.S., Assistant Physician, Smedley's Hydropathic Matlock. Second Edition. Cloth. Price, $6 net. Pp. 480, with 210 illustrations. New York: William Wood & Co., 1922.

The subjects that are generally studied inadequately or not at all in medical schools are taken up in this book. It deals with thermotherapy, including phototherapy, with hydrotherapy, massotherapy and gymnastics, rest cure, climatotherapy, electrotherapy, roentgen rays, and dietotherapy. For a rather small book covering such a wide range of subjects, many of the various subdivisions are remarkably well given. Of course, the chapter on climatotherapy does not deal with American health resorts, as the author addresses himself to British therapeutists. Under the heading of electrotherapy, too much space, it seems, is occupied by the description of the various types of apparatus, and not enough to the discussion of effects and indications. This tendency reaches its extreme in connection with the roentgen rays, the production of which is discussed, but not their effects or uses. Radium is not mentioned at all; but there is a very good chapter on the Bergonié treatment. One of the excuses given for the neglect of these important topics in the medical school curriculum has been the lack of a suitable textbook. This book makes such an excuse no longer tenable. While not ideal in every respect, it contains probably the best short exposition of these topics available in the English language. Unfortunately, the real cause for the neglect of physiotherapy is the ignorance of the framers of medical curriculums regarding it and the lack of competent teachers. As the students of the present become the curriculum makers of the future, we have here a vicious circle. Luke's book might furnish a remedy; but who will administer it?

Tuberculosis and the Community. By John B. Hawes, 2d, M.D., Director, Clinic for Pulmonary Diseases, and Assistant Visiting Physician, Massachusetts General Hospital. Cloth. Price, $1.75. Pp. 168. Philadelphia: Lea & Febiger, 1922.

In this work Dr. Hawes has striven for a simple presentation of scientific facts. He has written the book as a guide to those who may desire to study the subject of community hygiene, rather than tuberculous disease in the individual. The style is forceful and direct. Of especial interest is the chapter on the "Careless and Incorrigible Consumptive." We read that "tuberculosis of the lungs is classified, in every state in this country, as a communicable disease," but that, while the "public accepts as right and proper regulations concerning the isolation of those sick with scarlet fever, diphtheria, smallpox, etc., and looks upon such measures as necessary for the protection of public health, it does not regard tuberculosis in the same light." The author recognizes the difficulties in store for the health officer who may try forcibly to isolate a recalcitrant consumptive in a community which has not been properly educated to latter-day standards, and also has a word of condemnation for the overenthusiastic official who would quarantine the patient with tuberculous glands.

L'Adénopathie Trachéo-Bronchique Simple Chez l'Enfant. (Etiologie, Pathogénie, Complications Broncho-Pulmonaires). Par le Docteur Henri Forgeron, Ancien Externe des Hôpitaux de Paris. Paper. Pp. 192. Paris: Librairie Littéraire & Médicale Louis Arnette, 1922.

This is a thesis which starts out by summarizing the various articles in the literature, and takes up in the first part the anatomy and the pathology. The second part, devoted to the clinical features, considers the relation of enlargements of the glands to infections that predispose to tuberculosis, and discusses the enlargement of these in whooping cough, measles and grip. It then discusses the relation of this simple form of glandular enlargement to tuberculous enlargement. There are chapters on the enlargement of these glands in typhoid fever and in the respiratory infections, the latter being divided into two groups, those of the upper and those of the lower respiratory passages. It is interesting to note that after these studies the author comes to the conclusion that enlargement of the peribronchial glands never results directly from infections of the upper portion of the respiratory tract, but that when this is apparently true the enlargement is always due to infection in the lower portion, that is, the trachea and bronchi or lungs. The relation of simple to tuberculous infection of these glands is discussed. As is to be expected in French theses, the bibliography is almost altogether taken from that language.

Senescence: The Last Half of Life. By G. Stanley Hall, Ph.D., LL.D. Cloth. Price, $5. Pp. 518. New York: D. Appleton & Co., 1922.

Prof. G. Stanley Hall has done for the aged in this book what he did in 1904 for the young, in his "Adolescence"; he has collected a vast amount of valuable and scientific data regarding old age. In his sentimental introduction, he recounts autobiographically the way in which he laid down his daily work and took up the compilation of this volume after his retirement. In his first chapter, he records instances of early old age, and speaks of the opinions of others regarding the changes coming on after 40 years, including the famous address of Sir William Osler. In his second chapter, he describes how primitive man looked on the old, and traces the attitude toward the aged since the earliest times. He devotes a special chapter to famous writers who have done work after 60 years of age; while he includes such literary hacks as Amelia Barr, he neglects to mention such able writers as William Hudson, De Morgan or Sir Harry Johnston. His fourth, fifth and sixth chapters may be called scientific, since they deal with statistics and medical views and the contribution of pathology to this subject. He analyzes the results of a questionnaire sent to old persons to obtain their views as to life and the physiology of old age. Then comes the conclusion, and finally a section on the psychology of death. Most of the books on old age have been written by old men. G. Stanley Hall's book, like these others, has a psychologic point of view that is not commonly found in books by psychologists. A book on old age written by a young man would possibly be more scientific.

Précis de Pathologie Médicale. Tome IV: Maladies du Sang et des Organes Hématopoiétiques. Par P.-Émile Weil, Médecin de l'hôpital Tenon, and Marcel Bloch, Chef de laboratoire à la Faculté de Paris. Maladies des Reins. Par Pasteur Vallery-Radot, Médecin des hôpitaux de Paris. Boards. Price, 25 francs. Pp. 628, with 77 illustrations. Paris: Masson et Cie, 1922.

Précis de Pathologie Médicale. Tome V: Maladies de l'Appareil Digestif et de la Nutrition. Par Marcel Labbé, Professeur à la Faculté de Médecine de Paris, and G. Vitry, Ancien chef de Clinique à la Faculté de Médecine de Paris. Boards. Price, 25 francs. Pp. 788, with illustrations. Paris: Masson et Cie, 1922.

The system of small volumes is intended to occupy a place between the large treatises and the comparatively useless books of the quiz-compend type. The two volumes presented are excellent examples of well-chosen information, carefully arranged in a form wholly consistent with scientific values. At the same time, they are essentially practical; but, like condensed books in general, they often lack details which one would hope to find. Each subject is discussed from the standpoints of anatomy, physiology and pathology before the diseases are considered. The illustrations are numerous, well placed, attractive and practical. It would be difficult to attempt a detailed review of the numerous matters treated in the two volumes. Much of the French clinical medicine does not appeal to American readers; but the authors of the present books seem to have a broader light on world medicine than has been manifested in most recent continental books. Hypertension receives thorough discussion, but the evidence accumulated would not convince many that the pathology is "mechanical renal," or that permanent arterial hypertension is always of renal origin. The suggestion as to substituting biochemical terms for the vague "uremia" is a good one. The discussion of gastric ulcer, while incomplete, is to the point. It contains the surprising statement that the mortality is 50 per cent.

Clinical Laboratory Technic for Nurses. By Anna L. Gibson, R.N., Matron Superintendent of the Collis P. Huntington Memorial Hospital, Harvard Medical School. Cloth. Price, $2. Pp. 214, with illustrations. Boston: Whitcomb & Barrows, 1922.

In her preface, the author says, "This book owes its existence to the frequent request on the part of graduate nurses, whom it has been my pleasure to instruct in laboratory technic during the past three years, for a simple comprehensive textbook, that the nurses might be able to grasp the principles of clinical laboratory technic. There is no more important subject than clinical laboratory technic, nor one more far-reaching in its influence on the ultimate success or failure of the work of a nurse. This book was not written with the thought of making nurses diagnosticians, but to help them to have a more intelligent and more thorough understanding of this subject in its relation to nursing." The book is divided into twelve chapters, as follows: laboratory equipment, the microscope; urine; feces; gastric contents; sputum; the blood; bacteria; culture mediums; body fluids; milk, and preparation of tissue. Following the last chapter, there is an appendix, giving the composition of the various reagents mentioned in the text. The tests outlined in this little book are the generally accepted ones for the routine work of a laboratory and are given in sufficient detail to permit the worker to perform them intelligently. Naturally, matters of interpretation of tests and their clinical bearing are discussed only briefly, as the scope of the work does not permit of such inclusions. The text is clear and concise, the subject matter being entirely adequate for the purpose intended. At the end of each section, references are given to larger works, for collateral reading on the points covered. This work is to be recommended to all nurses and to those who may have to do with the instruction of nurses along these lines.

Medicolegal

Compensation Board Consulting Unbiased Expert About Testimony

(Carlin v. Coxe Bros. & Co., Inc. (Pa., 117 Atl. R. 405)

The Supreme Court of Pennsylvania, in affirming a judg- ent that affirmed an award under the workmen's compen- ation act, says that the plaintiff's husband was injured, March 27, and died, June 5. There was a fracture of ribs n the left side, but his death was due to an abscess on the ght side. The wound on the left side healed, but he was ever well after he received the injury. The abscess was iscovered about five or six weeks after the accident, and e died a few days after it was located. The causal con- ection between the abscess and the injury to the left side as so plainly shown by medical evidence that this court annot say that the workmen's compensation board or the ourt below committed error in holding it a sufficient basis or a finding that the plaintiff's husband died as a result f injuries he received in the course of employment. The stimony deduced from the related facts gave rise to the onclusion by the physician that the abscess followed as a irect result of the injury. But, in the first hearings before he board, the widow was denied compensation because of nsufficient evidence. The compensation board, however, was doubt as to the effect of one physician's testimony, and hey consulted a professor in the University of Pennsylvania, ho pointed out a possibility of error in their conclusion om the facts as testified to by the physician. With this heck on their mental attitude toward the case, they ordered new hearing. At this hearing, there was ample medical stimony to sustain the ultimate conclusion of the board at a causal connection was established. The fact that the oard sought this advice was to be commended rather than ensured. It was only fair to themselves, in dealing with a ighly technical subject, to call to their assistance unbiased orks or authorities at their command. In the administra- on of justice in this age, acting under such investigation ssuredly does not corrupt or thwart right, and the compen- ation board did not commit error in receiving this assis- nce. The ultimate finding, however, was based solely on vidence brought on the record; it had no relation to xtraneous matters.

Chiropractors and the "Practice of Medicine"

(State v. Barnes (S. C.), 112 S. E. R. 62)

The Supreme Court of South Carolina, in affirming a judg- ent of conviction of the defendant, a chiropractor, of prac- cing medicine without a license, in violation of the act of 20 of that state, purporting to regulate the practice of edicine, says that the defendant contended that said act d not apply to one engaged in his profession, which con- sted only in massaging the person of the patient, that the t did not define massaging or manipulating with the hands the "practice of medicine," and that if the act purported define such treatment as the practice of medicine, it was constitutional. But the court holds that, regardless of the t of 1920, chiropractors should be included within the class signation of those who practice medicine. Chiropractic s been defined, and is commonly understood, as a system treatment by manipulation of anatomic displacements, pecially the articulation of the spinal column, including its rtebrae and cord. This court adopts the declaration that:

> Medicine relates to the prevention, cure and alleviation of disease, repair of injury, or treatment of abnormal or unusual states of the ly, and their restoration to a healthful condition. It includes a broad d. It is not confined to the administering of medicinal substances, the use of surgical or other instruments. It comprehends a knowledge only of the functions of the organs of the human body, but also the diseases to which these organs are subject, and of the laws of lth and modes of living which tend to avert or overcome disease, as l as of the specific methods of treatment that are most effective in moting cures.

Furthermore, the court holds that chiropractors are luded by the act of 1920 among the class designated as those who practice medicine, the act containing the express provision that:

> Any person shall be regarded as practicing medicine . . . who shall, as a business, treat, operate on or prescribe for any physical ailment of another, or who shall engage in any branch or specialty of the healing art, or who shall diagnose, cure, relieve in any degree, or profess or attempt to diagnose, cure or relieve any human disease, ailment, defect, abnormality or complaint, whether of physical or mental origin, by attendance or by advice, or by prescribing or using or furnishing any drug, appliance, manipulation, adjustment, or method, or by any therapeutic agent whatsoever.

The act of 1920 is not unconstitutional in defining in the body of the act the meaning of the words "practice medicine," contained in the title of the act. The purpose of the act was to regulate the practice of medicine, which, as this court has concluded, embraces chiropractic. The fact that the act, in its body, declares what was true in the absence of such declaration, was entirely germane, though perhaps unnecessary. Nor is the act unconstitutional on the ground of prescribing capricious or unreasonable conditions on the chiropractor in obtaining a license. The main ground on which the alleged capricious and unreasonable features of the act were urged was that the chiropractor is required to familiarize himself with certain subjects which have no place in his branch of the healing art, such as anatomy, physiology, hygiene, toxicology, minor surgery, medical jurisprudence, pediatrics, bacteriology, and pathology. Naturally, the first step in the remedial process is diagnosis to find out what is the matter with the patient. To a layman's view, a familiarity with most, if not all, of the subjects named is essential to a proper discharge of this initial process, and equally so to the administration of the proposed remedy. Whether they are or not, however, is not a judicial question. It has been so declared by legislative authority, based, we must assume, on bona fide scientific grounds, and the requirement does not present such evidence of caprice or unreasonableness as to justify a destruction of a plan devised for the protection of the public.

Care Required in Selection of Hospital Employees—Scalding-Hot Injection

(Taylor v. Flower Deaconess Home and Hospital (Ohio), 135 N. E. R. 287)

The Supreme Court of Ohio affirms a judgment of the court of common pleas in favor of the plaintiff, and to do so reverses one of the court of appeals which reversed the judgment of the court of common pleas. The plaintiff charged the defendant with negligence in the selection and retention of a student nurse, who administered to him an injection of scalding-hot water while he was under the influence of the anesthetic, after an appendectomy, thereby causing him injury. The supreme court says that the decisive question for it was whether a public charitable hospital corporation is liable for the negligent and careless acts of an incompetent nurse, in failing to exercise ordinary care in selecting the nurse in question. The exact question involved in this case has never before been presented to this court.

The defendant pointed out that, in many of the decisions which recognized the principle of liability contended for by the plaintiff, the courts did so by inference; that is, by embodying in their opinions the statement that the hospital would not be liable for the negligence or incompetence of servants who had been selected with reasonable care. This was true; but it must be remembered that the hospitals are in the contested cases asserting an exemption from the general rule *respondeat superior* (let the master or superior answer). That doctrine itself had its origin in considerations of public policy. It doubtless will be in the future, as it always has been, modified or extended as the necessities of new social and economic conditions demand. And the exemption from liability of such organizations, subject to the condition of care in the selection and retention of servants which is so frequently found in the decisions of courts on the subject, indicates the general judgment that the exemption from the operations of the rule *respondeat superior,* which experience has shown to be a valuable aid in securing the ends of justice, should not be sweeping and complete, but should be surrounded by such safeguards as will prevent the neglect of a duty which the hospital can and should perform. It cannot watch or control the countless acts and movements of its servants, but it can and should exercise care to see that only careful and competent servants minister to stricken patients who are within its walls. Moreover, while it may well be said that donors of funds for the praiseworthy objects of charitable hospitals do not contemplate the diversion of the fund for the payment of damages for the numerous acts of servants referred to, yet they necessarily realize and appreciate that they give their donations to those who have the management and control of the institution, and that every principle of justice requires that they use care in the development and maintenance of the property and in the selection of servants who have the oversight of patients.

In our day there is a general tendency in all persons to resort to hospitals in cases which require surgical operations, or in cases of severe sickness, and for obvious reasons it is desirable that such an institution should not be held out as devoted solely either to the poor or to the rich, and the degree of care required should in all cases be the same. The same rule should apply to a pay patient as to one who does not pay, and there is a general agreement on this proposition. The decisions of the courts are irreconcilable, either as to the conclusions arrived at or the reasons given by different courts for the same conclusion. However, this court is convinced that sound reasons sustain the great weight of authority to the effect that a public charity should not be held liable for the negligence of the servant in whose selection the hospital and its managers have exercised due care. On the other hand, such an institution is liable when it fails to exercise such care. In other words, this court holds that when a public charitable hospital has failed to exercise due and reasonable care in the selection of physicians, nurses, or attendants, and injury results from the incompetence or negligence of such persons, the hospital is liable therefor.

Evidence of Negligent Treatment of Injured Arm—Damages Allowed

(Warner v. Pence et al. (N. D.), 188 N. W. R. 167)

The Supreme Court of North Dakota says that, May 11, the plaintiff was kicked on the left arm by a horse. He consulted one of the defendants, who gave the arm a manual and a fluoroscopic examination. The ulna was discovered to be broken several inches below the elbow, the break being diagonal, with the ends left somewhat jagged. On account of the swelling, it was deemed inadvisable to reduce the fracture that day, so the arm was placed in a sling and other first aid treatment given. Later attempts were made by the defendants to reduce the fracture by manipulation. At these times, both the manual and fluoroscopic examinations were made. The attempts proved unsuccessful, and the plaintiff was taken to a hospital, May 20, where an operation was performed by the defendants, assisted by another physician. The operation consisted of an incision separating the tissues of the forearm to the broken bone, placing the broken bone in shape, and fastening it with silver wire. The arm was put in a plaster cast, which was occasionally removed thereafter to permit the proper dressing of the wound, and, as the physicians testified, for the purpose of exercising the arm so that it would not become stiff. About five weeks after the operation, the cast was permanently removed. The elbow joint was stiff. About July 1, the plaintiff went to a chiropractor for treatment. July 16, he went to work on the section, cutting weeds with a hoe and shovel. He worked less than two weeks. In September, he went to another physician for treatment. Then, and at the time of the trial of this case, the elbow was practically rigid. The damages claimed in this action were predicated on alleged negligence in the defendants' treatment, which, it was contended, resulted in the stiff joint. The trial resulted in a judgment in favor of the plaintiff for $5,091.60; which is affirmed.

The defendants argued that the evidence was insufficient to support the verdict for the plaintiff. It was asserted by the plaintiff and witnesses who testified in his behalf that, at the time he consulted the physicians originally, there was a large lump on his arm in such a position as to indicate that the elbow joint was injured. There was likewise evidence interpreting certain roentgenograms which were made soon after the injury, to the effect that a break near th lower end of the humerus was indicated. There was als a roentgenogram taken in September which clearly reveale a marked dislocation of the radius at the elbow joint. Th defendants contended that the roentgenograms taken soo after the injury revealed no injury to the elbow joint an no dislocation, that the plates did not show the lower en of the humerus sufficiently to determine the existence of fracture there, but that they did show the elbow joint plainl enough to indicate that the bones were in place. There wa also testimony by the defendants to the effect that the roentgenogram taken in September revealed that the ulna ha been rebroken at the point of the original break. The fluoroscopic examinations were likewise minutely described so a to demonstrate the impossibility of such an examination having been made without discovery of an injury or dislocation at the joint, if such existed. In short, the testimon was voluminous and conflicting in a number of respects but the court is satisfied that the verdict was amply supported by the evidence.

Furthermore, the court holds that a verdict for $5,000 i not so excessive as to indicate passion or prejudice on th part of the jury, when the injury resulting to the plaintiff i that of a stiff joint, which will be permanently rigid unles relieved by an operation, requiring the removal of a portio of a bone, and the expenditure of from four to eight months time for treatment, and of approximately $600 for professional services, after which the arm may be considerabl weakened permanently.

Validity of Contract Authorizing a Necropsy

(Kahn v. Metropolitan Casualty Ins. Co. (Mo.), 240 S. W. R. 793)

The Supreme Court of Missouri, in affirming a judgmen in favor of the plaintiff, on a policy of insurance, says tha the policy contained a provision that the company shoul have the right and opportunity to make a necropsy in cas of the death of the insured, when it was not forbidden b law. Still there was no merit in the contention that th company under the terms of the policy had the right to hol a necropsy on the body of the insured, for the reason tha it never notified any one interested that it desired to hol the same, and therefore there was no refusal of the company's right to exercise that privilege under the policy. Bu independent of that, the court seriously doubts the right o a person to make a valid contract binding any one to permi another to hold a necropsy on his body after death. Clearl it would not be binding on him, because he would be dea before the time of performance arrived; and it could no bind his heirs, executors, or administrators, because a contract which would be clearly personal in character woul die with the obligee; and, furthermore, the dead bodies o all persons are under the sole control, and subject to th exclusive disposition, of the state. The state provides fo necropsies and burials. If this was not true, the bodies o those who die of malignant or contagious diseases might b used by ignoble or designing persons to the great damag and injury to the public health.

Society Proceedings

COMING MEETINGS

American Physiological Society, Toronto, Canada, Dec. 28-30. D Chas. W. Greene, University of Missouri, Columbia, Secretary.
Isthmian Canal Zone, Medical Association of, Ancon, Dec. 15. D L. S. Chapman, Ancon, Secretary.
Philippine Islands Medical Association, Manila, Dec. 20-22, 1922. D I. Concepcion, College of Medicine and Surgery, Manila, Secretary.
Porto Rico, Medical Association of, Ponce, Dec. 15-17. Dr. Augusti R. Laugier, San Juan, Secretary.
Radiological Society of North America, Detroit, Mich., Dec. 4-8. D M. J. Sandborn, Appleton, Wis., Secretary.
Society of American Bacteriologists, Detroit, Dec. 27-29. Dr. A. Hitchens, Army Medical School, Washington, D. C., Secretary.
Southern Minnesota Medical Association, Mankato, Minn., Dec. 4-5. D H. T. McGuigan, Redwing, Secretary.
Southern Surgical Association, Memphis, Tenn., Dec. 12-14. Dr. H. Royster, Raleigh, N. C., Secretary.
Western Surgical Association, Minneapolis, Minn., Dec. 8-9. D Warren A. Dennis, Hamm Building, St. Paul, Secretary.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

October, 1922, **24**, No. 4

*Amount of Blood to be Transfused in Anemia of Children (Blood Dosage). T. Halbertsma, Haarlem, Holland.—p. 269.
*Diagnosis and Treatment of Intracranial Hemorrhage in New-Born. Report of Fourteen Treated Cases. D. Munro and R. S. Eustis, Boston.—p. 273.
*Congenital Deficiency of Diaphragm. J. S. Latta, Omaha.—p. 297.
*Experimental Pyloric Stenosis. I. H. Tumpeer and M. A. Bernstein, Chicago.—p. 306.
*Food Requirements of Children. V. Percentage Distribution of Calories. L. E. Holt and H. L. Fales, New York.—p. 311.
*Use of Radiant Heat—Light—in Treatment of Otitis Media. H. J. Gerstenberger and C. T. J. Dodge, Cleveland.—p. 320.
Infantile Rickets: Significance of Clinical, Radiographic and Chemical Examinations in Its Diagnosis and Incidence. A. F. Hess and L. J. Unger, New York.—p. 327.
*Failure of Yeast Therapy in Feeding of Infants. W. C. Davison, Baltimore.—p. 339.
Rabbit Hair Asthma in Children. Report of Cases. B. Ratner, New York.—p. 346.
*Diaphragmatic Hernia in New-Born: Report of Case. C. M. Davis, Cleveland.—p. 356.

Blood Transfusion in Anemic Infants.—In cases of simple anemia, Halbertsma has found that there exists a correlation between the amount of blood transfused, the body weight and the rise of red blood cells. A rise of one million corresponds with an amount of 15 c.c. of blood per kg. of body weight. This gives a method to estimate beforehand the amount of blood to be transfused, as shown in twenty cases from the Leiden pediatric clinic.

Intracranial Hemorrhage in New-Born.—Munro and Eustis propose that the following etiologic classification of cases of intracranial hemorrhage in the new-born be adopted: (*a*) Traumatic group; (*b*) "asphyxia" group; (*c*) fetal disease group. The diagnosis of intracranial hemorrhage in the new-born should be based on the following: (*a*) The history and physical examination; (*b*) the measurement of intracranial pressure by spinal manometer; (*c*) the determination of the coagulation and bleeding times. The treatment of intracranial hemorrhage in the new-born depends on (*a*) the successful etiologic classification of the case; (*b*) the recognition and measurement of the intracranial pressure. The treatment of intracranial hemorrhage, due to hemorrhagic disease, consists of the administration of normal whole blood subcutaneously until the bleeding and coagulation times have returned to normal, and then appropriate relief of the intracranial hypertension.

Congenital Deficiency of Diaphragm.—In the case cited by Latta there was almost total deficiency of the left side of the diaphragm. Associated with and doubtless as a result of this, there were found some other minor anomalies, the most evident of which was a misplacement of some of the abdominal viscera into the left pleural cavity. It was obvious that these misplaced viscera represented a spurious hernia, due to an arrest in development of the left side of the diaphragm, rather than a true hernia due to a lack of diaphragmatic muscular tonus or development, for these viscera were not enclosed in a hernial sac but lay free in the pleural cavity.

Experimental Pyloric Stenosis.—The anatomic condition of hypertrophic pyloric stenosis was imitated, by Tumpeer and Bernstein, by the production, by injecting paraffin, of an intramural tumor in the pyloric region in order to determine the effect of pure mechanical obstruction. The animals were observed as long as seven months. From the failure to produce obstructive symptoms despite marked anatomic obstruction the authors conclude that the clinical picture of hypertrophic pyloric stenosis is not due to the anatomic condition alone. This agrees with the clinical findings, in which the tumor is usually unilateral and rarely annular.

Percentage Distribution of Calories in Infants' Food.—Holt and Fales assert that a diet in which the fat supplies 35 per cent. of the total calories, the protein 15 per cent. and the carbohydrate 50 per cent., is one which meets the nutritive needs of the child after infancy, and is well borne by the digestive system, hence may be considered a well balanced ration.

Light in Treatment of Otitis Media.—Gerstenberger and Dodge are convinced that without question radiant heat in the form of light (quartz-mercury arc ultraviolet ray) is a therapeutic measure of great value, which will be found useful not only in the treatment of otitis media in its various forms but also in other conditions in which the therapeutic effectiveness of an active hyperemia is desired. This belief is based on clinical observation.

Value of Yeast in Infant Feeding.—If yeast has any real value in causing an infant to gain in weight, Davison asserts, it should be fed to patients convalescent from acute intestinal indigestion or to infants suffering from nutritional disturbances such as chronic intestinal indigestion (celiac disease) or to physically retarded children. Bakers' yeast in total amounts of one quarter or one half of a yeast cake per day was added to the diets of nine infants for periods of from eight to twenty-three days. This procedure was not only negative as to benefit but even harmful. Abdominal distension occurred in some of these patients, and their stools became more frequent.

Diaphragmatic Hernia in New-Born.—On the eighth day after birth the infant whose case is cited by Davis had two transitory attacks of slight cyanosis with rapid breathing for which examination revealed no cause. The following morning, shortly after nursing, he suddenly became intensely cyanotic, with rapid, dyspneic respiration, and lay limply in the dorsal position, with an appearance of impending exitus. The cyanosis was somewhat lessened by removing a rather snug abdominal band, and much more by holding the child in a vertical position, but recurred promptly when the child was laid down. After proper examination a diagnosis of left diaphragmatic hernia, due to congenital defect of the diaphragm, was made, and from the absence of vomiting or other gastro-intestinal symptoms it was thought that the stomach was not involved in the hernia and that there was no obstruction. This was confirmed by fluoroscopic and roentgenographic examination after an opaque meal, which showed the stomach to be normal in appearance and position while all of the intestine from the duodenum to the descending colon was above the diaphragm in the left chest and the heart was displaced into the right chest. Relief by postural treatment was marked and immediate. The parents refused to permit operation. Death occurred during the fourth week in the hospital, after rapid loss of weight in the third, with signs of bronchopneumonia. Permission for operation or for necropsy could not be obtained.

American Journal of Hygiene, Baltimore

September, 1922, **2**, No. 5

Mode of Action of Dyestuffs on Bactera. F. P. Gay and T. D. Beckwith, San Francisco.—p. 467.
*Intracutaneous Test for Virulence of Diphtheria Bacilli in Field Cultures. J. N. Force and M. I. Beattie, Berkeley, Calif.—p. 490.
*Relation Between Fatigue and Susceptibility of Guinea-Pigs to Infections of Type I Pneumococcus. E. E. Nicholls and R. A. Spaeth, Baltimore.—p. 527.
*Pathologic Effects of Diphtheria Toxin in Guinea-Pigs, with Special Reference to Lesion of Bowman's Capsule. I. W. Pritchett, Baltimore.—p. 536.
*Correlation Between Illiteracy and Mortality in American Cities. R. Pearl and M. L. Ilsley, Baltimore.—p. 587.

Intracutaneous Test for Virulence of Diphtheria Bacilli.—The literature on methods of performing virulence tests of *B. diphtheriae* and on the results of such tests is reviewed by Force and Beattie. A method for testing the virulence of *B. diphtheriae* by means of the intracutaneous inoculation of guinea-pigs with field cultures is described. Virulence tests, made by this method on cultures of *B. diphtheriae* from various sources, are compared with tests of the same cultures made by the subcutaneous method, described by Wayson. It is demonstrated that the intracutaneous virulence test with field cultures is less often influenced by contaminating organisms than the subcutaneous test with field cultures. It is further shown that the occasional difficulties of interpretation of the intracutaneous test, due to contaminating organisms, are negligible, when compared with the saving in time and animals made possible by the intracutaneous inoculation of field instead of pure cultures. The results of virulence tests made with field cultures from various sources are compared with the results of virulence tests with pure cultures from similar sources. The more extensive use of the virulence test in the administrative control of diphtheria is discussed, especially with reference to the prevention of loss of school time by children who may be carriers of avirulent diphtheria bacilli.

Relation Between Fatigue and Susceptibility to Infection.—Fatigue, artificially induced in white or pigmented guinea-pigs by forcing them to run in motor-driven drums, Nicholls and Spaeth found definitely increases the resistance of these pigs to lethal injections of Type I pneumococcus. This occurs whether fatigue precedes or follows the pneumococcal injections, but is distinctly more effective in the case of fatigue before injection.

Pathologic Effects of Diphtheria Toxin in Guinea-Pigs.—A brief account is given by Pritchett of some lesions frequently observed in the tissues of supposedly normal guinea-pigs. An account is given of the chief lesions hitherto described as characterizing experimental diphtheria intoxications, and an effort is made to correlate the more important lesions as observed in the guinea-pig with regard to the time required for their development. A lesion of Bowman's capsule is described, consisting of swelling and proliferation of the capsular cells, which in well marked cases assume almost the appearance of cuboidal epithelium, and in sections properly stained with eosin and methylene blue are distinctly basophilic. Some unsuccessful experiments are recorded in which an attempt was made to detect free toxin in the urine of guinea-pigs injected intravenously with large volumes of neutral, or nearly neutral, toxin-antitoxin. These experiments were performed in an effort to demonstrate in vivo the dissociation of toxin and antitoxin which is said to occur following the injection of such mixtures during the process of immunization. Unsuccessful experiments are also recorded in the absorption of diphtheria toxin in vitro by emulsions of guinea-pig and rat brain, kidney and subcutaneous tissue.

Correlation Between Illiteracy and Mortality.—The study made by Pearl and Ilsley as to the correlation of illiteracy with the death rate indicates that the percentage of illiteracy in an urban community in this country is a significant factor in influencing unfavorably the death rate of the community from all causes, and from certain particular causes, notably diarrhea and enteritis, pneumonia, diphtheria and measles. The typhoid fever, whooping cough and puerperal fever death rates are apparently not significantly correlated with percentage of illiteracy, for probably quite different reasons in the different cases. Furthermore, there is apparently no significant net correlation between the death rates from either tuberculosis of the lungs, or nephritis with percentage of illiteracy, presumably for the reason that in these diseases the innate constitution of the individual is an etiologic fact of great importance.

American Journal of Medical Sciences, Philadelphia

October, 1922, **164**, No. 4

*Clinical Observations on Block of Branches of Auriculoventricular Bundle. J. B. Herrick and F. M. Smith, Chicago.—p. 469.
Posttraumatic Calcification of Pancreas with Diabetes. H. G. Wells, Chicago.—p. 479.
*Quantitative Studies in Syphilis From Clinical and Biologic Point of View. J. A. Fordyce, I. Rosen and C. N. Myers, New York.—p. 492.
*Wassermann Reaction in Nonsyphilitic Cases. T. McKean Downs, Philadelphia.—p. 514.
*Comparison of Sachs-Georgi and Wassermann Reactions in Serologic Diagnosis of Syphilis. R. A. Kilduffe, Pittsburgh.—p. 523.
*Treatment of Syphilis Among the Insane. T. B. Christian, New Jersey.—p. 529.
*Roentgen-Ray Diagnosis of Tuberculous Cervical Lymph Glands. J. M. Hanford, New York.—p. 539.
*Three Cases of Leukemia in One Family. C. W. McGavran, Columbus, Ohio.—p. 545.
Clinical Significance of Total and Differential Leukocyte Counts, with Special Reference to Acute Infections. W. C. Jones, Birmingham, Ala., and C. E. Brown, Birmingham, Ala.—p. 553.
Surgery of Thoracic Tumors. A. O. Wilensky, New York.—p. 573.
Diagnosis and Treatment of Amebic Colitis. A. C. Reed, San Francisco.—p. 587.

Block of Branches of Auriculoventricular Bundle.—Herrick and Smith detail the results of their clinical observations of thirty-five patients in each of whom the probably diagnosis of bundle branch block was made from the electrocardiogram. The electrocardiographic findings probably indicate a block of one main branch, or the majority of the subdivisions of one main branch, of the auriculoventricular bundle. The Q R S groups were atypical in the three leads and exceeded 0.1 second in duration. In many the duration approached 0.15 second. The *T* wave assumed the direction opposite to that of the prevailing ventricular deflection. In thirty-two cases the prevailing ventricular deflection was positive in Lead I and negative in Lead II and the duration of the Q R S was prolonged and in many instances approached 0.15 second duration. These electrocardiograms probably represent defects of the right branch. In three cases there was an *S* wave in Lead I and an *R* wave in Lead III. In these cases the location of the probable lesion of the conduction system is uncertain. In some instances there was a change in the form of the Q R S group which was coincident with the clinical improvement of the patients. In three cases there was an increase in the amplitude of the chief ventricular deflections. In one case the atypical Q R S groups disappeared except for a slight increase in duration of the *S* wave in Lead III. All of these patients had symptoms of myocardial weakness. In seventeen, or 48.5 per cent., there were clinical manifestations of advanced cardiac disease. In nearly all instances the cardiac weakness seemed to be due to a slow degenerative change in the myocardium secondary to arteriosclerosis. Twelve, or 57.1 per cent., of the twenty-one patients the authors were able to follow died within eighteen months. Ten died from cardiac failure. Necropsies were done in three cases. In two cases there was an extensive sclerosis of the coronary arteries and marked myocardial fibrosis. In the other case the anatomic diagnosis was obliterative pericarditis—huge dilatation and hypertrophy of the right auricle and ventricle, moderate hypertrophy of the left ventricle, myocardial fibrosis and cirrhosis of the liver.

Quantitative Studies in Syphilis.—Fordyce et al. cite the case of a previously healthy young man who fell from a wagon and was probably run over by at least one of the wheels. He sustained fractures of several ribs on the left side, traumatic infraction of the left suprarenal, the upper pole of the spleen and the entire left kidney, together with a crushing injury of the pancreas, which resulted in almost complete destruction of the secreting elements, which were replaced by a large quantity of dense fibrous tissue and extensive deposits of calcium salts. Analysis showed that about 64 per cent. of the dry weight of the pancreas consisted of inorganic salts, chiefly calcium carbonate. Jacksonian epilepsy developed, the result of necrosis of a considerable area of the cerebral cortex, presumably occurring at the same time as the other injuries. The patient became rapidly emaciated, exhibited great thirst and the urine found in the bladder at the necropsy contained sugar. A review of the literature has failed to reveal a similar case of extensive pancreatic calcification, whether posttraumatic or otherwise, or an analoguous case of diabetes following crushing injury of the pancreas.

Wassermann Reaction in Nonsyphilitic Cases. — Downs states that the Wassermann reaction is invariably positive at some time during the course of syphilis, if properly performed and at sufficiently frequent intervals, but is rarely positive in nonsyphilitic diseases. It is unusual for it to be positive in malaria. If positive, it is only weakly so while the fever is rising, becoming negative between paroxysms. It is rarely positive in tuberculosis, and when positive the reaction is weak or doubtful (not diagnostic of syphilis in the absence of history or signs). Downs has found the reaction positive only in far advanced cases shortly before death. It is not positive in cases of uncomplicated hyperthyroidism. These statements are based on personal study of cases.

Comparison of Sachs-Georgi and Wassermann Reactions.—The results of 430 parallel Wassermann and Sachs-Georgi reactions are reported by Kilduffe and coordinated with a series of 296 tests previously reported. He states that diagnosis of syphilis, or conclusions as to the results of treatment, cannot be based on the results of a Sachs-Georgi reaction with safety, and the reaction does not seem suitable for general use for this purpose.

Treatment of Syphilis in Insane.—In Christian's experience most cases of latent syphilis are not cured, but arrest in the development of the disease and comfort to the patient result in a number of cases. The cases which show signs of improvement from a serologic standpoint can only be determined by treating and examining the blood. Christian's results obtained from treating the syphilitic insane have more than compensated for the time spent and expense incurred. In cases of general paralysis no results were obtained. Among 1,500 cases examined for syphilis 12.5 per cent. showed positive Wassermanns, and from this number of positive cases 26.2 per cent. showed signs of neurosyphilis: 17.6 per cent. being cases of general paralysis and 8.6 per cent. other forms of neurosyphilis. Christian emphasizes the tremendous importance of the early discovery and proper treatment of syphilis and the examination of spinal fluids, and thus to lessen the number of incurable latent syphilis and neurosyphilitics.

Roentgen-Ray Diagnosis of Tuberculous Lymph Nodes.—Calcification in tuberculous cervical lymph glands is not rare. The series of forty cases discussed by Hanford indicates that calcification occurs in 52.5 per cent. of such patients over 5 years of age. A positive diagnosis of tuberculous cervical glands, abscesses and sinuses may be made so frequently by a small roentgenogram, studied with the clinical picture, as to render the roentgen ray worth a trial before subjecting the patient to a biopsy.

Three Cases of Leukemia in One Family.—Of the three cases reported by McGavran one case was of the myelogenous type and two cases were of the lymphatic type. The patients were males. In addition to the leukemia there were in this family three cases of epilepsy, two known deaths from from tuberculosis, a case of apoplexy and several deaths from heart disease.

Archives of Occupational Therapy, Baltimore

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Work for Tuberculous During and After Cure. T. B. Kidner.—p. 363.
How Needs Have Controlled Selection of Crafts. L. J. Haas, New York.—p. 377.
Suggestion for Classification of Occupations in Occupational Therapy. M. M. Atwater, Seattle.—p. 389.
Review of Occupation Therapy as Applied to Mental Cases. E. C. Pratt.—p. 395.
Educational Possibilities of Occupational Therapy in State Hospitals. W. R. Dunton, Jr.—p. 403.
Tony's Awakening—Occupational Therapy Did It. H. A. Robeson.—p. 411.
Occupational Therapy for Deteriorated Male Patients. C. F. Read, Chicago.—p. 415.

Boston Medical and Surgical Journal

Nov. 2, 1922, **187**, No. 18

Physician and Surgeon. H. Cushing, Boston.—p. 623.
Principles to Follow in Building Children's Wards and Wards for Contagious Diseases. D. L. Richardson, Providence, R. I.—p. 630.
*Specific Sore Throat Which Passed as an Ordinary Pharyngitis and Tonsillitis; Treatment Gave no Relief. D. B. Medalia, Boston.—p. 637.
Case of Intussusception. P. J. Finnegan, Salem, Mass.—p. 638.
Two Headed Calf. E. B. Benedict, Boston.—p. 639.
Unusual Relation of Styloid Processes of Radius and Ulna. G. T. Tyler, Jr., Greenville, S. C.—p. 640.

Specific Sore Throat.—Medalia believes it is important to take a blood test in cases of persisting sore throats accompanied by ulcerations, and which do not clear up under ordinary treatments.

Georgia Medical Association Journal, Atlanta

October, 1922, **11**, No. 10

Diagnosis and Treatment of Tumors of Breast. J. L. Campbell, Atlanta.—p. 385.
Tumors of Breasts. G. R. White, Savannah.—p. 388.
Surgical Facts Gleaned from Personal Experience. H. S. Munroe, Columbus.—p. 392.
Surgical Kidneys: Report of Cases. J. P. Proctor, Athens.—p. 394.
Report of Trachoma Clinic Conducted at Pelham, Ga., Nov. 14, 1921, to April 1, 1922. J. McMullen, U. S. P. H. S.—p. 398.
Gunshot Wounds in General Practice: Report of Cases. A. K. Bell and J. H. Nicholson, Madison.—p. 401.
Progress of Medicine in Last Generation. H. R. Slack, LaGrange.—p. 405.
Vernal Conjunctivitis. B. H. Minchew, Waycross.—p. 407.
Importance of Careful Study of Etiology in Inflammatory Conditions of Eye. W. H. Cabaniss, Athens.—p. 409.
Enteroptotic Abdomen; Developmental Factors and Treatment. J. B. Fitts, Atlanta.—p. 413.
Surgery of Acutely Inflamed Gallbladder. W. S. Selman, Atlanta.—p. 417.

Journal of Biological Chemistry, Baltimore

October, 1922, **54**, No. 2

*System of Blood Analysis. Revision of Method for Determining Uric Acid. O. Folin, Boston.—p. 153.
*Colorimetric Estimation of Cystin in Urine. J. M. Looney, Boston.—p. 171.
*Proteolytic Enzymes of Spleen. S. G. Hedin, Upsala, Sweden.—p. 177.
*Experimental Rickets in Rats. IX. Distribution of Phosphorus and Calcium Between Skeleton and Soft Parts of Rats on Rachitic and Nonrachitic Diets. G. F. McCann and M. Barnett, New York.—p. 203.
Tryptophane Content of Some Proteins. C. E. May and E. R. Rose, Bloomington, Ind.—p. 213.
*Yeast as Source of Vitamin B for Growth of Rats. C. Kennedy and L. S. Palmer, St. Paul.—p. 217.
Determination of Uric Acid. S. R. Benedict, New York.—p. 233.
*Method for Purification of Picric Acid for Creatinin Determinations. S. R. Benedict, New York.—p. 239.
Synthesis of Water-Soluble B by Yeast Grown in Solutions of Purified Nutrients. M. B. MacDonald, Baltimore.—p. 243.
Studies on Experimental Rickets. XXIII. Production of Rickets in Rats by Diets Consisting Essentially of Purified Food Substances. E. V. McCollum, N. Simmonds, J. E. Becker and P. G. Shipley, Baltimore.—p. 249.
Strophanthin. I. Strophanthidin. W. A. Jacobs and M. Heidelberger, Baltimore.—p. 253.
*Determination of Titratable Alkali of Blood. I. Greenwald and G. Lewman, New York.—p. 263.
*Supposed Relation Between Alkalosis and Tetany. I. Greenwald, New York.—p. 285.
Evaluation of Buffers of Blood. E. A. Doisy, A. P. Briggs, E. P. Eaton and W. H. Chambers, St. Louis.—p. 305.
Is Asphyxia Cause of Drug Hyperglycemias? A. L. Tatum and A. J. Atkinson, Chicago.—p. 331.
Oxidation of Tertiary Hydrocarbons. P. A. Levene and F. A. Taylor, New York.—p. 351.
*Studies in Inorganic Metabolism. I. Interrelations Between Calcium and Magnesium Metabolism. L. J. Bogert and E. J. McKittrick, Manhattan, Kan.—p. 363.
*Studies in Inorganic Metabolism. II. Effects of Acid Forming and Base Forming Diets on Calcium Metabolism. L. J. Bogert and E. E. Kirkpatrick, Manhattan, Kan.—p. 375.
*Id. III. Influence of Yeast and Butter Fat on Calcium Assimilation. L. J. Bogert and R. K. Trail, Manhattan, Kan.—p. 387.
Antiketogenesis. IV. Ketogenic-Antiketogenic Balance in Man and Its Significance in Diabetes. P. A. Shaffer, St. Louis.—p. 399.
*Estimation of Formic Acid in Urine. E. M. Benedict and G. A. Harrop, Baltimore.—p. 443.
Comparative Toxicity of Ammonium Salts. F. P. Underhill and R. Kapsinow, New Haven, Conn.—p. 451.
*Influence of Water Introduction on Blood Concentration Induced by Water Deprivation. F. P. Underhill and R. Kapsinow, New Haven, Conn.—p. 459.
Excretion of Acid and Ammonia. R. S. Hubbard and S. A. Munford, Clifton Springs, N. Y.—p. 465.
Studies of Gas and Electrolyte Equilibria in Blood. III. Alkali-Binding and Buffer Values of Oxyhemoglobin and Reduced Hemoglobin. D. D. Van Slyke, A. B. Hastings, M. Heidelberger and J. M. Neill, New York.—p. 481.
Studies of Gas and Electrolyte Equilibria in Blood. IV. Effect of Oxygenation and Reduction on Bicarbonate Content and Buffer Value of Blood. D. D. Van Slyke, A. B. Hasting and J. M. Neill, New York.—p. 507.

New Method for Determining Uric Acid.—A method of the direct determination of uric acid in the blood filtrates from tungstic acid precipitation is described by Folin. He asserts that the results are dependable when applied to human blood. The values obtained are usually 0.1 or 0.2 mg. above those obtained by the silver precipitation and sodium chlorid extraction.

Colorimetric Estimation of Cystin in Urine.—Looney describes an application of the method for the colorimetric estimation of cystin recently advanced to the quantitative determination of cystin in urine. The process depends on the fact that cystin reacts with phosphotungstic acid in the presence of sodium sulphite to give a deep blue color. Cystin alone, without the addition of sodium sulphite, does not give any color with the reagent.

Proteolytic Enzymes of Spleen.—Hedin asserts that the spleen contains at least three different enzymes: (1) *a*-protease, acting on the spleen substance and on casein in an alkaline medium (p_H 8.8); (2) *b*-protease acting on the spleen substance and on casein in a weekly acid medium (p_H about 5.4); and (3) erepsin not acting on casein but having its most powerful action on Witte's peptone at p_H 7.5 to 8.5.

Calcium and Phosphorus Content of Tissues of Rats with Rickets.—Rats were given the experimental diets at the age of 4 weeks. The diets were continued for twenty-eight or thirty days. Roentgenograms were then made and the rats killed by etherization. The soft tissues and the bones were examined separately for calcium and phosphorus content. In the case of the rachitic rats it was reduced. This reduction was the same whether the rickets had been produced by a diet poor in phosphorus and rich in calcium or by one poor in calcium and rich in phosphorus. In rachitic rats, the bones may contain a smaller percentage of the total phosphorus than is found in normal rats. This difference is not marked—except where fair growth has occurred. When rickets is prevented from developing in rats given a diet poor in phosphorus but rich in calcium by administration of cod liver oil or by exposure to light, the total phosphorus and calcium content per hundred gm. of body weight is well within the normal range.

Yeast as Source of Vitamin B.—For several years it has been generally considered that yeast is a very rich source of vitamin B. The potency of yeast as a source of vitamin B has apparently never been questioned. The results obtained by Kennedy and Palmer do not support this belief. The failure of the rats to reproduce normally and rear their young is one of the strongest arguments against the use of yeast as a source of vitamin B. Yeasts from different sources were fed to experimental animals to ascertain if all yeasts were equally potent sources of vitamin B. Two methods of feeding the yeasts were employed. In one, the yeast was mixed in a purified ration which was adequate as to all its constituents except vitamin B. In the other, the yeast was fed separately in the form of a pellet. The last method proved to be the most satisfactory. The rats were kept under conditions favorable for reproduction, but only in a very few instances were young produced and these were never reared. A comparison is shown between the amount of unknown nitrogen added to the ration when an adequate amount of vitamin B is fed in the form of yeast and wheat embryo extract. A discussion of the probable reason for the failure of yeast as a source of vitamin B is given.

New Method of Purifying Picric Acid.—Benedict advocates crystallization from benzene as being a very satisfactory method for the purification of picric acid for creatinin determination.

Determination of Titratable Alkali in Blood.—A method based on a new principle, for the determination of the titratable alkali of the blood is described by Greenwald and Lewman. The results are unaffected by the presence of small amounts of oxolate or by the degree of saturation of the blood with oxygen or with carbon dioxid. Several indicators may be used in the same sample. By a suitable choice of indicators, the value of the "acid-soluble" buffers may be determined.

Relation Between Alkalosis and Tetany.—After intravenous injection of sodium carbonate or sodium bicarbonate into dogs, Greenwald states, there is a retention of carbon dioxid which is so great that the reaction of the blood is changed only slightly. Such change as does occur, may be produced with comparatively small doses. If the injection is made sufficiently slowly to avoid apnea but is continued for a sufficiently long period, convulsions appear. Coincidently, the sodium bicarbonate content and the alkalinity of the blood begin to diminish and this process continues so that, before death occurs, both may be less than normal. The change is due, in part, to the increased production of lactic acid. There is some evidence of the formation of some other nonvolatile acid. The production of lactic acid appears to be increased before convulsions appear but it is enormously accelerated thereby. At the time convulsions appear, the concentration of sodium in the plasma is the same as was observed after the injection of other sodium salts (chlorid, sulphate, phosphate). The convulsions are ascribed to "sodium poisoning," a disturbance, due to an excess of sodium, of the normal equilibrium between sodium and other ions. The evidence in favor of a relation between alkalosis and the tetany of parathyroidectomized dogs, gastric tetany, and the tetany of hyperpnea is examined. It is shown that only in the last named is there any indication of a change in the reaction of the blood and that, even in this case, it is not the alkalosis per se, but the tissue anoxemia that results from the increased stability of the oxyhemoglobin, that is the exciting factor.

Interrelation Between Calcium and Magnesium Metabolism.—Experiments were conducted by Bogert and McKittrick to ascertain whether an increased intake of calcium would affect the urinary and fecal excretion of magnesium and vice versa thus showing interrelations between the metabolism of these two elements. They found that the addition of 6 gm. of magnesium citrate per day to the experimental diet increased the urinary and fecal magnesium in all cases. The added magnesium also increased the urinary and fecal calcium in three out of four cases, and the total calcium excretion in all four cases. The addition of 6 gm. of calcium lactate per day to the experimental diet lead to decided increases in both urinary and fecal calcium in all four cases. It seemed to result in increased urinary magnesium in two instances and in a slightly increased fecal and total magnesium output in all four subjects, although possible after effects of the magnesium citrate taken in Period II make it impossible to draw definite conclusions as to the influence of the calcium lactate on magnesium metabolism.

Effect of Diet on Calcium Metabolism.—The base forming diets given by Bogert and Kirkpatrick resulted, in every case, in a decided diminution in urinary calcium, while the acid forming diets caused a marked increase in urinary calcium in three out of four subjects. The amounts of calcium excreted in the urine on the acid forming diets were from two to three times greater than the amounts excreted on the base forming diets in every instance. The percentage of total calcium output eliminated through the urine was noticeably decreased on the base forming diets and increased on the acid forming diet, while the percentage of calcium excreted by way of the feces was increased on the base forming diets and decreased on the acid forming diets, showing the tendency of the base forming diets to divert calcium from the urine to the feces, and of the acid forming diets to increase urinary calcium at the expense of fecal calcium. Three out of the four subjects showed a noticeable increase in total calcium excretion and two showed increased negative calcium balances, not to be accounted for by calcium deficiency in the diets, during the period in which the acid forming diets were consumed. The total calcium excretion during the period of the base forming diet was lower than in the preceding period in three subjects, and about the same in the fourth. In two instances, the negative calcium balance was diminished on the base forming diet, while in two instances, it was increased. The facts stated tend to indicate that calcium is retained somewhat more readily on a basic diet than on balanced or acid forming diets, while calcium excretion is greater on an acid forming diet than on balanced or base forming diets.

Influence of Yeast and Butter Fat on Calcium Assimilation.—The addition of yeast to a basal diet, practically free from vitamins, Bogert and Trail noted, led to lowered excretion of calcium in normal women. The substitution of an equal weight of purified butter fat for purified fat from nut margarine in the "vitamin-free" diet also resulted in decreased calcium elimination. These facts suggest some influence of the vitamin content of the diet on calcium assimilation.

Estimation of Formic Acid in Urine.—An improved and simplified method for the estimation of formic acid in urine is described by Benedict and Harrop. No increase in the excretion of formic acid has been found during the acidosis due to diabetes, and in that due to starvation. The formic acid excretion and its relation to the total organic acid excretion are presented from an experiment in the production of acute methyl alcohol poisoning.

Water Ingestion and Blood Concentration.—Short intervals of water deprivation significantly increase the blood concenration of dogs. Water introduction in animals with con-entrated blood produces a return of blood concentration to point approximating the normal. These observations, by nderhill and Kapsinow, indicate the type of therapy ade-uate in conditions associated with concentrated blood and end support to the therapy advocated previously by Under-ill in war gas poisoning and in certain types of influenza.

Journal of Laboratory and Clinical Medicine, St. Louis

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Temporary Disturbances Due to Local Anesthetics. E. L. Ross, Chicago. —p. 1.
Reticulosis: Increased Percentage of Reticulated Erythrocytes in Peripheral Blood. E. B. Krumbhaar, Philadelphia.—p. 11.
Blood Sugar and Alleged Glycosuria Following Operative Procedures on Thoracic Duct. C. S. Williamson, Rochester, Minn.—p. 19.
Pharmacologic Action of Isopropylethyl-Barbituric Acid. D. E. Jackson, Cincinnati.—p. 23.
Effect of Warm and Cold Weather on Blood Catalase. W. E. Burge and J. M. Leichsenring, Chicago.—p. 33.
Studies on Gastric and Duodenal Ulcer: Relation of Epigastric Hernia to Gastric Ulcer J. Meyer and A. C. Ivy, Chicago.—p. 37.
Relation of Fibrosis and Hyalinization to Longevity in Cancer: Study of 194 Cases. W. C. MacCarty, Rochester, Minn.—p. 42.
Simple Technic for Preparation of Spinal (Headless) Animal. R. A. Cutting, Chicago.—p. 44.
Artifacts in Blood Culture Plates Simulating Colonies. W. Thalhimer, Milwaukee.—p. 46.
Preservation of Complement Serum with 25 Per Cent. Sodium Chlorid Solution. M. W. Lyon, Jr., and V. B. Trager, South Bend, Ind.—p. 48.
Gasometric Method for Determination of Urea Nitrogen in Blood. A. Mirkin, New York.—p. 50.
Substitute for Long Roll Kymograph. F. P. Chillingworth, Boston.—p. 52.
Practical Value of Ice-Water Bath for Use in Complement-Fixation Test for Syphilis. H. V. Langworthy and E. J. Kerley, Albany, N. Y.—p. 54.
Automatic Distributing Apparatus. L. H. Cornwall and G. P. Schmitt, New York.—p. 56.
Continuous Water Still for Bacteriological Laboratory. M. L. Cooper, Chicago.—p. 58.
Class Demonstration of Intestinal Activity. A. E. Guenther and H. C. Lawson, Omaha.—p. 60.
Barbital as an Anesthetic for Dogs. A. L. Tatum and E. Parsons, Chicago.—p. 64.

Temporary Disturbances Due to Local Anesthetics.—Ross ndeavored to determine the changes taking place in the espiratory and circulatory systems when the commonly used ocal anesthetics were applied to animals by the same method ised in medical practice. Epinephrin, cocain and procain vere used. It was shown that submucous injections of epine-hrin and cocain bring on systemic reactions similar to those roduced by intravenous injections of the drug. They are apable of causing enormous increases in arterial and venous ressures. The intracranial venous pressure was increased elatively twice as much as the arterial pressure. Cocain nd epinephrin, when injected submucously, act strongly ynergistically.

Reticulosis in Erythrocytes.—Erythrocytes revealing a more r less extensive reticulum (granulo-filamentous substance) y the methods of vital staining, Krumbhaar says, may be onveniently designated "reticulocytes." The reticulum is robably of protoplasmic origin, and indicates an inter- iediate stage between the erythroblast and the adult rythrocyte. A simple method for their recognition and esti- iation is described. The greater delicacy of the tests for iese cells and the greater constancy and delicacy of their ariations in the peripheral blood, makes them more valuable riteria of the functional activity of the bone marrow than ie study of polychromatophilia or nucleated forms. In the lood of dogs made plethoric by repeated transfusions of lood, the reticulocytes diminished or disappeared entirely uring the plethoric stage. With the occurrence of a hemo- tic anemia, a reticulosis occurred, which in one instance ached 81 per cent. The average percentage of reticulo- tes and their normal range in man and the common labora- ry animals is given. The average curve of reticulosis uring infancy is given, and the variations occurring in isease discussed.

Blood Sugar Percentage After Operations on Thoracic uct.—Practically no changes in the blood sugar level were served by Williamson following operative procedures on the oracic duct (thoracic duct ligation or thoracic duct fistula). lycosuria did not develop in any of the animals used.

Relation of Epigastric Hernia to Gastric Ulcer.—Meyer and Ivy were unable to demonstrate experimentally in dogs that epigastric hernia with omentocele is a causative factor of gastric ulcer. They suggest that the tendency to a local pocket formation in the wall of the stomach brought about by the "tugging" of the omentocele may be an etiologic factor of gastric ulcer in man. They prefer to believe that concomitant gastric ulcer and epigastric hernia in man is coincident and not that the hernia has a direct etiologic relationship to the ulcer. Epigastric hernia does not cause hyperacidity, as the gastric findings in such cases are within the normal variation.

Michigan State Medical Society Journal, Grand Rapids

November, 1922, **21**, No. 11

Management of Cardiorenal Case. M. A. Mortensen, Battle Creek.—p. 449.
Responsibility of General Practitioner to Pharmacopeia. C. W. Edmunds, Ann Arbor.—p. 452.
Nitrous Oxid-Oxygen Anesthesia in Major Surgery. A. W. Blain, Detroit—p. 456.
Medical Management Following Gastro-Intestinal Surgery. I. W. Greene, Ann Arbor.—p. 459.
Lateral Sinus Thrombosis. D. M. Campbell, Detroit.—p. 462.
Conservation of Sac in Dachryocystitis. C. H. Baker, Bay City.—p. 467.

Military Surgeon, Washington, D. C.

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Usher Parsons (1788-1868), Surgeon, United States Navy. F. L. Pleadwell.—p. 351.
Military Marksmanship in Relation to Color of Eyes, Race and Other Factors. W. P. Chamberlain and A. G. Love.—p. 395.
Fate of Intra-Ocular Foreign Body. H. S. Gradle.—p. 411.
Two Cases of Spina Bifida Occurring at Fort Benning, Georgia. H. S. Hansell.—p. 415.
Conditions in Poland, 1919-1920. C. Halliday.—p. 418.
Survey of Calcium Hypochlorite (Bleaching Powder) Tubes for Use with Lyster Water Bag. C. B. Wood.—p. 444.

New Orleans Medical and Surgical Journal

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Carcinoma of Cervix. B. C. Garrett, Shreveport.—p. 165.
Toxemia of Late Pregnancy. G. M. G. Stafford, Alexandria.—p. 171.
Unusual Cases Showing Diagnostic Value of Roentgen-Ray. L. J. Williams, Baton Rouge.—p. 177.
Prevention of Otitis Media and Sinusitis in Acute Coryza and Influenza. M. P. Boebinger, New Orleans.—p. 185.
Late Treatment of Fractures of Long Bones of Lower Extremity. J. T. O'Ferrall, New Orleans.—p. 194.

Northwest Medicine, Seattle

October, 1922, **21**, No. 10

General Septic Peritonitis and Its Treatment. A. C. Behle, Salt Lake City, Utah.—p. 361.
Epidermophyton Infection of Skin. J. Butler, Minneapolis.—p. 366.
Abdominal Signs and Symptoms of Thoracic Disease. H. Brooks, New York.—p. 371.
Traumatic Neurosis. G. A. Cathey, Portland, Ore.—p. 375.
Only One Medical Profession. A. Sawins, Spokane, Wash.—p. 377.
Medical Problems and Foreign Trade. R. E. Logsdon, Portland, Ore. —p. 379.

Oklahoma State Medical Association Journal, Muskogee

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Differential Diagnosis of Cardiac Arrhythmia Without Use of Electrocardiograph. W. A. Lackey, Oklahoma City.—p. 287.
Mitral Stenosis. L. D. Conn, Morris.—p. 290.
Chemical and Microscopic Diagnosis for General Practitioner. F. T. Gastineau, Pawnee.—p. 295.
Important Factors in Kidney Surgery. J. H. Sanford, St. Louis.—p. 301.
Home Management of Occipitoposterior Position. C. V. Rice, Muskogee. —p. 304.
Use of Hypertonic Salt Solution in Treatment of Lethargic Encephalitis. W. W. Rucks.—p. 308.

Philippine Journal of Science, Manila

July, 1922, **21**, No. 1

Manufacture of Certain Drugs for Treatment of Leprosy. G. A. Perkins.—p. 1.
Manufacture of Industrial Alcohol, and Alcohol Motor Fuel in Philippine Islands. H. I. Cole.—p. 17.
Use of Sulphur Fumes in Copra Drying. A. H. Wells and G. A. Perkins.—p. 49.
Hispines of Old World. V. J. Weise.—p. 57.
Merrillosphaera, New Genus of Volvocaceae. W. R. Shaw.—p. 87.

South Carolina Medical Association Journal, Greenville

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Gallbladder Disease. A. J. Buist, Charleston.—p. 281.
Malaria in Childhood. R. M. Pollitzer, Charleston.—p. 285.
Importance of Certain Mastoid and Lateral Sinus Infections Often Mistaken for Commoner General Infections. J. W. Jervey, Greenville.—p. 290.
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Cancer from Viewpoint of Pathologist. H. H. Plowden, Charleston.—p. 301.
Hematogenous Infection in Trichophytia. J. R. Allison, Columbia.—p. 304.
Advances in Surgery of Kidney. M. Weinberg, Sumter.—p. 305.
That Scrawny School Child. W. P. Cornell, Columbia.—p. 306.
Osteomyelitis. S. O. Black, Spartanburg.—p. 308.
Roentgen-Ray Examination of Mastoids. F. D. Rodgers, Columbia.—p. 309.
More County Health Departments Needed in South Carolina. L. Banov, Charleston.—p. 310.
Senile Psychosis. B. O. Whitten, Clinton.—p. 312.

Tennessee State Medical Association Journal, Nashville

October, 1922, **15**, No. 5

Principles of Prognosis in Pulmonary Tuberculosis. W. H. Witt, Nashville.—p. 255.
Why Pulmonary Tuberculosis is Not Easily Recognized. W. A. Oughterson, Nashville.—p. 258.
*Congenital Abscence of Rectum with Communicating Sinus Between Bowel and Urinary Tract. O. S. McCown, Memphis.—p. 262.
Physiology of Menstruation. J. F. Gallagher, Nashville.—p. 264.
Radium in Treatment of Menorrhagia and Metrorrhagia, Case Reports. E. T. Newell, Chattanooga.—p. 266.
Acute Mechanical Intestinal Obstruction. R. Caldwell, Nashville.—p. 270.
Treatment of Acute Intestinal Obstruction. L. L. Sheddan, Knoxville.—p. 272.
*Abdominal Pregnancy at Term. H. L. Fancher, Chattanooga.—p. 279.
After Cataract. H. Wood, Nashville.—p. 285.
Foreign Bodies in External Auditory Canal. E. D. Watkins, Memphis.—p. 289.
*Report of Autotransfusion. M. B. Davis, Nashville.—p. 292.

Congenital Absence of Rectum; Sinus Between Intestine and Urethra.—McCown records the case of a male child who on the second day after its birth discharged meconium through the penis. The child was also vomiting. The meconium was discharged independently of the urinary function, which was apparently normal. Examination of the permineum showed a complete absence of the anus. There was no dimple where the anus should have been, and no bulging. A perineal operation was done under ether anesthesia, when the child was forty-eight hours old. No rectal pouch was found. The incision was carried up along the sacral curve to a point slightly below the sacral promontory. Here a soft bulging mass was found. The distance from the skin to this mass was two inches. An aspirating needle was pushed into the mass and meconium aspirated. As much of the contained meconium as possible was evacuated. The bowel was then incised at this point of puncture, and the edges of this incision brought down and sutured to the skin edges of the perineal incision. Nothing was seen of the communicating sinus during the operation. When the child was 9 months old, the anal constriction was so great that McCown cut through the surrounding ring of tissue. There has been little tendency to contract since this was done. The anus has not been dilated in ten months and the opening is not contracting. The child has perfect control. When the child was 27 months of age, a roentgen-ray examination was made. The barium showed the lowest part of the bowel to be almost on a level with the sacral promontory; leaving an inch or more of space between the anal margin and the lowest part of the barium shadow. The examining finger showed that the canal was enlarged between the barium mixture in the bowel and the anal opening. Evidently, there was an entire absence of the rectum, and the sphincter present was only an exaggeration of the normal sphincter muscle which is usually present in some degree at the rectosigmoid juncture.

Abdominal Pregnancy at Term.—Fancher's patient had the usual symptoms of a normal pregnancy and felt movement four and one-half months after last menstruation. From this time on she complained of feeling peculiar and at times would feel faint with rapid heart action. Fetal movements were very pronounced and different from those experienced with former pregnancies. Her breasts filled up and the abdomen became very large, with the greatest enlargement on the right side. At about the time for her delivery, the fetal movements were very active. She never felt any movements after that time. About two weeks later she noticed that her abdomen was smaller and that her breasts, which for a month had been flowing milk, were becoming flabby. She began to have a flow which at times was bright blood and at times was dark and tarry. Sometimes the flow would seem almost like water and an occasional piece of membrane would pass. Up to this time, nine and one-half months from the date of the last menstruation, she had never had a pelvic or abdominal pain and at no time was there any flow from the uterus. Fancher operated. After entering the abdominal cavity a thin membrane was encountered which was incised. Quite a quantity of cloudy, straw colored fluid escaped and a perfectly formed 16 pound fetus was delivered. The bones of the cranium were loose and epithelium was exfoliating. A large placental mass, about 1 inch thick and 12 inches in diameter, was encountered completely enclosed within membranes which were adherent to the sigmoid, the colon, the small intestines and the uterus. Adherent to and extending to the top of this mass was an elongated appendix. The right tube and ovary could not be isolated. Numerous blood vessels of varying size, some as large as a lead pencil, were branching out over this mass from its lower posterior attachments. There was no sign of past hemorrhage in the abdomen or placenta.

Case of Autotransfusion.—Davis' patient sustained a bullet wound at the level of the eighth rib on the left side, 3 or 4 inches from the median line. On opening the peritoneum a large quantity of blood gushed out. The whole peritoneal cavity was apparently filled with blood. This was mopped up with dry abdominal pads and these were then squeezed into a sterile basin into which previously had been placed some citrate solution. More than 600 c.c. of nonclotted blood was obtained in this manner. There was a punctured wound of the spleen which had apparently stopped bleeding probably due to the low blood pressure. The blood that had been recovered from the peritoneal cavity was strained through five or six layers of gauze, saturated in citrate solution, and 600 c.c. was injected into the median basilic vein. Twelve hours after operation the pulse was 82; temperature, 99 F., and for seven days pulse and temperature were virtually normal. On the seventh day following the operation, the wound opened spontaneously. It was resutured. On the ninth day signs of bronchopneumonia on both sides appeared and the man died on the tenth day.

Wisconsin Medical Journal, Milwaukee

October, 1922, **21**, No. 5

Symptomatology and Diagnosis of Renal Tuberculosis. J. C. Sargent, Milwaukee.—p. 172.
Treatment of Empyema. J. B. MacLaren, Appleton.—p. 178.
*Goiter. Reports of Examination of 1,425 Students. J. G. Taylor, Milwaukee.—p. 181.

Incidence of Goiter Among Students.—All the 1,425 students examined by Taylor were girls ranging in age from 12 to 22 years. Tremor and trachycardia were present in 27 per cent. of the cases; exophthalmus in 0.8 per cent. The right lobe was involved in 7.7 per cent.; the left lobe in 2.8 per cent.; the isthmus, in 52 per cent., and the whole gland in 40 per cent. Thirty-seven per cent. of the students coming from Wisconsin had enlarged thyroid. Among students coming from other states the incidence was: Missouri, 36 per cent.; Michigan, 34 per cent.; Minnesota, 32 per cent.; Indiana and Illinois, 30 per cent.; Iowa, 27 per cent.; Arizona and Nebraska, 25 per cent.; Ohio, 22 per cent.; South Dakota, 20 per cent.; North Dakota, 17 per cent.; Tennessee, 12 per cent.; Mississippi and Montana, 10 per cent.; Pennsylvania, 8 per cent., and Colorado, 7 per cent. None of the students from Kentucky, Texas, Kansas, New Hampshire, Alabama, Massachusetts and New Mexico presented any evidence of thyroid enlargement.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

September, 1922, **27**, No. 4

Normal Stomach. A. E. Barclay.—p. 103.
Cascade Stomach. J. H. D. Webster.—p. 110.
Radium Therapy of Cancers. P. S. Laborde.—p. 114.
Penetrating Radiotherapy by Roentgen Rays and Radium. R. Proust.—p. 121.

British Journal of Psychology, London

July, 1922, **2**, No. 4

Constituents of Unconscious. L. Williams.—p. 259.
Search for Kingdom. A. Carver.—p. 273.
Study of Phobia. S. E. Hooper.—p. 292.
Personal Experience of Night Journey Under Sea. J. Corrie.—p. 303.

British Medical Journal, London

Oct. 21, 1922, **2**, No. 3225

Medicine in Century Before Harvey. A. Chaplin.—p. 707.
An Address on Past, Present and Future of Midwifery. B. P. Watson.—p. 712.
*Bacteriology and Vaccine Treatment of Chronic Bronchitis. L. Mackey.—p. 715.
*Surgery on High Seas. A. E. Crabbe and L. R. Broster.—p. 717.
Similarities and Dissimilarities Between Plant and Animal Diseases. V. H. Blackman.—p. 718.
On Mutation of Species. W. B. Brierley.—p. 722.
*Outbreak of Food Poisoning by Milk, Caused by Bacillus Aertrycke. W. R. Wiseman.—p. 728.
Toxin of B. Dysenteriae Shiga. R. C. Robertson.—p. 729.
Development of Loa Loa in Chrysops. A. Connal and S. L. M. Connal.—p 730.
Intimate Structure of Bacterial Cell. D. Ellis.—p. 731.
Clinical Differentiation of Pulmonary Tuberculosis from Other Respiratory Affections. E. Rist.—p. 733.
Share of Sun in Prevention and Treatment of Tuberculosis. A. Rollier.—p. 741.
Some Aspects of Treatment of Surgical Tuberculosis. J. Taylor.—p. 746.
Basal Metabolism. E. P. Cathcart.—p. 747.
Diazo Reaction, with Special Reference to Urine in Measles. G. Hunter.—p. 751.
Etiology of Seborrhea and Seborrheic Dermatitis. R. C. Low.—p. 752.
*Melanotic Sarcoma of Choroid and Ovary. H. G. W. Dawson.—p. 758.
Lupus Erythematosus Treated by Diathermy. W. J. Harrison.—p. 759.

Bacteriology and Vaccine Treatment of Chronic Bronchitis.—In 130 cases, Mackey found germs in the sputum which seemed of sufficient importance to be incorporated in a vaccine. In about one half the cases the infection was a mixed one. On the whole, these vaccines were so successful that Mackey is forced to the conclusion that the cause of bronchitis, and also of some types of asthma, is to be traced to an infected state of some part of the nasal passages.

Surgery on High Seas.—Crabbe describes an operation performed on board ship for urinary obstruction due to prostatic enlargement. There was a woful lack of every need for an operation of this sort. The patient stood the operation well, but died two days later. The prostate consisted of a mass of small stones embedded in tough fibrous tissue with practically no gland substance present. As a sequel to the postmortem examination, which of necessity was performed without gloves, the operator pricked himself in sewing up the wound. No local reaction asserted itself, but within twenty-four hours he experienced "shivery muscular pains" which were followed by a rise of temperature to 103 F. and profuse sweating, on three successive evenings, and then the passage of pus in the urine. The latter showed *Bacillus coli* on bacteriologic examination.

Bacillus Aertrycke Causes Poisoning.—Wiseman describes an outbreak of food poisoning in which fifty-two persons of ages ranging from 14 months to 83 years were poisoned. Cow's milk was the food taken but the actual source of the contamination was not discovered. Two distinct types of *B. aertrycke* were found, (1) the Mutton type, and (2) one closely approximating to the Newport type, and probably identical with it.

Melanotic Sarcoma of Choroid and Ovary.—In Dawson's case fourteen years elapsed between the first onset of the disease (the primary growth of the choroid) and the appearance of secondary growths in the skin and ovary. There was no lymph gland involvement and absence of any further trouble nine months after excision of a tumor on the back one on the arm, and the removal of the affected eye and ovary.

Glasgow Medical Journal

October, 1922, **16**, No. 6

*Two Cases of Syphilis of Liver with Symptoms of Abscess Formation. W. K. Hunter.—p. 225.
Influenza. A. Garvie.—p. 232.

Syphilis of Liver with Unusual Symptoms.—Hunter relates the case of a man who had jaundice and "ague." The case at first was thought to be possibly one of malaria, but examination of the blood films on five different occasions failed to show any sign of the plasmodium, and the leukocyte count, which ranged from 9,000 to 11,500, showed only 8 per cent. mononuclear cells, with 92 per cent. polymorphonuclears. Also, there was no response to large doses of quinin given over a period of three weeks. Two or three weeks after admission, the upper margin of hepatic dulness was noted to be irregular in outline, and it was now thought that there might be a hepatic abscess. There were signs, too, of infection of the lungs, there being lack of resonance, with crackling râles, at both bases behind. Three weeks after admission, the Wassermann reaction was taken, and it proved to be strongly positive. Within three days of giving antisyphilitic treatment, the fever disappeared and the patient's convalescence became established. The dulness at the bases of the lungs persisted for three weeks longer, but ultimately disappeared entirely. The second case was that of a man who complained of pains in the upper part of the abdomen of one week's duration. He had been quite well prior to this, when he was suddenly seized with severe abdominal pain and vomiting. This pain had persisted for a week, although not so acute as at first, but sufficiently severe to keep him from sleeping. The vomiting was incessant for four days, and was followed by hiccough, which lasted for three days. The patient's previous health had been good, except that two years ago he had a somewhat similar attack of pain and vomiting, which lasted for three days. There was no history of dysentery. It was thought that there was probably a subphrenic inflammation of some sort. There was, however, no evidence by which the source of infection could be determined. A Wassermann test proved to be strongly positive. Antisyphilitic treatment resulted in good recovery.

Journal of Obstetrics and Gynæcology of the British Empire, Manchester

Autumn Number, 1922, **29**, No. 3

*Eclampsia. T. W. Eden.—p. 386.
*Relationship of Eclampsia to Other Toxemias of Pregnancy. G. FitzGibbon.—p. 402.
*Results of Treatment of Eclampsia by the Dublin Method. B. Solomons.—p. 416.
Treatment of Eclampsia by Veratrum Viride. T. G. Stevens.—p. 426.
Case of Eclampsia Illustrating Use of Veratrone. A. Bourne.—p. 432.
Radium: Ideal Palliative Treatment in Inoperable Cases of Uterine Cancer and in Cases of Recurrence After Operation. C. Jacobs.—p. 437.
*Endometrioma and Endometriomyoma of Ovary. W. B. Bell.—p. 443.
*Adenomyoma of Rectovaginal Space and Its Association with Ovarian Tumors Containing Tarry Material. A. Donald.—p. 447.
*Adenomyoma of Rectogenital Space Associated with Tarry Cysts Arising in Islands of Adenomyomatous Tissue in Ovary. W. F. Shaw and W. R. Addis.—p. 452.

Eclampsia.—Eden emphasizes the fact that it is easier to prevent eclampsia than to cure it. Prophylaxis is, therefore, all important. A case of eclampsia is not a case for domiciliary treatment; prompt removal to hospital is the first indication after a fit has occurred. A simple classification of cases into "mild" and "severe" would facilitate treatment and make clinical records of much greater value. All cases of eclampsia, whether mild or severe, are best treated with the minimum of obstetric interference. Simple medical treatment, carefully regulated and closely watched, gives the best results.

Treatment of Eclampsia by Elimination.—FitzGibbon employs the treatment carried out in the Rotunda Hospital which was introduced by Tweedy in 1903, except that he does not use morphin. The treatment is based altogether on elimination. Among 214 cases of exclampsia treated in the

Rotunda Hospital in twenty years, there were nineteen deaths, a mortality rate of 8.87 per cent., which includes the death of any woman who suffered from eclampsia, irrespective of the actual cause or time of death.

Id.—There is no doubt whatever, says Solomons, that the death rate from eclampsia can be kept at a lower level by following closely the treatment as suggested by Tweedy, especially watching the patient closely for any sign of interference with respiration by mucus. It is also beyond doubt that the practitioner must meet with some cases so saturated with this pseudo-acidosis that recovery is impossible, but the number of these would be greatly diminished were routine general examination insisted on, especially monthly examination of the urine for the first seven months, then fortnightly until the end of pregnancy. The general practitioner requires further education on this point.

Endometrioma and Endometriomyoma.—For the terms "adenomyoma" and "adenofibromyoma" Bell would substitute "endometrioma" or "endometriomyoma" and "endometriofibromyoma" because the older nomenclature is inaccurate in that functional endometrium, not merely glandular tissue, is always found in these tumors during the reproductive period. The appearance of a functional structure, such as endometrium, in abnormal situations, can only result from congential aberration when not due to direct contact; and this is easily possible in the case of ovarian inclusions of endometrium by way of the ovarian ligament, or even by intermixture of Müllerian and ovarian elements, in the intermediate cell mass, at an early stage of development. Bell cites a case in which it was possible to demonstrate the presence of endometrium in both ovaries associated with a normal uterus and normal tubes.

Adenomyoma of Rectovaginal Space.—If, in any case, distinct indications of rectovaginal adenomyoma are found, Donald says, it will be well to bear in mind the fact that there is a probability of both ovaries being affected, and that, therefore, the patient ought to be informed before operation, that both ovaries may have to be removed. In any operation at which the ovaries are found to contain tarlike contents, a very careful investigation for adenomyomatous growths in other parts of the pelvis ought to be undertaken at the time of operation. Ten cases of adenomyoma of the rectovaginal space are reviewed by Donald. In seven of the ten cases cystic ovarian tumors containing tarry or chocolate contents were found.

Adenomyoma of Rectogenital Space.—Shaw and Addis review six cases of adenomyoma of the uterus, five of which were associated with tarry cysts of the ovaries. Endometrial tissue could be demonstrated in the ovaries in most of the cases.

Lancet, London

Oct. 21, 1922, 2, No. 5173

Medicine in Century before Harvey. A. Chaplin.—p. 843.
*Multiple Peripheral Neuritis. W. Harris.—p. 849.
Pathology of Miners' Phthisis. W. E. Gye and E. H. Kettle.—p. 855.
*Later Effects of Gas Poisoning. T. W. Sandall.—p 856
*Acute Suffocative Edema of Lungs. W. J. Tyson.—p. 859.
*Primary Phlegmonous Enteritis. E. E. Hughes.—p. 860.
*Loss of Weight in Cases of Artificial Pneumothorax. L. S. T. Burrell, and M. Y. Garden.—p. 861.
Paroxysmal Tachycardia Controlled by Parathyroid Gland Tissue. B. G. Corney.—p. 863.
Inoperable Carcinoma Cervicis: Treated with Colloidal Copper and Colloidal Manganese. S. S. Barton.—p. 864.
Certain Renal Storms and Their Interpretation. W. B. Cosens.—p. 864.

Multiple Peripheral Neuritis.—The differential diagnosis of polyneuritis, Harris says, is sometimes extremely difficult from acute poliomyelitis and from Landry's paralysis. The separation from poliomyelitis in some cases is all the more difficult because of the combination of the two conditions that occasionally occurs. Paresthesia and peripheral anesthesia will probably indicate the presence of polyneuritis in a doubtful case, while an extensor plantar reflex will be evidence of cord involvement. Asymmetry of the paralysis certainly does not exclude polyneuritis, and wasting of the intrinsic musculature of the hands is also common in polyneuritis, and retention of the knee jerks is by no means rare. Sphincter paralysis is rare in both poliomyelitis and polyneuritis, but is occasionally met with in both these diseases. The differences in extent of involvement of the sensory nerves, on the one hand, and the motor nerve fibers, on the other, in polyneuritis is remarkable, though not constant for the same toxic cause. Lead is almost purely a motor nerve poison, but diabetes may cause extremely painful local neuritis, or generalized sensory symptoms and ataxy, without any pain. No sensory symptoms whatever occurred in the case of carbon bisulphid polyneuritis seen by Harris. Rheumatic forms of neuritis are usually very painful, so are the alcoholic forms, tuberculous neuritis of the feet, and the neuritis of malignant disease. Hematoporphyrinuric neuritis is also generally painful, though other forms of autotoxemic polyneuritis may show little or no sensory involvement, and may thus be mistaken for poliomyelitis or Landry's disease. A not irrational view, in Harris' opinion, is that which regards polyneuritis and poliomyelitis as essentially the same process affecting different portions of the same neuron, and there can be no doubt that occasionally mixed cases are met with of permanent cord damage, associated with polyneuritic symptoms in which recovery occurs.

Late Effects of Gas Poisoning.—In nearly half the cases (46 per cent.) investigated by Sandall there is evidence of emphysema or chronic bronchitis or both. In his opinion pulmonary tuberculosis is not a common effect of gas poisoning, and certainly not one of its later effects. In nearly half the cases (45 per cent.) there is definite tachycardia. In 85 per cent. of these tachycardia cases no sign of anything abnormal was found on examination of the heart. The persistence of gastric symptoms raises the question of organic or functional causation. Another interesting point is the pain in the chest of which complaint is so frequently made. Is such pain any evidence of myocardial involvement, or is this also merely a functional manifestation? With reference to prognosis, more especially in those cases in which physical signs are absent or very indefinite, Sandall asks, does the element of "pension" operate as a factor in the causation or continuance of symptoms?

Acute Suffocative Edema of Lung.—Tyson asserts that these are really cases of aborted pneumonia, in which the congestive stage is fully developed and then the disease stops, being relieved by the escape of the collected serum, to end either in rapid recovery or in rapid death. The consolidation of the lung is not often demonstrated, but the signs of acute congestion are present. In his case, which is cited, only one lung was attacked, and herpes on the lips was present, both symptoms suggesting a pneumonic origin. Influenza seems to favor this condition, being the starting point of the pneumonia in two or three cases recorded—in Tyson's case an influenza epidemic was present in the district where the patient lived. Immediate venesection is the treatment generally recommended, together with outward applications, such as wet cupping and mustard plasters. Morphin, iodids, or blisters should not be used in the treatment of these cases, for obvious reasons.

Primary Phlegmonous Enteritis.—Hughes' patient was only 6 years of age. The length of intestine affected was about 18 inches, and the distal limit of the disease was apparently about 8 inches from the ileocecal valve. It was excised. The boy made a good recovery.

Loss of Weight in Artificial Pneumothorax.—In artificial pneumothorax treatment, as a rule, when this treatment is started, there is a drop in weight for the first few weeks. Burrell and Garden believe that this loss can be explained on the basis of an impaired metabolism; efficient aeration of the blood becomes more difficult. The diminished oxygen concentration of the blood apparently causes an inefficient combustion of carbohydrate and fats. A consequent demand on the body fats is made by the liver. These respond with great readiness and there is a tendency to fatty infiltration of that organ. As treatment continues, however, the uncollapsed lung seems to be able to accommodate itself to the altered conditions and to carry on oxygenation of the blood more fully; metabolism becomes more stable, and the patient begins to put on weight if his muscular activities are restricted.

Annales de l'Institut Pasteur, Paris

August, 1922, **36**, No. 8

Vaccination by the Mouth Against Dysentery and Malta Fever. C. Nicolle and E. Conseil.—p. 579.
Eruptive Disease in Goats. G. Blanc et al.—p. 614.
Action of Sodium Aminophenolarsenate in Experimental Trypanosomiasis. A. Navarro Martin and G. J. Stéfanopoulo.—p. 619.

Preventive Vaccination by the Digestive Tract Against Bacillary Dysentery and Malta Fever.—Nicolle and Conseil comment on the progress realized by Besredka's success in reproducing in animals the disease being studied in a form close to the natural human disease. Conditions were thus provided for study of the action of preventive vaccination Besredka's bile method). This was impossible before, as it was deemed out of the question to experiment on human beings, and the disease in animals had never before approximated the human affection. His success in this line and in the application of the data thus obtained to protect human beings during an epidemic of typhoid has already been mentioned in THE JOURNAL, as on page 1446, Oct. 21, 1922.

Nicolle and Conseil have experimented directly on human volunteers, selecting two diseases which yield promptly to curative serotherapy and are thus free from danger; namely, bacillary dysentery and undulant or Malta fever. These two diseases represent two widely different types. The dysentery bacillus settles exclusively in the bowel, while the bacillus of Malta fever invades the blood and may enter by way of the skin or mucosa as well as by the digestive tract. There have been eight cases of the disease in the personnel of the laboratory (Tunis) since its foundation. The experiments related have demonstrated that it is possible to immunize against these two diseases by subcutaneous injection of the vaccine or by ingestion by the mouth. After thorough preventive inoculation by either of these routes the subject bore without reaction injection of living Malta bacilli, or ingestion of living dysentery bacilli. They add that the results obtained with equal success in these widely different diseases justify the assumption that this method of prophylaxis has a broad application, especially for diseases which localize in the bowel, such as typhoid, paratyphoid and cholera.

An important practical point brought out by the research reported is that the reason why previous experiments have so often failed is because the factor of race was not taken into account. The natives of Tunis had proved refractory to immunization procedures, and hence the question was regarded as settled in the negative. But as soon as Europeans were tested, the prompt and intensive response showed that the difference was racial. That is, the persons accustomed to polluted water supplies become naturally immunized in time. Hence their negative reaction. Nature thus points the way to effectual vaccination by the digestive tract against certain diseases.

Archives Médicales Belges, Liége

September, 1922, **75**, No. 9

The Ante-Allergia Period in Tuberculosis. L. Dautrebande.—p. 857.
Extragenital Chancres. C. F. White et al.—p. 908.
Cicatricial Stricture of the Esophagus. C. Goris.—p. 914.

Extragenital Chancres.—White, Vanhaecke and Dujardin are in charge, respectively, of the English, French and Belgian antisyphilis centers at Havre, and in their war and postwar service they have encountered a total of 227 cases of extragenital chancres. They remark that the discrepancies in proportions given in various statistics are due mostly to errors of diagnosis. They conclude that missed syphilis due to extragenital localization reaches nearly 5 per cent. of the total number of chancres in the army. The opinion of others here mentioned confirms their own to the effect that chancre of the tonsils is the extragenital localization which is the more often undetected, and constitutes one of the principal causes of missed syphilis.

Cicatricial Stricture of the Esophagus.—Goris gives the details of three cases of cicatricial stricture of the esophagus successfully treated by dilatation with the bougie No. 15, and drawing a silk thread back and forth, Depage's olives strung on the thread. He has thus succeeded in curing all of his twelve cases in children and adults in which the esophagus seemed to be permanently closed.

Bulletin Médical, Paris

Oct. 14, 1922, **36**, No. 42

*Myoma of Pylorus in Infant. Aviragnet and Peignaux.—p. **817.**
*Icterus Gravis. F. Saint-Girons.—p. 818.
Treatment of Furunculosis. Veyrières.—p. 821.
Internal Secretions. A. C. Guillaume.—p. 824. Conc'n.

Hypertrophic Stenosis of the Pylorus.—Aviragnet and Peignaux report a case of myoma of the pylorus in a 6 weeks old infant and emphasize the importance of early diagnosis. It is surgically curable if the operation is made before athrepsia begins. The bases of clinical diagnosis are daily vomiting in a 3 or 4 weeks old babe notwithstanding the change of food, and measures to combat the vomiting, stubborn constipation, progressive and rapid emaciation, and extreme peristalsis in the epigastric region. Roentgen-ray examination is important to ascertain that the obstruction is in the pylorus and not purely of spasmodic nature. The extra-mucosa longitudinal pylorotomy is simple, effectual and rapid. In their case recovery was prompt and complete, and at the eighth month the weight was normal.

Icterus Gravis.—Saint Girons describes the various types of icterus gravis and states that its diagnosis is impossible during the preicteric phase, but is easy when the syndrome is complete. All laboratory means, serodiagnosis, hemoculture, etc., to reveal or exclude spirochetal jaundice should be employed. The etiologic diagnosis is, on the contrary, easy, as a rule, in secondary infectious icterus gravis, toxic icterus and especially in icterus appearing after disease of the liver. This diagnosis may have a practical interest in many cases for the environment, in the matter of prophylactic measures to be taken. It may also indicate the need of serotherapy or vaccine therapy for the subject, as icterus gravis is not always fatal, and energetic treatment compatible with the patient's condition should always be instituted.

Journal de Chirurgie, Paris

September, 1922, **20**, No. 3

*Repair of Bile Duct. P. Lecène and Gaudart d'Allaines.—p. **237.**
*Transplantation of Bone in Hand. L. Michon.—p. 260.

Repair of the Common Bile Duct.—Lecène and d'Allaines give summaries of fifty-two cases from the records in which a rubber tube has been used to restore the continuity of the common bile duct, either by drawing up and suturing end-to-end the stumps of the severed duct over the rubber tube, or by implanting the stump of the duct in the duodenum or stomach, after pushing the rubber tube into the duct. The mucous membrane of the bowel or stomach can be drawn up and sutured around the stump of the duct, or it can be left without being sutured. Of all these methods the latter technic seems to be the best, giving 70 per cent. complete cures in the twenty-three cases in the literature. It restores the continuity of the passage even after extensive loss of substance, while it has the further advantage that it requires the minimum of operative manipulation. As a rule, the tube is expelled between the tenth and fifteenth day, either with the stools or by vomiting. In many cases its expulsion was not even noticed, and no accidents have ever been recorded. Of the 23 cases, 10 were for biliary fistula, mostly old cases, and some had already been operated on. It seems that in such cases, in which operation is most difficult, this third method is almost always preferable. Recovery after the operation is smooth, as a rule. The stools regain rapidly their color, sometimes in seven or eight days. The bile often oozes through the wound during the first days, but it stops rapidly thereafter. Of the 4 cases of death reported with this method, one was due to hemorrhage the twelfth day, one to angiocholitis with abscess of the liver seven months later, and the 2 others were not due to the operation. There were 14 cases of a complete cure in the 23 operations of this kind, that is, 70 per cent. It appears from examination of the various cases published, that prosthesis by means of a rubber tube is an important acquisition in this difficult type of surgery. Direct suture is often a useful adjuvant but is not indispensable, and the surgeon should not hesitate to omit it if its use entails complicated and dangerous maneuvers. The omentum should be drawn up and sutured around the bile duct as this aids in the reconstruction of the duct. The cases already published allow the conclusion that such operations give very good results in particularly difficult cases. The only two dangers to fear are stenosis at the site of the suture, and ascending infection of the biliary apparatus. Time and experience will show the extent of these dangers.

Transplantation of the Bones of the Hands.—Michon reports his experimental and clinical study of partial or total replacement of metacarpal bones and phalanges after destruction or removal. He gives his results from experiments on dogs and draws conclusions from a practical standpoint. The absence of publication of the remote results in various cases appearing in the literature destroys all interest in these observations. He concludes from his various experimental bone transplantations that whole bone grafts die and are doomed to absorption. Parts of bones implanted in the natural bone heal in place with newly regenerated bone, as can be seen in the serial roentgenograms from a clinical case reexamined at intervals for nearly four years. The grafted metatarsal bone in the hand has now become normally opaque by the osteogenesis process.

Néoplasmes, Paris

September-October, 1922, **1**, No. 5

*Catalytic Activity of Tissues and Body Fluids. J. Thomas.—p. 145.
*Myxomas. G. Bolognesi.—p. 153.
*Origin of Cancer. M. Guérin.—p. 167.

Catalytic Action of Tissues and Body Fluids.—Thomas was impressed with the extreme variability of the catalytic ferment content in different species and in different individuals, and in the same individual at different times. No characteristic findings could be discovered, but the catalytic property was less with lowering of the vital processes in general.

Myxomatous Metamorphosis of Tumors.—Bolognesi's seven photomicrograms show the different varieties of pure myxomas and myxomatous transformations of other tumors. He theorizes to explain the mechanism.

Origin of Cancer.—The editors of *Néoplasmes* asked their readers to send in a 30-line summary of their views as to the origin of cancer. Guérin insists that we must recognize an infectious origin for some cancers, irritation or trauma for others, and an embryonal origin in still others. Cancer is thus merely a mode of reaction of the tissues, and the cancer cell becomes anarchistic, existing only in and for itself. This idea that the cancer cell is a parasite of the organism should dominate all measures for treatment. The normal balance of reaction between the cells is upset for some reason. This upset in the intercellular reactions may be due, he says, to some change in what he calls the *suspension colloidale nucléoprotoplasmique* of the cell. This modification seems to be an increased dispersion. This entails intensification of the catalytic phenomena, cell changes and karyokinesis.

Paris Médical

Sept. 2, 1922, **12**, No. 35

*Ophthalmology in 1922. F. Terrien.—p. 197.
*Warning of Danger to Optic Nerve. A. Cantonnet.—p. 206.
Oculomotor Lesions in Epidemic Encephalitis. G. Cousin.—p. 207.
*Otorhinolaryngology in 1922. L. Dufourmentel.—p. 209.
Origin of Mastoiditis. P. Sebileau.—p. 214.
*Treatment of Adenoid Vegetations. L. Baldenweck.—p. 219.
Stomatology in 1922. P. Fargin-Fayolle.—p. 222.
*Correction of Ankylosis of Jaws. M. Darcissac.—p. 227.

Recent Progress in Ophthalmology.—Terrien discusses the publications on ophthalmology which have a bearing on general pathology and thus interest the practitioner. Three writers have published cases of a glaucomatous form of sympathetic ophthalmia. One (Dor) reported the cure of sympathetic ophthalmia under 12 gm. of sodium salicylate daily. Others have lauded arsphenamin treatment as giving the best results when the sympathetic affection is developing, but, even at the best, Morax says, its efficacy is only relative. Charlin found syphilis in 20 out of 24 persons under 50 with glaucoma. It was unmistakable also in 35 of 75 of all ages, and probable in 7 others. In the 42 glaucoma cases in syphilis there was aortitis in 32 and general high blood pressure in 28. In 2 of the younger men the glaucoma was cured by treatment for syphilis, although nothing abnormal except the glaucoma could be discovered in the eyes. In 25 nonsyphilitics, all over 50, the blood pressure was high. He affirms that glaucoma in 90 per cent. of the cases must be regarded as the localization in the eye of some general vascular process. Its other manifestations are aortitis, arterial hypertension and chronic nephritis. Abadie has also reported recently the cure of glaucoma under treatment for syphilis in subjects between 30 and 40. Bailliart warns that the spontaneous arterial pulse, noted in 19 per cent. of the cases, indicates some pronounced disturbance in the circulation in the retina. Magitot was able to reduce the tension in the eyes of rabbits by intravenous injections of hypertonic solutions. Terson succeeded in reducing the tension in a case of glaucoma by periocular injection of 2 c.c. of air. The man had been operated on for glaucoma and it had recurred, causing total blindness in the previously better eye. A few days after the injection, the man was using the eye in reading.

Transient Clouding of Vision as Warning Sign.—Cantonnet has been impressed by the suddenness with which blindness may develop in cases of choked disk which had long been apparently well tolerated. Analysis of such cases shows, he says, that there had been for some time fleeting phases of *obnubilations visuelles*, as if a veil had been drawn over the entire visual field, for five to thirty seconds, recurring often, up to 100 or 200 times a day. Severe headache plus this fleeting clouding of vision calls for prompt measures to relieve the pressure on the optic nerve, or sudden permanent blindness may follow. Repeated lumbar puncture or a decompressive operation is imperative when the optic nerve thus warns of impending degeneration.

Otorhinolaryngology in 1922.—Dufourmentel notes the reappearance of the French *Annales* and the *Archives* and the continuance of the *Revue* and the *Bulletin* for these specialties, and also the Lyons *Oto-rhinolaryngologie internationale*—thus restoring the five French journals for the ear, nose and throat specialties to their prewar status. The verdict on vaccine therapy at the various congresses seemed to be that it gives excellent results in recurring furunculosis and with phlegmons in the tonsils. It is a valuable adjuvant in recurring coryza, ozena, tubal otorrhea and mucopurulent rhinopharyngitis. It is useful also in certain cases of chronic sinusitis, the ethmoidal in particular, provided there are no osteitic lesions or polyps. It may prove useful to supplement operative treatment in mastoiditis and sinusitis, but it is futile in chronic otitis with bone lesions, and it may be directly dangerous in acute disease of the middle ear. Radiotherapy has given some encouraging results but has not fulfilled the enthusiastic hopes based on it a while ago. Another point brought out by congress reports is that latent sinusitis is far more frequent than generally recognized, and that this is the explanation of many cases of rebellious headache. Lermoyez has reported the cure of an epithelioma of the larynx under deep radiotherapy.

Adenoid Vegetations and Tonsillitis.—Baldenweck protests against operations on the throat and nose of outpatients.

Ankylosis of the Jaw.—Darcissac's apparatus has a rubber cap which fits over the teeth from side to side on each jaw. The two long caps are held in an adjustable frame which allows the application of force in various directions to overcome the ankylosis or prevent its development after an operation.

Presse Médicale, Paris

Oct. 14, 1922, **30**, No. 82

*Effect of Irradiation on the Blood. M. Giraud et al.—p. 885.
*Sodium Citrate to Arrest Hemorrhage. L. Cheinisse.—p. 887.

The Hemoclastic Crisis After Intensive Roentgen-Ray Exposures.—The experimental research here reported has apparently established that the drop in the number of leukocytes and the other features of the hemoclastic crisis after intensive irradiation are due to the reaction of the tissues directly irradiated. The hemoclastic crisis did not occur if the part irradiated was shut off from the general circulation. But it developed when the obstruction to the circulation was removed, even after the roentgen rays had been shut off. The substances producing the shock, manifested by the hemoclastic crisis, are evidently generated in the irradiated area. There is thus a kind of indirect autoprotein therapy, which may supplement the beneficial influence of the rays in other lines.

Intramuscular Injection of Sodium Citrate to Arrest Hemorrhage.—Cheinisse recalls Hédon's protest in 1918 against the assumption that sodium citrate always prevents coagulation of the blood. In his experiments on rabbits it retarded coagulation after transfusion, but in dogs it accelerated coagulation. In his publication on the subject he remarked that the species of the animal and the amount of sodium citrate used are evidently the factors responsible for the variability of the response. Cheinisse then summarizes the work of the Americans in this line, and adds a word of caution against accepting without further research the statements of Neuhof and Hirshfeld on the intramuscular administration of sodium citrate as a means to control bleeding.

Progrès Médical, Paris

Sept. 30, 1922, **37**, No. 39

*Endemic Influenza and Tuberculosis. G. Ichok.—p. 453.
Calculi in Bladder After Prostatectomy. Legueu.—p. 454.
Azotemia in Nephritis. Merklen.—p. 456.
*Traumatism and Gestation. Couvreux.—p. 459.
Melancholia Without Delirium. R. Benon.—p. 460.

Endemic Influenza and Tuberculosis.—Ichok gives a table showing the mortality due to pulmonary tuberculosis and influenza in Paris during and before the epidemics of influenza from 1900 to 1920, and he draws from it conclusive proof that the tuberculous have reason to fear grippal infection, as it may be the last straw that breaks down the barrier against a fatal outcome.

Traumatism and Gestation.—Couvreux draws medicolegal conclusions from accidental and surgical traumatism during pregnancy. When gestation is normal, the evolution of lesions due to accidental injury appear to be analogous to the lesions of a nongravid woman, and the accident, as regards future consequences, should be considered identical to an accident occurring to a healthy subject. On the contrary, pathologic gestation, with the morbid condition of the woman aggravating the evolution of the accident, should be considered as an industrial accident if it happens to a subject, who, previous to the lesion, had pathologic antecedents such as tuberculosis, diabetes or albuminuria. On the other hand, f an industrial accident requires surgical intervention, an emergency operation may be performed on the pregnant woman, provided that morphin is used beforehand to calm the uterus, and also during the days following the operation.

Schweizer Archiv f. Neurol. u. Psychiatrie, Zurich

1922, **11**, No. 1

Attention in Mental Pathology. W. Boven.—p. 3.
Psychanalysis of Dreams. A. v. Muralt.—p. 13.
Clinical Sequelae of Epidemic Encephalitis. F. Naville.—p. 34.
Autonomic Nervous System in Voluntary Movements. Di T. Terni.—p. 60.
Rays from Human Body. S. Alrutz.—p. 88. Conc'n.
Diffuse Reactive Gliomatosis. J. L. Pines.—p. 112.
Sensations from Standpoint of Speech. C. v. Monakow.—p. 118.

Sequelae of Epidemic Encephalitis.—Naville started to present the complete picture of what is known to date of the present clinical condition of persons who have had epidemic ncephalitis. He decided that the time has not come yet for his. It is still premature to write a general review of the equelae of this disease. The remote prognosis is very grave, s sudden and serious clinical manifestations may develop fter a long period of apparent complete recovery. The uture alone will tell the ultimate course of the mental mpairment and parkinsonian states, and whether other tardy omplications are to be feared, supplementary to those that have been observed during the eighteen months that have ollowed the onset of the epidemic. His article is dated November, 1921. (In French.)

Participation of Involuntary Nervous System in Voluntary Muscle Movements.—Terni's research was on the anatomy of the tails of lizards and other reptiles.

Effluence or Radiation from the Human Body.—Alrutz's tatements are sustained by the cases illustrated—all testifying, he says, to a kind of radiant energy generated by the human body. The tests of it were made on subjects in a light hypnotic slumber. The muscle or tendon contracted or extended under the influence or energy emanating from the experimenter's finger tips pointed toward the spot without actual contact. The article is in French. Alrutz is lecturer on psychology at the University of Upsala, and has been collecting data for years on the dynamics of the nervous system. A fuller description of what he calls this "new form of radiation from the human organism" was published in The Journal, March 22, 1919, p. 906. He declares that it throws much light on hypnosis and hysteria.

Chirurgia degli Organi di Movimento, Bologna

October, 1922, **6**, No. 5

*Ossification of the Acetabulum. G. Perna.—p. 485.
*Köhler's Disease. O. Alberti.—p. 569.
*Traumatic Dislocation of Hip Joint. F. Maffei.—p. 604.

Ossification of the Acetabulum.—Perna discusses in particular the significance of the tuberosity above the acetabulum. It is found only in man, and he explains its importance for the erect position.

Köhler's Disease.—Alberti's six cases illustrate the variety of factors that may be involved in this metatarsal affection. The radiographic findings are important not only in diagnosis but as a guide to treatment and for medicolegal certificates.

Traumatic Dislocation of Hip Joint in Children.—There were only eleven girls among the forty-nine cases Maffei has compiled. Reduction is generally easy in recent cases, but in none of those compiled was it possible after the twentieth day. In old cases, insistence on attempts at reduction may fracture the bone. In operating, ample access to the head and acetabulum should be insured. Fixation in plaster is imperative, he says, after reduction, with or without operative measures. The return of the dislocation in two of the cases was explained by the discarding of the plaster apparatus too soon.

Pediatria, Naples

Oct. 1, 1922, **30**, No. 19

*Internal Leishmaniasis. M. Mallardi.—p. 889.
*Immunization Against Measles. P. Galli.—p. 898.
*Hydronephrosis in Children. G. Schiano.—p. 905.

Treatment of Internal Leishmaniasis.—Mallardi tabulates the data from 77 cases of kala azar in children treated with antimony and potassium tartrate by the vein, or a preparation of it that can be injected intramuscularly. The efficacy of this treatment is becoming more and more apparent as the parents bring the children for treatment in an earlier stage. All recovered except 11 practically moribund when first seen, including 2 of the 10 less than a year old. With doses of 0.03 or 0.04 gm. for children under 3 and never over 0.04 or 0.05 for older children, a cure can be counted on in about three months. Most of the children were treated as outpatients, including all the infants.

Immunization Against Measles.—Galli relates that 6 of the 12 children in the children's asylum in his charge developed measles within eight days. The others were given an injection of diphtheria antitoxin, and none in this group developed measles although in constant contact with the measles cases. In another pavilion with 36 girls, 3 developed measles at about the same time. The 24 who had never had measles were then injected with 5 c.c. of normal horse serum, and none developed measles except 3 who were already in the incubation stage at the time. He discusses the attempts at immunization against measles with convalescents' serum in various countries, and suggests that the parenteral protein therapy of the horse serum and antitoxin may be credited with the prophylactic action in his experience. Cenci reported in 1906 an epidemic of measles in which he found that the course of the disease was attenuated and shortened by treatment with diphtheria antitoxin.

Hydronephrosis in Children.—Schiano reports a case of acquired hydronephrosis of the right kidney in a girl of 9. Recovery was prompt after abdominal nephrectomy.

Policlinico, Rome

Sept. 1, 1922, **29,** Medical Section No. **9**

*Recent Research on Aphasia. G. Mingazzini.—p. 467.
*Hemiatrophia of the Brain. C. Todde.—p. 488.
The Pulse wth Pulsating Exophthalmos. O. Margarucci and A. Giannelli.—p. 496.
*Taste Tests in Facial Paralysis. G. Roasenda.—p. 509.

Aphasia.—Mingazzini reviews and criticizes Henschen's recent publications on motor aphasia and agraphia. He compares them with others' and the work of his own school, to which Henschen pays tribute, saying "Mingazzini's Italian school builds on facts, not on theories."

Hemiatrophy of the Brain.—Todde adds another case to the few on record of acquired crossed hemiatrophy of both the cerebrum and the cerebellum. His patient was a man of 25, epileptic from childhood, and regarded as an imbecile, with hemiplegia of five years' standing. The left half of the cerebrum and the right half of the cerebellum were abnormally small.

Test of Facial Paralysis.—Roasenda calls attention to the sensation induced in the tongue when a continuous current is sent from the sternum to the back of the neck. In the normal, the sensation is bilateral, but it is absent on the side of facial paralysis. The location of the gap, as the electrode is moved up the spine helps to locate the nerves involved.

Boletin de Medicina y Cirugía, Guayaquil

January-March, 1922, **23,** No. 146-148

*Sporotrichosis Ulcers. A. J. Valenzuela.—p. 49.
*Headache of Ocular Origin. J. F. Rubio A.—p. 65.
*Autoserotherapy in Furunculosis. P. E. Zevallos Jijón.—p. 70.
*Atypical Forms of Pernicious Malaria. A. J. Valenzuela.—p. 88.

Vanishing of Yellow Fever.—A special notice in this *Boletin* is addressed "To the Civilized World" and calls attention to the official declaration of the national authorities that there has been no case of yellow fever at Guayaquil or in the whole country of Ecuador since May 22, 1919. The notice adds that the disappearance of this scourge should be heralded throughout the world, and the old tradition of the unhealthfulness of the tropics should be abandoned.

Sporotrichosis.—Valenzuela's study of this subject is profusely illustrated. His experience confirms the favorable prognosis under iodid treatment. The tumor is hard at first but soon ulcerates, the course resembling that of a syphilitic gumma. In the case illustrated, the lesions in the bones of hands and left ankle of three years' standing healed completely in a month. The primary lesion in the leg had developed after a cut on the foot.

Headache of Ocular Origin.—In addition to the headache from defects in refraction and migraine, Rubio warns that the vague pains in the eye itself from incipient glaucoma are often attributed to neuralgia or other cause. Precious time is thus wasted in acute glaucoma. Precocious presbyopia should always suggest possible glaucoma.

Furunculosis.—Zevallos Jijón gives the details of five cases of furunculosis in which autoserotherapy proved rapidly effectual. "Each person with furunculosis produces in himself the remedy for it." According to his experience, the autoserum should be less than twenty-four hours old. The course consists of four intramuscular injections of at least 2 c.c. each. This article won the prize offered by the Federacion de Estudiantes on the recent centennial of an important battle in the war for independence.

Atypical Forms of Pernicious Malaria.—In Valenzuela's case the symptoms suggested grave appendicitis, the tenth day after delivery of a stillborn child. Finally, after several negative examinations, the malaria parasite was found in the blood. The symptoms then subsided under quinin. This rousing by the childbirth of latent malaria is not uncommon in malarial countries, and the possibility should not be disregarded anywhere.

How Many Hospitals.—A letter from the editor of the Spanish Edition of The Journal to the editors of the *Boletin* is reproduced in facsimile. It asks for information in regard to the hospitals of Ecuador, as a list is now being compiled by The Journal of all the hospitals in Latin America.

Revista de la Asoc. Méd. Argentina, Buenos Aires

May and June, 1922, **35,** No. 211-212

*Suprarenalectomized Dogs. B. A. Houssay and J. T. Lewis.—p. 129.
Experimental Research on Oxytocics. S. Maldonado Moreno.—p. 138.
Action of Digitalis on Frog Heart. O. M. Pico.—p. 152.
Vagotomy in Guinea-Pigs. L. Giusti and B. A. Houssay.—p. 155.
Cardiography of Heart in Neck of Bull. L. Giusti and E. Hug.—p. 161.
*Precocious Hypergenitalism. Nerio Rojas.—p. 171.
*Grave Hemoptysis Arrested by Compression of Lung. A. Bergman.—p. 181.
Quinidin in Auricular Fibrillation. F. C. Arrillaga.—p. 188.
Scaphoid Scapula. M. Nonne.—p. 196.
*Priapism from Myelitis. M. R. Castex and A. Magnone.—p. 199.
Sequelae of Epidemic Encephalitis. G. Aráoz Alfaro and N. Rojas.—p. 209.
*Precocious Puberty. M. R. Castex and T. Malamud.—p. 223.
Puzzling Case of Hydatid Cyst of Liver. A. Gutiérrez.—p. 227.
Diverting the Urine for Urethra Operations. J. S. Pages.—p. 234.
Appendicitis or Torsion of Ovarian Cyst? C. I. Allende.—p. 242.
*Gastric Cancer in Boy. A. Galindez.—p. 249.
*Chronic Poliomyelitis. R. Chiappori.—p. 257.
Syphilitic Psychosis. G. Bosch and A. Mo.—p. 260.
*Venereal Disease and Saprophytism. S. Mazza et al.—p. 269.
Means to Reduce Infant Mortality. P. Rueda.—p. 275.
Ankylostomiasis in Northern Argentine Province. A. Bachmann.—p. 284.

Functions of Suprarenalectomized Dogs.—The experiments were made on nine dogs. They confirmed that the suprarenal medulla can be entirely removed from dogs, leaving only the cortex on one side, without impairing the health. Conditions seemed to be normal. The response to epinephrin and pituitary extract and the pupil reactions to cocain, atropin and epinephrin seemed to be the same as in normal dogs. But the animals died if the remaining cortex was excised.

Precocious Hypergenitalism.—Rojas' patient is a boy of 13 whose puberty dated from 6 or 7. It was normal except for its precocious appearance, and the mind is exceptionally bright as of a normal adult. At 9 he was 1.5 meters tall, but of an achondroplasia type, and he stopped growing for four years. Then under two months of combined thyroid, thymus, pituitary and suprarenal treatment he gained 1.5 cm. in height. Rojas ascribes the condition to simple hypertrophy of the testicle. There was no evidence of a tumor anywhere.

Hemoptysis Treated by Artificial Pneumothorax.—The tendency to hemoptysis seemed to be entirely arrested in the woman of 34 and the youth of 17 after the lung had been partially compressed. When the process is unilateral, a large amount of the gas should be injected at the one sitting, but with bilateral lesions, the amounts injected should be small and repeated.

Priapism from Myelitis.—The myelitis was in the sacral region of the man of 29, and the painful priapism was of six weeks' standing. Signs of inherited syphilis led to specific treatment, and under this the priapism subsided. Some small inflammatory reaction in the spinal cord in the sacral region was probably responsible for the priapism and the hyperesthesia. The character of the sensory changes excluded a lesion in the spinal nerve roots or cauda equina.

Precocious Puberty.—Inherited syphilis was evidently a factor in the precocious menstruation at the age of 8, defective vision, etc. At 12 the secondary sexual characters are those of an adult, and the various features of the development suggest that the pineal gland is responsible, some hydrocephalus process from the inherited syphilis, not a tumor.

Gastric Cancer in Child.—The first symptom was intense pain in the stomach region of the boy of 15. In a few days a tumor could be palpated and severe jaundice followed. The laparotomy the eighteenth day after the first symptom revealed inoperable malignant conditions, and the boy died the sixty-third day. Laird reported a similar case in 1921, with the death of the boy of 15 in two months. In both cases the gastric cancer was a cylinder cell epithelioma. Galindez compares these cases with Urrutia's 5 cases of cancer in patients between 22 and 26 and Ochsner's 10 under 30, the youngest 18; Mathieu's compilation of 32, and Bernoulli's of 12, one in a new-born child, one 8 years old, one 3, and 2 each at 15, 16, 17 and 19.

Chronic Poliomyelitis.—Chiappori reports a case of recurrence of the subacute phase ten years after an attack of poliomyelitis in infancy. After prolonged muscular exertion at the age of 12 the left arm became paralyzed. He calls attention to the case as a warning that persons who have had poliomyelitis in childhood should refrain from excessive or repeated physical exertion at any time, as liable to bring return of paralysis in the predisposed region.

Gonococcus and Spirochete as Saprophytes.—This report was summarized when published elsewhere. Of the 110 clinically healthy prostitutes examined, the gonococcus was found in the vaginal secretion in 28 per cent. and the Wassermann test was positive in from 20 to 37 per cent. but no spirochetes were found.

Semana Médica, Buenos Aires

Aug. 17, 1922, **2**, No. 33

*Dilatation of Ureter. N. M. Gaudino—p. 329.
*Sympathetic Ophthalmia. J. C. Altube and P. Satanowsky.—p. 336.
Suggestions to Improve Public Health Service. M. Ruibal Salaberry.—p. 339.
Diathermy in Angina Pectoris. L. Ayerza et al.—p. 366.
Clinical Picture of Jaundice. A. Vitón.—p. 368.
Intraspinal Anesthesia. G. C. Palacios.—p. 370.
Teaching Backward Children. Manheimer Gommés.—p. 371.

Dilatation of Ureter.—Gaudino here reports 2 cases of permanent dilatation of the lower ureter and knows of 9 other cases, which bring to 29 the number on record. He gives the roentgenograms of his 2 cases, both in men. In one the dilatation was congenital; in the other it seems to be secondary to tuberculous prostatitis.

Sympathetic Ophthalmia Two Weeks After Enucleation.—After failure of arsphenamin Treatment, mercury rubs and intravenous injections of sodium salicylate were given, and the sympathetic ophthalmia gradually retrogressed in the young man. It had begun with optic neuritis, and it left some pigmentation and spots of fatty degeneration. To hasten reabsorption, arsphenamin was given again, but the second injection induced extravasation of blood around the disk, and vision declined from 1:4 to 1:6. The arsphenamin was suspended, and calcium chlorid was given internally, with subcutaneous injections of acacia solution, and in twenty days vision had improved to 1:3 and the eye cleared up. There was nothing to suggest syphilis in the case. The first eye had been injured by a scrap of metal when hunting.

Archiv für klinische Chirurgie, Berlin

Sept. 5, 1922, **120**, No. 3

*Braun's Skin Grafting. Wildegans.—p. 415.
*Operation for Gastroptosis. G. Perthes.—p. 441.
Surgical Anatomy of the Duodenum. F. Walcker.—p. 472.
Operations for Spinal Cord Tumors. E. Ranzi.—p. 489.
*Reconstruction of the Ear. J. F. S. Esser and G. Aufricht.—p. 518.
*Transformation of Bone. H. Triepel.—p. 526.
*Pylorus Region and Ulcer. W. Koennecke.—p. 537.
*Plastic Linitis. W. Goldschmidt.—p. 551.
*Esophagus Cancer. F. Starlinger.—p. 562.
*Angiomas in the Bladder. A. Hübner.—p. 575.
Etiology of Schlatter's Disease. W. Rieder.—p. 588.
*Staphylococcus Hemolysis Test. G. Rosenburg.—p. 602.
Purulent Vertebral Osteomyelitis. O. Stahl.—p. 626.
*Testicles After Ligation. E. Gohrbandt.—p. 637.
Diagnosis of Projectile in Heart. J. Hagen-Torn.—p. 647.
Origin of Thrombi in Leg Veins. N. Trinkler.—p. 653.
Primary Actinomycosis of Kidney. P. Kleinschmidt.—p. 658.
Knotting Cystic Duct to Occlude It. A. H. Hofmann.—p. 662.

Skin Implants. — Braun's method of skin grafting by implanting scraps of skin directly in the newly forming cells was summarized in these columns, June 4, 1921, p. 1621. The scraps, 2 to 4 sq. mm., are cut like Thiersch flaps, and are implanted slanting in the granulations, like seedlings. Sometimes in a few days, as a rule in three weeks, after two or three grafting sittings the skin heals over completely. Wildegans here describes the histologic processes involved in this procedure, which, he says, is excellent, and has the advantage that it can be applied even to pus-covered surfaces.

Gastroptosis.—Perthes' analysis of cases of gastroptosis has convinced him that in the majority the symptoms are the result of stenosis from kinking of the duodenum between the superior and the middle portions. Stasis in the bile ducts resulting from this may entail severe disturbance. All of this can generally be corrected by pulling up the sagging stomach and fastening it to the left costal arch. He uses the round ligament of the liver for this, cutting it at the umbilicus and quilting it lengthwise in and out along the lesser curvature, and thus suspending the stomach in its natural place and restoring its natural shape. The technic is illustrated as applied in 23 cases including 4 men. In 9 of the cases under observation for more than a year, 7 were completely cured and 2 materially improved. One of 17 kept under observation was not benefited and 2 only slightly improved, but 11 were cured and 3 essentially benefited. Roentgenoscopy explains the failures as due to defective peristole; in this class of cases some supplementary measure may be necessary. In one case in which the disturbances had persisted after a gastro-enterostomy, this supplementary gastropexy cured the patient at once and permanently.

Reconstruction of the Ear.—Esser takes a cast of the surface, applying the dentists' technic. He then covers with Thiersch flaps the cast thus obtained, and fits the cast back into place on the surface or cavity in question. The Thiersch flaps grow rapidly to the surface against which they are thus evenly and continuously pressed and protected. When the cast is removed in two or three weeks, the surface is covered smoothly to the edges with epithelium. In reconstruction of the ear, a cartilage frame has to be supplied first, as he describes with illustrations. This cast-flap technic is called the *epithel-einlage* method.

Architecture of Spongiosa Bone.—Triepel discusses from a new standpoint the transformation of spongiosa.

Origin of Gastric Ulcer.—Koennecke insists that the factors responsible for gastric ulcer are numerous and varied, but the primary factor is always some nutritional disturbance. His experimental research on dogs has demonstrated this, he says, and explains the reciprocal relations between exclusion of the pylorus and ulceration. The pylorus portion of the stomach has an important function beyond its motor function. It secretes a hormone which regulates the secretion of gastric juice. This hormone may act through the blood or by reflex nervous action. When it is lacking, the gastric digestion ferments are secreted in amounts and potency which are excessive for the food at the time. This excessively profuse and strong gastric juice irritates, and ulceration may follow.

Plastic Linitis.—The operation on the woman of 45 had been done on the diagnosis of the tumor that was plainly palpable and presented when the abdomen was opened. Cancer had been assumed, but when the stomach was drawn forward the tumor melted away, the stomach stiffening out into a straight tube. The tumor had been a spastic phenomenon in the malignant disease of the stomach. The infiltrating carcinoma was of the colloid cancer type, and the patient died four months after the subtotal resection of the stomach.

Primary Cancer of the Esophagus.—Starlinger reviews 132 operative cases at Eiselsberg's clinic. In 66 per cent. the malignant disease had not spread. In 18.3 per cent. an inherited predisposition was evident. There was only one female to twenty-one male patients in these esophagus cancer cases.

Hemangioma of the Bladder.—Hübner's experience has convinced him that radical measures are imperative for a bladder angioma. The frequent destructive growth and metastasis and the danger of exhausting hemorrhage justify suprapubic operation, if the symptoms resist thermocoagulation. The incision allows thorough oversight of multiple angiomas. A colored plate shows the findings in a girl of 11 with multiple angiomas in the bladder. Some were excised and the others cauterized through a suprapubic incision. Six weeks later severe hematuria returned, and the cystoscope showed some new angiomas. They were treated with thermocoagulation and the child has had no further disturbance during the month since. She had been healthy till the age of 6 but since then had had more or less blood constantly in the urine. A congenital tendency seems plausible in this and in the cases on record.

Antistaphylolysin Reaction.—Rosenburg ascribes considerable importance to the hemolysis test in staphylococcus infection. It is solely a test for diagnosis, and his experience with seventy-five cases confirms that all staphylococcus affections give a positive response except small furuncles and felons.

It is especially valuable as an aid in differentiating chronic disease in bone, as it distinguishes between osteomyelitis and tuberculosis or tumor. Bouillon with trypsin is a good culture medium for the staphylococci to obtain the staphylolysin. Horse serum, diluted fivefold with salt, has the same action on the hemolysis as normal human serum.

Behavior of Testicles After Ligation of Vessels in Spermatic Cord.—Gohrbandt omitted the ductus deferens and the deferential artery from the ligation, in his experiments on rabbits, but the testicles became partially or entirely atrophied and function seemed totally lost even in the islands of apparently normal tissue.

Deutsche medizinische Wochenschrift, Berlin

Sept. 8, 1922, **48**, No. 36

Living Tubercle Bacilli in Treatment of Tuberculosis. Selter.—p. 1195.
Theory of Irritation, Theory of Evolution and the Problem of Constitution. L. Borchardt.—p. 1197.
Carbohydrate Metabolism in Liver Disease. G. Hetényi.—p. 1200.
One Twin Fetus in Uterus and one in Tube. A. Sippel.—p. 1202.
Specific Intracutaneous Treatment. H. Schulte-Tigges.—p. 1203.
Nonspecific Treatment of Chronic Affections of the Muscles and Joints. F. Peemöller.—p. 1205.
*Pancreatic Achylia. N. Roth and F. Sternberg.—p. 1207.
Amblyopia of Toxic Origin (Tobacco, Alcohol) Before, During and Since the War. F. Jendralski.—p. 1207.
Experimental Research on Syphilis. Leven.—p. 1209.
Rapidly Progressive Syphilis. W. Kowalski.—p. 1210.
*Treatment of Psoriasis with Thymus Extract. B. G. Gross.—p. 1211.
*Indications for Artificial Pneumothorax. W. Ebert.—p. 1211.
Operation for Umbilical Cord Hernia. N. Ellerbroek.—p. 1213.
Use of the Ophthalmoscope. G. Abelsdorff.—p. 1214.

Pancreatic Achylia.—Roth and Sternberg give the results of their investigations with the Einhorn duodenal tube to determine whether there is such a thing as functional pancreatic achylia, and if so, whether it is connected with gastric achylia. The patients chosen were suffering from genuine hyperchromic, Biermer anemia, in which gastric achylia is constant. In not one of the six achylia patients did they find a lack of pancreatic ferments. If anything, there was hypersecretion. Along with comparatively low trypsin values they found relatively high diastase values, and vice versa. There was no evidence of a parallel fluctuation as assumed by Bondi nor of constant high diastase values with low trypsin content. Also Krieger found, previously, pancreatic ferments always present in ten cases of gastric achylia. Schoening, however, found an absence or a deficiency of pancreatic secretion in twelve out of sixty-five cases. Roth and Sternberg are convinced that functional pancreatic achylia, if it exists at all, is extremely rare.

Treatment of Psoriasis Vulgaris with Thymus Extract.—Gross brings a preliminary report of his success in treating psoriasis with thymus extract. He gave intramuscular injections of thymus extract into the buttocks every other day. He began with 1 c.c. doses (1 gm. of thymus), and increased up to 6 c.c. (6 gm. of thymus). Later stronger extracts, 2 gm. of thymus to 1 c.c. and even 5 gm. to 1 c.c. were employed. For treatment he chose severe, stubborn cases. After the first few injections it was observable that the manifestations retrogressed markedly. Hard, raised infiltrations became paler and softer, and flattened out more and more, finally disappearing. Only one patient complained of a slight headache on the day of the injection. From 8 to 14 injections, or about 20 to 30 gm. of thymus, were required to cause the eruption to disappear. It remains to be seen whether the cure will be permanent. The trials of the remedy are being continued.

Indications for Artificial Pneumothorax in Pulmonary Tuberculosis.—Ebert argues that many advantages will be derived from the cautious extension of the indications for artificial pneumothorax so as to include many of the milder cases. A large number of patients who, with other methods would require a long course of treatment, can be advantageously treated by artificial pneumothorax. Of his 263 female patients during 1921, 15.7 per cent. of those in the second stage were practically sound in the better lung; of those in the third stage, 8.3 per cent. If applied to milder cases, the application of pneumothorax will be successful in a higher percentage of cases, since fewer adhesions are present, since these increase with the gravity of the disease. The patients are in better general condition when treatment is begun, the condition is more favorable, and the growth of connective tissue is better, owing to the less advanced destruction of the lung tissue. Empyema and unfavorable exudates occur less frequently since the pleura is less severely damaged. A large percentage of the open infectious cases are discovered and rendered harmless. The procedure requires a shorter time than in the severe cases. Complete recovery is attainable in a larger number of cases. The reexpansibility of the lung has not yet become impaired beyond recovery since destruction of tissue is not far advanced.

Wiener Archiv für innere Medizin, Vienna

July 25, 1922, **4**, No. 2-3

Acid-Base Conditions in Tetany. H. Elias and F. Kornfeld.—p. 191.
*Vasomotor Reflex from the Aorta. E. Zak.—p. 209.
Amino Nitrogen in Blood Serum. M. Landsberg.—p. 235.
*Functioning of Peripheral Vessels. S. Peller.—p. 247.
*Meningitis Due to Gas Bacilli. W. Raab.—p. 267.
*The Stomach in the Recumbent. K. Hitzenberger and L. Reich.—p. 279.
*Acute Serous Meningitis. R. Löwy.—p. 305.
*Bronchial Asthma. H. Faschingbauer.—p. 349.
*Dynamics of Intravenous Injections. J. Hirschsohn and H. Maendl.—p. 379.
*The Cheyne-Stokes Syndrome. S. Wassermann.—p. 415.
*Herpes Zoster. A. Arnstein.—p. 441.
The Minimal Arterial Pressure. H. Sahli.—p. 475. Reply to Peller.
Experimental Research on Human Blood. O. A. Rösler.—p. 503.
Research on Cerebrospinal Fluid. A. Kirch.—p. 521.
*Pituitary Cachexia. W. Knoll.—p. 555.
*Lymphogranulomatosis. B. Grossmann and F. Schlemmer.—p. 573.
Case of Zenker Diverticulum. L. v. Aldor.—p. 595.
*The Purpura Question. M. Rosenmann.—p. 597.
*Creatinin Metabolism. U. Sammartino.—p. 609.

Vasomotor Reflex from the Aorta.—Zak noted in certain patients a crescent shaped zone of red skin on the upper chest, extending from just above the point of the shoulder to the upper sternum and upward to the neck. The first impression is sunburn above the neck of a bathing suit, but the subjects had not been exposed to the sun for years, if ever. Analysis of the cases showed that this half-moon redness was a sign of disease of the aorta. He gives the details of thirty cases out of a much larger experience. In fifty-two cases of disease of the aorta, encountered in the last year, this half-moon sign was very pronounced in 28 per cent. but it was absent in a similar proportion, and more or less manifest in the others. Rubbing the skin in this region with a brush elicits an abnormally intense response with aorta disease, even in the absence of the half-moon sign, testifying to the overexcitability of the vessels. This may be apparent even in remote regions. His research has thus established the existence of a viscerovasomotor reflex, in addition to the viscerosensory and visceromotor reflexes with which we are familiar.

Reactions of Peripheral Vessels.—Peller emphasizes the variability of the response of the peripheral vessels to different external stimuli. It varies from case to case and from time to time in the same case, but the responses can all be classed in four groups.

Gas Edema Bacillus Meningitis.—Raab's patient was a young woman who developed sudden and intense headache, weakness and vertigo on the way home from a dance; intense pains and contracture of the back muscles followed, with other symptoms of severe hemorrhagic meningitis. The gas edema bacillus was cultivated from the spinal fluid and blood, but improvement became evident the twentieth day, and she was dismissed from the hospital as cured the thirtieth day. In all the other cases on record the infection was explained by otitis or trauma of the skull, but in this case no portal of entry for the bacteria could be discovered. The clinical picture indicated both meningeal irritation and toxic injury of the central nervous system.

Deceptive Hour-Glass Stomach Roentgen Findings.—A number of roentgenograms are reproduced to show and explain the hour-glass shape which the normal stomach shadow may assume during recumbency. The portion lying across the spine is lifted up, and casts little if any shadow.

Acute Serous Meningitis.—Löwy gives the conclusions from study of 350 cases of serous meningitis, with 425 lumbar punctures. His tests with hexamethylenamin confirmed hat the cerebrospinal fluid is a secretion in normal condiions, but when the meninges are diseased, it becomes more of a filtrate. In all the cases, from the mild forms of meningism, and pseudomeningitis to the severe serous meningitis, the puncture fluid testified to biologic injury of the cerebral pia. When severe, the sediment confirmed this. The findings emphasize that the term, acute serous meningitis, falls short of expressing the condition in part of the cases, and in others expresses too much. In all infectious diseases with nervous disturbance, acute serous meningitis of the pia is evident. It ranges from simple toxic irritation of the vessels to severe injury of the vessels and plastic infiltration of the pia, all of which can be read from the lumbar puncture findings if properly interpreted. He tabulates the findings in various groups, and discusses the literature, giving four pages of titles set solid.

Asthma.—Faschingbauer relates that the necropsy findings published from 12 cases of bronchial asthma showed in all vesicular emphysema of the lungs and tough masses of mucus, or threads or clumps of degenerated epithelium, and in the chronic cases round cell infiltration of the mucosa and peribronchial tissue, with hyperemia of the vessels and minute hemorrhages. The other findings differed in different cases. In a case personally observed, in a man of 47, with nephritis and a syphilitic spinal cord affection, there had been twenty-six attacks of asthma during the three weeks before the man succumbed to cerebral hemorrhage. The walls of the smaller bronchi showed pronounced hypertrophy, with extreme contraction of the bronchial musculature. The contents of the bronchi, on the other hand, were normal, but these changes had induced diffuse stenosis of the bronchioles, infiltration of the wall and minute hemorrhages. The contraction of the musculature has never been described in other cases. The lack of eosinophil cells, spirals, crystals, etc., in the bronchial contents seems to deny much causal import to such findings. The case sustains the spasm theory of asthma, and offers a satisfactory anatomic basis. The case is interesting, further, from certain fibers of smooth muscle found in the septi between the alveoli and rendered manifest by their hypertrophy.

Dynamic Phenomenon with Intravascular Injection.—This article is a study of the sensation of heat which is experienced when calcium is injected into a vein. The phenomenon is complete in thirty seconds, and was studied on eighty-five subjects—a total of 550 injections. It throws light on the circulation in general, and especially on the dynamics of intravascular therapeutics.

The Cheyne-Stokes Set of Symptoms.—Wassermann analyzes the symptomatology, clinical position and treatment of the "Cheyne-Stokes." He emphasizes the importance of the psychic element in the clinical picture.

Herpes Zoster and Internal Disease.—Arnstein has already published instances of herpes zoster developing as the only appreciable manifestation of some otherwise latent internal disease. He here compares the findings in thirty-six cases of herpes zoster with 180 from the records, with six pages of bibliographic titles. He incriminates some specific virus localizing in one or more of the spinal ganglia. This assumption of its infectious nature is sustained by the prevalence at certain periods and in certain places, and the immunity left usually by a single attack. In a certain proportion of cases it is symptomatic, and is thus relatively frequent in nervous affections, and with disease of the lungs, liver and kidneys, while it is rare with digestive, genital and heart disease. Its location generally corresponds to the organ affected primarily.

Pituitary Cachexia. — In Knoll's compilation of nineteen cases, twelve of the patients were women. In a case personally observed, the condition in the young man had been masked by the pulmonary tuberculosis and tuberculous meningitis. The triad of symptoms was pronounced, however: the premature senility, falling of the hair and decline of genital function, with corresponding mental decline. Embolism of an artery in the anterior lobe of the pituitary seems to be the primary factor, and the Abderhalden reaction to anterior lobe substance may aid in diagnosis. A tuberculous process in the pituitary may be responsible, and this is probably more common than generally recognized.

Lymphogranulomatosis.—In the case reported, the man of 41 had been healthy until 1914 when apical tuberculosis developed but yielded to sanatorium treatment. The lymphogranulomatosis appeared in 1919 and the infiltration was followed by necrosis and then by ulceration at all the points involved in skin, throat and stomach. The bacteriologic findings were negative.

The Purpura Question.—Rosenmann reports two cases of purpura in the course of chronic tuberculosis, with almost total lack of thrombocytes. Improvement followed treatment with horse serum, but the thrombocyte figure did not increase, although the walls of the vessels became more resistant. The tuberculosis had evidently led to demineralization, and when the calcium salts predominate, coagulation is retarded.

Creatinin Metabolism.—The research was done in a case resembling pseudosclerosis.

Zeitschrift für Urologie, Leipzig

1922, **16**, No. 10

*Histogenesis of Prostate Hypertrophy. R. Honegger.—p. 425.
Transperitoneal Nephrectomy. R. Pamperl.—p. 441.
*Rinsing of the Bladder After Prostatectomy. F. Suter.—p. 449.
*Suppuration in the Kidney. K. Scheele.—p. 452.

Recurrences After Prostatectomy.—Honegger relates that a number of small nodules had developed in the bed after enucleation of the prostate. They had evidently developed from the capsule left by the operation. The microscope showed that this capsule consisted of prostate tissue, pressed peripherally flat. This explains the recurrences after prostatectomy, even after removal of the prostatic portion of the urethra and encircling glands.

Continuous Irrigation of the Bladder After Prostatectomy.—Suter prepares for the operation by introducing a retention catheter and keeping the patient in bed for several days before the operation. This is to accustom him to the catheter. He prefers to anesthetize the prostate through the incision in the bladder, and leaves the retention catheter in place while the prostate is being shelled out and the bed drained with wick and stout tube. The bladder wall is sutured around them, and a douche can, with drip device, is connected with the retention catheter as for enteroclysis. The wick and tube are removed the fourth day, and a smaller tube used, and the irrigation is kept up for two or three days longer. Then the bladder is sutured and the retention catheter used merely as a drain. Clots cannot form, and the fluid flowing from the bladder wound reflects the healing process. After removal of the wick, the bed of the prostate is thus washed clear of secretions and necrotic tissue. Among the first twenty thus treated there were three deaths, but only one among the eighty of the later series. Healing was complete in from five to eighty-one days. He ascribes two of the four deaths to inadequacy of the preparation for the operation.

Suppuration in the Kidney.—Scheele examines the ureter urine in the counting chamber. In normal kidneys, he never found over thirty leukocytes in the counting chamber, but with suppuration they run up to 500, 1,000, 10,000 or more. If there is much blood in the urine, he stains it in the reagent glass with methylene blue. A difference of or below 20 per cent. in the count from both ureters must be disregarded. In pronounced cases, the difference in the leukocyte figure was from ten to 500 times more on the diseased side. With tuberculosis, the difference was very pronounced, up to ten and hundred-fold, even in the incipient cases, sometimes before the stain functional tests gave positive findings.

Zentralblatt für innere Medizin, Leipzig

July 1, 1922, **43**, No. 26

*Cholesterin Content of the Blood. H. Strauss and W. Schubardt. —p. 425.

The Cholesterin Content of the Blood Serum.—Strauss and Schubardt devote nearly ten pages to a tabulation of the results of research on the cholesterin content of the blood serum in various diseases (160 cases). They employed the method of Autenrieth and Funk. The highest values for blood cholesterin were found in cases of nephrosis. They found frequently up to 500 mg. in 100 c.c. of blood serum. The high values of cholesterin that occasionally occur in acute and also in chronic diffuse glomerulonephritis point to an involvement of the tubuli. Contracted kidneys always showed low values. There was no constant relationship to the amount of nonprotein nitrogen. Primary high blood pressure showed low values. Icterus and other affections of the liver showed frequently but not always an increase of the cholesterin content of the blood. Blood diseases showed low values. In association with pregnancy, all diseases showed an increase of cholesterin in the blood. Whether cholesterin can be produced in the body or not, is not yet settled. Such origin plays a small part compared with the amount ingested with the food. Inanition and disturbance of intestinal resorption may cause a decrease of the cholesterin content of the blood.

Acta Scholae Medicinalis Univ., Kioto

Jan. 25, 1922, **4**, No. 3. German Edition

Anatomy of Central Nervous System in the Japanese. III. Shimada. —p. 319.
Pharmacology of "Senso" (from Frog Skin). III. Kodama.—p. 355.
Derivatives of Tyrosin in the Organism. Y. Takenaka.—p. 367.
Electric Reactions of Spermatic Cord in Mammals. Goharo.—p. 379 and p. 435.
Pharmacologic Action of Kosotoxin. G. Tamba.—p. 393.
Action of Cocain on Smooth Muscle Organs. A. Nagamachi.—p. 409.
Pharmacology of Santonin. II. H. Oshika.—p. 421.
Mode of Action of Salts of Aliphatic Acids. K. Okushima.—p. 451.
Pharmacology of Phloroglucin. M. Akamatsu.—p. 463.

Japan Medical World, Tokyo

September, 1922, **2**, No. 9

Filariasis. Z. Kawakami.—p. 251.
*Intra-Uterine Vaccination. T. Ohtawara.—p. 254.
*Examination of Blood in Typhoid. J. Senshu.—p. 258.

Intra-Uterine Vaccination Against Smallpox.—In order to determine the possibility of intra-uterine vaccination, Ohtawara vaccinated pregnant rabbits to see if the new-born rabbits had acquired an immunity against variola. The finding was positive. The immunity of the new-born rabbits is an active one. Hence, Ohtawara says, the theory of the invasion of the calfpox virus into the circulation is proven.

Early Diagnosis of Typhoid from Blood Culture.—Senshu uses a glycogen medium containing glycogen, 20 gm.; sodium chlorid, 5 gm. and water, 100 c.c. for culturing the typhoid bacillus from the blood of typhoid patients during the first week of the disease; 2 c.c. of the patient's blood is sufficient for 5 c.c. of the medium. This method is very simple and cheap and can be used at any time and anywhere and it is just as efficient as the bile method, he declares in conclusion.

Polska Gazeta Lekarska, Lemberg

June 18, 1922, **1**, No. 25

Cancerous Degeneration of Tissues. T. Browicz.—p. 509.
Strangulated Hernia: Reduction or Radical Operation? Lacewicz. —p. 511.
A Sarcomatous Angioma of Liver and Spleen. L. Skubiszewski. —p. 513.
Neosalvarsan Made in Poland. L. Hirschfeld.—p. 515.
*Lasègue's Symptom in Sciatica. J. Chmielewski.—p .515.
Colloid and Protein Therapy. R. Rencki.—p. 517. Conc'n.
*Fighting Tuberculosis. Pawelec.—p. 528. Conc'n in No. 26.

Lasègue's Symptom in Sciatica. — Chmielewski describes some little known variations of Lasègue's symptom, and emphasizes their importance in distinguishing between true and factitious sciatica.

Fighting Tuberculosis. — Pawelec here says: "When we look over the pages of French, English and German literature, medical as well as nonmedical, discussing different ways and means for combating the white plague, and compare their great interest on this very important question with our unbearable quietness, as seen from the pages of our own literature and among our medical profession—one would be led to think that Poland must be immune to tuberculosis. But this is quite contrary to the truth." He then outlines the history of the campaign against tuberculosis in different countries, and gives suggestions for ways and means which the Polish government ought to take in order not only to fight recent cases of tuberculosis, but to prevent it from spreading. "The fight with tuberculosis means betterment of the social conditions of the population of the country."

Reports of Dutch-Indian Medical Service, Java

1922, Part 2. English Edition

*Public Health Service in Netherlands India.—p. 81.

The Public Health Service in Netherlands India. — This report covers 1919. It is in English and illustrated. It states that malaria was responsible for 18.2 per cent. of the admissions to the hospitals, and it ranked fifth as a cause of death. The mosquitoes incriminated for the endemic malaria are *Myzomyia ludlowi* and *Myzomyia aconita*. The latter breeds in fresh water. The ludlowi is found only on the coast as a rule, but it has been found in the interior in Sumatra, in fresh water fish ponds. Twenty-five reports of research and extensive preventive work were published by the officers of the service during the year.

Norsk Magazin for Lægevidenskaben, Christiania

October, 1922, **83**, No. 10

*Nonhemolytic Chronic Jaundice. S. Laache.—p. 745.
*Hernia of Umbilical Cord. O. Semb.—p. 778.
*The Hemoclastic Crisis as Liver Test. E. Dahl.—p. 782.
*Vasomotor Changes with Heart Disease. C. Müller.—p. 802.

Nonhemolytic Chronic Jaundice.—Laache summarizes 16 cases in men and 15 in women in which the chronic or subchronic jaundice was traceable to some organic lesion In 14 there was malignant disease in or near the bile passages; in 2 gallstone obstruction; cirrhosis of the liver in 2, and one patient with what seemed to be catarrhal jaundice improved under treatment. Eleven pages are devoted to tabulation of the 31 cases for comparison, and cases are cited from the literature in which jaundice had persisted for twelve and twenty years without much impairment of the general health. Periods of improvement may be observed even in the course of cancer.

Rupture of the Umbilical Cord.—In Semb's case the child was born with extensive hernia at the umbilicus. When notified by telephone by the midwife he told her not to bathe the infant and not to wash the abdomen. He reached it in time to operate by the sixth hour, with special caution not to allow any chilling. The hernia was as large as a hen's egg, and a protruding portion proved to be a prolapsed Meckel diverticulum 2 or 3 cm. long with a fistula connecting it with the small intestine. The diverticulum was resected and the rest of the bowel reduced and the abdominal wall sutured. He has found only two similar cases on record.

Widal's Liver Test.—Dahl has been applying the hemoclastic crisis test in fifty men, women and children with or without liver disease. He recorded the leukocyte curve in twenty-two other persons who did not take the test 200 gm of milk. The findings were so contradictory that he is inclined to deny practical value to the test. The leukocytes increased in some of those with liver disease and dropped in others. The leukocyte count seems to fluctuate irregularly from minute to minute even in fasting individuals kept absolutely quiet.

Action of Vasomotors During Chronic Insufficiency of the Heart.—Müller's statements in regard to the drop of the blood pressure during sleep were summarized in these columns, Dec. 24, 1921, p. 2100. The difference between the day and the night pressure is greatest when the pressure is abnormally high; in normal conditions it averages 5 mm. In the present communication he reports the findings in twenty-two cases of valvular disease, and in eight with other mild heart disease—all well compensated. The drop in the blood pressure averaged the same as in health. In ten other patients with grave insufficiency of the heart the blood pressure kept at about the same level night and day. He ascribes this to greater stability of the vasomotors, and explains it as a compensating process on the part of the vasomotors.

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WHAT TEETH SHOULD BE EXTRACTED? *

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This subject will be considered only in relation to ronic mouth infections. Ten years have elapsed nce attention was prominently called to infections out the teeth as a menace to health. The clinical servations by Hunter[1] of England and the combined inical and laboratory studies of Billings[2] and his sociates in Chicago served to attract the widespread tention of both physicians and dentists. Scattered rough the literature for more than a hundred years e many articles associating mouth infections with stemic disease. Benjamin Rush, in his book on the actice of medicine, published in 1818, devotes several ges to the citation of cases in which rheumatic and her ailments were relieved by the extraction of teeth. thers have made similar reports, but at no time until e past decade has a definite movement been established to eliminate this source of systemic disease.

A review of the experiences of many of our most reful clinical observers leads to the conclusion that e chronic infections about the teeth must be counted important factor in the general consideration of cal infections as a cause of certain types of systemic sease; also that the main contentions of the relationip between chronic foci anywhere in the body and e secondary effects are well established. Possibly the st recent review of the whole subject was that by illings,[3] in which the histories of several hundred ses were carefully analyzed.

The chronic infections about the teeth present a oblem in local pathology entirely different from the oblem in any other body focus, because of the culiar structure of one of the tooth tissues—the mentum—which constitutes the outer surface of the ot, and furnishes attachment for those connective sue fibers which hold the tooth in its socket. The mentum is closely analogous to subperiosteal bone. is laid down by the cementoblasts of the peridental embrane.

The most important difference between cementum d bone is the lack of a circulation of blood in mentum. Cementum is a passive tissue, dependent the peridental membrane for its vitality. It therefore dies when denuded of its peridental membrane, as does subperiosteal bone when stripped of its periosteum. The dead area of cementum cannot be separated and exfoliated, as is dead bone; therefore the dead area of cementum remains and acts as a continuous irritant to the adjacent tissue. Thus the peculiar structure and physiologic relationships of the cementum are responsible for maintaining the chronicity of the infections about the teeth.

The cementum is a very porous tissue, and naturally absorbs the products of the suppurative processes with which its surface is bathed. It should not be expected, therefore, that a reattachment of tissue to dead cementum will occur. Rules of procedure other than those applied to infective foci elsewhere must be followed.

Apparently because of the lack of understanding of the peculiar pathologic condition in these cases, opinions as to treatment differ widely. One group of extremists is extracting every tooth from which the pulp has been removed, even though there is no indication that such teeth are a menace to health; another group refuses to extract any tooth that is serviceable for mastication, regardless of the evidence of infection about it. Almost innumerable cases representing both extremes have come to my attention. In cases in which it had been recommended that from twenty to twenty-six teeth should be extracted on suspicion that they might be the cause of a rheumatoid condition, critical examination revealed no definite indication for the extraction of a single tooth. In other cases in which patients were seriously ill for months, dentists advised that no teeth be extracted, when roentgenograms disclosed large abscesses in the jaw bones, and when there was ample clinical evidence of these infections without the roentgenograms. Both types of extremists do much harm without assisting in the solving of the problem.

Statistics[4] show that there probably is about the same incidence of chronic mouth infections among adults who are well as among those who suffer from the systemic diseases occurring secondarily to local foci. In about 78 per cent. of adults who are in ordinarily good health, and who are attending to their regular duties, roentgenograms reveal that some portion of the maxilla or mandible is destroyed by chronic infections. The fact that the percentage may be as high for well persons as for those who are sick does not justify the conclusion that mouth infections do not cause systemic disease. It is evidence of the good resistance of the large majority to these low grade infections. We must recognize the menace of each infection to its host, and realize that the time is

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* Read before the Section on Stomatology at the Seventy-Third nual Session of the American Medical Association, St. Louis, y, 1922.

[1] Hunter: Rôle of Sepsis and Antisepsis in Medicine, Lancet, . 14, 1911.

[2] Billings: Chronic Focal Infections and Their Etiologic Relations Arthritis and Nephritis, Arch. Int. Med. **9**: 484 (April) 1912.

[3] Billings, Frank; Coleman, G. H., and Hibbs, W. G.: Chronic ectious Arthritis, J. A. M. A. **78**: 1097 (April 15) 1922.

[4] Black, A. D.: Roentgenographic and Microscopic Studies of Tissues Involved in Chronic Mouth Infections, J. A. M. A. **69**: 599 (Aug. 25) 1917; **71**: 1279 (Oct. 19) 1918.

likely to come, sooner or later, when changes in the person's resistance or in the virulence of the infection will lead to the establishment of disease elsewhere. It must be kept in mind, so far as the chronic mouth infections are concerned, that there is no prospect of a reunion of the soft tissue with the tooth root and no hope for a healing of the focus such as might occur in many other locations. Therefore, the only safe rule of practice is to eradicate mouth foci.

DESTRUCTION OF PERICEMENTAL TISSUE

In deciding whether a given tooth should be extracted, it would seem most logical to determine first to what extent the pericemental tissue has been destroyed, noting whether there is denuded, dead cementum, which maintains a chronic irritation of adjacent conective tissue. In making such a diagnosis, two distinct conditions should be considered: the pyorrhea pocket and the chronic alveolar abscess.

In the case of the pyorrhea pocket, the detachment always begins at the gingival line of the tooth, so that the extent of the detachment may be easily determined with a thin-bladed exploring instrument. Digital examination will reveal the absence of overlying bone; pus may be expressed. The tooth may be loose; there may be a history of intermittent periods of soreness, of tenderness to pressure; the tooth may have moved slightly from its normal position in a direction away from the pocket. A roentgenogram will reveal the absence of more or less bone of the alveolar process, corresponding to the area of detachment, provided the depth of the pocket is below the line of the normal crest of the alveolar process. The age of the patient, the history of the previous losses of teeth, the nature of local irritations and the general physical condition should all be considered.

In determining whether to extract these teeth, two things should have most important consideration: first, the possibility of eliminating the systemic menace by preventing reinfections; second, the usefulness of the teeth in mastication. The depth of pockets and the tightness or looseness of the teeth during periods when there is no acute infection in the pockets are most frequently the deciding factors. The connective tissue lining the pocket must have the protection of an epithelial covering if the tooth is to remain.

For shallow pockets, the growth of the epithelium may be promoted by removing irritation and by the highest degree of cleanliness. For deeper pockets, the overlying tissue may be cut away. The cut surface will be promptly covered with epithelium, and even though the pocket is partially reestablished by the regrowth of the gum tissue, the newly formed tissue will be lined with epithelium, and will be comparatively safe from reinfection. If the pockets are deeper and the teeth are loose, the best plan is to extract the teeth, because it is practically impossible to retain such teeth without frequent reinfection of the pockets.

ALVEOLAR ABSCESS

In the case of teeth having chronic alveolar abscess, the detachment of the soft tissue from the cementum is always about the apex of the root. Usually a portion of the bone is destroyed, and the extent of the injury may be determined by roentgenographic examination. If the roentgenogram discloses a cavity in the bone, with the end of the root projecting into the cavity, there can be little question that the cementum of the root end is denuded, provided the cavity is one involving a single root and the pulp of the tooth is n vital. If the roentgenogram reveals a continuous li of dense bone to which the fibers of the perident membrane are attached, all the way round the root en and parallel to the surface, the evidence is quite pos tive that the attachment of the soft tissue to th cementum is intact.

In cases in which upper molar roots are projecte into the shadow of the maxillary sinus, the showing this line of denser bone is often the most importa item in the diagnosis. If there is a sinus through th gum, a sharp steel probe should be used to determi the condition of the tissues at the apex of the roo This method is often more certain than the roentge ogram.

By digital examination, one may discover whethe a cavity in the bone has involved the buccal (or labial or lingual plate, and a movement of the end of the ro may be felt. If the bone has been destroyed, a shar steel probe may be passed through the soft tissues t explore the root end. In the absence of other sym toms, tenderness of the tooth to the stress of mastica tion or to percussion, intermittent soreness or sligh elongation of the tooth, all indicate inflammation of th apical tissues.

In all cases in which the diagnosis is not clear, th vitality of the pulp of the tooth should be tested; i fact, this test should be made as a routine check o roentgenograhpic evidence. When it is determine that an area of cementum about the apex has bee denuded by the destruction of the peridental tissue the tooth should, as a rule, be extracted. In determi ing whether the tooth should be extracted, the size o a cavity in the bone is of much less importance tha the extent to which the cementum is denuded.

In connection with the study of these cases, i should be kept in mind that an acute alveolar absces generally does not destroy the peridental membran about the apex of the root. The infection follows th lymphatic vessels attached to the walls of the bloo vessels which pass through the foramen of the roo These lymphatic vessels pass directly out into th cancellous bone, which, therefore, is involved in acut alveolar abscess. It follows, then, in cases in whic acute abscesses receive prompt treatment, that n serious harm is done, and there is no reason why th teeth should be extracted.

Likewise, in cases of dead pulps, with or withou acute abscess, the teeth should not be extracted unles it can be determined that the immediate periapica structures have been destroyed. In connection with paper [5] read before the Illinois State Dental Society i 1920, I exhibited roentgenograms of teeth in whic dead pulps had been removed and root fillings mad from one to thirty-two years previous to making th roentgenograms. Of the cases which showed no sig of injury to the peridental tissues at the time the dea pulps were removed, 94 per cent. appeared to be i perfect condition when the recent roentgenographi examination was made, and all other signs and symp toms corroborated the roentgenographic findings This exhibit alone should be sufficient to condemn th extraction of all teeth from which pulps have bee removed, as has been the practice in a considerabl number of hospitals, and by many dentists. Too man such teeth have been removed "on suspicion" withou any real evidence against them.

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[5] Black, A. D.: Clinical Studies of Pulp Treatments, Includin Report of Fifty-One Cases in Which Dead Pulps Were Remove J. Nat. Dental A. 8: 132, 1921.

CURETTEMENT OF SOCKETS

Gilmer[6] has criticized the common practice of retting sockets after the extraction of abscessed th. Extensive studies of roentgenograms of edentuis or partially edentulous jaws, from which abscessed th had been removed months or years previously, ve shown that it was the almost universal rule that ected areas had been entirely replaced with healthy ne. Therefore, curettement is not only unnecessary, t is definitely contraindicated, because it opens cancellous bone, giving opportunity for the infecn to spread. Curettement also calls for much afteratment which would otherwise be unnecessary.

TWO RADICAL GROUPS

Notwithstanding the extensive studies and discusns of recent years, it appears that too large a mber of physicians and dentists are still in one or other of the two radical groups; the one extracting ery remotely suspicious tooth without real evidence, other refusing to remove teeth which are undoubty abscessed. Those of the first group are seriously ndicapping the masticating power of those who parularly need to chew their food thoroughly because y are below par physically. Too often teeth have n sacrificed on suspicion when supposedly all other irces of infection have been eliminated. Those of second group are permitting the development of ondary pathologic processes which will shorten the es of many patients. It should be a rule that no th will be removed unless there is a definite indican for the operation; it must also be a rule that all th having infected areas about them should be tracted if the infection cannot be otherwise elimited. The determination whether or not to extract tooth will nearly always require a demonstration it the cementum of the root has been denuded.

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ABSTRACT OF DISCUSSION

R. R. H. Ivy, Philadelphia: In persons otherwise in good lth, many chronic periapical infections can be cured with- extraction of the teeth. I was surprised at the statents of Dr. Black and Dr. Logan that they found a very all percentage of residual alveolar infections in jaws mined sometime after extraction of teeth without curettent. On the other hand, I see a large number of cases of idual bone disease due to failure to recognize and treat ropriately the alveolar condition at the time of extrac-. I believe that judicious curettement is indicated under tain conditions, as the drainage produced by extraction l not necessarily result in cure. This curetting should end on the amount and type of disease present, and is ticularly applicable to cystic degeneration.

R. J. H. Kennerly, St. Louis: I never could agree to extraction of every tooth in which there was a pathologic dition of any kind. I was raised among a class of men knew nothing about roentgen rays, but they did know v to treat and save teeth. I never could feel that those n were not employing good dentistry in their method of ting pulpless teeth. I think that our great fad for extrac- has had its day, and I am glad to see that the pendulum beginning to swing in the other direction because I am olutely sure that in the last ten years millions of good h were extracted uselessly.

R. William L. Shearer, Omaha: If I have understood Black, the cases he represented and the cases he referred were not selected from a class of patients presenting some temic manifestations of the body as a whole. If this is correct, I would heartily endorse the management of that tooth; but I believe that in the face of pathologic processes of the body which are in part, or wholely, traceable to chronic mouth infections, the general physical condition of the patient should be a guiding factor. We can no more dissociate pathologic conditions of the mouth in relation to disease than we can dissociate infections of the tonsils, liver, gallbladder or other organs in relation to general bodily metabolism. One condition of the bone at the root ends of the teeth which I wish Dr. Black had brought out is the diffuse osteitis or a diffuse inflammation of the body of the bone at the root ends of pulpless teeth. In many cases of root end infection, an osteosclerosis has taken care of the organisms contained in that area. The recent investigations of Dr. Rickert and his associates at Ann Arbor have many times demonstrated this fact. On the other hand, with a diffuse osteitis at the root ends of pulpless teeth, they have not been able in any cases to treat the teeth so as to obtain a sterile culture and keep it sterile. But, in the other type with an osteosclerosis (in which the infection is well walled off), in vast numbers of cases they have been able to obtain a sterile field and keep it sterile eighteen months. In the treatment of chronic infected areas at the root ends they have been able up to date to obtain a sterile field only in single rooted teeth. I believe (as they have brought out in their investigations) that, when a patient presents some systemic manifestation of the body which might be, in part, traceable to infection of the mouth, we should not permit the teeth to remain in the mouth unless we can obtain a sterile culture and keep it sterile. I firmly believe and always shall (until it is demonstrated to me otherwise) that vast numbers of teeth may be maintained in the mouth without menace to health. At the same time, it is our duty to call the attention of those patients carrying infected teeth to the fact that once they start with a cerain syndrome, such as headache, backache, dissatisfaction with their general physical fitness, inability to carry on their work satisfactorily and fatigue after a few hours' exertion, they should consult their dentist and determine whether or not the teeth are a contributing factor to their ill health. I advise that cultures be taken under the most rigid aseptic conditions. When this can be done, then, and then only, are we wise in maintaining such teeth in the mouth.

Dr. S. D. Ruggles, Portsmouth, Ohio: For a dentist without a knowledge of medicine to condemn pulpless teeth in cases of focal infection is presumptuous. For instance, unless a general physical examination, urinalysis and blood count are made, the first requisites for a diagnosis are missing. The resistance of the patient should be known in order to judge of the course to be pursued. A patient with high resistance is cared for differently from one whose life is in jeopardy. I am inclined to the belief that the dentist single handed is not a good man to decide definitely whether or not the teeth should be removed.

Dr. Fulton Risdon, Toronto: In this work, first we must see what is removed; second, we must be able to hold that in the hand; third, we must see into the cavity and see that our work is done. I have seen very disastrous results from simply curetting.

Dr. T. L. Gilmer, Chicago: I heartily concur with Dr. Black's paper throughout. We should always keep in mind the fact that while the teeth are often the cause of disease, many other parts of the body may be diseased, and the teeth may be the primary focus of infection. We know that apical tooth infections are at times secondary to infection in other parts of the body. For instance, the pulp dies in a tooth without a cavity of decay. Disintegration takes place in the pulp tissue, and as a result poisons are formed. These poisons pass out through the apex of the root of the tooth and lower the vitality of the apical tissues, but they do not cause an abscess to form. Pyogenic organisms reach these localities through the nutritive channels from a focus elsewhere in the body, and, the vitality of the apical tissue having been lowered, succumb to the pus forming germs, and an abscess results. Here is a definite secondary infection of a tooth's root from a primary focus elsewhere. The pyogenic organisms could not possibly have reached the apex of the root through the pulp canal, since there was no cavity of decay. If a patient is ill as a result of foci of infection, and the patient's physical condition is improved by eliminating a jaw infection, the improvement may be due to the lessening of his load, but a complete cure must not be expected until the primary focus is discovered and also removed. The lack of this, in some instances, accounts for the failure of complete cures following the elimination of the jaw abscesses only.

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[6] Gilmer, T. L.: Fifty Years' Observation of Oral Surgery, J. Nat. tal A. 9: 547, 1922.

Dr. Theodor Blum, New York: I wish to call attention to the term abscess employed in connection with an area of bone destruction at the apexes of teeth. In most of these areas, no pus is found and as long as we consider an abscess a circumscribed collection of pus, we have no right to use this term in this connection. I am surprised to hear so many speak against curettement. Of course, we do not curet the sockets, but the areas of absorption around the apexes of the teeth. Knowing that radicular cysts develop from the thickened apical pericementum, curettage of such areas must be advocated. I was especially interested in one case cited by Dr. Black, in which there were two maxillary bicuspids, only one of which was devitalized, while a cystic area involved both apexes. This is a frequent occurrence and seems to be due to the slow growth of cysts, during which time nerves and blood vessels are slowly enlarged and elongated, but not destroyed. We are on the right track in being conservative and in removing so-called devitalized teeth only when it is absolutely necessary. Roentgenograms are often misleading. Generally, conditions are worse than represented. I have examined several thousand roentgenograms made from edentulous and partially edentulous jaws. I found few abscesses remaining, and those found were probably encapsuled abscesses or small cysts. Since so few abscesses remain after the extraction of teeth when there is no curettement of the sockets, I am of the opinion that it is uncalled for, except in extremely large infected areas. It is doubtful whether the term granuloma as employed in connection with chronically abscessed teeth is ever justified. The name indicates a tumor made up of granulation tissue. Granulation tissue in an apical abscess is not a tumor. It is due to an effort of Nature to rebuild the bone destroyed by infection; but it cannot become mature tissue, since the root infection does not permit. When the infected root is removed, the granulation tissue becomes mature tissue and the bone lost by infection is replaced. If this is true, why should this granulation tissue built up by Nature to replace bone be removed? The term nonvital teeth is misleading. If a tooth is nonvital, it is a necrosed tooth and would not be tolerated by Nature. Pulpless teeth are not dead teeth.

Dr. T. W. Brophy, Chicago: I regret that we could not have started a campaign in the direction taken by Dr. Black ten or twelve years ago. If we had, thousands of good teeth would still be in the mouths of their owners and doing good service. Still, we are doing all we can at this time to prevent the further unnecessary loss of good teeth. All of us who have looked into this question, even casually, know that teeth have been extracted unnecessarily. Teeth have been called dead when not dead. They have vital relation with the tissues surrounding them. A dead tooth is necrotic. Abscesses have been said to exist when none existed. Roentgenograms have been misinterpreted, and many persons have been advised to have teeth extracted on the assumption that these teeth were diseased, when they were not. Our greatest, most important duty is to conserve health. The preservation of the human teeth will contribute largely to the preservation of health and to increasing the longevity of mankind.

Dr. Virgil Loeb, St. Louis: I want to emphasize particularly one point which Dr. Black made relative to curettement. I believe, as he does, that there is entirely too much curettement of tooth sockets. I know he did not intend to give the impression of objecting to curettement of large cystic areas; but what he did mean, I think, is to object to the promiscuous and almost criminal curettement after the removal of teeth, about the apexes of which there may be only small rarefied areas. In many cases in which there are no general symptoms before curettement, such sym toms appear after curettement.

Dr. Carl W. Waldron, Minneapolis: There are too ma experimental difficulties in the way of surely and fina deciding the conditions surrounding these pulpless teeth. feel that, on account of the widespread and lamental extraction of teeth, we need men like Dr. Black to tell to hold back. I agree with what Dr. Shearer said about t sick and the well. Any dentist can ascertain in a gener way the state of a person's health and determine his line treatment. When the physician in charge of the patient h done his utmost, yet has been unable to determine oth sources of infection, the dentist should remove the pulple tooth. I am certain it would be far better to remove eve pulpless tooth than again to have the conditions which all know too well were present five years ago with referen to the practice of dentistry. There is a better way; that prevention. Rather than undertake a large mass of resear work to settle the matter of the pulpless tooth, we might f better spend our energy and time in research that will le to its prevention. With reference to indiscriminate cur tage, I think we need not worry when the dentist w extracts an infected tooth will so govern his technic that can see the areas involved.

Dr. Arthur D. Black, Chicago: Many men have made a rule to curet areas following extraction. There are cas which require curetting, but it should not be a rule of pra tice. Some men are recommending that the buccal plate a much healthy bone be cut away to gain access to a sm area at the bottom of a socket. This not only exposes area of freshly cut bone to the infection, a procedure wh may be a serious menace to the patient's health; it al later handicaps the patient in wearing a denture, and besid in a large majority of cases there will be perfect healing nothing is done but removing the tooth. I appreciate t importance of taking into consideration the physical con tion of the patient in deciding whether or not we shall extra a tooth about which we may be in doubt, especially in cas in which the most thorough study of other areas of the bo has been made and apparently nothing was found. In su cases, we may be justified in extracting a tooth "on sus cion." But our rule should be to have a definite indicati for each extraction we perform. On the other hand, we m not let the pendulum swing back too far; we must not lea abscessed teeth in the mouths of patients who are we because these teeth are a constant menace to health, a also because the secondary manifestation is so often of serious nature and beyond hope of cure when discovered the physician. We must have a rule of practice in the cases by which we shall eliminate every discoverable ar of chronic infection, and we must study the condition of t cementum more than that of any one tissue because pu soaked cementum is the irritant which maintains the chronic infections. It is just as much our duty to elimina these infections in a well person as it is to eliminate the in the sick.

Mortality Among Granite-Stone Workers.—Compared wi the normal death rate of adult males of Vermont, or of Ne England, the mortality from pulmonary tuberculosis amo granite-stone workers has increased enormously during t last two years, as contrasted with a diminishing in t population at large. Against a decrease in the pulmona tuberculosis death rate of adult males of Massachusetts fro 288.5 per hundred thousand exposed to risk during 1895-18 to 203.2 during 1915-1918, there had been an increase in t corresponding death rate of granite cutters of the New En land states from 432 per hundred thousand during 1895-18 to 1056.7 during 1915-1918. The only other occupation f which information is available for the corresponding peri is that of glass-bottle blowers, among whom the mortali from pulmonary tuberculosis diminished from 418.6 p hundred thousand to 265.9.—Hoffman: The Problem of Du Phthisis in the Granite-Stone Industry, U. S. Department Labor, 1922.

MALOCCLUSION AND ITS FAR-REACHING EFFECTS *

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When we consider from the standpoint of beauty d comfort the great blessing of a healthy oral cavity, e cannot but wonder why the medical profession has ly at this late date come to stress its importance. is in this area more than anywhere else in the human dy that prevention—the ideal of the physician—can exercised. It has already been pointed out[1] that ries, the most frequent disorder of the oral cavity, n be at least greatly minimized by both prenatal and stnatal influences; prenatally not only by giving par- cular attention to the diet of the mother for the rmation of teeth of her unborn child, but also by eventing any disturbance in the mother's metabolism at might interefere with the assimilation of food. ostnatally, the physician should advise for the child diet which provides for continuation of adequate oth formation, and which also aids in the develop- ent of proper functioning of the jaws so as to lessen e probability of the occurrence of malocclusion.

Malocclusion is one oral disorder that has not ceived the attention it deserves. It is a great handi- p to the child physically and mentally. This is ident when the physician notes the frequency with hich a diagnosis of mental retardation and physical pairment accompanies the diagnosis of malocclusion. ormal occlusion goes hand in hand with well formed ws, sound teeth, proper mastication, correct breath- g, normal speech, normal brain development and the ell-being of the child.

The oral cavity of the new-born is very shallow, ving to the imperfect development of the alveolar ocess. The hard palate is flat. The teeth are formed st, and the bone develops around them for their sup- rt. A tooth grows by the multiplication of cells of e tooth germs, and the growth is comparable to the rces exerted on it by multiplication of cells as in any her part of the body. The peculiar forces of the uscles of the face and the surrounding bone deter- ine the extent of development. The lips, tongue, late and other tissues exert pressure on the lingual rfaces of the bone, through the periostium, which in rn stimulates its growth. This mechanical stimulus necessary in addition to nutrition for growth.

Animal experiments and clinical evidence show that e muscular function acting through occlusion affects e development not only of the jaw but also of the tire skull. Any lack of harmony in the working of ese muscular forces causes the teeth to occlude abnor- lly after their eruption. Every pathologic occlusion s a simple beginning in its deviation from the normal her in structure or in function. Once this balance harmonious relation in the forces acting on the oral sue is altered, there is a resulting disturbance in the velopment of the jaw. This improper development ogresses because the same forces that act in keeping e teeth in their normal relation act equally in increas- g any disproportion that exists.

If the child has proper oral care up to the age of 6, e chances are that oral disorders in after life will avoided or at least greatly decreased. Assuming that the child has inherited a normal oral cavity, the most effective means of preventing oral deformities are to (1) provide proper nutrition; (2) provide sufficient and proper exercise of the jaw; (3) avoid faulty oral habits, and (4) remove causes of mouth breathing.

MOUTH BREATHING

The physical defects often seen accompanying mouth breathing of long duration include poorly developed alae nasi with small nose and short upper lip, upper arch narrow and lengthened, deflected septum, and sometimes impaired hearing. The child's appetite is usually poor, and there is a great desire for fluids, to take away the constant dryness of the mouth and throat. A history of anorexia and unsatisfied thirst is given by the mother as a consequence.

The amount of discomfort and deformity that may result from mouth breathing is difficult to estimate. Those who have a long, narrow face, with a shortened mandible, are apparently the worst sufferers A normal face, on the other hand, seems to show evidences of comparatively little discomfort.

One of the commonest causes of persistent mouth breathing, especially in infancy, is adenoids. The cause of adenoids is often hard to explain, but their removal is comparatively simple. This course is urgently advised, as soon as the diagnosis is established. Early age is no barrier to their removal. When adenoids are responsible for mouth breathing, their removal is usually sufficient to restore nasal breathing; but nasal breathing does not usually follow after the removal of the adenoids in early childhood unless proper instruction of muscle training is given and carried out.

About 75 per cent. of the children seen at the Forsyth Dental Infirmary are still mouth breathers from one month to three years after the removal of their tonsils and adenoids. In a small percentage of these children, the condition may be traced to some further existing mechanical obstruction; in others, mouth breathing exists either because of habit formation or because of improper development of the facial muscles. By repeatedly reminding these children to breathe with their mouths closed, and by the constant practice of simple special exercises which tend to develop the facial muscles (as recommended by Dr. Alfred P. Rogers of Boston), a great many of them can be taught to breathe properly.

Nasal breathing is vital for correct oral development, and is one of the surest preventions of irregularity of temporary teeth. Fortunately, not all mouth breathers develop material deformities of the dental arches, maxilla or mandible.

FAULTY HABITS

Faulty habits may play some major or minor part in the causation of oral deformities. These habits should be prevented if possible; if formed, they should be discontinued. A practice to be especially condemned is the prolongation of feeding through the artificial nipple. Bottle feeding does not furnish the proper development of the muscles of the jaw. It retards the child in learning to masticate properly. The muscles of mastication should be put into function as early as possible, and there is no valid excuse for allowing the child to continue bottle feeding when it has sufficient strength to be fed with a spoon.

It is hardly necessary to comment on the fact that the breast-fed baby is better nourished than the baby who is artificially fed. From the point of view of normal oral development, the breast-fed baby, by the

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* From the Forsyth Dental Infirmary for Children.

[1] Cohen, S. A.: Oral Disorders in Pediatrics, Am. J. Dis. Child. : 160 (Aug.) 1922.

very act of nursing, has the additional advantage of developing its mouth and jaw to a higher degree of perfection than the baby who obtains its nourishment through an artificial nipple. The breast-fed baby, by his act of vigorous sucking with a great deal of force, causes the tongue to act as a wedge to the back part of the mouth, which in turn causes a widening of the nasal passages. The child nursing from a bottle does not go through the same performance of developing its jaw muscles; the milk flows readily, and the soft rubber nipple does not offer the same kind of resistance as does the human nipple. A nipple of proper size is important if the baby nurses from a bottle. An ideal nipple is one that is long and large enough so that the baby can draw the fluid from the bottle only by working the jaw up and down; and pressing the nipple between the tongue and palate, and bringing into play the muscles of the palate. It is worthy of note that Drs. Hellman and Wenker have found that from 79 to 81 per cent. of arrested jaw development occurred in babies who were artificially fed.[2]

The pernicious habit of thumb or finger sucking is often a problem to be met by the physician. Ordinarily he is consulted only after the usual treatments have failed. An aluminum mitten or a large woolen glove, bound up to include the whole hand, or some similar device that makes the child's hand so bulky that it is impossible to introduce it into the mouth, is sometimes sufficient to break the child of the habit. Serious oral consequences may result with the continuation of this habit. A simple, satisfactory and ingenious method which is occasionally used is that of employing some appliance which covers the child's palate and hence removes the satisfaction derived from sucking.

Another habit influencing malocclusion is the constant biting of the lips, which causes continual pressure on the front teeth. It is not so common as thumb sucking, and, moreover, is one that is easily broken; but if this habit is allowed to continue, there is a protruding of the front teeth, and also a receding of the lower distal arches.

NUTRITIONAL DISTURBANCES

Clinically, it has been found that nutritional disturbances are one of the outstanding etiologic factors of malocclusion. Because of improper nutrition, there is frequently an asymetrical development which causes a disturbance in function, this, in turn, resulting in an interference of the local nutrition, with subsequent loss of anatomic form.

Rickets is one of the worst conditions in the causation of malocclusion, and is also responsible for some of its severest forms. There is often a marked jaw deformity in cases of moderate rickets. Even mild cases of rickets clinically show some jaw deformity. The arrest in the development in the maxillary bones in rickets usually causes some degree of malocclusion, although sometimes it may not be susceptible of treatment.

Deprivation of proper masticatory exercise interferes with the proper development of the face bones and face muscles. This factor introduces the question of the physical properties of food. The modern methods of food preparation tend to cause disuse of the jaws and teeth. Soft, mushy food of the present day diet is bound to cause a lack of vigorous mastication, which is so vital to proper jaw development. Vigorous mastication causes the masseter muscles to have a widening effect on the lower jaw, which tend to widen the arch of the maxilla and the palate. A normal nasopharynx and roomy nostrils result from this widening effect. If the child has been kept on bottle or soft food fifteen months or more, it is sometimes difficult for him to learn to masticate properly

ABNORMALITIES AND DEFORMITIES

When there is a lack of muscular action in parts of the body other than that of the face, there results no concomitant bony deformity. But not so with the bones of the face; it has been pointed out previously that masticating action causes bone growth by a mechanical stimulus, and that absence of or insufficiency of hard food does not furnish the necessary muscular action to cause the necessary mechanical stimulus.

Chewing involves the use of the muscles of mastication which are attached to the bones, and results in growth of the jaws, ample to accompany the teeth in normal occlusion. In looking over sample diets recommended, one cannot help feeling that there is a lack of proper food from a physical and mechanical point of view, to insure proper and ample functioning of the masticating muscles.

Only normal mouths can perform normal functions Malocclusion always indicates abnormal functioning Normal occlusion means the health of the teeth and their surrounding parts. Malocclusion implies a pathologic condition of the teeth and surrounding tissues It is the experience at the Forsyth Dental Infirmary that a well formed mouth rarely harbors any significan oral disorders. By a well formed mouth is meant one in which all the teeth in both arches are so situated as to have the proper interrelation, with the portions of the teeth in the arches in such a position as to give one another, singly and collectively, the greatest possible support.[3] Malocclusion may result from any combination of one or two kinds of irregularities that is, either the teeth all stand in line and the jaws are disproportional in size, or the jaws are proportiona in size, and the teeth are improperly placed in line As there are no two faces alike, so there are no two dentures alike; therefore there cannot be any criterion for normal or abnormal occlusion.

Children who are underdeveloped frequently have dental arches which are too narrow. An indication of lack of vigor is shown by the improper development of the arches. Supernumerary teeth are usually an indication of malocclusion.

Prognathism, a marked projection of either jaw, is easily recognized. The diagnosis of severe or moderate degrees of malocclusion is also comparatively simple. The upper arch is frequently narrow and lengthened, although there may be little or no crowding of the teeth. It remained for the late Dr. E. A. Bogue[4] of New York to interpret properly the diagnosis of malocclusion in its early stages. Temporary teeth are much smaller than permanent teeth. If before the eruption of the permanent teeth there is no spacing between the deciduous teeth, there will surely be insufficient space for the larger permanent teeth when they erupt. Therefore, the presence of perfectly close, regular teeth after 5 years of age is an indication for treatment, since Nature must be aided if there is to be sufficient room for the permanent teeth to come Spreading apart of the baby's teeth begins to take place before the third year. At three and a half years the ipper dental arch must measure at least 27 mm. in the ateral width between the temporary molar region. If at years the breadth is less than 28 mm., it is absolutely ertain that the child will not have a normal arch unless t is aided artificially, for the child will not outgrow he defect. This measurement is the distance between he second deciduous molars and is taken by means of caliper; from 28 to 30 mm. is the variation of a ıormal width, and any measurement below 28 mm. hould be considered abnormal. An abnormal measurenent is sufficiently reliable to warrant a diagnosis. The measurement of this width is simple enough to ıdvise that the use of the caliper be added to the ever ncreasing armamentarium of the physician.

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[2] Wenker, R. J.: Dental Item of Interest **41**: 619 (Aug. 19) 1919.

[3] Angle, E. A.: Treatment of Malocclusion of the Teeth, Philadelphia, S. S. White Dental Manufacturing Company, 1907.

[4] Bogue, E. A.: Internat. J. Orthodent. **7**: 242 (May) 1921.

About two years before the permanent teeth erupt, heir growth within the tissues causes a distal enlargenent of the dental arches. This widening causes the pacing between the temporary teeth which is normal ınd should be sought for between the ages of 4 and years. Frequently, in cases tending toward abnornality, spacing is found only between the anterior eeth. Spacing, however, should occur between all the eeth in the mouth. If the child's general development s slower than the average, the spacing occurs at a orrespondingly later age. This fact is one which is mportant to remember from the point of view of liagnosis and treatment.

TREATMENT

Once the diagnosis of malocclusion is made and here is no further mechanical hindrance, the patient hould be turned over to the orthodontist for treatnent. Previous to this, the rhinologist should be onsulted to determine and treat any mechanical nterference to breathing, so far as is practical. Thus, he physician, in conjunction with the rhinologist and he orthodontist, is directly concerned in the treatment of every case of malocclusion.

As has already been stated, abnormal conditions will ıot correct themselves, and the forces involved tend o maintain and exaggerate these abnormalities. On he other hand, there is a remarkable and prompt esponse on the part of Nature to correct malocclusion as soon as favorable conditions are established. The treatment of malocclusion should begin as early ıs possible, thirty months of age being considered the nost favorable time. The younger the person, the nore plastic the tissues. The longer the teeth remain n malocclusion, the more fixed and unyielding become he surrounding tissues. For this reason it is far easier to move teeth about the socket of the alveolar process in younger than in older children. As each ucceeding and permanent tooth erupts, the chances or complete success are diminished, and the duration of treatment is lengthened. In early treatment, only light force is necessary to direct each erupting tooth o its proper position, as the growth and repair are nost rapid, and the tissues yield very easily. However, if treatment is postponed, the situation becomes nore complex as treatment involves the whole dental ipparatus; the teeth are more firmly held in the socket, ınd the muscles are already altered to work in unison vith malocclusion, as is evident by the firmly fixed ines.

Treating the dental deformity before the sixth year nsures not only good mouth functioning but also corect breathing, since the width of the maxillary arch letermines whether or not there is room for normal ıasal breathing. Narrowing of the nasal spaces is the result of malocclusion because of a deflection of the septum. Early treatment of the arches either prevents or relieves narrowing of the nasal spaces; the width of the nasal floor is dependent on the width of the upper dental arch.

In fact, the growth and development of the mouth and tissues are so closely interwoven with the nasal spaces that any pathologic disturbance in one will cause disturbance in the other. Besides the nasal development and function being corrected through the correction of malocclusion, there will also be an improvement in the usually accompanying faulty posture, curvature of the spine, and abnormal development of the chest. Faulty and narrow jaw development causes the eustachian tubes to be so curved that the orifices close or tend to be closed. This naturally causes deafness or impaired hearing. Improvement of the jaw, if it is the cause of existing aural conditions, will aid this materially.[5] Correct pronunciation is seriously interfered with if the arches are in an abnormal position. This is especially true of the letters F and V, which are enunciated by sudden escape of air between the lower lip and the upper front teeth. Faulty habits of enunciation are corrected more easily in early than in later childhood. It follows that the earlier the correction of the deformity is undertaken, the more likelihood there is for proper enunciation and proper tone.

Dr. Bogue states that the child's brain at 6 years is within 40 gm. of its weight at 19 years of age; hence it is most important that all irregularities of the face and teeth should be corrected before the sixth year, while growth is at its maximum. He asserts that the growth of brain tissue is retarded mechanically by poor occlusion. For these reasons and many more that can be enumerated, the physician should be on the lookout for normal arches in children between the ages of 2½ and 6 years. Doubtful cases should be closely observed and treatment begun just as soon as diagnosis is established.

CONCLUSION

From the foregoing few facts, it is seen that the dental apparatus is not an organ with a single function which may be compared to the other organs, for example, the eyes and ears, treatment or lack of treatment affecting those alone. The impairment of the dental apparatus, because of its very complex structure, includes also the impairment of muscles of mastication, voice production and voice sound, teeth, dental arches, facial expression and beauty of face. All of these functions are performed properly only if they are developed properly, and if there is any impairment in even a part of the dental structures, the result is improper functioning of all the complex acts described above, in addition to an unattractive countenance. Not only is there a tendency on the part of Nature to cause these abnormal conditions to progress, but Nature will show herself at her best in maintaining and continuing to maintain the entire dental apparatus in proper condition, and therefore proper functioning, if the dental apparatus is in order or is guided to be in proper working order.

The final responsibility of oral disorders rests with the physician. It should be his particular care that proper measures for prevention and treatment of malocclusion be introduced at the proper age, in order that the greatest amount of good may be accomplished in the shortest time and at the least expense.

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5. Wright, W. H.: J. Nat. Dent. A. 7:979 (Dec.) 1920.

"LOWER HALF HEADACHE" (NEURALGIC) OF NASAL ORIGIN

GLOSSODYNIA, OTALGIA, NAUSEA, PARAGEUSIA, VERTIGO, SCOTOMA, PHOTOPHOBIA, RHINORRHEA AND ASTHMA AS ISOLATED RELATED PHENOMENA *

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In 1908 I [1] described a "lower half headache" (neuralgic) which seemed to be related to the nasal (sphenopalatine or Meckel's) ganglion. In those cases, there was almost always a recognizable lesion in the district in which the ganglion lay, and the symptoms could be relieved by cocainization of the ganglion. Later, I found that typical lower half headache could be present without such a lesion and could not be relieved by such treatment. These were cases of sphenoiditis, hyperplastic or suppurative and I believed that the headache was produced by irritation or inflammation of the nerves which supply the ganglion. Such lesions, of course, are situated central to the ganglion and naturally are not influenced by cocainization of it. Treatment of the sphenoid is successful for these lesions.

CLINICAL PICTURE OF LOWER HALF HEADACHE

This "lower half headache" when complete consists of pain about the eye, the upper jaw and the teeth, extending to the zygoma and temple, with earache and pain in the mastoid, emphasized at a point 5 cm. behind it. This point is always tender on pressure, although the pain is often temporarily absent. Thence, it extends to the occiput, neck, shoulder, scapula, arm, forearm, hand and fingers. This is the pain, or neuralgic, syndrome. There may, however, be added to this a sympathetic syndrome of sneezing, rhinorrhea, lacrimation and photophobia. The sense of taste is usually slightly diminished on the anterior half of the tongue, and occasionally there may be parageusia or vertigo. There may be slight motor and sensory disturbances in the soft palate, which are clinically negligible save for an imperfect opening of the eustachian tube in swallowing.

Such is the ordinary or routine syndrome. These postnasal lesions — ganglion or sphenoid — do not always produce the ordinary syndrome. Not infrequently they produce ophthalmic migraine, sometimes complete, that is, the attack begins with scotoma or hemiopia, then headache, nausea or vomiting, aphasia and, finally, hemiparesis. Ophthalmic migraine is definitely cyclic. The aphasia and hemiparesis, however, are rarely present.

More rarely such postnasal lesions produce "lower half headache," accompanied by nodules in the scalp and nape of the neck, which sometimes disappear after the attack and sometimes remain for a longer period. In these cases of "nodular headache," it has been thought that the nodules produced the headache.

ISOLATED PHENOMENA

Were each of these clinical pictures always complete there should be little difficulty in referring them to their origin. This, however, is rarely true. Many of the symptoms are usually present; but there is a small percentage of cases in which only isolated symptoms are present. As this fact becomes better known, probably the number of cases reported will be larger. The cases presenting only isolated symptoms are obviously the most obscure. They are encountered in all departments of practice and give rise to much difficulty not only for the patient but also for the physician. They are probably met least often by the rhinologist because there are no symptoms to direct attention to the nose.

The cases of isolated symptoms of nausea, vertigo and the like, referable to the postnasal district as the etiologic factor, in my experience, were first recognized in cases in which a well defined "lower half headache" had been present for some time before and had brought the patient to my care. In these patients there was an absence, at those times, of all other symptoms of the "lower half headache" which had become so well known both to the patient and to me. In the nasal ganglion cases, they were relieved by cocainization of the ganglion, and in the sphenoidal cases, by intrasphenoidal cocainization. Later I learned that such symptoms could be constantly the only manifestation of the postnasal lesion.

In connection with a mention of isolated phenomena related to the "lower half headache" of nasal origin, it is of interest to cite some other phenomena that are controllable from the postnasal district but which at present cannot be recognized as in any way associated with "lower half headache." Conspicuous and most interesting, in this class, is glossodynia. At the meeting of the Southern Medical Association, Nov. 17, 1921, Dr. L. W. Dean reported that glossodynia could be controlled by cocainization of the nasal ganglion, and that permanent relief was obtained by alcohol-phenol injection of the ganglion. I have since verified Dr. Dean's observation in four cases of glossodynia of years' standing that had resisted all treatment by the most sagacious physicians, besides my futile efforts. These patients had never had "lower half headache." Any one who has ever had to do with glossodynia, not only patient but physician as well, will welcome this possible relief. In my experience, nothing has been more resistant to all treatment than glossodynia. The mental relief is as great a comfort to the patient as the cessation of physical pain. Such patients almost always believe they have cancer of the tongue, despite the assurances of the physician to the contrary.

At the meeting just referred to, I reported the observation that earache of inflammatory middle ear origin could be controlled by cocainization of the nasal ganglion. I have not, however, had a sufficient number of such cases to state how often this may be true. At the same time, I reported that pain in the lower jaw, after the difficult removal of teeth, could be controlled by cocainization of the nasal ganglion; but I do not know with what regularity. Dr. W. V. Mullin of Colorado Springs had a patient with trigeminal neuralgia with much pain in the lower jaw. He controlled the pain by cocainization of the nasal ganglion.[2] Reflex earache after tonsillectomy may also be controlled in this way.

Nausea is encountered in all lines of practice and may be obscure in origin. Physical pain when severe may cause nausea, and I believed this to be the explanation of it in "lower half headache." A few years ago, however, I learned that it could be an

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* Read at the meeting of the Tri-State District Medical Association, Peoria, Ill., Oct. 31, 1922.

[1] Sluder, Greenfield: The Rôle of the Sphenopalatine (Meckel's) Ganglion in Nasal Headache, New York M. J. May 23, 1908.

[2] Personal communication to the author.

isolated phenomenon in postnasal lesions. I have seen purposeless vomiting continue for twelve hours, and stop five minutes after cocain was set for anesthesia of the nasal ganglion. This happened in a case of severe "lower half headache" of nasal ganglion origin which could be controlled from the ganglion. On this occasion, however, there was no headache. The previous association led me to experiment with cocainization. Since then, I have found that it is not infrequent that patients with postnasal lesions complain only of more or less slight nausea; but sometimes they complain emphatically.

Parageusia is occasionally encountered in "lower half headache." I have from time to time heard it described as an unpleasant metallic taste. Usually, it is clinically negligible. On one occasion, however, I found it as an isolated symptom. In this case the patient complained of a constant bad taste in her mouth that spoiled her appetite and often led to nausea. She complained very much of not being able to eat because of it. She had lost 10 pounds (4 kg.) in weight. She had a well marked hyperplastic postethmoid sphenoiditis without secretion. Cocainization of the nasal ganglion, repeated six times, stopped the bad taste. Not infrequently patients complain of a bad tasting secretion or pus descending from the nose into the pharynx. In this case, satisfactory and prolonged observation eliminated this possibility.

Vertigo is a symptom frequently met in "lower half headache." It is usually described by the patients as a sensation of shifting of the earth from side to side under them. Rarely is it described as a rising or falling sensation. Never, that I recall, has it been described as a rotatory sensation. Occasionally it has been experienced only in the recumbent posture. I have met vertigo as an isolated symptom—not so infrequently. On one occasion a sphenoiditis had produced a choroiditis without headache. The degree of vertigo was such that the patient had to be supported by two men in order to walk. On opening the postethmoid sphenoid district, the vertigo ceased. The patient immediately stood up and walked alone. It is not the most infrequent of the isolated symptoms of the postnasal lesion.

Otalgia is common in the "lower half headache" and not at all uncommon as an isolated symptom. I have seen it many times, but it was Lillie[3] who depicted the disasters to which it may lead. He reported mastoid and middle ear surgery that had been performed in vain for otalgia, which was afterward controlled from the nasal ganglion.

Scotoma is an almost constant symptom in ophthalmic migraine, which, in turn, is very often of postnasal origin. I have seen it remain as an isolated symptom in cases of nasal ganglion origin after the ganglion had been injected, with relief of all other symptoms. The scotoma would appear from time to time, and the patient would recognize it as the aura of the attack; but the other symptoms would not follow. I have at times had patients with postnasal lesions who complained only of transitory blindness, and I concluded that it was the isolated scotoma of ophthalmic migraine. Postnasal therapy has relieved these patients.

Photophobia is common and often of high grade in the sympathetic syndrome of the postnasal lesion. I have found it to be an isolated symptom. On one occasion it was unilateral and of nasal ganglion origin. Injection of the ganglion relieved it.

Rhinorrhea is common in rhinologic practice as an isolated phenomenon of the postnasal lesion. Often, however, it has a complement of low-grade headache. Usually it can be controlled by injecting the ganglion. More rarely it is of sphenoidal origin.

Asthma occurs with postnasal lesions, sometimes with "lower half headache" and often without it.[4] Treatment of the postnasal lesion often relieves these patients.

In these observations, all possible precaution has been taken to exclude collateral possibilities as etiologic factors. Confusion may arise from the psychic effect of cocain. It was applied to other parts of the nose in the effort to ascertain what might be its influence. Answers by the patients in the beginning were sometimes confusing, but when the cases were severe and the experiment repeated several times the replies were conclusive. Diagnosis of the postnasal lesion has been given in detail elsewhere.[5]

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[3] Lillie, H. I.: Otalgia and Mastoidalgia Not Indications for Operation on the Mastoid Process: Report of Three Cases, J. A. M. A. **79**: 431 (Aug. 5) 1922.

[4] Sluder, Greenfield: Asthma as Nasal Reflex, J. A. M. A. **73**: 589 (Aug. 23) 1919.

[5] Sluder, Greenfield: Headaches and Eye Disorders of Nasal Origin, St. Louis, C. V. Mosby Company, 1918.

BALANCING THE DIABETIC DIET *

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The present interest in properly balancing the diabetic diet, stimulated particularly by the researches of Shaffer,[1] Newburgh and Marsh,[2] Woodyatt,[3] Wilder[4] and others, has led to efforts to work out a simple method of determining the food proportions required by any diabetic patient. As a working basis for treating diabetics, we may assume:

1. The patient's basal caloric requirements should be met.
2. Nitrogen balance can be maintained if the protein content of the diabetic diet is approximately 0.66 gm. per kilogram of body weight, provided sufficient carbohydrate and fat are burned to meet caloric requirements.
3. The glucose value of the diet consists of total carbohydrate intake plus 58 per cent. of protein intake, provided the patient is in nitrogen equilibrium.
4. The ratio of fat to glucose must be below the point at which a clinically significant ketosis appears.

The object of a balanced diet is to furnish sufficient calories to maintain a patient in nitrogen equilibrium without glycosuria or ketonuria. When the patient is not in nitrogen equilibrium, he is burning body protein and producing glucose from the glucose fraction of protein. The total basal caloric requirement may be established in several ways. Either the basal metabolism can be determined directly, or it can be figured from the Du Bois scale for height and weight. Persons suffering from severe diabetes with low glucose tolerance will be compelled to limit their activities to the lowest point in order to reduce their caloric requirements. If the patient's basal requirements are not met by food, he will burn his body tissues, which in the severely emaciated means the body protein.

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* From the medical clinic and the Nelson Morris Memorial Institute for Medical Research of the Michael Reese Hospital.

[1] Shaeffer, P. A.: J. Biol. Chem. **46**: 98 (March) 1921.

[2] Newburgh, L. H., and Marsh, P. L.: Use of a High Fat Diet in Treatment of Diabetes Mellitus, Arch. Int. Med. **26**: 647 (Dec.) 1920. Marsh, P. L.; Newburgh, L. H., and Holly, L. E.: Nitrogen Requirement for Maintenance in Diabetes Mellitus, ibid. **29**: 97 (Jan.) 1922.

[3] Woodyatt, R. T.: Objects and Method of Diet Adjustment in Diabetes, Arch. Int. Med. **28**: 125 (Aug.) 1921.

[4] Wilder, R. M., and Winter, M. D.: J. Biol. Chem. **52**: 393 (June) 1922.

The use of low protein diet, especially in severe cases, is advisable for several reasons. To furnish sufficient calories without glycosuria or ketonuria, we must rely mainly on the fuel value of fat. This can be given to an extent limited by the antiketogenic factors in the diet; namely, carbohydrate and protein. Carbohydrate, within the tolerance limits, is completely oxidized and is, therefore, completely available; whereas, only 58 per cent. of the protein has antiketogenic function. Furthermore, as has been emphasized by Woodyatt, some of the end-products of protein metabolism are convertible into fatty acids. The specific dynamic action of protein in increasing metabolism is likewise important, especially in the more severe cases.

The amount of fat which the diabetic patient can utilize is the subject of much discussion. Fat must necessarily furnish most of the calories for the diabetic diet; and at the same time the amount the body can use without danger of acidosis is limited mathematically by the amount of glucose being burned. The mathematical ratio has been studied by Shaffer, Woodyatt, Palmer and Ladd,[5] Wilder and Winter; but both the method of figuring and the final ratio vary. Palmer and Ladd, assuming that the glucose value of the diet consisted of all the ingested carbohydrate plus 58 per cent. of the protein, found that acidosis appeared in diabetic patients when the fat in the diet (in grams) bore a ratio to this glucose value (in grams) of $\frac{2.5-4}{1}$. Wilder and Winter figured the ratio between the ketogenic and the glucose molecules in metabolizing food mixtures of thirteen diabetic and three epileptic patients.

FOOD VALUES AND VARIOUS KETOGENIC-GLUCOSE RATIOS

Carbohydrate Gm.	Protein Gm.	Fat Gm.	Ketogenic-Glucose Ratios		
			Wilder	Woodyatt	Palmer and Ladd
0	0	0	2.7	...	....
60	60	100	1.2	1.1	1.05
17	40	83	1.4	1.9	2.07
25	54	172	1.5	2.4	3.06
33	52	200	1.5	2.4	3.2
23	37	140	1.5	2.4	3.1
35	35	213	1.5	2.6	3.8
21	29	120	1.6	2.4	3.2
22	60	166	1.7	2.4	2.9
34	45	196	1.7	2.5	3.3
20	30	140	1.7	2.7	3.8
30	60	149	1.7	2.0	2.3
14	10	86	1.7	2.9	4.3
20	30	119	1.8	2.4	3.8
14	10	87	1.9	2.9	4.4
14	10	87	2.0	2.9	4.4

It is, of course, futile to attempt to compare the actual mathematical ratios found by different methods of reasoning; but it would be of considerable clinical interest to see how the same diets as expressed in grams of carbohydrate, fat and protein compare in their ketogenic-antiketogenic proportions when figured out by the different methods. The report of Wilder and Winter contains an admirable table for this purpose, as all sixteen of their patients were without glycosuria or "a clinically significant ketosis," and the diets are given in detail.

I have, therefore, reconstructed their table, giving the food values and the K. G. (ketogenic-glucose) ratios of the original, to which have been added the ratios as figured by Woodyatt's formulas and by the method of Palmer and Ladd.

The significant facts drawn from these figures are: (1) all except one of the patients showed a higher ratio of ketogenic-glucose (as figured by Woodyatt's $\frac{F.A.}{G}$) molecules than Woodyatt considers safe; (2) all except three were within the $\frac{2.5-4}{1}$ ratio of Palmer and Ladd. Yet all of these patients were without a clinically significant ketosis, so that Palmer and Ladd's simple method seems justified in practice.

BALANCING THE DIET

If these statements are accepted in principle, a method of figuring the diabetic diet follows. The caloric requirements having been ascertained, the diet should aim to meet these requirements. Glucose tolerance is measured in the usual way, by giving a fixed diet for two days and determining the glucose excretion. The tolerance (T) equals the ingested glucose $(C + 0.58\ P)$ minus the excreted glucose (G). If the patient is in nitrogen equilibrium, the formula tolerance $(T) = (C + 0.58\ P) - G$ may be used. If the nitrogen excretion indicates a loss of body protein, the glucose value of this protein must be calculated; and, since every gram of urinary nitrogen is equivalent to 3.65 gm. of glucose, the formula becomes $T = (C + 3.65\ N) - G$.

Given then, the weight of the patient in kilograms, the protein value of the diet may be set at 0.66 gm. per kilogram, according to the results of Newburgh and Marsh. The glucose fraction of this protein equals 0.58 P, which must be subtracted from the tolerance in order to ascertain the carbohydrate of the diet. The number of calories furnished by the carbohydrate and protein are subtracted from the total caloric needs, and the balance must be furnished by fat. If the amount of fat needed is in excess of the maximum $\frac{4}{1}$ ratio, it may be necessary to keep a patient temporarily on a subcaloric diet. If the amount of fat required is below the $\frac{2.5}{1}$ ratio, harm may result from giving more fat than is needed. On the other hand, we have seen some markedly undernourished patients who had been on a subcaloric diet for a long period show definite improvement when the diet was increased for the purpose of stopping loss of body weight. On the whole, our experience has been that better results are obtained when considerable latitude in fat allowance is practiced, provided we do not feed above caloric needs and do not produce a clinical acidosis.

SUMMARY

Based on the reasoning set forth above, the following simple procedure for balancing the diabetic diet is proposed:

1. Protein equals 0.66 gm. per kilogram of body weight, or 0.3 gm. per pound.
2. Carbohydrate equals the glucose tolerance minus 58 per cent. of the protein.
3. Fat should furnish enough calories to equal the basal caloric needs minus the calories supplied by protein and carbohydrate.
4. The amount of fat must be within limits which will prevent the development of ketonuria $= \frac{2.5-4 \text{ gm. of fat}}{1 \text{ gm. of available carbohydrate}}$

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[5] Ladd, W. S., and Palmer, W. W.: Proc. Soc. Exper. Biol. & Med. **18**: 109 (Jan. 12) 1921.

CARDIAC FUNCTIONAL TESTS *

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The Eldorado of a cardiologist would be some test or combination of tests which would definitely determine the functional capacity of a given heart. This has been long sought, but is still an accomplishment for the future. The methods which have been devised and reported may be roughly classed as exercise tests, respiratory tests, tests based on the estimation of blood flow by various methods and a few other procedures.

EXERCISE TESTS IN GENERAL

It seems worth while to describe briefly the character and field of some of these, and then, in more detail, to give the results of our experience with the two which, we considered, gave promise of the best results. Taking the exercise tests first, these are based on the effects of work varying in amount all the way from that involved in rising from the supine to the upright posture to that involved in hopping or in climbing a definite number of stairs at a given rate or even in raising a 40-pound (18 kg.) weight from the floor to arm's length overhead thirty times in sixty seconds. The effects of such exercise may be measured by changes in the pulse rate, systolic blood pressure, or diastolic blood pressure, both the extent of the departure from normal and the time interval during which this is sustained being taken into consideration. The tests based on changes in systolic blood pressure seem to be more reliable than those based on changes in pulse rate. Both methods have their advocates. Both give results which vary in different persons with the type of nervous makeup and general physical condition as well as with the cardiac power or reserve. The best French authors place no reliance on either test as indicating the condition of the myocardium or of the general cardiovascular apparatus.[1] There seems to be much the same feeling in the United States, although our authors have not been so definite in their denunciation.

Combinations of pulse and blood pressure changes after exercise have been used in making ratings of physical efficiency by Schneider[2] and, in a different manner, by Crampton.[3] Barach[4] has arranged a so-called "energy index of the circulatory system" which takes into consideration both systolic and diastolic blood pressure and pulse rate at rest. All these tests are open to the same criticism as that which holds for the individual tests of which they are composed, and none have enjoyed much favor.

RESPIRATORY TESTS IN GENERAL

Of the respiratory tests, the most popular at present is the determination of the vital capacity, which will be discussed later. The length of time during which the breath can be held corresponds roughly to this, and has been used as a measure of cardiac dyspnea and efficiency; but it is even more easily influenced by neurotic factors than is the vital capacity, and the differences between normal and abnormal are smaller, making the error proportionately greater. Expiratory power as well as pulmonary capacity have been measured by the height to which a column of mercury can be blown and the time during which this height can be maintained. These tests, too, have proved of but limited value.

The rebreathing apparatus, with the possibility of its clinical application as a test of cardiac efficiency, was a war product. In testing the response of aviators to high altitudes, or, what is the same thing, lowered oxygen tensions, it was found that the effects of loss of sleep, alcohol and heavy eating were readily detected by a failure of proper compensation to low tensions.[5] This was taken to indicate temporarily lowered physical efficiency, and it was hoped that by this means the true cardiac capacity might be determined. Careful observers, however, have found that even patients with definite clinical cardiac failure do not all show poor reactions to lowered oxygen tensions.[6] From the cardiologist's point of view, the results obtained do not justify the apparatus and time necessary to make the determination.

OTHER TESTS

Blood flow has been determined by the nitrous oxid absorption method, and has been shown to be considerably reduced in disease, as much as one half in well marked heart failure.[7] Venous pressure determinations have given much the same information; the easiest method is that in which the minimal amount of pressure is determined which is required to collapse the veins on the back of the hand, a water manometer being used.[8] Determinations of the oxygen and carbon dioxid content of venous and arterial blood have also yielded information regarding blood flow,[9] but all these examinations are open to the same objections: they tell little except in cases of definite heart failure, and they require considerable technical training and apparatus.

In examining cases of "irritable heart" during the war, use was made of a large number of drugs, but none proved of much diagnostic value. Perhaps the best one was amyl nitrite, simply because its effects closely resembled those of exercise. In general, the unstable heart responded by a greater rise in rate and greater drop in blood pressure than did the normal.[10] The effects on the pulse rate of a sudden flame or pistol shot were similar, and were considered by the investigators as giving some indication of functional value.[11]

In the examination of cardiac dilatation by means of the fluoroscope after coughing, it was found that normal hearts dilate appreciably under this increase in intrapulmonary pressure, returning to normal more

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* Read before the Boston Association of Cardiac Clinics, Boston City Hospital, March 16, 1922.

* From the Medical Clinics, Massachusetts General Hospital, and the Public Health Service Hospital, Parker Hill, Boston.

[1] Gallavardin, L.: Moyens d'exploration de la capacité fonctionelle du cœur, J. de méd. de Lyon, Aug. 20, 1920.

[2] Schneider, E. C.: Cardiovascular Rating as Measure of Physical Fatigue and Efficiency, J. A. M. A. **74**: 1507 (May 29) 1920.

[3] Crampton, C. W.: Proc. Soc. Exper. Biol. & Med. **12**: 119, 1915.

[4] Barach, J. H.: Energy Index of Circulatory System, Am. J. M. Sc. **152**: 84 (July) 1916.

[5] Henderson, Yandell, and Seibert, E. G.: Organization and Objects of Research Board, Air Service, J. A. M. A. **71**: 1382 (Oct. 26) 1918. Whitney, J. L.: III. Cardiovascular Observations: Ibid. **71**: 1389 (Oct. 26) 1918.

[6] Stengel, A.; Wolferth, C. C., and Jonas, L.: Breathing of Air of Lowered Oxygen Tension as a Test of Circulatory Function, Am. J. M. Sc. **161**: 781 (June) 1921.

[7] Lundsgaard, Christen: Recherches sur le debit par minute du cœur, Arch. d. mal. du Cœur, Jan., 1917, p. 45.

[8] Brown, N. W.: Simple Method for Determination of Venous Pressures, Bull. Johns Hopkins Hosp. **29**: 93 (April) 1918.

[9] Harrop, G. A., Jr.: Oxygen and Carbon Dioxide Content of Arterial and Venous Blood in Normal Individuals and in Patients with Anaemia and Heart Disease, J. Exper. Med. **30**: 241 (Sept.) 1919.

[10] Cotton, T. F.; Slade, J. G., and Lewis, Thomas: Observations on Amyl Nitrite, Heart **6**: 311, 1917.

[11] Meakins, J. C., and Wilson, R. M.: Effect of Certain Sensory Excitations on the Cardiac Rate and Respiratory Rates in Cases of Irritable Heart, Heart **7**: 17, 1918.

rapidly than those with a weakened myocardium.[12] Similar observations have been made following a series of blows over the course of the abdominal aorta or excitation of the skin of the precordial area, but none have proved of practical value.

From all these procedures, we selected what seemed to be the best respiratory test, the vital capacity, and the best exercise test, that in which considerable work is done with dumb-bells, and the effect on systolic blood pressure observed. We then tried to determine the sphere of usefulness of each, and the extent to which it might be trusted.

VITAL CAPACITY

The test for vital capacity consists in having the subject inhale as deeply as possible and then exhale fully into a spirometer. It represents the greatest single expiration of which the patient is capable. This has been shown to be reduced in cardiac failure of the congestive type, and, if failure is well marked, there is a reduction of more than 10 per cent. below the calculated normal in 100 per cent. of cases. And the greater the failure, in general, the lower the vital capacity.[13] In our endeavor to determine its sphere of usefulness, we made a test of vital capacity virtually a routine in all medical ward patients, and the figures in the accompanying table and charts are based on the findings in a series of 144 such patients, forty-eight of whom had some cardiac complication, sixteen some pulmonary involvement, and eighty nothing in the history or physical examination which suggested a pathologic condition in the heart or lungs. The figures for normality used are those of West,[14] based on sex and surface area and determined from healthy persons, not from ward bed patients.

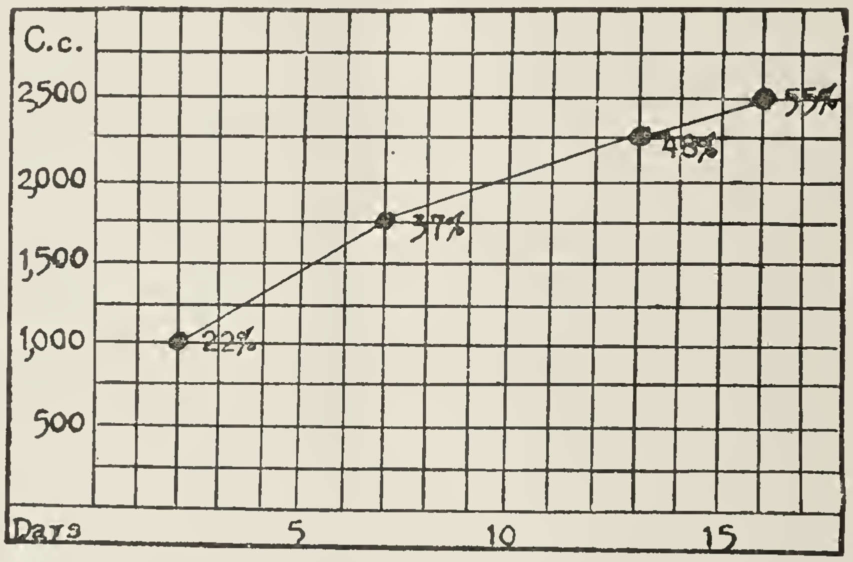

Chart 1.—Vital capacity in case of congestive heart failure, showing steady improvement.

The accompanying table shows that of the eighty patients with extrathoracic lesions 50 per cent. had vital capacities which were at least 20 per cent. below the calculated normal, supposedly a definitely pathologic reading, and yet those persons had no demonstrable pathologic condition in the heart or lungs. These low readings may be in part explained by the apparent effect of increasing age acting to lower the vital capacity, and by the fact that the standards seem disproportionately high for the female sex. Taking the group to which the standards of normality are best suited, namely, men below 50 years of age, there still remain, even in this group, 37 per cent. whose vital capacity is distinctly below normal limits, and yet these men had no intrathoracic lesions so far as we could tell. The diagnoses were varied, such as gastric ulcer, duodenal ulcer, pyelitis and arthritis, while other ward patients having the same diagnoses had vital capacities well within the normal limits, so that the type of disease seems to have nothing to do with these low readings. Variable cooperation we do not believe can explain the large percentage of low readings, as many were repeated after several days and found to check, and the number of uncooperative ward patients does not approach 50 per cent. in other studies.

Of those patients with pulmonary complications for whom vital capacities were obtained, a group of sixteen, all had readings which fell below 65 per cent. of normal, the diagnoses ranging from bronchitis to convalescent lobar pneumonia. There seems to be no question that almost any pulmonary complication will lower the vital capacity, at times more markedly than moderately advanced cardiac failure.

In the cardiac group, most of those who had no congestive heart failure had normal vital capacities, while 100 per cent. of the patients with congestive failure had low vital capacities. Patients with anginal failure did not necessarily have lowered readings. The vital capacity often varied in close correspondence with the clinical improvement. For example, Chart 1 shows the change in vital capacity of a man, aged 56, who came into the hospital waterlogged, markedly dyspneic, and with a rapid ventricular rate in auricular fibrillation. He improved steadily and rapidly, just as the chart indicates. From the slowing of the heart rate, the diuresis and the loss of weight, and from the disappearance of the edema and dyspnea, we knew that he was improving and that the prognosis was good, so that following the vital capacity gave us little help in diagnosis or prognosis. It had remained stationary in some cases of less rapid clinical improvement, and it seemed often to lag behind clinical improvement. Thus, our experience with measurement of vital capacity in cardiac patients simply confirms the work of Peabody and others, except that we would place less reliance on it in giving a prognosis or in managing a case. The case cited demonstrates what seems to be the chief value of the test for vital capacity, namely, it furnishes a quantitative measure of dyspnea and describes it more clearly than such terms as "slight," "moderate" or "marked," since the personal equation enters into these to a great extent. When cardiac failure is proportional to dyspnea, vital capacity would be propor-

RESULTS OF VITAL CAPACITY DETERMINATIONS ON EIGHTY BED PATIENTS WITH NORMAL HEART AND LUNGS

		Men		Women	
Age	Vital Capacity	Number	Per Cent.	Number	Per Cent.
Under 50	Normal	24	..	7	..
	20 per cent. + subnormal	14	37	13	60
Over 50	Normal	7	..	2	..
	20 per cent. + subnormal	9	56	4	66

		Number	Per Cent.
Total	normal	40	50
	20 per cent. + subnormal	40	50

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[12] Guthrie, J. B.: Cough-Dilatation Time a Measure of Heart Function, J. A. M. A. **62**: 30 (Jan. 3) 1914.

[13] Peabody, F. W.: Vital Capacity of the Lungs in Heart Disease, Med. Clin. N. Am. **4**: 1655 (May) 1921.

[14] West, H. F.: A Comparison of Various Standards for the Normal Vital Capacity of the Lungs, Arch. Int. Med. **25**: 306 (March) 1920.

tional to the failure, provided the standards were suitable to bed patients. We do not believe this to be the case, at least so far as hospital ward patients are concerned. Vital capacity, to our minds, adds to the clarity of the records, but rarely aids in the actual management or "sizing up" of a case.

EXERCISE TEST

The exercise tests are even less satisfactory. Selection was a more difficult problem; but the test which seemed to give most promise was this: The patient, if an adult, swings two 20-pound (9 kg.) dumb-bells from the floor to arm's length overhead ten, fifteen and twenty times, allowing from two to three seconds for each complete swing. Systolic blood pressure is then taken as soon as possible, usually within twenty-five seconds, and it is followed at from ten to fifteen second intervals until it is definitely dropping, then at thirty second intervals until it reaches within 6 mm. of the preexercise level of mercury. There is normally a sharp rise in systolic blood pressure within the first forty seconds after work, followed by a fall to within 6 mm. of normal within two minutes. If a healthy person continues to work at the rate described until he has nearly reached his limit of capacity, the maximum systolic blood pressure will not be obtained until from sixty to eighty seconds after stopping work instead of the normal forty seconds, and the preexercise level will not be reached until the end of from three to six minutes instead of two. Such a curve is said to have a "delayed rise" or "delayed summit" and "prolonged fall."[15]

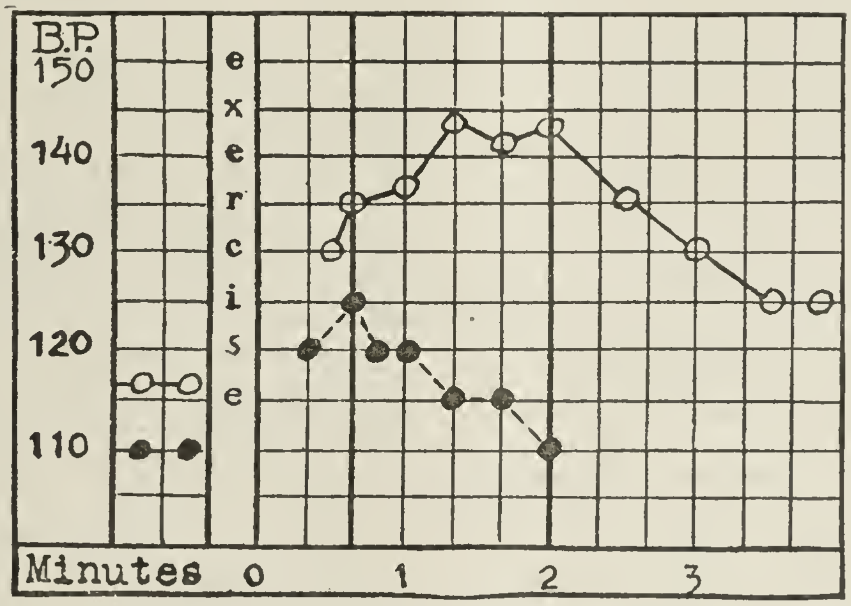

Chart 2.—Blood pressure response to exercise: normal curve indicated by heavy dots and broken line; delayed rise indicated by rings and solid line.

Chart 2 illustrates the two types of curve that are obtained. The lower one, which is a normal curve, was produced by a cardiac patient without heart failure. The upper curve, which presents a "delayed rise," was given by a patient with effort syndrome.

The two men were of about the same age and size, and they did the same amount of work, swinging two 20-pound dumb-bells, twenty times in sixty seconds from floor to overhead. Such a "delayed rise" occurs only when the person has nearly reached his limit, and is accompanied by fatigue, hyperpnea and, at times, palpitation, dyspnea, flushed face and the like. It never occurs unless the patient is near the end of his strength, and for this reason has been taken to represent an overtaxing of the cardiac capacity or reserve. Its sphere as applied to patients is obviously limited. It should not be used in cases with definite heart failure or in those showing evidence of infection. In cases without heart failure, however, it may serve, with good reason, as a basis for advice as to the amount of exercise which may be taken with safety. There would seem to be little need of restricting the exercise of a patient who can swing 40 pounds (18 kg.) from floor to overhead, twenty times in forty seconds, without a delayed rise in blood pressure, no matter what may be heard when listening to the heart.

Our experience has been limited to twenty-nine cases, these being divided into three groups, ten normal persons, ten with more or less marked effort syndrome, and nine with organic heart disease, all free from heart failure and evidence of recent infection. We made the mistake at first, which others[16] have made, of starting with weights which were too light, using two 5-pound (2.2 kg.) dumb-bells. With these, the arm muscles of the patients became tired from frequent motion long before they had done enough actual work to cause any marked changes in blood pressure. This is similar to the situation found occasionally in children when simple muscular weakness forces the child to stop before a delayed rise in blood pressure can be obtained.[17] It was overcome in adults by the use of larger weights, most of the tests consisting in swinging two 20-pound (9 kg.) dumb-bells from floor to overhead, fifteen and, later, twenty times in forty and sixty seconds, respectively.

Using this routine, it can be said that the work with our normal patients confirms that of the advocates of this test. Delayed rises were obtained on nearing the maximum exertion and not before. Work with the effort syndrome cases, however, was less satisfactory. Two patients showed blood pressures which changed so readily from second to second, with variations as great as 10 mm. of mercury, that no interpretation could be placed on the curves. Others showed a dissociation between the two features "delayed summit" and "prolonged fall," having none of the former, but definitely "prolonged falls" of three and a half and four minutes, or vice versa. Such curves also are difficult to interpret.

The cardiac patients with organic lesions showed essentially the same features. In both classes of patients, the "delayed rise" seemed to depend very much more on general muscular condition than on what might be guessed as their true "cardiac reserve"; two patients with effort syndrome with apparently normal cardiac musculature showed a delayed rise on fifteen swings of 40 pounds (18 kg.), while two patients with organic cardiac lesions did not show it until after performing twenty swings. Others have found this to be true, also, but have laid little stress on it. It prevents any reliance being placed on the test for diagnostic or prognostic purposes generally, so far as the heart is concerned, and confines its usefulness simply to following the individual case, even there realizing that the patient's general condition is being followed and not the cardiac condition. It is perfectly possible to imagine a man's exercise tolerance rising through improvement in general muscular condition as a result of daily exercise, while his cardiac condition remains unchanged or even becomes worse.

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[15] Barringer, T. B., Jr.: Studies of the Heart's Functional Capacity, Arch. Int. Med. **20**: 829 (Dec.) 1917. Cotton, T. F.; Rapport, D. L., and Lewis, Thomas: After-Effects of Exercise on Pulse Rate and Systolic Blood Pressures in Cases of Irritable Heart, Heart **6**: 269, 1917.

[16] Mabon, T. McC.: Studies of Cases of "Effort Syndrome" with Measured Work, Am. J. M. Sc. **158**: 818 (Dec.) 1919.

[17] Wilson, May G.: Exercise Tolerance of Children with Heart Disease, J. A. M. A. **76**: 1629 (June 11) 1921.

This lack of specific information given by the test, the difficulties in interpreting many curves, together with the fact that there are no good standards for normality for adults, and the small number of cases to which the test is applicable make it, in its present form, an unsatisfactory test of cardiac efficiency.

The results of the vital capacity and exercise tolerance tests of our normal persons are in good agreement; but this does not hold true with our pathologic cases, if the previously accepted standards for vital capacity are used. Two cardiac patients had vital capacities of only 62 and 68 per cent. of the calculated normal, and yet very nearly normal exercise tolerance tests. Both were able to swing 40 pounds (18 kg.), fifteen times in forty seconds without showing a 'delayed rise" or "prolonged fall" in blood pressure, and these were of small degree after twenty swings with 40 pounds (18 kg.) in sixty seconds. On the other hand, one cardiac patient with a vital capacity of 93 per cent. of the normal showed a marked "delayed rise" in blood pressure after swinging 40 pounds (18 kg.) fifteen times, as was also shown by a patient with effort syndrome with a vital capacity of 110 per cent. of the normal.

SUMMARY

1. There are numerous cardiac functional tests. Most of them are of small value. Two have been selected for further study.

2. Vital capacity determinations add to the exactness of records but give little aid in the clinical study of a patient. We have found that 50 per cent. of ward patients with no demonstrable pathologic condition in the heart or lungs have vital capacities of 20 per cent. and more below the so-called normal.

3. The exercise tolerance test described is applicable to a limited type of case, and even there gives little information of the actual cardiac condition.

4. Vital capacity and exercise tolerance determinations were markedly at variance in 14 per cent. of the cases in which both tests were performed.

5. There is no satisfactory test of cardiac functional capacity at the present time.[18]

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[18] Judgment in the interpretation of the general reaction of an individual to the habitual activities of his or her life (such as the ascent of stairs) affords the physician more valuable information, as a rule, about the circulation than the use of any of the functional tests described.

Vital Statistics.—One of the most important subjects that can come before a state legislature is the passage of wise and efficient laws for the collection, preservation and compilation of proper and accurate vital statistics. . . . In the last analysis, human life and its perpetuation is the predominant factor in all problems, whether personal, social, state or national. The standing of a nation, ultimately, is only to be measured by the standard of human lives. These general principles have long been admitted by all statesmen and economists. It comes as somewhat of a shock to one to realize that in a nation where a record is made of every legal procedure, of every business transaction and commercial liability, no matter how insignificant, where millions are spent each year in recording and preserving all real estate transactions, where everything else, material or immaterial, is made a matter of record; yet in more than half of the United States a human being can be born and die without any record being made or official notice being taken of the fact. Elaborate systems record the birth, career and death of every pedigreed horse, cow, dog, and even of "blood cats," yet children are born and men and women die without record of these events being preserved.—*A. M. A. Bull.* **4**:106, 1909.

THE MINOR FORMS OF PULMONARY EMBOLISM AFTER ABDOMINAL OPERATIONS

A CLINICAL AND ROENTGENOLOGIC STUDY *

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During the last few years the opinion that embolism is a more important factor in the production of postoperative pulmonary complications than has heretofore been suspected has gradually been gaining ground. Since 1920, representatives of several of the largest surgical clinics in America and Europe have accepted this conclusion (Boland,[1] Farrar,[2] Cutler and Hunt[3]). In January, 1922, DeQuervain[4] of Switzerland stated that following operations upon the stomach, "three fourths of the true postoperative deaths are due to lung complications—emboli, pneumonia and lung gangrene," and that in a good share of the cases of so-called pneumonia, the processes are really embolic in nature.

We[5] arrived at this conclusion in 1919, after having studied all the postoperative pulmonary complications and cases of femoral thrombophlebitis that had occurred in the gynecologic service of the Johns Hopkins Hospital during the preceding thirty years. At that time we expressed the opinion that 40 per cent. of our cases that had been diagnosed as pleurisy, and 12 per cent. of those diagnosed as bronchopneumonia or pneumonia had been in reality instances of pulmonary infarction and hence were due to pulmonary embolism. Moreover, we pointed out the clinical features on the basis of which we attempted to distinguish the embolic from the inflammatory pulmonary complications and laid stress on the importance of making this differentiation. This report was published in 1920.

There still seems to be a great deal of confusion concerning this subject. Certain observers have gone so far as to state that complications which have been considered inflammatory and irritative phenomena are due to showers of miliary emboli and that this is the cause of many of the cases of postoperative pneumonia. Others are apparently content with a noncommittal attitude, admitting that some of the cases heretofore diagnosed as pneumonia may be due to embolic processes, but making no effort to distinguish them in actual practice. In our experience, embolic phenomena present a clinical picture which is usually characteristic and altogether different from that found in pneumonia and bronchopneumonia; we also believe that the potential and actual importance of even minor embolic complications of the lung demand that we attempt to recognize them and institute the proper treatment.

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] Boland, F. K.: Postoperative Thrombophlebitis, South. M. J. **45**: 307-310 (April) 1921.

[2] Farrar, L. K. P.: The Incidence of Pulmonary Embolism and Thrombosis Following Hysterectomy for Myoma Uteri, Am. J. Obst. & Gynec. **2**: 286-296 (Sept.) 1921.

[3] Cutler, E. C., and Hunt, A. M.: Postoperative Pulmonary Complications, Arch. Surg. **1**: 114-157 (July) 1920.

[4] DeQuervain, F.: A Consideration of the Relative Merits of Resection and Gastro-Enterostomy in the Treatment of Gastric and Duodenal Ulcer, Surg., Gynec. & Obst. **34**: 3 (Jan.) 1922.

[5] Hampton, H. H., and Wharton, L. R.: Venous Thrombosis, Pulmonary Infarction and Embolism Following Gynecological Operations, Bull. Johns Hopkins Hosp. **31**: 95-117 (April) 1920.

The present communication is based upon a clinical and roentgenologic study of all the postoperative pulmonary complications that occurred on the gynecologic service between June 1, 1919, and Sept. 1, 1921. In the light of past and recent experience, how can we distinguish minor embolic complications from pneumonia, bronchopneumonia and pleurisy and what are the factors that control their production?

INCIDENCE OF ALL PULMONARY COMPLICATIONS

During the last two years, following about 1,600 consecutive gynecologic operations, twenty-five patients, or 1.6 per cent., have developed noteworthy pulmonary complications. Of these, ten were definitely inflammatory in origin and were diagnosed either as bronchopneumonia or bronchitis, eleven seemed to us to be undoubtedly embolic and in four instances the exact nature of the lesion could not be determined. Of the eleven cases of embolism, two were of the well-known classic variety, terminating the life of the patient very suddenly. In nine instances, the complications were less serious and were of the type known as infarction. This is the form of postoperative embolism which is so frequently confused with pneumonia, bronchopneumonia and pleurisy.

PATHOLOGY OF PULMONARY EMBOLISM

There are many factors which play an important rôle in determining the type of pathologic lesion which develops in the lung after an embolus becomes lodged in the pulmonary artery. Among these may be mentioned the size of the embolus, the condition of the pulmonary circulation, the presence of infection either in the lung or in the embolus, and the position of the artery which is occluded. Of these, the most important consideration is probably the first, for whether the patient is subjected to only a few days' inconvenience or suffers sudden death depends largely upon the size of the embolus.

On this basis, then, we can divide the various postoperative embolic phenomena into three groups: (1) grave pulmonary embolism, due to large emboli, causing more or less complete occlusion of the pulmonary artery or its main branches, cutting off the circulation of more than one lobe, producing acute widespread pulmonary edema without hemorrhagic consolidation of the lung tissue involved, and terminating fatally in 90 per cent. of the cases; (2) pulmonary infarction, due to moderate sized emboli, not large enough to occlude the main trunks of the pulmonary system but completely occluding the smaller vessels in which they lodge, causing hemorrhagic consolidation and pleurisy and producing characteristic clinical signs and symptoms, with a mortality of from 15 or 20 per cent.; (3) pulmonary embolism with incomplete infarction, due to very small emboli which lodge in the pulmonary system and produce a characteristic, but mild, course of symptoms, the pulmonary lesion, however, for various reasons giving rise to either very few or no physical signs. We have seen no deaths in cases of this group.

In a previous communication we recognized as instances of infarction only those in which the lesion was outspoken and clinically unmistakable. As can be seen, we are now venturing to suggest that in addition to these characteristic cases there may be instances in which the emboli are so small and the pulmonary circulation so efficient that complete consolidation and pleurisy, with the attendant physical signs, do not develop although typical symptoms may be present. These we have called instances of incomplete infarction; the clinical and roentgenologic characteristics of this complication and the evidence in support of the view that it is a form of embolism we shall present in this paper.

CLINICAL PICTURE OF OUTSPOKEN PULMONARY INFARCTION

Pulmonary infarction is an embolic complication which usually occurs, as does femoral thrombophlebitis, during the second or third week of postoperative convalescence. Although very rarely seen after minor operations, it may occur after any type of surgical procedure which requires much dissection or after any laparotomy. The clinical picture is usually characteristic. The convalescence before the onset of the attack in most instances is quite uneventful; there is only one significant feature during this period, the presence of a low evening fever unaccompanied by any symptoms and usually exciting very little attention. Normally, in the absence of infection, the second week of convalescence is afebrile. We have observed, however, that in patients that develop pulmonary infarction the temperature curve before the onset of infarction usually shows a definite evening elevation, rarely reaching 100 F., but persisting throughout the late convalescence until the infarction occurs, at which time it takes a sharp rise. This prodromal fever we attribute to the phlebitis that precedes embolism and we still believe it to be a significant feature, for although many a patient may exhibit just such a temperature curve without developing any subsequent complications, it remains our most constant premonitory sign in those who develop pulmonary infarction.

The attack itself is usually sudden in onset, being ushered in by a sharp pleuritic pain in the side, almost always situated along the costal margin below the axilla or the scapula. This is accompanied by acute pain on breathing and a definite rise in the respiratory rate, the impossibility of taking a deep breath making it necessary for the patient to substitute numerous shallow respiratory movements. The pulse rate also rises abruptly, at times reaching 120 or 140 during the first few hours. The temperature may rise sharply on the first day, but is not so high as it is on the second or third day, when consolidation has developed. Cyanosis is not commonly seen in an attack of ordinary severity; there may be a certain amount of systemic shock and definite mental perturbation and anxiety. There is very rarely any cough or expectoration during the first twenty-four hours.

On the second day the symptomatology is usually intensified, the patient requiring morphin in frequent and large doses. In about half the cases, a slight cough develops at this time, but it is not a prominent feature. It may be totally unproductive or the patient may expectorate a moderate amount of frothy sputum, at times tinged with blood. This blood may be bright or dark. Hemoptysis, however, is not the cornerstone on which the diagnosis of postoperative pulmonary infarction rests. We found that it had occurred in only 36 per cent. of our cases before 1919; since then we have observed it in six out of nine cases of undoubted infarction in which consolidation was present. A patient may have a large area of consolidation as determined by the signs, symptoms and the roentgenogram and have almost no hemoptysis. The temperature rises distinctly during the second day, usually reaching 102 or 102.5 F., the respiratory rate remaining at about 40 or 50 per minute, the pulse between 112 and 130.

This mode of onset clearly distinguishes this form of pulmonary embolism from the postoperative inflammatory lesions of the lung, and it is during the first few days of the attack that the diagnosis should be made. The fact that infarction usually occurs late in the convalescence, after a week or two of almost normal rest, that it is preceded by no symptoms or history of pulmonary infection, that it is ushered in by a sharp and unexpected attack, that it is not characterized by a distressing cough, shows no marked elevation of the temperature during the first twenty-four hours and presents practically no physical signs till the second or third day—these data stamp it as an embolic and mechanical phenomenon in sharp contrast with all inflammatory lesions which almost invariably occur during the first two or three days after operation, are often preceded by a definite history of recent pulmonary infection, and are characterized at the onset by fever, distressing cough, a profuse and purulent expectoration, impairment of the percussion note and many coarse and fine râles.

After the second day, the patient with bland pulmonary infarction usually begins to show signs of definite improvement. The fever gradually subsides, the pulse becomes slower, the pleuritic pain less severe, the respirations deeper and more regular, and the restlessness less disturbing. By the end of a week, the patient usually feels quite well again and, except for a slight "catch in the side" on deep respiration and an occasional cough, has very little to remind her of the attack through which she has just passed.

PHYSICAL SIGNS IN PULMONARY INFARCTION

The physical signs during the course of the attack are quite characteristic. It is rather unusual to find any significant changes during the first twenty-four hours. After that, however, as the hemorrhagic consolidation develops, the evidence begins to accumulate. The presence of a friction rub is the most reliable physical sign. It is usually first noted on the second or third day and may persist for almost a week. Before 1919, we noted its presence in 75 per cent. of our cases; since then we have seen only one patient in whom this sign was absent. Impairment of the percussion note, râles and changes in the breath sounds are found in more than 50 per cent. of these patients. The physical signs usually persist for a week or two after the symptoms have largely disappeared; they become less marked as the infarct resolves.

INCOMPLETE PULMONARY INFARCTION

The clinical picture described above develops when an embolus of moderate size becomes lodged in a dependent portion of the lung or when there is pulmonary stasis and congestion. What happens when the emboli are smaller or when the pulmonary circulation is more efficient?

Until recently we could give only a theoretical answer to this practical question. Within the last two years, however, we have accumulated data on which to base more definite conclusions. These clinical conclusions, moreover, are supported by the experimental evidence furnished by Karsner[6] and his collaborators.

According to these observers very small sterile emboli, when introduced experimentally into the pulmonary artery, produce significant lesions in normal lungs only when they lodge in vessels which are situated along the angular borders of the lobes. On the contrary, if the general pulmonary circulation is definitely impaired and pulmonary stasis and congestion are present, emboli of the same size produce infarcts no matter where they lodge. During the first twenty-four hours after the introduction of the emboli, the lesions produced in normal and congested lungs cannot be distinguished from one another, even by the microscope; after that, however, their courses differ widely. In the presence of marked passive congestion, the lesions rapidly develop the complete pathologic picture of infarction showing absolute hemorrhagic consolidation, pleurisy and focal necrosis. In normal lungs, however, such lesions reach their maximum intensity during the first twenty-four hours, never pass beyond the stage of partial hemorrhagic consolidation, do not develop focal necrosis or pleurisy, and resolution is more prompt. It thus seems that even in normal lungs definite pathologic lesions have been produced by the embolic occlusion of small branches of the pulmonary artery and that these lesions are early or incomplete infarcts.

These experimental conclusions find a striking parallel in clinical observations that we have made in the last two years. During this period we have seen a number of patients who developed pulmonary complications, which during the first twenty-four hours were tentatively diagnosed as pulmonary infarction but in which the characteristic signs that mark this lesion failed to develop. Two such cases that were recently observed in the surgical service[7] were particularly instructive: A woman had had a cholecystectomy; a man, an appendectomy. Except for a slight elevation of the evening temperature, the convalescence of both patients had been essentially normal until the tenth day, when the man developed the typical symptoms of a light attack of pulmonary infarction. Daily examinations of the chest by medical consultants were essentially negative and almost as frequent roentgenographic studies revealed only the faintest shadows at the base of the lung. The patient had no cough, no hemoptysis and no symptoms other than severe pleuritic pain, shortness of breath accompanied by an elevation of the pulse rate, a moderate degree of shock and a temperature curve which was typical of pulmonary infarction. In the course of three or four days, the symptoms disappeared and the temperature reached its former level.

Sixteen days after her operation, the woman had exactly the same experience and in her case also the physical examinations were absolutely negative and the roentgenograms showed shadows which were so light that under ordinary circumstances they would have been entirely overlooked.

Although in both these instances we felt that the lesions were undoubtedly embolic in nature, we were quite unable to bring forward any evidence in favor of the supposition until a few days later when the man had a second attack, which in every particular resembled the first, except that it was more severe. We repeated the same careful studies during the course of this second episode and were rewarded by observing the development of an area of consolidation and pleural changes both by physical signs and by roentgenograms. During this attack the patient also developed a friction rub, râles, hemoptysis and a slight cough, thus making the picture complete. After having only partly recovered from these two embolic attacks, this man left the hospital against advice and promptly developed a third and almost fatal attack at his own home.

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[6] Karsner, H. T., and Ash, J. E.: Studies in Infarction: Experimental Bland Infarction of the Lung, J. M. Research **22**: 205-224, 1912.

[7] We wish to express our thanks to Dr. William S. Halsted for the privilege of studying these cases.

The foregoing clinical and experimental evidence seems to indicate that in patients who after operation have no organic lesions in the heart or lungs, the embolic occlusion of small branches of the pulmonary artery in certain situations may produce a lesion and a train of symptoms which during the first few hours cannot be distinguished from outspoken pulmonary infarction. Furthermore, in actual clinical experience it is quite possible that one would frequently find derangements of the pulmonary circulation which would present conditions far more favorable for the development of infarction than those under which Karsner and Ash produced it incompletely in normal lungs. Welch[8] states that any conditions which cause "weakness of the right heart, general feebleness of the circulation, emphysema, infective diseases" favor the occurrence of pulmonary infarction. These conditions are not infrequently found in patients who require surgical operations. It is also improbable that one would find the pulmonary circulation in a condition of maximum efficiency in a patient who had been subjected to an ether anesthetic and thereafter had been practically immobilized for two weeks. This is shown by the frequency with which evidences of hypostatic congestion and stasis are found during the course of routine examination of patients following operation. These derangements of the pulmonary circulation, though in themselves of little moment, might readily be conducive to the occurrence of pulmonary infarction should an embolus of sufficient size become lodged in a favorable situation. In this connection, it is significant that we rarely see an instance of postoperative pulmonary infarction in which the lesion is situated anywhere but in the dependent portion of the lower lobes.

This helps us to understand what we have repeatedly observed both in healthy and ill patients who, during the postoperative convalescence, have suffered minor attacks of pulmonary embolism. It is quite probable that in patients who are in excellent condition small emboli may lodge in the lungs and cause no significant symptoms whatever. If an embolus of moderate size occludes a vessel in a favorable situation, incomplete infarction and transitory inconvenience is the consequence. In the presence of pulmonary congestion the result is outspoken infarction, complete consolidation and pleurisy. Should the embolus be septic or the lung be infected, abscess or gangrene may develop. The presence of hemoptysis in only half of our cases of infarction is probably due to the fact that in most surgical patients the pulmonary circulation is far more efficient than it is in patients that suffer pulmonary infarction as a complication of myocardial insufficiency and failure of the right heart, and that as a consequence, in such cases the complete clinical and pathologic picture of infarction may not develop.

CLINICAL CONCOMITANTS OF PULMONARY INFARCTION

Femoral Thrombophlebitis.—As we have seen, one encounters postoperative pulmonary complications which resemble minor embolic attacks symptomatically but which lack some of the cardinal signs that mark this lesion. It is in such instances that we can call to our assistance the additional evidence which we find in the clinical associations of this complication. These aids we have found to be two in number: (1) the association of embolic phenomena with femoral thrombophlebitis; (2) the association of the primary attack with recurrent attacks of either bland pulmonary infarction or grave embolism.

In our previous series, we[5] found that 41 per cent. of our cases of pulmonary infarction were associated with femoral thrombophlebitis marked by pain and swelling of the leg. In 43 per cent. of these cases the pulmonary complication developed before the signs of phlebitis. Since 1919, three of our nine cases of pulmonary infarction have been associated with femoral thrombophlebitis. The presence of femoral thrombophlebitis, therefore, furnishes strong confirmatory evidence in favor of the diagnosis of pulmonary infarction when the clinical picture suggests the presence of this complication.

REPEATED ATTACKS OF PULMONARY INFARCTION OR EMBOLISM

In the last two years we have seen three instances of repeated pulmonary infarction, one patient having had two attacks separated from each other by an interval of almost three weeks; another patient had three distinct attacks separated by periods of seven and ten days, respectively; the third patient had four well defined and separate attacks which occurred after a miscarriage and femoral phlebitis. Bronchopneumonia and bronchitis usually do not present this clinical picture.

In our previous communication, we[5] reported the cases of four patients who developed grave pulmonary embolism after they had recovered from previous minor attacks. In the last two years, we have been fortunate in that none of our patients who have had minor embolic complications have later died in more severe attacks.

WHAT HAPPENS TO A PULMONARY INFARCT?

This is a question which we cannot answer assuredly. How soon and how completely resolution takes place, how frequently there remains a thickening of the pleura or a slight grade of fibrosis, we cannot as yet tell. We know that in the kidney and spleen infarction causes complete necrosis which heals by the formation of a fibrous scar which is permanent. In the lungs the collateral circulation is more efficient. Here we have found that an infarct resolves very slowly, nevertheless, and that for three or four weeks after the symptoms have disappeared one can still find evidences of the lesion by physical examination. In the few patients that we have been able to follow after they have left the hospital, we have been surprised to find that although physical examination may prove essentially negative and although the symptoms may have long since disappeared, the roentgen ray will occasionally still reveal a definite diffuse shadow in the area which was consolidated as long as several months before. This seems to be due to a thickened pleura and eventually clears up entirely. The late pathology of pulmonary infarction, however, awaits further investigation.

MORTALITY IN PULMONARY INFARCTION

In the series of nine cases of pulmonary infarction which forms the basis of this article, there were two deaths, both being due to lung abscess resulting from septic infarction. We previously reported a series of thirty-four cases with five deaths.

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[8] Welch, W. H.: Thrombosis and Embolism, in Allbutt's System of Medicine, New York 7: 155-285, 1899.

Under ordinary circumstances the patient with bland pulmonary infarction recovers both speedily and completely. In such cases the chief causes for concern are: (1) the presence of infection; (2) preexisting impairment of the pulmonary circulation; (3) repeated attacks of pulmonary embolism.

Infection is one of the most serious complications of pulmonary infarction. Whether the infection occurs because of a septic embolus or because of an inflammatory lesion in the lung, the result is usually the same—abscess formation or pulmonary gangrene. In such case the prognosis is extremely grave.

In half of our patients who have died of pulmonary infarction, the attack occurred during the first week of convalescence. Infarction is always apt to terminate seriously if it occurs during this period. The mortality in cases of pulmonary infarction which occur during the first week after operation is 50 per cent. This we have found to be due to several factors. During the first few days of convalescence, the patient is just recovering from the shock of the operation and the effect of her illness and may be in no condition to withstand the additional strain due to the pulmonary infarction. In such a patient a minor embolic attack may produce a symptomatic reaction, the gravity of which would be entirely out of proportion to the extent of the lesion. Furthermore, during this period the lungs are still irritated and congested, the bronchi may be inflamed, and under such conditions a fresh pulmonary infarct might furnish an ideal culture medium in which a low-grade, and otherwise insignificant, infection might attain full virulence. For these reasons it is rather fortunate that pulmonary infarction is a complication which usually develops during the late convalescence.

The most constant danger, however, that threatens the life of a patient who is recovering from an attack of bland infarction is the possible recurrence of pulmonary embolism in more serious form. The imminence of this catastrophe dispels all peace of mind. Before 1919, 40 per cent. of the deaths in our cases of pulmonary infarction were due to recurrent attacks of pulmonary embolism. During the last two or three years, we have learned to recognize these heretofore overlooked cases and have treated them with every precaution. It may be partly for this reason that we have not lost a patient from recurrent embolism since 1919.

This emphasizes the necessity of being able to diagnose these minor embolic phenomena and to recognize the serious note of warning that they sound. Until very recently the mention of the phrase pulmonary embolism instinctively brought to our minds only the tragic, spectacular and almost invariably fatal complication with which every surgeon is all too familiar. We have attempted to demonstrate that there are other manifestations of embolism, which, though in themselves far less dangerous, nevertheless, carry possibilities of grave significance. We have also attempted to demonstrate the clinical features that distinguish these cases from pneumonia, bronchopneumonia and pleurisy and have drawn attention to the necessity of making this differentiation.

ROENTGEN DIAGNOSIS

The roentgenologic diagnosis of pulmonary infarcts associated with chronic cardiac conditions has been well established for some time; but only since the introduction of the portable roentgen-ray apparatus have we been able to study the condition in relation to abdominal operations. It is obviously undesirable to move a patient suffering with a pulmonary infarct to the roentgen-ray department for examination; so we advise that the examination of the patient be made in bed by means of a portable apparatus. After we had examined a number of these patients, some of them repeatedly, we were able to correlate certain signs which we considered pathognomonic.

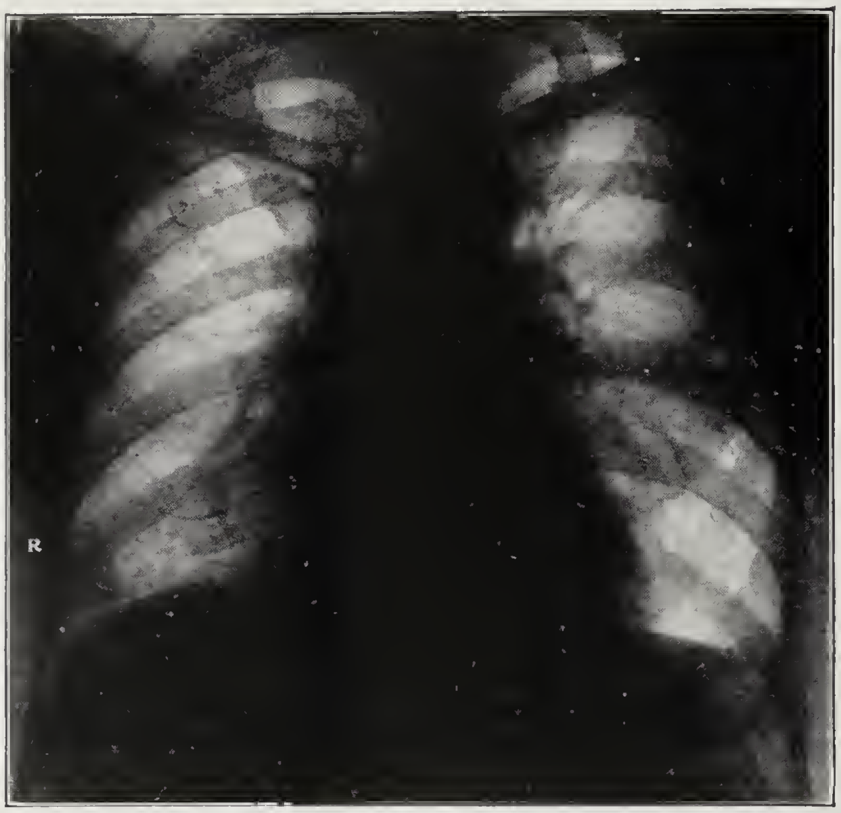

Fig. 1.—Recent pulmonary infarct in right costophrenic angle, with pleural thickening in the left costophrenic angle from an older lesion.

As may be expected, when we consider the pathology of the disease, all of the lesions which we were able to detect were situated in the dependent portions of the lungs. The first noticeable change was a clouding of the costophrenic angle, the rest of the lungs being clear. Under normal conditions the costophrenic angle, that narrow space of the thorax between the diaphragm and the ribs, should be clear at all times. The most frequent cause of a clouding of the costophrenic angle is either a small area of bronchopneumonia or a small pleural effusion, and it is significant that all of our early cases were regarded as having one or the other of these conditions before we understood the true significance of the lesion. In some of the very mild cases, the entire pathologic change was limited to the costophrenic angle and the clouding was so slight as to be almost overlooked; indeed, it was frequently necessary to make repeated examinations before we could make a diagnosis. While the roentgen examination revealed only a very small area of lung involvement, the patient had marked constitutional symptoms which were much more severe than the size of the lesion would indicate. This we believe is one of the characteristic signs of the disease.

The clouding of the costophrenic angle usually appeared within twenty-four hours after the onset of the symptoms. As has already been stated, there was very little change in the physical signs at that time; therefore the roentgen examination was of great assistance in making an early diagnosis.

In those cases in which a larger vessel was blocked, the pathologic changes were much more extensive and quite a large area of increased lung density occurred at the base. We have never seen a roentgenogram which showed the involvement of a whole lobe, for patients very rarely survive embolic attacks of such magnitude. We use the term increased lung density to differentiate the condition from a pneumonic consolidation, because the shadow cast was not so dense as that of a pneumonia. The borders of the area of increased lung density were always very clearly defined, which is another characteristic sign of the disease. The area of increased lung density increased or diminished in size as the general condition of the patient improved or became worse, so that we were often able to plot the physical condition of the patient by studying a series of roentgen examinations. In some of the cases in which there occurred repeated attacks, the area of increased lung density reappeared with each attack.

The pleural changes appeared from the fourth to the tenth day, were quite severe and persisted for a variable length of time, some lasting as long as six months. The areas of pleural and lung involvement were approximately the same; but the pleural reaction was very marked and a large number of bands of thickened pleura were formed. This was indicated by a network of fine lines which appeared superimposed over the area of increased lung density. No matter how small an area of the ung was involved, we always found signs of pleural involvement, and while the condition in the ung usually cleared up in ten days or two weeks, the pleural changes always persisted for a much onger time, which also ndicates a severe pleural nvolvement.

A pulmonary infarct is to be differentiated from obar pneumonia, bronchopneumonia and pleural effusions. It is easily differentiated from lobar pneumonia because, so far as we know, it rarely involves a whole lobe, nor is the shadow as dense as in lobar pneumonia. The differentiation from bronchopneumonia is somewhat more difficult because the shadow of a bronchopneumonia is not much denser than that of a pulmonary infarct, but its outlines are not so clearly defined and the pleural reaction is not so marked. Large and medium-sized pleural effusions are easily differentiated from pulmonary infarcts because they cast a shadow which is much denser and they have the characteristic meniscus-like outline, which is not observed in the infarct. Very small pleural effusions are the most difficult of all to differentiate because they begin in the very same area in which the infarction is irst noticed and are not infrequently of the same density. The two differentiating points are, first, the formation of thickened bands of pleura which usually do not occur with small pleural effusions, and, second, he more profound constitutional reaction which is associated with the pulmonary infarct.

We do not believe that the lesion causes any permanent changes in the lung or pleura which can be demonstrated by the roentgen ray. We have never found any in those patients that were examined after the lapse of a year.

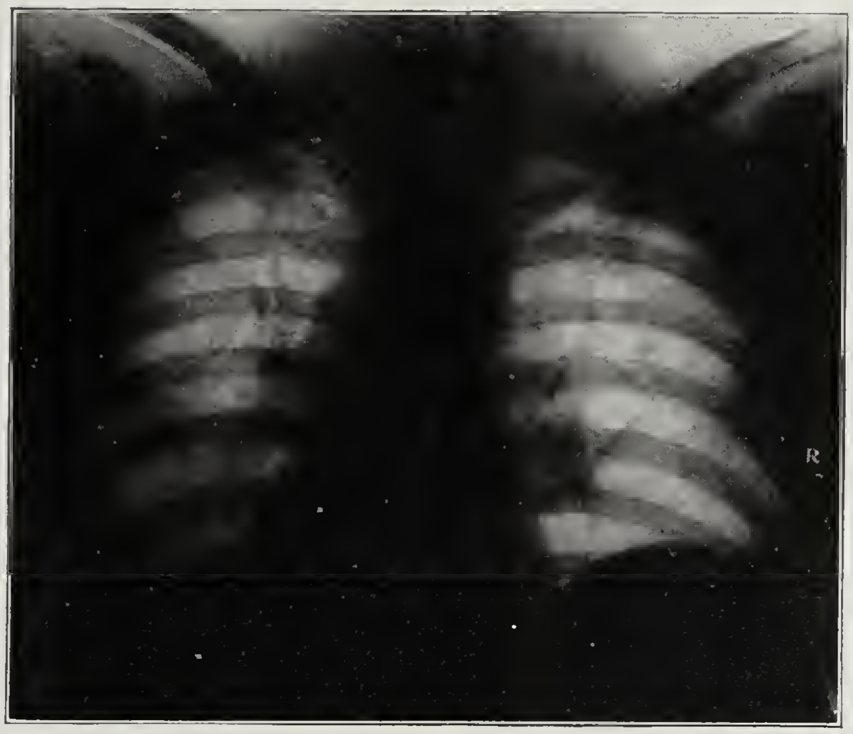

Fig. 2.—Large pulmonary infarct at left base involving a large portion of the left lower lobe.

CLINICAL CONCLUSIONS

Embolism in its various forms is the cause of fully 50 per cent. of the noteworthy pulmonary complications that occur after gynecologic and abdominal operations.

Almost half of the deaths that have occurred after gynecologic operations have been due to pulmonary embolism.

Of the various forms of postoperative pulmonary embolism, pulmonary infarction is the most common, and until very recently was hardly ever recognized as an embolic manifestation.

Pulmonary infarction usually presents a characteristic clinical and pathologic picture and should be diagnosed. We have outlined the signs and symptoms on the basis of which we believe the diagnosis may be made.

The mortality in pulmonary infarction is between 15 and 20 per cent. Any conditions that cause feebleness of the circulation, pulmonary stasis or congestion not only favor the occurrence of pulmonary infarction but also increase the gravity of the complication. Any measures, therefore, which increase the efficiency of the pulmonary circulation tend to minimize the seriousness of this lesion.

We believe that pneumonia can be almost eliminated as a cause of death after gynocologic operations. Our ability to prevent pulmonary embolism, however, depends upon our ability to prevent postoperative venous thrombosis and phlebitis, a problem which is still largely unsolved.

In the diagnosis of pulmonary complications, the roentgen ray has been of invaluable aid. In pulmonary infarction, by this means, we have been able to establish the presence of lesions which have failed to develop characteristic physical signs.

ABSTRACT OF DISCUSSION

Dr. Emil Novak, Baltimore: Pulmonary embolism is one of the most tragic of all postoperative complications, and one against which we are more or less helpless. Any study, therefore, which increases our knowledge of this subject is all the more praiseworthy. Two points struck me as especially important. The first is that the occurrence of embolism is usually presaged by a suspicious elevation of fever, which should put us on our guard. The second is that the not infrequent occurrence of attacks of sharp pain in the chest during convalescence from operations should not be dismissed cursorily as "dry pleurisy." When such an attack occurs, it is usually treated by the administration of an analgesic and, perhaps, the application of adhesive straps to the chest. Bearing in mind the probability that such conditions are embolic, we should try to guard against the occurrence of the graver forms of embolism by keeping these patients as quiet as possible until the subsidence of the thrombophlebitis. In this way it is conceivable that we may avert a certain number of the more massive embolisms which so frequently mean death to the patient.

MIXED CELL SARCOMA OF THE BRAIN

REPORT OF CASE IN WHICH RECOVERY FOLLOWED THIRD OPERATIVE INTERFERENCE *

LEO M. CRAFTS, B.L., M.D.
MINNEAPOLIS

The case of cerebral neoplasm detailed in the succeeding context presents such striking and novel features in its behavior as to be deemed worthy of extended consideration.

REPORT OF CASE

History.—D. F., a man, aged 22, a salesman, referred by Dr. Martin Aune, April 14, 1920, while entering a building under construction, about the middle of the preceding January, struck his forehead a sharp blow against the edge of an overhead plank staging. There was severe headache for some hours, and he continued to feel somewhat listless and dull from that time on. About six weeks later a peculiar feeling developed in the lips on the left side, accompanied by tremor. Soon after this he noticed some difficulty in spelling and writing, so that it became necessary to dictate all his letters. He next found difficulty in comprehending what he was reading, and in one instance he was unable to understand all that was said to him in conversation.

The sensation in the lips increased, and he noticed diminishing power of motion in the whole left side of the face, together with slight difficulty in speech. About two weeks later he observed that the left hand was growing weak and clumsy. About ten days after this, while seated in a restaurant, he was suddenly seized with an attack of marked vertigo, accompanied by sharp spasmodic turning of the head to the left, but with no obtunding of consciousness. There were several later attacks of dizziness but no other spasmodic manifestations at any time until long after the last operation. About the time of the vertiginous attacks he noticed a tendency to stagger to the left, and beginning weakness in the left leg. A little later he found difficulty in comprehending what he read and had to read slowly. He observed, too, that he was not always able to command the exact word he desired, and that there was quite definite retardation of thought processes. About this time there was a sharp drowsy period, and he slept almost constantly for a number of days. Up to this time there had been no headaches or vomiting and no compromise of the functions of hearing smell or taste. Nor had there been any disturbance of the intrinsic muscles of the eye, or of vision. There was ful control of the bladder and rectum. There was no difficulty in recognizing objects or the names of persons and places, and no change in body weight.

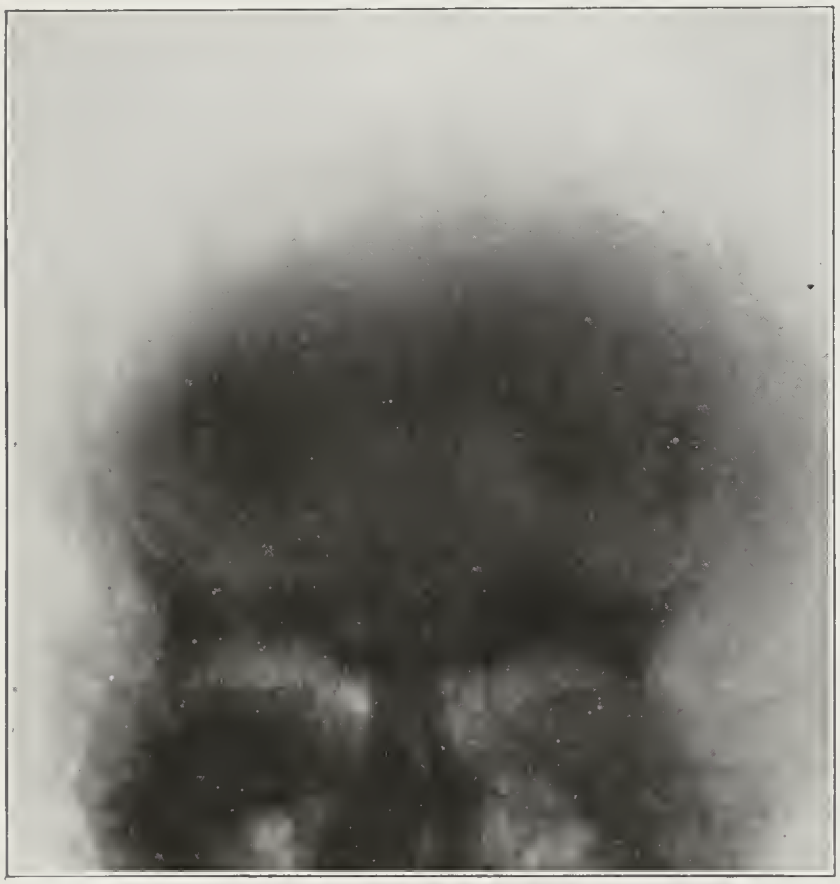
Fig. 1.—Appearance of larger, anterior neoplasm in right midfrontal region.

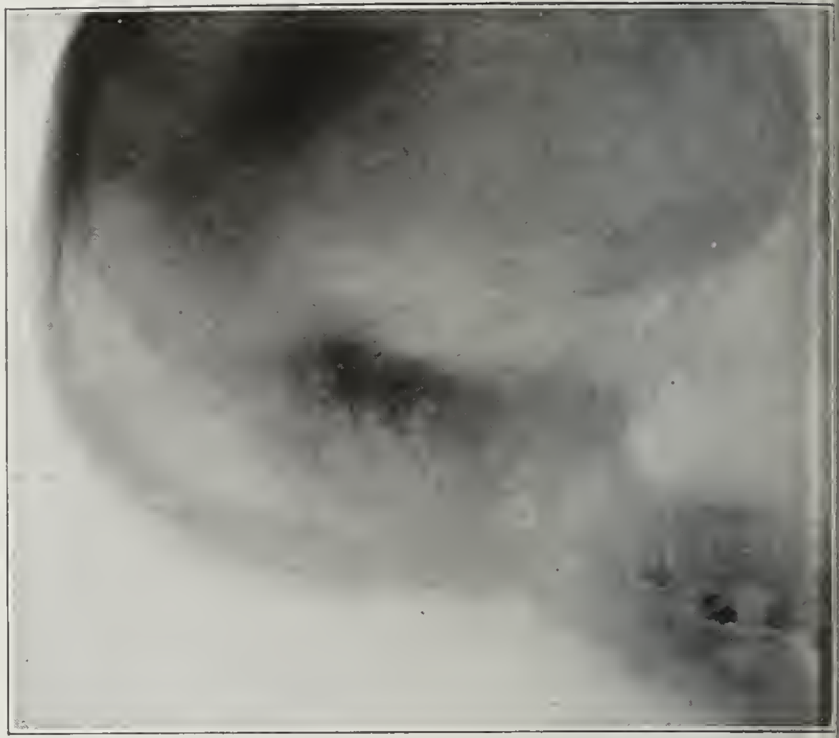
Fig. 2.—Appearance of anterior, larger nodule in midfrontal region subcortical.

There was nothing of material note in the family history except that the mother was of decidedly nervous temperament and suffered an attack of nervous prostration when the patient was a baby. Two uncles, maternal, were left handed, and two cousins had red hair.

Examination.—The patient was well developed and nourished, was 6 feet (183 cm.) high, weighed about 180 pounds (81.6 kg.), and was of alert, rather highstrung nervous temperament. The right pupil was distinctly larger than the left, and reacted well to light and accommodation The iris had the normal velvety softness. There was marked rotolateral nystagmus of wide amplitude and slow rate, distinctly greater to the left. Fixation of the globes was poor There was no diplopia and no involvement of the ocular muscles. The entire left side of the face was less mobile than the right. The palpebral and jaw reflexes were definitely increased. The biceps and triceps responses were greater on the left. The grip was weak on this side. The hand was cold and somewhat cyanotic. There was partial wrist drop but no spasticity. Power of supination was reduced. There was no astereognosis. At the patellae the reaction was accentuated and definitely greater on the left, as was the Achilles. There was marked extension of the great toe to the Babinski test on the left and moderate on the right, but no ankle clonus. The abdominal reflexes were absent in all four quadrants, both to stroke and to tap. No objective sensory changes could be elicited. The patient showed slight clumsiness in the use of the left leg, while the station was fairly steady. The teeth and tonsils showed nothing of note The blood and spinal fluid were normal. The pulse rate was 80, the blood pressure, 115 systolic and 80 diastolic, and the urine, negative.

A tentative diagnosis was made at this time of brain tumor probably glioma or sarcoma, deeply situated in the righ frontal lobe, beginning to impinge on the face center and the speech control area.

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*Read before the Section on Nervous and Mental Diseases at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

First Operation.—The unfolding of the clinical picture was so rapid as to be almost fulminating. On the second day after the initial examination, cephalalgia came on, accompanied by vertiginous attacks. Disturbance in expressive speech increased. The paretic condition of the left extremities advanced, with tendency to foot drop. The patient was hospitalized, April 27. The fundi were examined by Dr. J. S. Macnie, who reported finding marked double choked disk, the arteries small, the veins engorged, and considerable edema of the retina. Anteroposterior and transverse roentgenograms were made by Dr. Stephen Baxter (Figs. 1, 2, 3 and 4), which showed clearly defined shadows in the frontal lobe on the right, indicating probably two areas of foreign growth, one just beneath the frontal cortex about the size of an average English walnut, the other more deeply placed and smaller. Dr. W. A. Jones, in consultation, May 5, concurred in the diagnosis. Frontoparietal decompression was done by Dr. J. Warren Little, extending from the lower extremity of the motor area forward. The convolutions appeared flattened, the vessels were injected, and the brain mass bulged distinctly in the field, but no neoplasm could be located. The wound was completely closed. The hernial protrusion subsided. The cephalalgia and vertigo disappeared, and the papilledema improved. But there was marked increase in the paretic condition of the left side, especially the leg and arm, improving rapidly in the former, but not in the latter. The paraphasia diminished. Retrogression of symptoms continued for about a month, when the soft area of bony defect began to grow tense and bulge. Vertigo, unyielding cephalalgia and projectile vomiting came on. Rapidly increasing failure of vision, marked increase in speech disturbance and great loss of weight developed.

Second Operation.—The patient was again hospitalized and a second decompression performed by Dr. J. Frank Corbett, July 5. An extensive semicircular flap was turned down about the site of the preceding operation and the bone defect considerably enlarged, exposing practically the entire rolandic area and much of the frontal lobe. As the dura was incised, marked hernial protrusion occurred of normal pinkish gray, which soon showed, pointing near the center of the field, a small circular reddish brown mass, with clear line of demarcation from the normally colored surrounding surface, which gradually delivered itself from the deeper brain substance, much as a small placenta might present itself extruded from the uterus (Fig. 5). This was carefully removed, leaving a clear bed. The wound was not entirely closed at the center. There was complete relief from head-pain and vomiting. Weight was rapidly restored. Dimness of vision and expressive speech disturbance improved. But the patient was not able to read at all. Power in the leg returned rapidly, but the arm remained completely paralyzed. The brain hernia diminished.

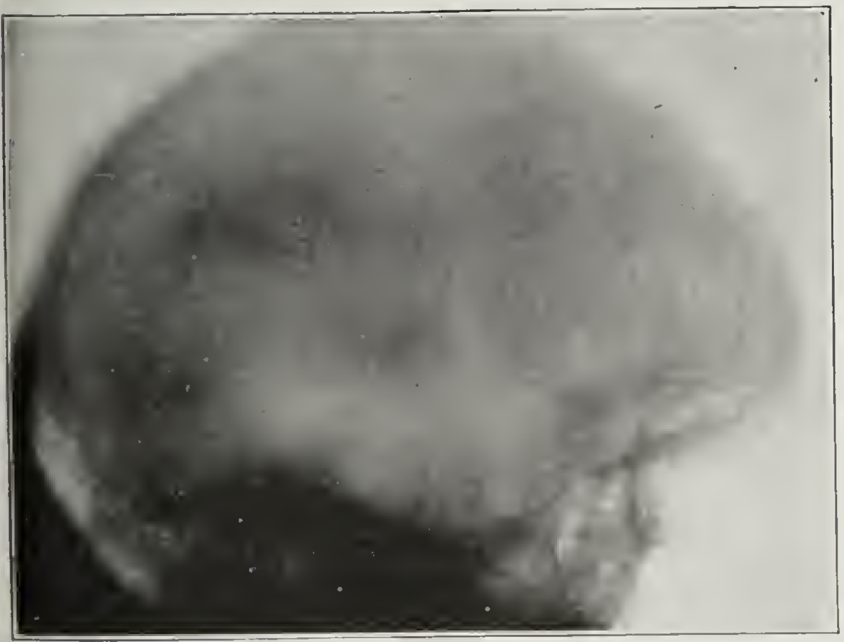

Fig. 3.—Appearance of anterior tumor, faint, and the smaller, deeper nodule, more distinct.

Third Operation.—Cerebrospinal fluid continued to ooze. There was slight accentuation of symptoms after about six weeks, and, September 2, on removing the dressings, Dr. Corbett found a reddish brown fungus-like mass appearing in the opening. The skin incision was enlarged without an anesthetic. Tissue in contact about the edges was cut away. The growth did not infiltrate, and was easily detached from the brain substance, by little strips of rubber packed under the tumor so as to protect the underlying, normal appearing, white brain tissue. The skin flaps were then allowed to fall together and heal without suture, which occurred rapidly and completely. Slides from both neoplasms, examined by Dr. A. C. McKinlay, were reported by him as revealing mixed cell sarcoma, possibly transitional (Figs. 6 and 7).

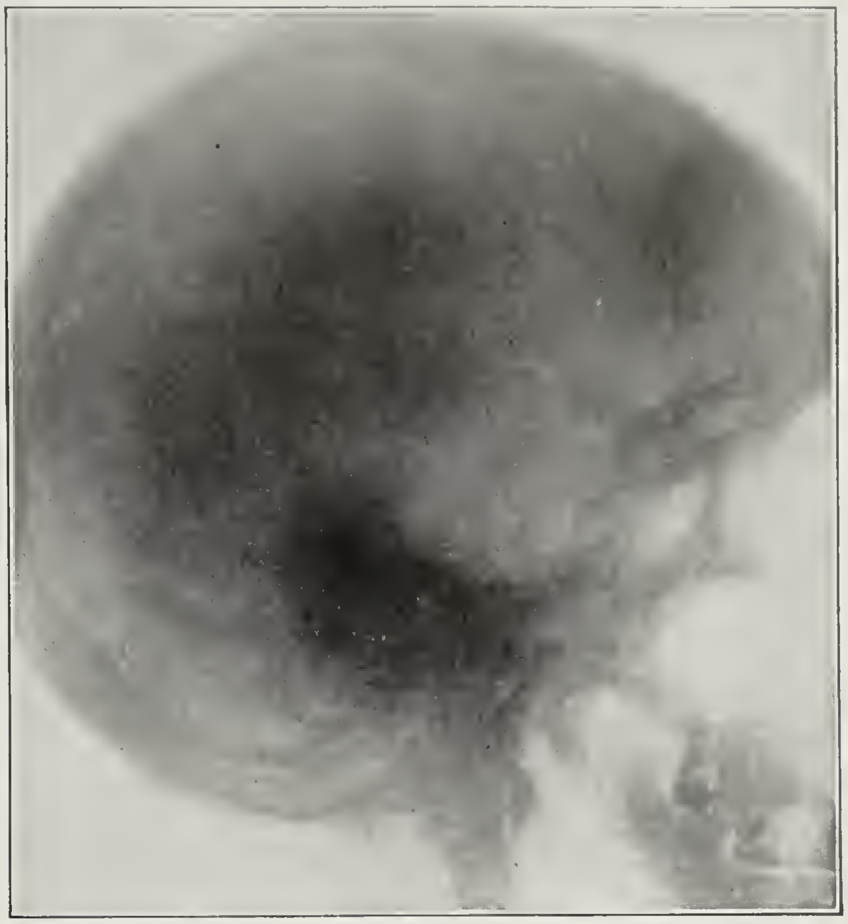

Fig. 4.—Appearance of two growths, the deeper nodule less clearly than the anterior.

Results.—All conditions except that of the arm, which was spastic and almost completely powerless, showed uninterrupted improvement. Vision cleared steadily. The patient began to be able to read and later to spell and write, and retardation of thought disappeared. The motor aphasic difficulty diminished rapidly. There was no returning tension over the site of operation. Although the leg was somewhat paretic and spastic, he was doing considerable walking, and one day in March, 1921, after sharp overexertion, he had a generalized convulsion with loss of consciousness. There was no return of the old symptoms. Fundus examination by Dr. Macnie revealed no swelling of the disks; the margins were very plain but somewhat blurred on the temporal sides. The blood vessels were nearly normal, except for white lines along the arteries and veins within the area of the disks. There were slight changes in the choroid. No untoward incidents occurred until July, 1921, when following a death in the family, another convulsion occurred, and in September a third one, apparently due to overexertion and indiscretion in diet. About two months ago there was slight muscular twitching in the right scalp and some sensitiveness in the surface tissues.

Speech disturbance has almost entirely disappeared, showing only slight occasional hesitation or slurring of a syllable. Thought processes are normally alert. The ability to spell and write is fully restored, but he cannot yet read as rapidly as formerly. There is no discomfort in the head. The arm is showing slight continued gain. The disability in the leg is stationary.

The right pupil is somewhat larger. Both pupils react well. There is marked lateral nystagmus, irregular, slow and of wide amplitude. The right does not converge. The fundus shows no change from the last examination. Vision, right eye, is 6/12; left eye, 6/6. The left side of the face is slightly less mobile. The tongue protrudes somewhat to the left. The decompression area is soft and without tension. The left hand and arm are spastic. Motion is fair in the shoulder and elbow. The closed fist requires some force to open. The grip is good. Muscular tone and volume are normal. There is some spasticity in the leg. No sensory changes are found. All tendon reflexes are overactive and greater on the left. There is a sustained ankle clonus on this side and a marked Babinski and Crafts response, very slight Oppenheim, and no Chaddock or Gordon reactions. The abdominals are active on the right, slight on the left, and the cremaster reacts sluggishly.

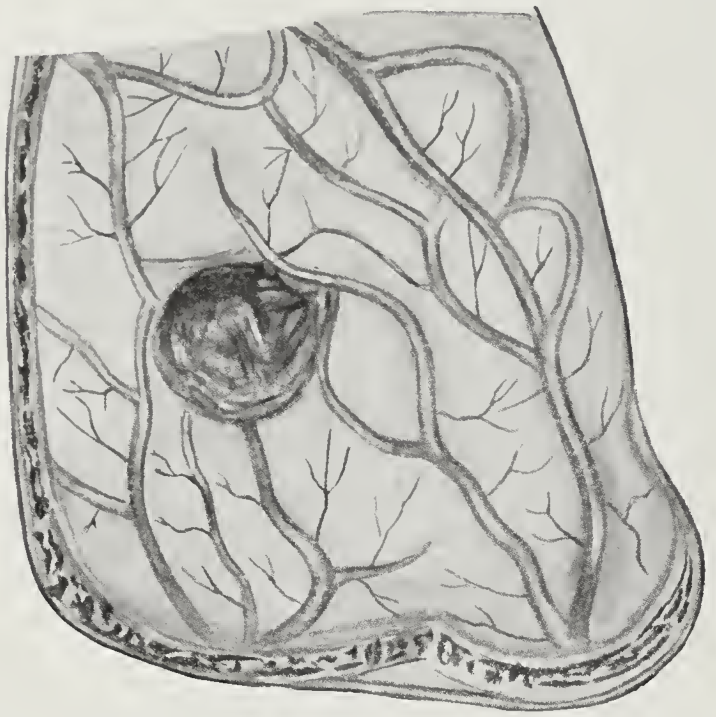

Fig. 5.—Schematic drawing of brownish red mass that protruded through the pial surface.

COMMENT

Several unusual and highly interesting factors stand out in the symptom congeries of this case, including the interpretation of the somewhat elaborated speech disturbances in a right sided lesion; the apparently direct relationship of trauma etiologically; the remarkable behavior of the tumor mass or masses, and nonrecurrence after an interval of two years.

There is a tendency to lefthandedness in the family, and Foster Kennedy thinks that such puzzling cases may be due to these idiosyncrasies. The patient himself always spoke rapidly, but never stammered. He began to write with the left hand, was trained to use the right, but continued to use the left also up to a few years ago. He has always thrown a ball with the right hand, and bats righthanded, while the left is employed for a hammer or a saw.

The associated speech disturbances are difficult of explanation, so early, in a growth evidently remote from all centers controlling the function, and before pressure near or distant could account for it. It must be due in part at least to involvement of association tracts. Not all observers are in accord as to the location of the various centers of cerebration, and recent investigators dispute many of our established ideas on the subject. While speech control is usually considered unilateral, Wernicke holds that it is not exclusively so. And it would seem quite certain that in so ambidextrous a person as this subject, Broca's area on both sides must be functionally active. The rapid and complete restoration of both motor and sensory speech disorder is thus most reasonably explained. Speech is an acquired function, closely associated with manual dexterity, supposedly readily transferred in children, and less readily but possibly in adults, as shown in a case reported by Oppenheim. Why most persons are right handed and left brained is not explained.

If the shadowgraphs show the true location of the new growths, they did not encroach directly on the cortical speech centers or their peripheral fiber tracts. And in their transit to the surface they did not traverse them; yet agraphia and sensory disturbance in the lips were the first focalizing symptoms. The single sign of motor irritation was spasm of the right sternomastoid muscle, also from a remote area. And all occurred before there were any symptoms of general pressure. The moderate temporary compromise of psychic functioning, as shown in the retardation of thought processes and difficulty of comprehension, may perhaps be fairly attributable to the frontal location of the tumors; but general pressure effects must be taken into account, and we have no proof that the psychos is located frontally. He shows no present deterioration. The rapid, extreme loss in body weight before the second operation was probably in part due to malnutrition, but largely to disturbance of the hypophysis from pressure.

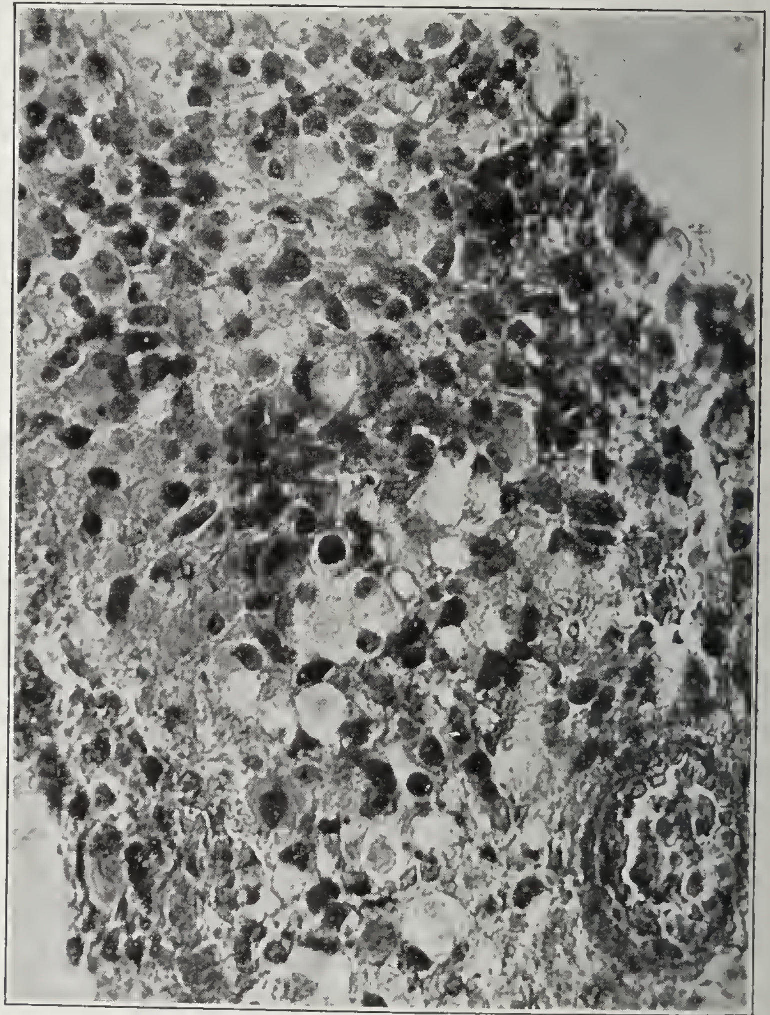

Fig. 6.—Appearance of slide from first tumor.

The actual causes determining the production of gliomas, sarcomas and endotheliomas in the brain are as yet unknown. Cohnheim holds that all such neoplasms have their origin in undeveloped embryonal cells stimulated to growth by some exciting cause. Whether trauma is to be accepted as a sufficient cause is disputed, or held not proven. Yet from 5 to 20 per cent.

of all brain growths have been attributed to this factor. Bailey considers such a relationship established. And when in a patient previously well and a few weeks following a definite head injury, symptoms of tumor develop and follow the usual relentless course, trauma must be accepted as the clearly productive cause. It was so accredited in this case, and compensation awarded.

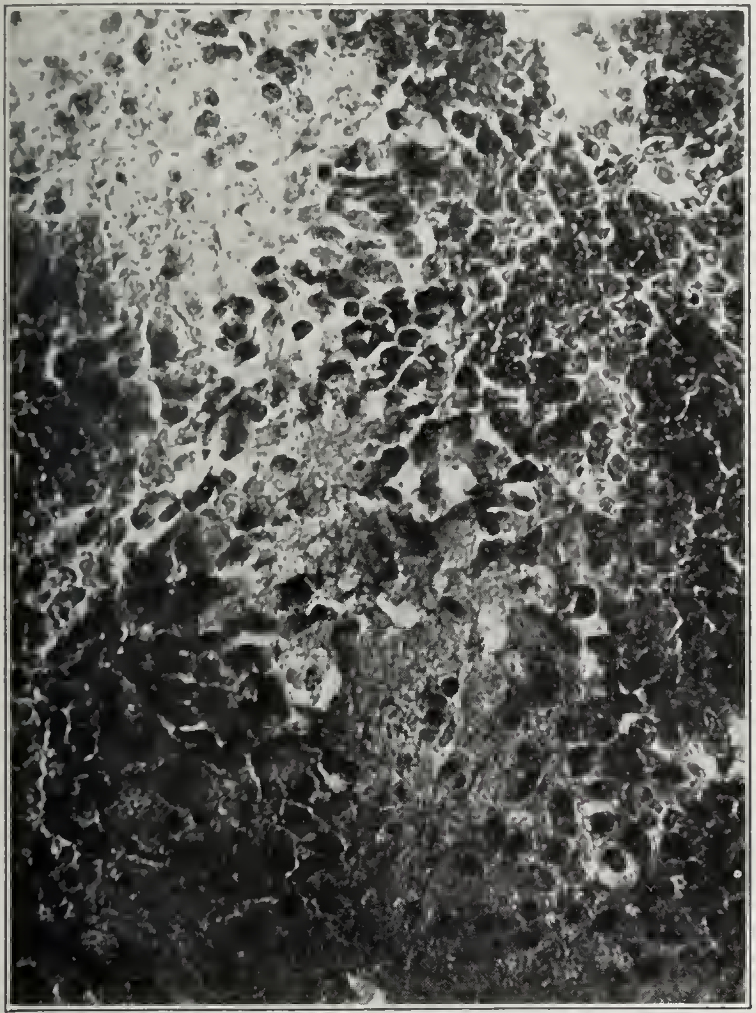
Fig. 7.—Appearance of slide from second tumor.

In the preoperative diagnosis of glioma or sarcoma, rapidity in the unfolding of the picture and the age of the patient were the chief determining factors, and they are both commonly deeply situated, while no others show such rapid fulmination. Glioma is the most frequent, about one half of all, and is usually solitary or infiltrating, while sarcoma is often multiple, and is pigmented and discrete. Our roentgenograms showed one clearly defined focus and one of somewhat vague outline. The two self extruded masses were pigmented, multiple and clearly defined, characteristics in accord with microscopic findings as reported by the neuropathologist. Dr. E. T. Bell has recently examined the slides and designates them as glioma.

The behavior of the tumors under the succeeding stages of operative interference was highly interesting, instructive and unique. By reference to the roentgenograms and skull measurements it is clear that one of them must have passed through at least an inch of brain substance spontaneously to reach the surface, and was undoubtedly the one that appeared in the field in the second operation, while the lower, larger mass, situated just under the very frontal cortex, found its way through more than 2 inches (5 cm.) of white matter and cortex, appearing at the unhealed center of the skin wound, to be shelled out at the last operation.

The fact that the first decompression was done early undoubtedly saved the patient's sight and also accomplished much more; for it furnished a considerable area of soft, yielding tissue in place of the rigid, bony skull-box, near the location of the neoplasms. After the first operation the steadily increasing pressure produced an extremely tense hemispherical protrusion more than 2 inches in diameter where the bone had been removed, evidently carrying the tumors along the line of least resistance toward the surface, so that when all resistance was removed by the incising of the dura, the pressure from below in the lateral ventricles actually drove the mass through the pial surface in an astonishing demonstration, such as I have not been able to find in the literature of the subject. Leaving the wound of operation open in the center, partly a matter of necessity, proved to be a step of great value. It prevented the return of dangerous pressure, helping to protect vision, and enabled the second larger and deeper nodule to traverse nearly the entire distance across the frontal lobe, leading it directly to and through the open skin wound as a gateway of exit.

As it is now nearly two years since the last operation with no present indications of further recurrence, it may be fairly concluded that permanent recovery has been obtained. Expectant treatment of brain tumors wherever located is entirely futile. Their advance is inexorable. Decompression should always be resorted to—parietal or bilateral occipital, depending on the probable site of the growth, not alone to save vision, but because even though they are apparently unremovable, much suffering is avoided by the relief of the terrific cephalalgia and vomiting—to serve an exploratory purpose and to aid spontaneous movement of the growth toward the surface.

GLIOMA OF THE CEREBRAL HEMISPHERES

A COMPARATIVE STUDY OF TWO CASES *

TOM BENTLEY THROCKMORTON, M.D.
DES MOINES, IOWA

Tumors arising within the cranial cavity are, without doubt, of far more frequent occurrence than is generally believed. Not infrequently postmortem examinations reveal the presence of a growth involving the brain which gave few or no symptoms antemortem. It has long been conceded that the brain is a favorite site of new formations, and that among the more frequent type of tumors found in new growths of the brain, glioma holds a very high percentage. Glioma may vary in size from that of a hazelnut to that of a fist, or even larger. There is no sharply defined line of demarcation from the surrounding brain substance as a rule, and, in contradistinction to many other types of neoplasm involving the brain, this type of tumor does not extend by pressure, but rather by infiltration of the brain substance, destroying normal nerve cells and fibers and replacing them by pathologic tissue. As a result of this peculiar infiltration characteristic, these tumors, as a rule, cannot be simply shelled out from the surrounding healthy brain substance, and symptoms referable to increased intracranial pressure are more likely to occur late in the disease rather than

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*Read before the Section on Nervous and Mental Diseases at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

to be the purveyors of the first crass signs of a cerebral neoplasm.

The salient points of neurologic interest occurring in two cases of glioma involving the cerebral hemispheres will be given, after which a comparative study of the symptomatology presented in each case will be undertaken in the hope that the study may prove of interest, and perhaps of some value, to those who are from time to time encountering problems of neurologic importance in lesions occurring within the cranial cavity.

REPORT OF CASES

Case 1.—*Glioma of right cerebral hemisphere simulating epidemic (lethargic) encephalitis.* A physician, aged 32, white, single, first examined by me, Jan. 31, 1921, complained chiefly at that time of distinct motor weakness of the left lower extremity, and a slight motor weakness of the left upper extremity, conditions which had been apparent for only four or five days. The family history was entirely negative, and nothing of importance was found in the personal history, save that hearing in the left ear had been impaired since childhood, and it was thought at one time that possibly an apical tuberculosis had been present. The emunctory functions of the body were properly performed, and the habits exemplary.

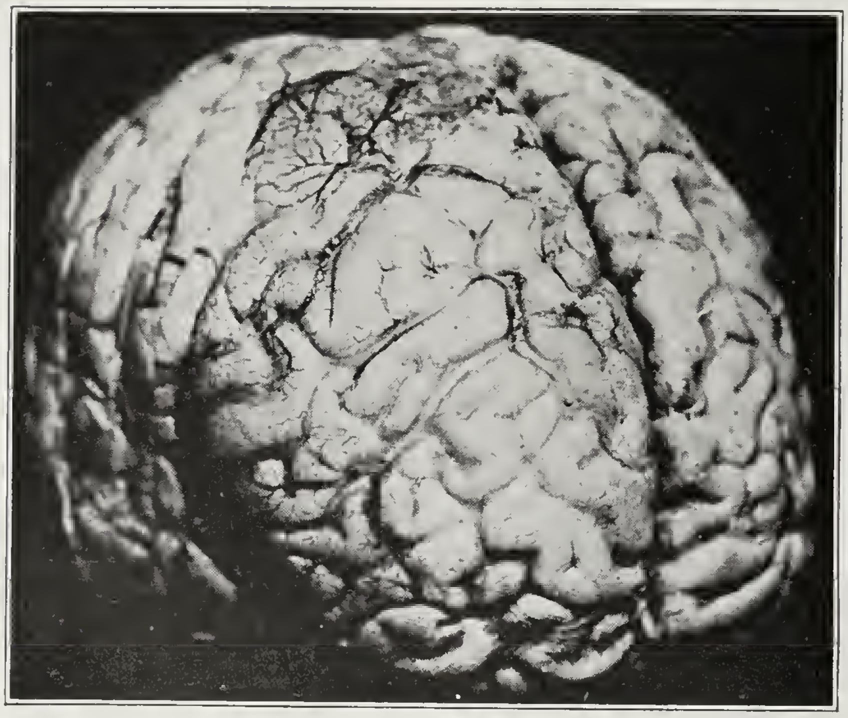

Fig. 1 (Case 1).—Frontolateral view of brain, showing softened area over upper portion of right rolandic area.

The mode of onset of symptoms was acute, and, in the light of subsequent developments, proved somewhat misleading. On arising, January 21, the patient noticed a somewhat general hypersensitiveness of the skin and, on combing his hair, some tenderness of the scalp was elicited. By evening, the temperature rose to 101.6 F., and general aching, of a "griplike" character, was experienced. The patient, however, did not confine himself to the house, and twenty-four hours later was seized, during the night, with a violent dysentery, associated with a tenesmus that became so marked as to cause the presence of small, bloody, mucoid evacuations by morning. The illness, apparently, was not severe enough to produce confinement to the house, and it was not until two or three days later that the first crass sign of impending danger revealed itself. Then weakness of the left lower extremity made its appearance, a weakness that was extremely insidious in onset, and one that was first noticed when the patient attempted to change the gears of his automobile with his left foot. Gradually, the weakness increased until there was a tendency for the left foot to drag. It then became apparent that some muscular weakness was present in the left arm and hand; otherwise the patient was feeling perfectly well. Within the next few days, however, the weakness of the leg became so marked that locomotion was greatly interfered with, and the patient finally consented to enter the hospital for examination.

Here, no localized tenderness could be found on pressing or percussing the skull. The pupils were equal, reacted promptly to light and in accommodation and convergence, the consensual reflex was preserved, and the fundi were entirely negative. The ocular movements were free and equal in all directions, and there was an absence of diplopia, nystagmus and hemianopia. The other cranial nerves proved negative on examination. The chest was negative for lesions of the cardiac or pulmonary systems. The grip was distinctly weaker in the left hand, but there was an absence of incoordination, dysdiadokocinesia or asynergy. The abdominal and cremasteric reflexes were preserved and active. Sensation to cotton, sharp and dull objects, and heat and cold was normal, and localization of touch was prompt and accurate. The deep jerks of the left upper extremity were a little more active than those of the right, while in the left lower extremity the knee jerk was exaggerated, patellar clonus present, ankle clonus absent, and pathologic toe signs by Babinski, Chaddock, Throckmorton and Crafts methods were obtained. Pulse, respiration and temperature were normal. Urinalysis was negative. Hemanalysis revealed the hemoglobin to be 85 per cent.; leukocytes, 8,000 per cubic millimeter; erythrocytes, 4,510,000 per cubic millimeter; polymorphonuclears, 77 per cent., and lymphocytes, 13 per cent. The blood Wassermann test and the blood culture were negative. The spinal fluid showed no increase in pressure; there was a slight flocculent deposit, the Wassermann test and culture were negative, and there was no excessive globulin, with cells numbering only 5 to the cubic millimeter.

February 8, the patient made his first complaint of headache. Three days later the eye grounds were examined by Dr. W. W. Pearson, with negative results. Then suddenly, February 14, the patient was seized, without apparent cause, with an attack of dyspnea, associated with the feeling of substernal oppression. The air hunger was marked to some degree, but no distinct cyanosis became manifest. Examination of the heart and lungs failed to bring to light the causal factor. By the following day, however, the dyspnea was not nearly so marked, and it was then noticed that there was a distinct loss of expansion of the left chest on inspiration, associated with a loss of the abdominal and cremasteric reflexes on the left side. Aside from an occasional headache, which was mostly frontal and about the right eye, no new symptoms developed until February 22, when, following the application of a plaster splint to overcome the left footdrop, the patient became ill with a sore throat, and had chills and a rise in temperature to 103 F. Following the recovery from the throat infection, some evidence of mental hebetude crept in, followed in a day or two by vomiting, which recurred at irregular intervals.

February 28, weakness of the right third nerve became evident; there was also a weakness of the musculature of the lower quadrant of the left face, and the tip of the tongue tended to curve a little to the left of the median line on protrusion of the organ. No sensory changes could be elicited. March 2, the patient became quite heavy mentally, and answered questions very slowly and deliberately. The oral temperature was normal, the pulse slow—60 a minute, but regular; the leukocyte count was 10,000 per cubic millimeter. The stereognostic sense, while apparently normal on the right side, was interfered with on the left side. There was an absence of any tenderness of the skull, roentgenograms of which were negative for osseous change. Pathologic toe signs, as before mentioned, were constantly present on the left side, and in addition, the Oppenheim extensor toe sign could now be elicited. Headache and, to some extent, vomiting occurred at times, and in addition, slight changes in the retina and vessels of the left eye were now reported present by Dr. Pearson.

Believing that the patient was suffering from a neoplasm involving the right motor cortex, I referred the case to an out of town neurologic clinic, where, after some two weeks' observation, the diagnosis of epidemic (lethargic) encephalitis was made on these grounds: "(1) the occurrence of the initial attack of an acute infection, followed in two weeks by the appearance of cerebral symptoms; (2) the fleeting character of the oculomotor disturbance; (3) the acute respiratory attack; (4) the restlessness by night, and drowsiness by day; (5) leukocytosis of 21,000, and (6) the beginning return of power in the abductors of the thigh." Comment was also made that the "onset of papilledema (while suggestive of tumor) was not inconceivable as an accompanying lesion of encephalitis lethargica."

After the patient returned home, the hebetude became more and more pronounced, a well marked neuroretinitis developed, difficulty in swallowing ensued, and on April 4, respiratory and cardiac failure ended the scene.

A necropsy, limited to the brain, was performed by Dr. Julius Weingart, about twenty hours after death. The calvarium stripped readily from the dura, which was markedly injected and somewhat tense. There were a few small adhesions between the brain and the dura along the longitudinal sinus. The surface of the right hemisphere was edematous, while the superficial vessels showed engorgement on both surfaces. On the right hemisphere, anterior to and over the upper portion of the fissure of Rolando, was found an area of marked congestion and softening about the size of a silver dollar, which extended downward on the mesial surface as far as the corpus callosum. There was no visible evidence of tumor present. After the brain had been hardened, vertical sectioning revealed the presence of an infiltrating neoplasm occupying the right cerebral hemisphere, which measured, anteroposteriorly, 5.5 cm., in width 6 cm., and in greatest depth 7 cm. Microscopically, the neoplasm was pronounced a glioma, which diagnosis was later confirmed by Dr. William G. Spiller of Philadelphia.

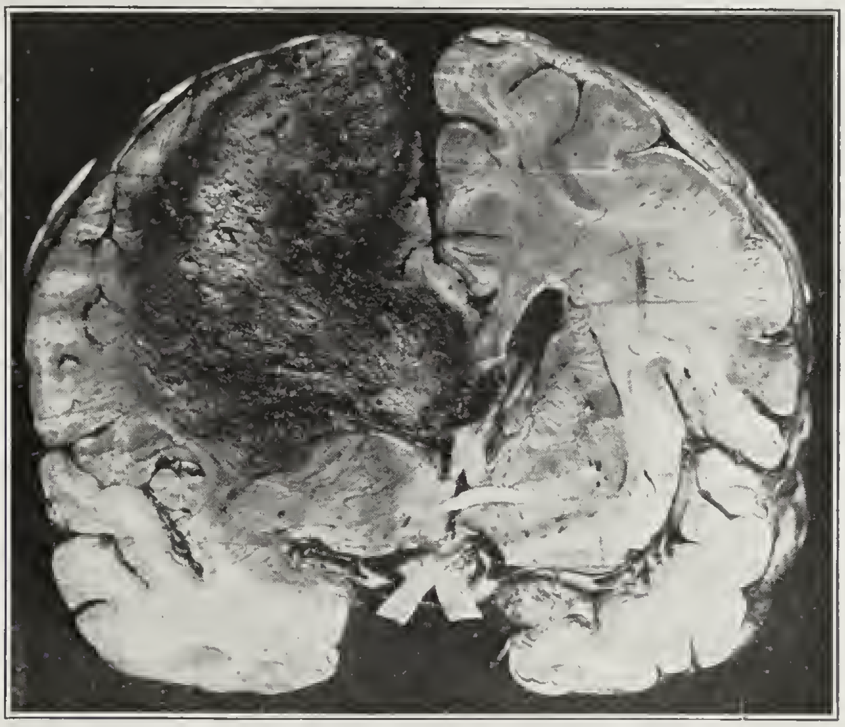

Fig. 2 (Case 1).—Vertical section, through hemispheres at level of optic chiasm, showing extent of glioma of right cerebral hemisphere.

Case 2.—*Glioma of left cerebral hemisphere (simulating paresis)*. A. P. B., a man, aged 39, photo-engraver, white, seen in consultation, Nov. 23, 1920, suffered from weakness of the right leg and arm, a condition which had been present following a "fainting attack" about four weeks previous. The family history was without note, and, from a personal point, the patient had never had a sick day prior to the onset of the present illness. For sixteen years, he had followed his occupation as an engraver; he was married, and his wife was living and well. About fourteen years before I saw him, his wife had aborted at about the third month, and no other pregnancies had since ensued. His personal habits were good, his appetite excellent, his sleep variable, but without dreams, and the kidney function normal, aside from difficulty encountered, within the previous three weeks, in starting the urinary flow at the time of micturition. There was no accompanying sphincter incontinence. Venereal infection was denied both by name and by symptoms, although its possibility was admitted. While the patient was not a constant user of alcohol, he had from time to time drunk whisky, and formerly drank beer freely.

The onset of the present trouble had occurred about a month previous and was ushered in by a symptom group which strongly savored of the possibility of the early signs of general paresis. While walking along the street one morning to his work, he was accosted by a pedestrian who asked for enlightenment concerning a certain business address. On attempting to give the desired information, the patient noticed that his tongue became thick and speech difficult and, without further warning, he was seized with unconsciousness, only to awaken shortly afterward and find himself in a local hospital. Confusion was present for two or three hours, associated with a slight headache. On the following day he was discharged from the institution, but found on attempting to walk that there was a slight weakness in the right leg. Some weakness was also noticed in attempting to use the right arm.

Four days later, a second attack occurred in which the tongue became thick, speech impeded, and tonic and later clonic movements of the right arm ensued, followed by a generalized convulsion with loss of consciousness and sphincter relaxation. The entire attack lasted ten or fifteen minutes, clearing rapidly, and was not followed by confusion or headache. A third attack was encountered some time afterward, but the repetition of a fourth and similar attack, November 22, brought the patient to me for examination.

It was then ascertained that slight rhombergism was present, and there was weakness of the musculature of the right lower extremity. There was also slight incoordination, but apparently equally so, of the upper extremities on the finger to nose test. Slight tremor of the hands was present, associated with weakness of the muscles of the right arm and hand, which condition may have been largely accountable for the awkwardness manifested in attempting alternately to pronate and supinate the right forearm. The grip was distinctly less in the right hand, although the patient was right handed. No marked inequality of the pupils was observed; the right perhaps was a little larger, but the reaction to light was sluggish, especially on the right side, while the power of reacting in accommodation and convergence was prompt and sustained. The consensual response was sluggish, the ocular movements were free and equal in all directions, there was an absence of nystagmus, diplopia and hemianopia, and the nerve heads and vessels, on ophthalmoscopic examination, appeared clear and distinct. There was some slurring of speech on test sentences, although there was no obvious weakness of the facial or tongue muscles, and no tremor of the facial muscles could be discerned despite the fact that the general expression was rather suggestive of a beginning erasement of the cutaneous wrinkles and folds, a condition so often encountered as a forerunner of facial weakness in paresis.

The deep jerks of the arm and leg were a little more pronounced on the right side. There was also an absence of patellar or ankle clonus on the right side and, while the plantar reflex was sluggish when the left sole was stroked, no physiologic or pathologic toe sign could be elicited on the right side, despite numerous and repeated attempts. The abdominal and cremasteric reflexes, while preserved, appeared equally responsive but faint. There appeared to be some resistance of the hamstring muscles on attempts to elicit Kernig's sign. The Wassermann test of both blood and spinal fluid repeatedly gave negative results. The spinal fluid was clear, and showed no apparent increase of pressure, no excess of globulin, and only three cells to the cubic millimeter.

When again seen about three weeks later, the clinical picture had changed considerably. Symptoms of increased intracranial pressure, as evidenced by severe headaches, drowsiness and double choked disk, were manifest, but vomiting had not occurred except as a resultant from the morphin which had been repeatedly used to assuage the pain. There had been no convulsions for some time, but undoubted motor paralysis of the right side was shown by weakness of the right side of the tongue, lower right side of the face, and a tendency to spasticity of the right arm and leg, with absence of the abdominal and cremasteric reflexes on the corresponding side. Plantar flexion was preserved on the left, but no frank extension of the toes could be elicited on the right side.

The diagnosis of a neoplasm involving the left motor cortex was accordingly made, and operation was recommended. I am indebted to Dr. C. W. Harned for the notes pertaining to the operation and subsequent course of the case. "A plate of bone, 6 by 10 cm., was removed over the left motor area. The dura was found to be tense but not adherent. When the dura was incised, the cerebral tissue immediately bulged into the opening owing to the increased cerebral tension. Puncture of the lateral ventricle failed to deliver any cerebral fluid. Exploration of the exposed surface with a probe revealed increased resistance about 3 cm. below the cortex over the leg and arm areas. Incision through the brain and exploration with the finger revealed a tumor mass possibly as large as a small hen's egg. The mass did not seem to be encapsulated, and hence no effort was made toward its removal. The exposed dura was removed and the wound closed with the scalp flap only. Healing was by first intention, but a hernia developed within a few days. Postoperative convalescence was uneventful. The facial paralysis disappeared and speech was improved, but there was no return of motive power to the arm or leg. At times, interest was manifested by reading a newspaper or engaging in a game of cards. A large hernia gradually developed over the operative site. May 15, 1921, twitching of the left arm and leg became evident, general convulsions associated with stupor ensued, and three days later, dissolution occurred. Necropsy revealed the presence of an infiltrating mass, a glioma, involving the posterior portion of the left front lobe, and extending posteriorly well into the parietal region, collapsing the ventricle on the affected side."

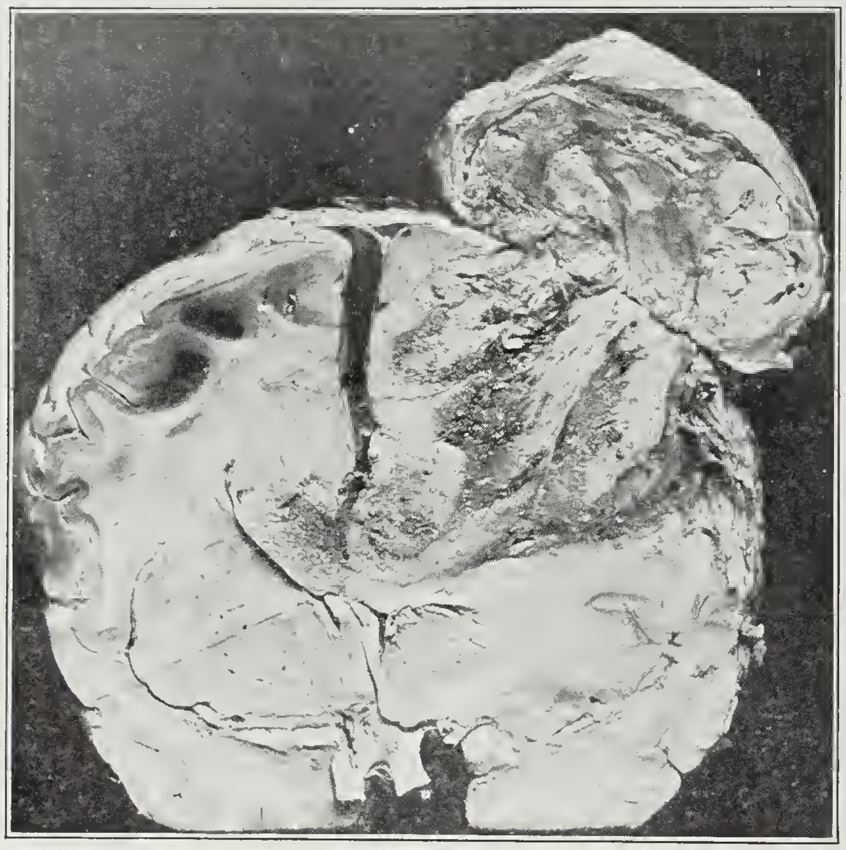

Fig. 3 (Case 2).—Vertical section through hemispheres at level of optic chiasm, showing extent of glioma involving the hemispheres; also the comparative size of the hernia of the left cerebral hemisphere.

COMPARATIVE STUDY

In the study of these two cases, one is naturally confronted by the similarity, and again by the dissimilarity, of certain symptom groups. The cardinal symptoms of increased intracranial pressure—headache, vomiting and choked disk—were latent features in both instances, doubtless owing to the fact that the neoplasms were of an infiltrating character, were slow of growth, and were situated above the tentorium cerebelli; and it was not until the ventricular current was interfered with through pressure that the general symptoms, enumerated above, became evident. In this one respect only, the latent development of general symptoms of brain tumor, are these two cases parallel, and until such symptoms did present themselves, only doubt and conjecture could be entertained as to the probable diagnosis in each instance.

A consideration of the mode of onset and an evaluation of the symptoms as they appeared in chronological order in these cases may give, perhaps, some idea as to why the element of doubt naturally crept into the making of a diagnosis. In Case 1, it will be recalled, the onset was sudden in character, the prodromal symptoms being those of an infectious process, i. e., general aches and pains, febrile movement, and gastro-intestinal disturbance. Within the following forty-eight hours, nervous symptoms were ushered in, as evidenced by weakness of the left lower extremity followed shortly by weakness of the left upper extremity. For days, no other changes than these could be found, and the possibility of a vascular lesion—embolism or thrombosis, secondary to some infectious process in the intestinal tract—was, for a time, entertained. Certainly no violence could be done the clinical picture at this stage in assuming the possibility of such a lesion affecting the terminal branches supplying the arm and leg centers in the motor zone, for the weakness of the involved extremities was so slight at first, and the progress made so slow that, in the light of the pre-existing infection of an unknown origin and nature, the symptomatology could be reasonably explained on the basis of cerebral softening resulting from some vascular insult. When, about two weeks later, paralysis of the left chest muscles became evident, followed within a fortnight by weakness of the musculature of the left lower side of the face and the left side of the tongue, the presumption of a vascular lesion seemed all the more probable; and it was not until the cephalalgia, associated with vomiting and a beginning mental heaviness, assumed more than a minor rôle, that the growing suspicion of a possible neoplasm as an underlying factor loomed very large on the diagnostic horizon. With the beginning change in the fundus of the left eye, though slight at first, it is true, and the gradual, though steady, increase in the intensity of the headache and vomiting episodes, all of which were associated with a motor paralysis of the left half of the body, it did not seem that much else was needed to complete the clinical picture of a tumor involving the right motor cortex. That such was found to be the case on postmortem examination has already been pointed out. It is not unreasonable to assume, however, from a clinico-anatomic study that the slowly progressive motor paralysis was in all probability due to an interference of the circulation in some of the vessels supplying the right motor cortex, producing, as a result, an area of softening which, as far as macroscopic appearance was concerned, could not be distinguished from a softening due either to an embolism or thrombosis; and it was not until a section was made through the softened area that the underlying tumor formation was disclosed.

In Case 2, the clinical picture, presented early, was not unlike that of beginning paresis. The age of the patient, his early sexual exposure, the epileptiform seizures, the comparative rapidity of recovery, the slight muscular incoordination, slight tremor of the hands, slight inequality of the pupils, sluggish response of pupillary action to light with preserved power of reacting in accommodation and convergence, some slurring of the speech, the rather stolid expression, and the increased resistance of the hamstring muscles on attempting to elicit Kernig's sign, all pointed strongly in the direction of paresis as a causal factor. The repeated negativeness of blood and spinal fluid examinations for syphilis, and later the development of symptoms indicating increased intracranial pressure, rapidly cleared the diagnostic field of extraneous and misleading evidence and paved the way for the making of a correct diagnosis.

Taken in their entirety and at their true face value, these cases present but little in common, especially since the tumors were of about the same size, and occupied almost a similar anatomic position with the exception, of course, that one occupied the right cerebral hemisphere, the other the left cerebral hemisphere. In the first case, a slowly developing motor paralysis resulting finally in total hemiplegia and seemingly due to a vascular lesion, was the outstanding clinical syndrome, until pressure symptoms resulting in headache, vomiting and neuroretinitis developed.

In the second case, while it is true that a complete hemiplegia eventually developed, the motor paralysis was preceded by epileptiform seizures; and in the absence of positive serologic findings, nothing positive in the way of diagnosis, save an irritative lesion of the motor cortex, could be ventured until, as in the former case, headache, vomiting and visual disturbance became the order of the day.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. CRAFTS AND THROCKMORTON

Dr. George A. Moleen, Denver: Referring to Dr. Crafts' paper, the first question appears to me to concern the relationship between trauma and tumors of this character, the second concerns the age at which they occur, and the final question, the location and character of the tumor. The report reminds me of two cases observed some time ago. A man, aged 25, received a blow on the point of the chin, and in falling his head struck the floor. He was momentarily unconscious, and two or three months later began to notice subjective sensations of smell, followed by disagreeable subjective sensations of taste. Almost at the same time there occurred blurring of the edges of the optic nerve, with considerable tortuosity of the vessels and the lowering of visual acuity without unilateral visual disturbances. The case progressed very rapidly from the standpoint of visual loss, and the swelling of the optic nerve reached 3 or 4 diopters in the course of a few weeks. The smell disturbance was replaced by anosmia and ageusia. Operation was undertaken in two stages, decompressive operation as a preliminary step being done. Careful puncture in all directions over the anteromedian aspect revealed nothing except a lessened resistance at a depth of 8 or 9 cm. However, the decompression relieved the symptoms considerably. There were no motor symptoms, and the patient was ambulatory. A second operation was performed four or five weeks later. At that time hernia of the brain was marked, and incision of the dura revealed an infiltrating soft mass, probably a round cell sarcoma, extending in all directions. The wound was closed without attempting removal of the tumor. Unfortunately, we were unable to get a necropsy. The second case was that of a child, aged 4. The nurse had allowed her to fall, her head striking the floor. In this case, the development of a tumor in the subtentorial region was rapid, with enormous hydrocephalus and the usual symptoms of tumor, including intense headache. The optic neuritis was profound. Necropsy in that case showed a very large infiltrating mass in the cerebellum. These cases, together with the one reported by Dr. Crafts, bring up the question as to whether or not injury plays a part in the development of brain tumor, especially in younger adult life and in childhood. With reference to the second paper, some years ago Spiller called attention to the importance of a slowly developing paralysis as characteristic of tumor in the absence of other symptoms.

AN EXPERIMENTAL STUDY OF URETERODUODENOSTOMY *

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AND
A. ELMER BELT, M.D.
SAN FRANCISCO

The conviction of the impracticability of transplantation of ureters into the upper intestinal tract, because of urinary reabsorption, has been so general that it has prevented the experimental investigation which theoretical considerations would seem to warrant. Because of freedom from infection, it is an ideal place to shunt the urine, compared to the rectum, where the possibility of peritonitis, pyelonephritis and pyonephrosis is great.

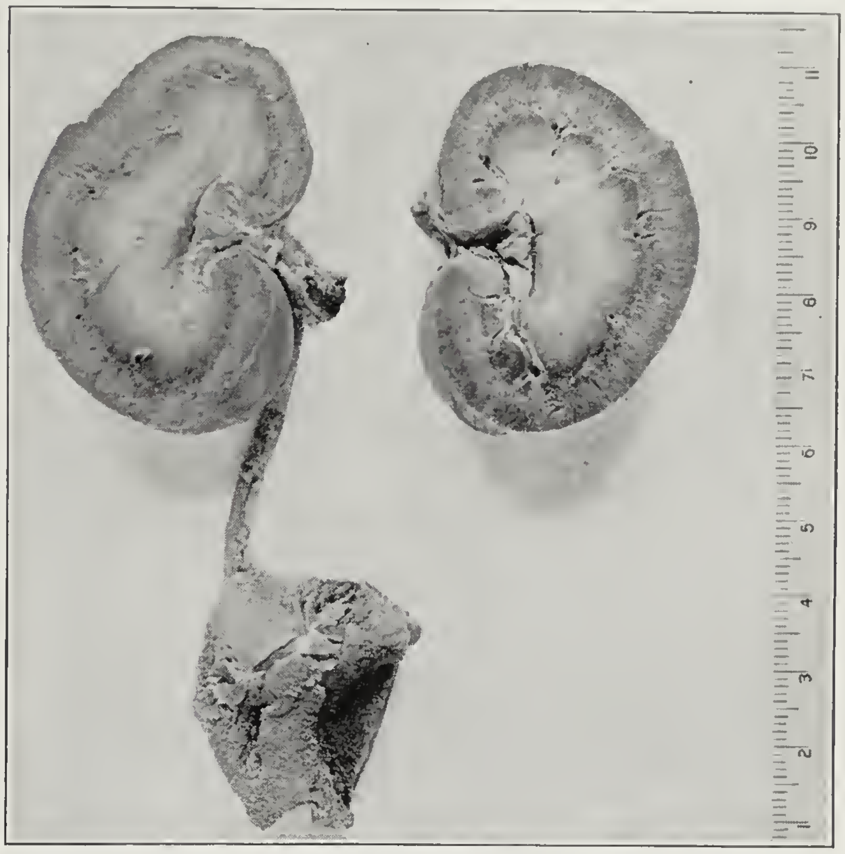

Fig. 1.—Bilateral hypertrophy, eighty-three days after unilateral ureteroduodenostomy. There is no evidence of infection on either side and no dilatation of the right pelvis or ureter. The ureteral opening is patent, and urine is pouring through it into the duodenum, as shown by its fluid contents and the high content of nitrogenous substances. The right kidney measures 5.5 by 2.7 by 2.6 cm.; the left, 5 by 2.6 by 2.7 cm., length, width and depth, respectively.

Early in 1917, we became interested in duodenal transplantation on theoretical grounds: curiosity, first, as to the manner and cause of death following bilateral ureteroduodenostomy, and, secondly, as to the reaction of renal tissue to the marked change of physiologic environment following unilateral ureteroduodenostomy.

PROCEDURE

Under ether narcosis, through a lumbar incision, with surgical asepsis, the right ureter was transplanted into the duodenum. In one group, the opposite kidney was removed, or a double ligature of its ureter, with

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* From the Department of Urology and the Hooper Foundation of Medical Research, University of California Medical School.

* Read before the Section on Urology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

division between them, effected. Studies of the blood nitrogen, of the contents of the stomach and duodenum, of the stools, and of the manner of death were made. In some of these cases, with opposite nephrectomy, the effect of retransplantation of the right ureter to the skin was tested. In another group, the opposite kidney was not disturbed after right ureteroduodenostomy in order to investigate the effect of the unphysiologic manner of activity on the right kidney in experiments of short and long duration. The principal experiments are listed in Table 1.

INTESTINAL REABSORPTION

A number of experiments of bilateral ureteroduodenostomy, either at one or at different periods, and of unilateral ureteroduodenostomy with opposite nephrectomy, or complete ureteral ligation at the same or a later period, resulted, uniformly, in death of the animal in from seven to ten days. The type of death is similar to that seen in complete anuria or bilateral nephrectomy. No distinctly uremic manifestations are observed. About the third day, diarrhea appears and becomes profuse in the terminal stages, when slight tetany may occur, although usually the dog is quite stuporous. There is never nausea or vomiting, edema, convulsions or other uremic signs. In all cases in which several weeks or months were allowed to pass after transplantation on one side before the removal or transplantation of the other kidney, in order if possible for its intestinal tract to become accustomed to the urinary content, death resulted just as quickly and in a similar manner.

TABLE 1.—RESULTS OF EXPERIMENTS WITH URETERODUODENOSTOMY

No.	Animal	Protocol	Date of Right Ureteroduodenostomy	Opposite Ureteral Ligation	Opposite Nephrectomy	Retransplantation to Skin	Death	Cause	Period of Duodenal Drainage, Days	Period from Exclusion of Opposite Kidney to Death, Days	Experiment Exemplifies
1	Cat	17- 30	2/19/17	3/ 6/17	....	....	3/10/17	Dysentery pneumonia	17	4	Intestinal absorption
2	Dog	19- 25	2/ 7/19	....	9/24/19	10/ 1/19	10/ 6/19	Killed, ether	23	12	Recovery after retransplantation; compare Experiment 2
3	Dog	17-123	2/20/17	3/13/17	....	....	3/19/17	Killed, ether	25	6	Intestinal absorption
4	Dog	17-144	2/23/17	3/13/17	....	....	3/23/17	Uremia	26	10	Intestinal absorption
5	Dog	17- 92	3/ 6/17	3/27/17	....	....	4/ 2/17	Uremia	26	5	Intestinal absorption
6	Dog	17- 14	10/17/17	....	11/21/17	....	12/ 3/17	Killed. ether	47	12	Intestinal absorption
7	Dog	22- 16	1/14/22	....	....	....	3/ 7/22	Killed, ether	51	..	Bilateral hypertrophy; compare Experiment 1
8	Dog	19-138	7/23/19	....	9/18/19	....	9/29/19	Uremia	70	11	Intestinal absorption
9	Dog	19-139	8/28/19	....	....	....	11/18/19	Killed, accidentally	83	7	Bilateral hypertrophy; compare Figs. 1, 2 and 3
10	Dog	20- 90	3/24/20	....	9/ 7/20	9/15/20	9/16/20	Uremia	175	9	Recovery after retransplantation
11	Dog	20- 89	3/24/20	....	10/19/20	10/26/20	10/27/20	Killed, ether	209	8	Recovery after retransplantation
12	Dog	21- 38	10/28/20	....	....	....	11/14/21	Acute left pyelonephritis	381	..	Late atrophy; compare Figs. 4, 5 and 6
13	Dog	21- 37	10/25/20	....	....	....	1/ 7/22	Killed, ether	409	..	Late atrophy
14	Dog	21- 35	10/22/20	....	....	....	1/ 7/22	Killed, ether	443	..	Late atrophy

A study of the nonprotein and urea nitrogen curve in the foregoing experiments reveals pronounced blood nitrogen retention, as high as 485 milligrams of urea nitrogen for each hundred cubic centimeters in one dog (Animal 8, Table 1). A very high concentration of nitrogen is also found in the stools of the terminal diarrhea, and examination of the stomach and duodenal contents, which are of fluid consistency and pale yellow, revealed a high nitrogen concentration, the nonprotein nitrogen of two cases being more than 200 milligrams for each hundred cubic centimeters.

These experimental findings indicate clearly that a kidney whose ureter has been successfully transplanted into the duodenum continues to excrete urine in large amounts, but that the products of urinary excretion are so completely reabsorbed from the intestinal tract that they produce death just as quickly as if anuria had developed and in a similar manner. The experiment is a paradox of competent renal activity, with death, nevertheless, from renal insufficiency.

Proof of the functional integrity of the kidney whose ureter has been transplanted into the duodenum is furnished by the following two experiments: one, a direct study under an anesthetic of its functional capacity, and the other, the recovery of the animal, in the terminal stages of uremia, after retransplantation of the ureter from the duodenum to the skin, where the products of its activity were not reabsorbed.

The function of a kidney which has been pouring urine into the duodenum for fifty-two days was tested by direct ureteral catheterization under an anesthetic. Protocol 1 is a typical example of such an experiment. In this case, the transplant was not entirely successful. A moderate hydronephrosis was present.

REPORT OF EXPERIMENTS

Experiment 1.—Functional study of right and left kidney, with right ureteroduodenostomy.

Dog 1 (Animal 7, Table 1), A brown and white female mongrel, weight 21 pounds (9.5 kg.).

Nov. 29, 1921: Blood: urea nitrogen, 24 mg. per hundred cubic centimeters; nonprotein nitrogen, 47 mg. per hundred cubic centimeters.

Jan. 2, 1922: Blood: urea nitrogen, 22 mg. per hundred cubic centimeters; nonprotein nitrogen, 38 mg. per hundred cubic centimeters.

TABLE 2.—FINDINGS IN SECRETED URINE

	Ten Minute Period Following Operation			Twenty-Minute Period		
	Amount, C.c.	Total Nitrogen, Gm. in 1 C.e.	Color	Amount, C.c.	Urea Nitrogen, Gm. in 1 C.c.	Nonprotein Nitrogen, Gm. in 1 C.c.
Left kidney urine	5	0.0142	Amber	10	0.0056	0.0153
Right kidney urine........... (ureteroduodenostomy)	12	0.0061	Light amber	40	0.0042	0.0125

January 14: Right ureteroduodenostomy, Fowler-Coffey method. The right kidney measures: length, 4.90 cm.; width, 2.45 cm.; depth, 2.55 cm.

March 7: Blood: urea nitrogen, 16 mg. per hundred cubic centimeters; nonprotein nitrogen, 34 mg. per hundred cubic centimeters. Phenolsulphonephthalein intravenously: first fifteen min., 14 per cent.; second fifteen min., 12 per cent. The dog is in excellent condition. Given 500 c.c. of water by mouth; 100 c.c. of Locke's solution intravenously. Anesthetized with ether, the abdomen is opened in the midline and a catheter is placed in each ureter. The anesthetic is continued while the secreted urine is collected. The resulting urine shows the following concentration and amounts given in Table 2.

Phenolsulphonephthalein: Two c.c., or 12 mg., of phenolsulphonephthalein was injected intravenously, five minutes after a cannula was placed in each ureter. The appearance time on the left was four minutes, and on the right, six minutes. Only a faint color of phenolsulphonephthalein was visible in each twenty-minute sample of urine. The concentration was, therefore, read directly, without diluting, in a Helige colorimeter against a standard made from 2 c.c., or 12 mg., of phenolsulphonephthalein in 1,000 c.c. of slightly alkaline water. The reading on each side was 5 per cent. under these conditions. Since four times as much urine was put out on the transplanted, or right side, it may be stated that four times the amount of phenolsulphonephthalein was excreted by this side. The actual figures, when calculated, are: left kidney, 0.05 per cent., or 0.006 mg., in twenty minutes; right kidney, 0.20 per cent., or 0.024 mg., in twenty minutes. The ether anesthesia was carried to narcosis and a necropsy performed.

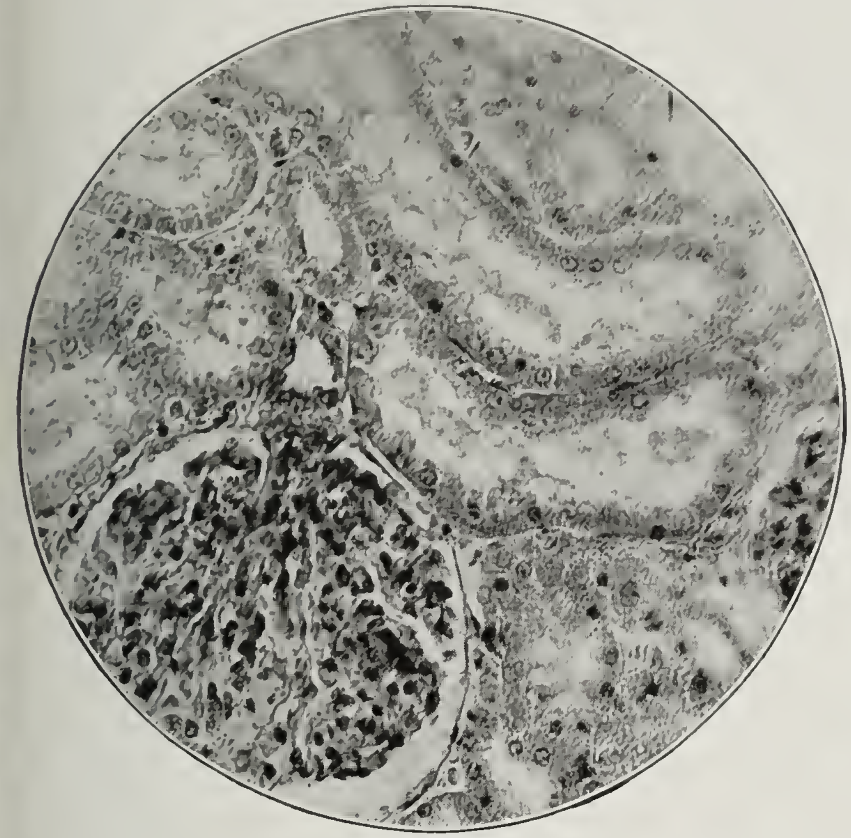

Fig. 2 (Animal 9, Table 1).—High power photomicrograph of the right kidney shown in Figure 1, whose ureter was transplanted into the duodenum, eighty-three days previously. The hypertrophy and healthy preservation of this kidney are clearly demonstrated and indistinguishable from the compensatory hypertrophy of its mate, as shown in Figure 3.

Necropsy (March 7): Heart and lungs normal. Abdomen: Peritoneum is of normal sheen; no abnormalities noted. Left kidney is a little large but normal in shape. Right kidney is quite large and shows definite hydronephrosis. Its ureter runs around the lower pole through a mass of loosely formed adhesions and ends in the duodenum. It is dilated. The kidney has a large pelvis, which holds about 12 c.c. The parenchyma is encroached on by the large calices to a considerable extent. Fluid can readily be forced through the ureter into the duodenum. The other organs are normal.

Kidney Measurements: Right kidney: weight 35 gm. (empty); length, 6.85 cm.; width, 3.3 cm.; depth, 3.3 cm.; pelvic cap, 12 c.c. Left kidney: weight, 32 gm.; length, 5.5 cm.; width, 2.7 cm.; depth, 3.1 cm.; pelvic cap, 3 c.c.

The functional capacity of such a kidney is shown by the other type of experiment, in which a remarkable fall in blood nitrogen occurred after transplantation of the ureter to the skin from the duodenum.

Experiment 2.—Dog 2 (Animal 2, Table 1), an adult male, large brown water spaniel. Right ureteroduodenostomy. Seventeen days later, left nephrectomy. Rise in urea nitrogen to 227 mg. for each hundred cubic centimeters in six days. Right ureter transplanted to skin. Return of urea nitrogen to normal in four days. The details are given in Table 3.

EFFECT OF URETERODUODENOSTOMY ON THE KIDNEY

The second point of interest for experimental investigation is the particular reaction of this kidney to the changed conditions of environment. Experience has taught that extensive and diverse surgical manipulation of the ureter at any part of it will not be followed by any permanent reflex effect on the kidney. Infection and stricture formation are the only dangers. If these are prevented the kidney remains in a perfectly normal state. Successful ureterostomies, ureterocystonephrostomies and nephrostomies all prove this statement. A successful ureteroduodenostomy, with absence of infection and of back pressure, should likewise influence renal activity in no way merely because of ureteral manipulation. But the physiologic environment of this kidney has been otherwise altered. Its activity is nullified by intestinal reabsorption. The work that it does, no matter how great or efficient, is of no benefit to the animal and of no help to the opposite kidney. From this point of view, unilateral ureteroduodenostomy is the same thing as unilateral nephrectomy. The remaining kidney is called on to perform total function as much in one as in the other, and it undergoes a complete compensatory hypertrophy just as quickly after ureteroduodenostomy as after nephrectomy. What will be the reaction of the transplanted kidney during this compensatory change of its fellow? It gets the same load for excretion. The blood coursing through it is the same in quality. There has been no injury or damage of its blood supply. It is also called on to perform total function, even though this double duty is wasted because of intestinal reabsorption. As would be expected from these theoretical grounds, it is found that this kidney actually undergoes hypertrophic changes which are parallel and similar to those of its fellow, on which total function is really and wholly dependent. The animal will now have two

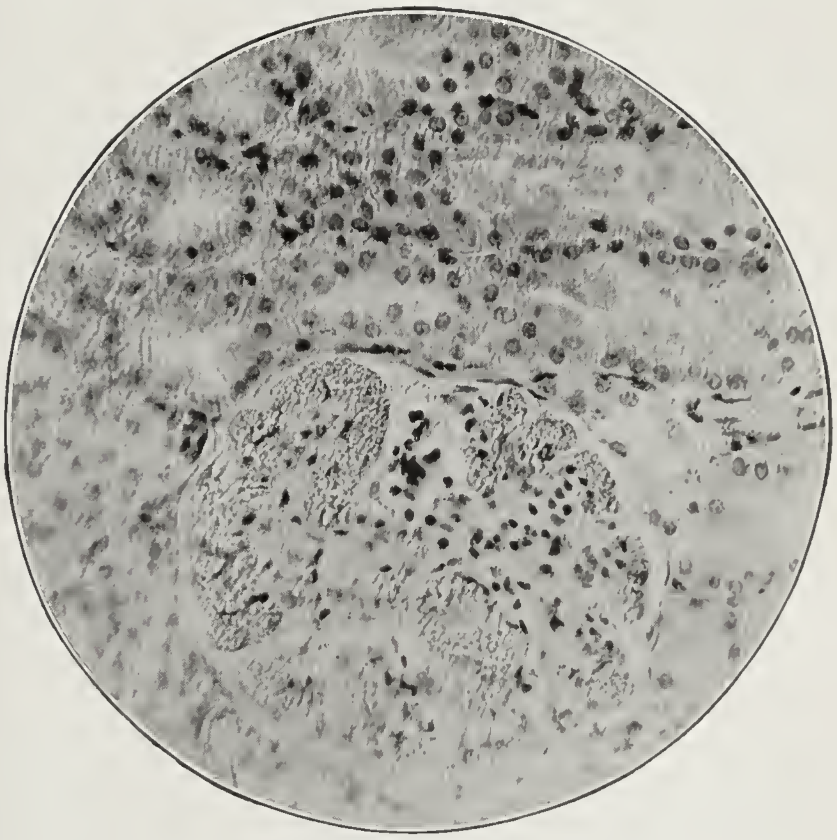

Fig. 3 (Animal 9).—High power photomicrograph of the hypertrophic left kidney, to be compared with Figure 2.

kidneys, each showing complete compensatory hypertrophy, the functional equivalent of four kidneys. In Table 1, Experiments 7 and 9 demonstrate this point, and in Figures 1, 2 and 3 are reproduced photographs and photomicrographs in illustration of it.

Interest in this unphysiologic state of affairs led us to question the permanence of bilateral hypertrophy after right ureteroduodenostomy, no matter how perfect the transplant of the ureter. Theoretically, one might expect a kidney uselessly to do double duty

TABLE 3.—PROTOCOL OF EXPERIMENT 2

Date, 1919	Weight in Pounds	Diet	Urine Output in C.c. per Day	Feces	Blood Urea N, Mg. per 100 C.c.	Phenolsulphonephthalein Test: Tract	First Hour	Second Hour	Total	Procedure	Condition	Comment
Sept. 3	36	Water only	...	....	....	..	..	..	..	Last food at 2 p.m.	Excellent	
Sept. 4	36	Water only	...	Dark, solid, abundant	....	..	..	..	..	Urine collection begun at 2 p.m.		
Sept. 5	35	Water, 300 c.c. by stomach tube	...	Soft, dark	....	..	..	..	..	Urine collection by daily catheterization		
Sept. 6	33	Water, 300 c.c. by stomach tube	800	Soft, scant	....	Bladder	50	30	80	....	Seems a little weak	
Sept. 7	34	Water in cage	800	None	10.0	..	..	..	..	Right ureter into duodenum at 12 noon, Fowler-Coffey method	Good recovery from ether	No abnormalities, revealed at operation
Sept. 8	....	400 c.c. milk in cage	...	None								
Sept. 9	32.5	400 c.c. water by stomach tube	...	None	....	..	..	..	..	Bladder washed; 12 noon collections begun	Lively; wound O. K.	
Sept. 10	32.4	400 c.c. water by stomach tube	300	None	10.0	..	..	..	..	Urine collection; daily catheterization	Excellent; slight local swelling in wound region	
Sept. 11	31.8	Same	500	None	16.0	..	..	..	..	Uniform collections of urine	Small hematoma rising in wound	
Sept. 12	31.5	Same	350	None	16.0	..	..	..	..	Same	Hematoma opened; diamid	
Sept. 13	31.2	Same	250	None	16.0	..	..	..	..	Same	Seems weak	
Sept. 14	31.2	Same	250	Scant, black; diarrhea	19.0	..	..	..	..	Same	Quite weak	
Sept. 15	29.8	Same	400	Same	18.0	..	..	..	..	Same	Quite weak; wound O. K.	
Sept. 16	29.6	500 c.c. milk by stomach tube	450	Same	14.0	..	..	..	..	Milk given in pan in p.m.	Quite weak	
Sept. 17	29.4	500 c.c. milk by stomach tube	500	Scant, black; diarrhea	15.0	..	..	..	..	Additional milk in pan; uniform collections of urine	Much brighter	
Sept. 18	29.4	500 c.c. milk by stomach tube	500	Same	17.0	..	..	..	..	Same	Quite bright, active	
Sept. 19	29.3	Full mixed diet	...	Same	12.0	..	..	..	..	Routine cage care	Same	
Sept. 20	29.3	Same	...	Same	12.0	..	..	..	..	Same	Same	
Sept. 21	29.5	Same	...	Scant, dark, solid	....	..	..	..	..	....	Excellent, lively	
Sept. 22	....	Same	...	Solid, dark	....	..	..	..	..	....	Quite lively	
Sept. 23	32.3	Same	...	....	14.9							
Sept. 24	....	Same	...	Gray, solid, scant	15.0	Bladder	23	7	30	Left nephrectomy, lumbar route; ether anest. with MS. gr. ¼	Recovery good; drowsy	
Sept. 25	30.5	Same	...	None	32.0	..	..	..	..	....	Wound slightly edematous; drowsy but condition good	
Sept. 26	....	Same	...	None	60.0	..	..	..	..	....	Quite bright; wound excellent	
Sept. 27	30.5	Same	...	Solid, gray-yellow, copious	112.0	..	..	..	..	....	Even brighter than yesterday; wound O. K.	
Sept. 28	35.6	Eats heartily	...	Solid, moderate amount	135.0	..	..	..	..	....	Well, active; runs about	Vesical tenesmus; passes a very small amount of stringy mucus
Sept. 29	34	....	...	Soft, yellow	....	..	..	..	..	....	Weak	
Sept. 30	32.7	....	...	Very fluid, yellow; diarrhea	184.0	..	..	..	..	....	Very weak	
Oct. 1 8 a.m.	29.5	Full	Feces only	Over 100 c. c., very fluid; contains 252 mg. Urea N per 100 C.c.	227.0	..	..	..	..	Very weak, catatonic; 250 c.c. physiologic sodium chlorid solution subcutaneously; 9 a.m., ureter of right kidney brought from duodenum to skin of back		
10 a.m.	....	....	900 c.c. in 6 hrs.	75 c.c. urine per ½ hr. is aver. output from 9 a.m. to 3 p.m.	190.0							
11:30 a.m.		....	...	....	158.0							
12:30 to 2:30 p.m.	....	....	...	....	.....	Ureter (Appearance time: 20 minutes)	7%	14%	21%	....	Brighter	
3 to 4:15 p.m.	....	....	100 c.c.	....	122.0							
Oct. 2 8 a.m.	25	Drinks a great deal of water and milk	700 c.c. urine since 4:15, 10/1	None	48.0	..	..	..	..	Glass cannula fastened into ureter	Good, though thoroughly wet with urine	
Oct. 3	27	Bread and milk	...	None	31.0	..	..	..	..	Cannula removed	Good, though wet and shivery	
Oct. 4	29	Bread and milk; good appetite	...	None	14.5	..	..	..	..	....	Good; very wet	
Oct. 5	29	Bread and milk; poor appetite	...	None	17.0	..	..	..	..	Ureter patent; urine flows freely	Skin infection at transplant site	
Oct 6	24	From 30 to 50	From 30 to 50 c.c. per hour	None	18.6	Ureter	12%	7%	19%	Killed; ether anesthesia	Good, but thoroughly wet with urine	

indefinitely if one presupposes that all injury from infection or back pressure is absent. On this presumption, examination after many years should reveal two perfectly healthy and equally hypertrophic kidneys. But the factors behind renal activity on the one hand and renal inhibition on the other are too poorly understood to permit a safe foundation in theory. In practice, it is found that the hypertrophy on the transplanted side is not permanent. Death of the animals, from one to two years after right ureteroduodenostomy, reveals that the right kidney has undergone marked or almost complete atrophy. Experiments 12, 13 and 14 in Table 1 are examples of late renal atrophy of an earlier compensatory hypertrophy following right ureteroduodenostomy, and in Figures 4, 5, 6 and 7 are reproduced photographs in illustration. That this atrophy is not secondary to back pressure from ureteral constriction is shown by its total dissimilarity to hydronephrotic atrophy, by the proved patency of the ureteral opening into the duodenum and by the complete absence of ureteral dilatation. That a ureter may shrink to its normal size after dilatation cannot be used in explanation, in view of the repeated observation that a hydro-ureter is never so completely repaired. That this late atrophy is not primarily the result of infection is shown by the absence of evidence of infection in the stage of compensatory hypertrophy, from two to four months after ureteroduodenostomy; but in the late stage of atrophy, from one to two years after ureteroduodenostomy microscopic evidence of an ascending type of infection is present in two of the experiments, but absent in one, and this one shows the east degree of atrophy.

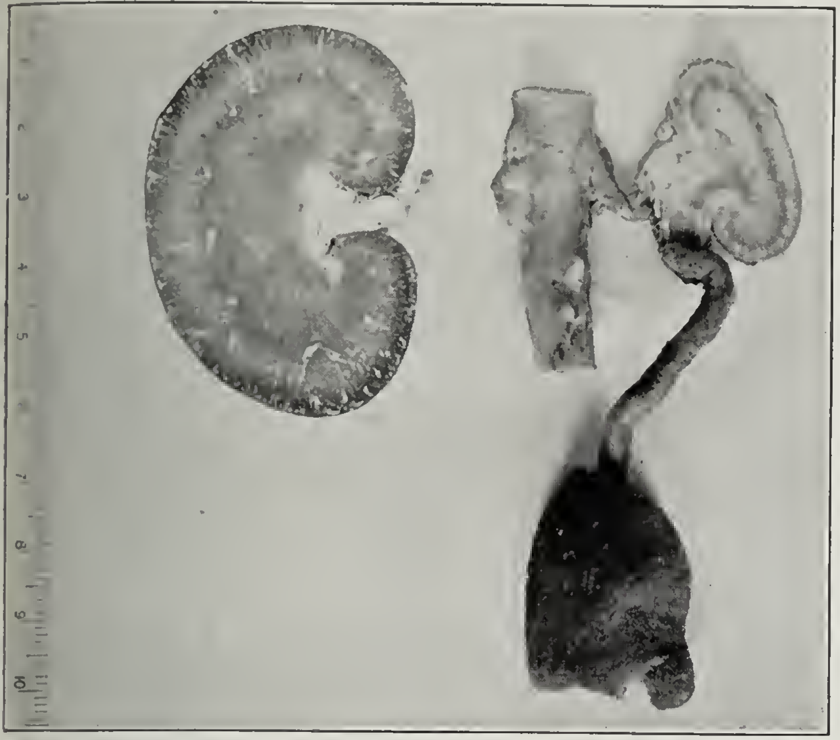

Figure 4 (Animal 13).—Sagittal section, showing late atrophy, 409 days after right ureteroduodenostomy. The right kidney, even in the gross, does not appear hydronephrotic and is just as dissimilar to a pyonephrotic kidney. There are shrinkage and marked uniform atrophy of the cortex and medulla, with remarkable preservation of kidney shape. Both kidneys have been injected with barium sulphate for roentgenology, illustrations of which are shown in Figure 5. The ureter is slightly dilated, but the opening into the duodenum is freely patent.

COMMENT

The foregoing experimental work may be commented on more fully under three headings: its relation to what has been done by others in a similar way; the question of intestinal reabsorption, and, lastly, a consideration of the changes of early hypertrophy and ate atrophy.

Relatively few references to implantation of ureters into the small intestine exist, when compared with the large number of reports of clinical and experimental studies of transplantation into the sigmoid and rectum. In 1909, Steinke[1] experimentally tested intestinal reabsorption from the small intestine, emphasizing its preference because of fewer bacteria and less internal pressure. In thirteen bilateral implantations and one unilateral implantation after nephrectomy the dogs all died in from one to twenty-three days. Peritonitis is given as the cause of death in seven; stenosis of the ureter, with hydronephrosis, in two; nephritis in one; uremia in one, and cause unknown in two. With one exception, all dogs died in less than twelve days, the average being five days. One dog lived twenty-three days after bilateral implantation into the duodenum, a striking exception to our own experience, and from what we can learn, to that of others.

Sweet and Stewart,[2] in their study of ascending infection of the kidneys transplanted ureters through the pancreatic duct, with no subsequent evidence of ascending infection. Baird, Scott and Spencer[3] examined the possibility of transplanting both ureters into the duodenum without death of the animal. They performed implantation by drawing the right ureter through one of the pancreatic ducts with traction sutures, which were then tied on opposite sides of the intestine. Ascending infections did not occur. From four to six weeks later, the left kidney was removed. In all cases, the right kidney appeared normal at this time, but within forty-eight hours came nausea, vomiting, gradual loss of appetite and emaciation. The dog would lie on his side and gradually become dull and stuporous, and finally die in from seven to twelve days. Necropsy on these dogs revealed no gross pathologic lesions to account for their death. The ureter was patent and pouring its output into the duodenum. That the right kidney was still active after duodenal transplantation of several weeks was proved by suprapubically exposing both ureters under an

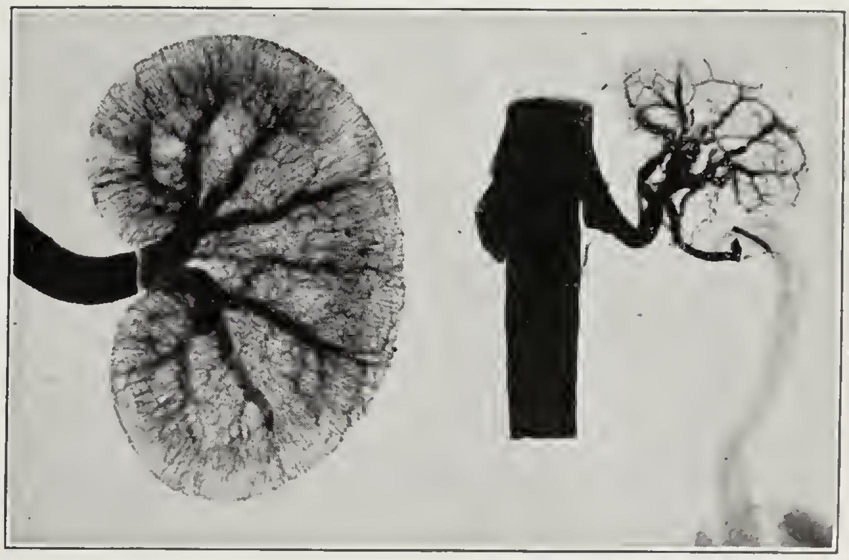

Fig. 5.—Right (small) and left (large) kidneys of the dog shown in Figure 4, cut sagitally after arterial injection with barium sulphate. The shrinkage of the arterial system corresponds to that of the parenchyma, both of which are pronounced on the right side. The left shows marked vascularization and hypertrophy. The right kidney weighed 5.4 gm.; the left, 39 gm. Measurement of the left was: 5.6 by 2.9 by 2.9 cm.; of the right, 2.7 by 1.28 by 1.4 cm., length, width and depth, respectively.

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[1] Steinke, C. R.: Transplantation of the Ureters into the Gastro-Intestinal Tract, Univ. Pennsylvania M. Bull. **5**: 22, 1909.

[2] Sweet, J. E., and Stewart, L. F.: The Ascending Infection of the Kidneys, Surg., Gynec. & Obst. **18**: 460-469 (April) 1914.

[3] Baird, J. S.; Scott, R. S., and Spencer, R. D.: Studies on the Transplantation of the Ureter into the Intestines, Surg., Gynec. & Obst. **24**: 482 (April) 1917.

anesthetic and placing catheters in each. In one experiment, during the next forty-five minutes, the right kidney excreted 15 c.c. and the left 20 c.c. The sodium chlorid and nitrogen content of the two specimens was equal. Phenolsulphonephthalein appeared in one minute and twenty seconds earlier from the left kidney, but the amount present in the two specimens was the same. They concluded that the urinary output cannot be poured into the upper intestine without death resulting, but with this rather indefinite explanation: "It seems safe to conclude that the substances in the urine which, when retained, give symptoms of nephritis can be absorbed from the intestines. Whatever this toxic substance in nephritis may be, it seems of considerable interest to note that it can be taken into the blood from the intestinal tract, unchanged in its passage through the intestinal mucosa." Our experimental findings differ from these only in our failure to observe nausea and vomiting in any of our dogs, and the observation of a severe terminal diarrhea in all.

The idea of Baird, Scott and Spencer, of some sort of uremic intoxication, suggests two possibilities as the cause of death after bilateral ureteroduodenostomy, or unilateral with opposite nephrectomy: either an intoxication by disturbance of kidney function, or reabsorption of the urinary constituents without such disturbance. Kingo Goto's [4] investigations of this particular problem of retention versus absorption led him to favor the former and to attribute death of these animals to renal insufficiency. Removal of the left kidney subsequent to transplantation of the right ureter into the duodenum, he believes, results in a renal insufficiency and retention. Nonprotein and urea nitrogen in the blood steadily increase and the carbon dioxid content diminishes to the level of a moderate acidosis. No ketones were found. The dogs die in from five to ten days after the nephrectomy, under conditions of suspended renal activity, deep respiration and unconsciousness.

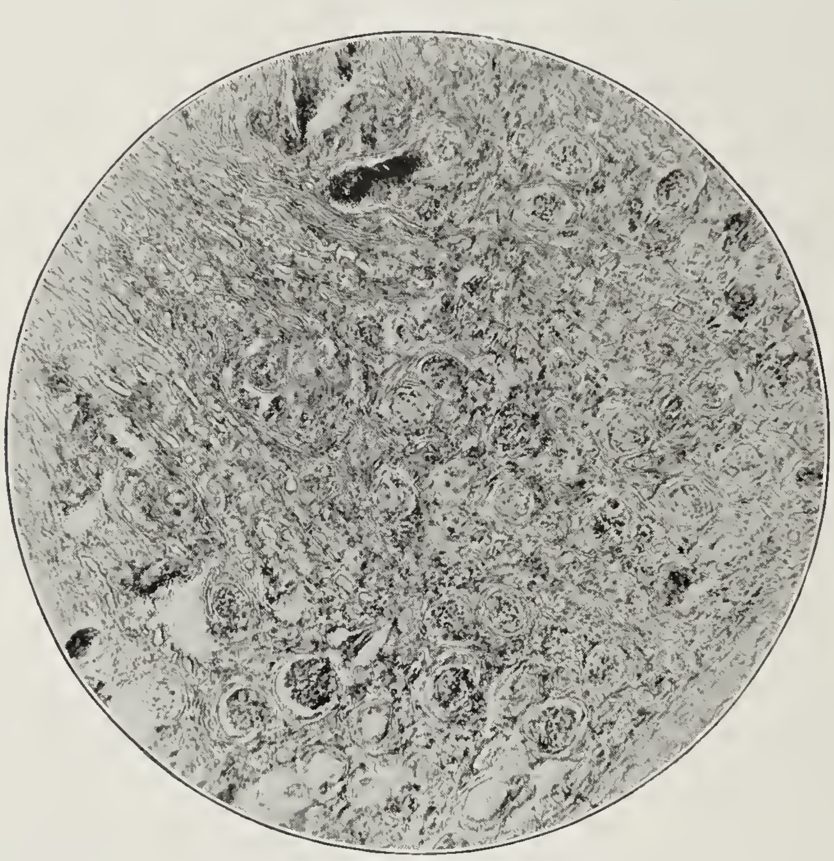

Fig. 6 (Animal 13).—Low power photomicrograph of the right atrophic kidney, showing marked fibrosis and hyaline degeneration of glomeruli. Tubular system replaced by fibrous strands. Gives the appearance of a chronic fibrosis of chronic interstitial nephritis. Very little evidence of leukocytic infiltration.

We can see only one possible interpretation of the experimental findings after unilateral ureteroduodenostomy with opposite nephrectomy or after bilateral ureteroduodenostomy. The kidney does not cease to function but becomes progressively more active as its normal stimuli pile up in the blood. A retention of 485 mg. of urea nitrogen for each hundred cubic centimeters within a few days is enormous and unequaled by other observers. That this retention is not due to cessation of renal activity is proved by accumulation of nitrogenous substances in the gastric and duodenal contents and their high concentration in the stools of the terminal diarrhea, by the hypertrophic but otherwise normal appearance, on histologic study, of the renal tissue, and by the functional activity of this tissue on direct testing under an anesthetic, or, on giving it an opportunity to be of service to the animal by retransplantation of its ureter to the skin, when there is a remarkable return of blood nitrogen to normal, a profuse and enormous excretion of urine and an unbelievable recovery of the animal from its uremic condition. The one possible explanation of these facts is reabsorption from the intestinal tract of the products of urinary excretion.

Further proof of the absence of renal intoxication or injury as a result of intestinal reabsorption is furnished by the continued activity and perfect condition of the opposite kidney even for as long as 436 days after unilateral ureteroduodenostomy. Any abnormal or toxic substance of a nephritic tendency, originating through intestinal absorption, would certainly affect this kidney. The early reparatory changes of the kidney whose ureter opens into the duodenum is also difficult to reconcile with a factor of intoxication or injury. An explanation of the hypertrophic and atrophic changes of renal tissue after ureteroduodenostomy closely touches some of the fundamental principles of renal pathology.[5] Increased function of an organ or part of an organ can only be caused by an increase of such stimuli as cause its specific activity (Nothnagel). Nephrectomy, for example, doubles the stimuli to the remaining kidney. This increase in activity produces reparatory changes characterized by hypertrophy, and this growth of one kidney following removal of its fellow has been long recognized as a compensatory hypertrophy. Placing one ureter in the duodenum, the opposite kidney being normal and undisturbed, likewise doubles the stimuli to this opposite and normal kidney, which responds in the regular course of time, from twenty-five to thirty days, by reparatory growth and undergoes a complete compensatory hypertrophy. During this period of compensation, the kidney whose ureter has been transplanted also receives in the blood an equally double stimulation, and it is not surprising that it grows in a manner equal and parallel to that of the compensatory kidney, which it does in some cases so well that it is not possible to distinguish, either in the gross or after microscopic study, any difference between the two hypertrophic kidneys.

With no change of the foregoing conditions, double stimulation being carried in the blood continuously to both kidneys, one might expect the bilateral hypertrophy to persist. In the experiments extending over a long period, however, the kidney essential to function remains hypertrophic and active, whereas the kidney which is nonessential to total function, in spite of an apparently equal stimulation throughout the whole period, and in spite of the fact that it had earlier developed an equally marked hypertrophy, undergoes a marked or even complete atrophy. We find no reference in the literature to an atrophy of this nature. A detailed discussion of it is given in the article on renal counterbalance.

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[4] Goto, Kingo: A Study of Nitrogen Metabolism and of Acidosis After Transplantation of a Ureter into the Duodenum of Dogs, J. Exper. Med. **27**: 449 (April) 1918.

[5] For a more detailed discussion, the reader is referred to a consideration of these changes under the subject of "Renal Counterbalance," by one of us (F. H.) (unpublished).

CONCLUSIONS

1. It is possible successfully to transplant a ureter into the duodenum with little if any evidence, subsequently, of infection or of back pressure, even for as long a period as 440 days.

2. After a surgically successful ureteroduodenostomy, the kidney continues for some time to function and to excrete urine into the duodenum.

3. When the total urinary excretion is poured into the duodenum, as after unilateral ureteroduodenostomy and opposite nephrectomy or bilateral ureteroduodenostomy, the animal dies within twelve days, with marked retention of nitrogenous substances in the blood, and symptoms identical with those following bilateral nephrectomy, except for a severe diarrhea in the terminal stages.

4. Recovery of an animal so treated, even on the eighth or ninth day, follows ureteral transplantation from the duodenum to the skin. Uremic and other symptoms rapidly disappear, with pronounced diuresis and the return of blood nitrogen to a normal level.

5. These facts indicate that most, if not all, of the constituents of the urine are readily reabsorbed from the intestines after successful ureteroduodenostomy.

6. Successful unilateral ureteroduodenostomy without disturbance of the opposite kidney doubles the work of this kidney as effectively as nephrectomy, and the opposite kidney undergoes compensatory hypertrophy just as quickly and completely as it does after nephrectomy.

7. The kidney whose ureter has been successfully transplanted to the duodenum, as it also gets double stimulation in the blood, undergoes reparatory changes in every way similar and parallel to those of its compensatory mate, and the anomalous condition of a bilateral hypertrophy will persist for several months.

8. Eventually, in the course of from one to two years, after successful unilateral ureteroduodenostomy, the kidney pouring the products of its activity into the duodenum is found to have undergone marked, if not complete, atrophy, while its mate remains healthy and hypertrophic and continues to perform total function efficiently.

ABSTRACT OF DISCUSSION

Dr. A. B. Cecil, Los Angeles: I should like to speak of absorption of the urine from the colon. Some years ago we encountered a very unusual condition which I previously reported. A woman had had an ovarian cyst removed, and at that time the ureter was torn, likewise the intestine, and an anastomosis between the two resulted. For about eighteen years, urine was passed into the colon. When first seen by me the patient had had retinal hemorrhages; her blood pressure was 240, and there was marked retention of urea in the blood. She suffered continually with very severe headaches. Cystoscopic examination disclosed that the left ureteral orifice showed peristaltic motion, but no whirl of urine was noted in the medium. A phenolsulphonephthalein test was performed; the drug was found in the stool, and the total amount obtained from the urinary tract came from the right kidney. A left nephrectomy was done, with the result that the entire clinical picture cleared up. This case brought up the important question as to whether the transplantation of the ureter into the bowel might not result in absorption of the urine with toxic effects closely resembling nephritis. As was stated when I published the article, the possibility of toxic effects from the infected left kidney was thought of. It would be interesting to know as to whether the series of cases reported by Dr. Judd show retentions of urea in the blood.

Dr. Hermon Bumpus, Jr., Rochester, Minn.: Dr. A. R. Knauf of the Mayo Foundation has recently reported a series of five cases in which the ureters had been transplanted to the sigmoid because of atrophy of the bladder. In these patients the urea content of the blood was usually above normal, but never exceeded 100 mg. for each hundred cubic centimeters. This increase he believed to be the result of a mild pyelonephritis which was demonstrated in all of the cases either by pyelography or by catheterized specimens from the ureters. None of the patients presented subjective symptoms of urinary infection, all being in good health from nine months to twelve years since operation.

Dr. A. I. Folsom, Dallas, Texas: In a case of exstrophy of the bladder I did a bilateral transplantation of the ureters, according to the Coffey technic. After the second transplantation, the man recovered. Since then he has passed through an attack of pneumonia, and while I have not heard from him recently, after that attack he had regained his normal health. With that impetus to my interest I did some experimental work. I began on nineteen dogs, transplanting the ureter according to the Coffey technic, and I had a primary mortality of one dog. We carried the blood chemistry along to see whether we could determine whether there was an actual absorption. There was only a very slight degree in eight dogs with one ureter transplanted at a time. I do not feel that that is a fair amount of observation to base any definite conclusions on. Four of the remaining eighteen dogs sickened and died, and various changes had occurred in the transplanted kidneys. The remaining dogs have remained well for from four to seven months. The question of absorption is a big problem. In his case Dr. Cecil would not be justified in concluding that it was simply a reabsorption. The toxic element would have to be considered. I believe that the direct transplantation of the ureter into the bowel, if a successful operation, is not so much to prevent the regurgitation of the bowel contents up the ureter as to maintain a patent ureter, for our findings indicated to me that the obstruction to the onward flow of the urine was probably the principal factor in the pathologic condition which we found in these ureters. So I believe the future problem lies in perfecting a method which will allow the ureter to maintain a patency about the scar. I have since operated on six dogs, trying to do the Maydl transplantation, and so far have had only one dog live. We have not done the blood tests in these cases, their condition being so serious. Three of them died from peritonitis, and we felt that the absorption would not be of any value. We transplanted the ureter into the upper rectum or lower sigmoid, and did the ordinary 1½ inch transplantation. I have done none in the higher areas of the bowel.

Dr. A. E. Belt, San Francisco: I agree thoroughly with Dr. Folsom that it is possible that the case reported by Dr. Cecil was due to other factors than absorption. I read Dr. Cecil's paper very carefully, and in it he mentioned that the patient showed edema during the time in which she presented symptoms of renal injury. It is worthy of note that with the absorption of urinary constituents from the intestinal canal, edema is not a notable symptom. These patients present what is called the asthenic type of uremia. This was observed by workers many years ago, and I believe that Dr. Rowntree restored it to a certain extent when he spoke of the type of urinary constituents secreted by the salivary glands. This was an observation made by Morgani in 1879. Therefore, I do not believe that it was due to absorption from the colon in Dr. Cecil's case. While the ureter is ligated in the intestine, it is possible that only a slight portion goes into the sigmoid and colon, ascending or descending. The big danger lies in the shutting off of the transplanted portion. The lumen does not remain open, and any one who has tried it will tell you so. We have worked on a lot of dogs, and in most of them we had a hydronephrosis. In the dogs in which we did not get a hydronephrosis I reoperated. We have cases in which one can see that the ureter is not a hydro-ureter. In all of them it was easy to inject saline solution into the duodenum. In the rectal drip method, the colloids are not reabsorbed but the crystalloids are.

MENINGITIS OF OTITIC ORIGIN *

A STATISTICAL STUDY BASED ON SIXTY-THREE CASES WHICH WERE OBSERVED AT COOK COUNTY HOSPITAL DURING THE DECADE FROM 1911 TO 1920, INCLUSIVE

C. F. YERGER, M.D.
CHICAGO

This report is the result of a careful investigation of all the case records of meningitis and of the otitic infections in which meningitis occurred as a complication, in order to determine the number of cases of meningitis of otitic origin that were observed in ten years, from 1911 to 1920, inclusive, at Cook County Hospital.

From a study of these cases, I was able to compile the records of sixty-three cases of otitic meningitis which include (1) all of the cases in which the diagnosis of suppurative meningitis could be made, based on the clinical symptomatology and laboratory findings, in which purulent middle ear disease or some of its complications were present and no other cause for the meningitis could be found, and (2) the cases which came to necropsy which showed diffuse purulent leptomeningitis, in association with middle ear suppuration or its complications.

We must always bear in mind that a person with an otitic suppuration may have a meningitis that has no etiologic relationship to the otitic disease, e. g., an epidemic, syphilitic or tuberculous meningitis.

Also, a person with active syphilis or tuberculosis can have suppurative middle ear disease or some of its complications which may produce an otitic meningitis.

The total number of cases of all kinds admitted into the hospital during the ten years amounted approximately to 290,000. The suppurative middle ear cases numbered 1,254, of which sixty-three patients, or 5 per cent., developed a meningitis. The total number of meningitis cases of all types numbered 1,188, of which I was able to classify as otitic meningitis sixty-three cases, or 5 per cent. In other words, five out of every hundred cases of meningitis due to all causes and observed in a large general hospital were of otitic origin. Fourteen of the 1,188 cases of meningitis from all causes, or a little over 1 per cent.,[1] were due to accessory nasal sinus disease. That is to say, 5 per cent. of the cases of meningitis due to all causes were of otitic origin, and 1 per cent. were of nasal origin, or 6 per cent. of the cases of meningitis were either otogenic or rhinogenic.

Based on the improved hospital classification that was in operation from 1916 to 1920, the percentage of the various types of meningitis was: (*a*) syphilitic, 6 per cent.; (*b*) tuberculous, 25 per cent.; (*c*) epidemic cerebrospinal, 48 per cent.; (*d*) other infectious types and those of undetermined origin, 20 per cent.

Of the sixty-three cases of otitic meningitis, 100 per cent. presented associated suppurative middle ear disease; in 90 per cent., or fifty-seven cases, the purulent otitis media was diagnosed clinically, and in 10 per cent., or six cases, it was discovered at necropsy. It was very difficult in some of the cases to make the distinction between the acute and chronic types. I classified thirty-three cases, or 58 per cent., as acute, and twenty-two cases, or 38 per cent., as chronic. The otitis media was bilateral in seven cases, or 12 per cent. Mastoiditis was associated in thirty-five cases, or 55 per cent., of which twenty cases, or 57 per cent., were acute, and fifteen cases, or 42 per cent., were chronic.

Necropsies were performed in twenty-nine cases, or 46 per cent. Purulent otitis media and meningitis were found in 100 per cent. each, mastoiditis in 50 per cent., sinus thrombosis in 34 per cent., pachymeningitis, cerebral and cerebellar abscess in 13 per cent. each, perisinuous or extradural abscess, edema of the brain and accessory nasal sinus disease in 10 per cent. each.

To determine the paths of infection in otitic meningitis is sometimes very difficult or impossible at operation and even at necropsy; it is more uncertain when based on the clinical findings. In general, the path of infection may be by: (1) local extension, either by continuity or contiguity of tissue; (2) hematogenous infection, by metastasis through the vascular route, or (3) lymphogenous infection through the lymphatic channels. Berggrens,[2] in ninety cases, and Mygind,[3] in thirty-five cases, found the relative frequency of the paths of infection to be: labyrinth, 30 per cent.; sinus phlebitis, 27 per cent.; pachymeningitis (with and without brain abscess), 13 per cent.; osteitic changes of the vault, 8 per cent., and untraceable, 20 per cent.

In my series, twenty-nine cases came to necropsy; pachymeningitis, cerebral abscess and cerebellar abscess were present in 13 per cent. each; perisinuous abscess in 10 per cent., and sinus thrombosis in 34 per cent. In none of the cases was labyrinthitis diagnosed at necropsy. (In eight cases the latter diagnosis was made clinically.) Two or more of these pathologic findings were associated in eight cases, or 27 per cent.

The clinical symptoms and signs of meningitis, as found in their order of frequency, were: (1) rigidity of the neck in 80 per cent.; (2) Kernig's sign in 80 per cent.; (3) headache in 46 per cent.; (4) Brudzinski's leg sign in 43 per cent.; (5) vomiting in 27 per cent.; (6) Babinski's sign in 25 per cent.; (7) increased reflexes in 20 per cent.; (8) dilated pupils in 19 per cent.; (9) unequal pupils in 14 per cent.; (10) nystagmus in 14 per cent.; (11) chill in 12 per cent., and slow pulse in 12 per cent. The leukocyte count in the thirty-eight cases in which this was made revealed a leukocytosis varying from 9,200 to 60,000, depending on the associated pathologic conditions.

One or more lumbar punctures were made in fifty-three cases, or 84 per cent. Turbidity was found in 85 per cent., increased pressure in 51 per cent., and globulin in 34 per cent. The cell count was made in thirty-eight cases, or 71 per cent. It varied from 120 cells in a case of cerebellar abscess, meningitis, perisinuous abscess, sinus thrombosis, mastoiditis and otitis media, in which the culture of the spinal fluid was sterile, to 367,000 cells in a case in which the culture of the spinal fluid revealed streptococci. Among the cases that came to necropsy the highest cell count was 136,000 in a case of otitis media suppurativa, mastoiditis, leptomeningitis, sinus thrombosis and internal hydrocephalus, in which the culture yielded the streptococcus. In the seven cases in which streptococci were yielded by the spinal fluid, the cell count averaged 90,614; in the five cases in which the pneumococci were found on culture, the cell count averaged 4,774 cells. The cells showed an increase in the polymorphonuclear percentage in 43 per cent. Smears made from the spinal fluid were positive for micro-organisms in twenty-nine cases, or 54 per cent. Cultures were positive in fourteen cases, or 26 per cent., of which eight, or 57 per cent., showed streptococci, and six, or 43 per cent., showed pneumococci. Cultures were made in but twenty-five cases, of which fourteen, or 56 per cent., were positive, and eleven, or 44 per cent., were negative. In only eleven of the cases seen at necropsy, cultures had been made, in seven of which they were negative and in four, positive. In all of the eleven cases, suppurative meningitis was found at necropsy. This agrees with Mygind's experience, who found extensive meningitis at necropsy, and yet could find no organisms in the spinal fluid during life. Mygind [4] reports twenty-four sterile spinal fluids out of sixty-one clinical cases of meningitis. In twelve of the cases, the presence of meningitis was confirmed by necropsy.

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* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] Yerger, C. F.: Intracranial Complications of Nasal Accessory Sinus Disease, Illinois M. J. **40**: 395 (Nov.) 1921.

[2] Berggrens, S.: Etudes sur la méningite otogène purulente generalisée en ce qui concerne le traitement operatoire, Acta oto-laryngol., Supplement 1.

[3] Mygind, Holger: The Operative Treatment of Otitic Meningitis, J. A. M. A. **55**: 759 (Aug. 27) 1910.

Meningitis cases in which the patients have recovered should not be classified as diffuse purulent leptomeningitis, regardless of the amount of the cell count of the spinal fluid, unless bacteria are found on culture; and even then we cannot be absolutely certain of the absence of an accidental contamination, unless the culture report is confirmed by a subsequent lumbar puncture and culture of the spinal fluid.

How are we going to classify the larger group of cases of meningitis in which we have not yet found bacteria in the spinal fluid, but in which we have the classical symptoms of meningitis, together with a turbid, sterile spinal fluid? Some authors, as Sharpe,[5] classify these cases as serous meningitis, or, as Plaut and Schottmüller, as sympathetic meningitis. Eagleton [6] classifies these cases as protective meningitis. It is best that we should not have too many names for the same condition, as it only adds confusion and complicates matters. For this reason I have chosen the term sympathetic meningitis to signify this condition, in this paper.

Meningitis sympathetica, so named by Plaut and Schottmüller,[7] is characterized by a cloudy spinal fluid which is sterile. There is increased pressure of the fluid, increased cells (usually polymorphonuclears), increased albumin and globulin, and a reduction to Fehling's solution. The associated meningitic symptoms may be from the mild to the severest type. The cause of this type of meningitis is a meningeal irritation, usually an adjacent focus of infection, usually ear or nose. The majority of cases recorded as recoveries from suppurative meningitis probably are of this type. It is also true that sympathetic meningitis may be the precursor of diffuse purulent leptomeningitis. It is possible that the bacteria may have been present in the spinal fluid and were destroyed or lie in the meninges. This may be the explanation as to why we find suppurative meningitis at necropsy, and yet find a sterile spinal fluid during life.

This clinical classification, which is based on the presence or absence of micro-organisms in the spinal fluid, can be applied to only twenty-five out of the sixty-three cases, as follows: Positive cultural reports were obtained in fourteen cases, and negative reports in eleven; that is, fourteen cases were of suppurative type, while eleven cases should be classified as sympathetic meningitis.

REPORT OF CASES IN WHICH PATIENTS RECOVERED

Of the sixty-three patients, only two recovered, a mortality of 97 per cent. A brief report of these two cases is of interest.

Case 1.—*Streptococcic otitic meningitis, suppurative otitis media and mastoiditis.* A nurse, aged 40, admitted to the hospital in the service of Dr. Jacques Holinger, Feb. 16, 1920, had had an acute suppurative otitis media of ten days' duration following measles. Examination revealed a profuse purulent discharge from the right middle ear, and marked bulging of the posterosuperior quadrant of the drum, with pain over the right frontal and parietal regions and an irregular temperature varying from 99 to 104 F. Two days later a slight ptosis of the right upper lid and a very slight paresis of the right side of the face were noted. At no time was there any tenderness over the mastoid. On admission, the temperature was 101.6, the pulse, 96, and respiration, 22. The mentality was clear; there was slight paresis of the right levator palpebrae superioris, slight impairment of the muscle tonus of the right side of the face, and no rigidity or retraction of the neck. The reflexes were normal. There was a purulent discharge from the right ear from a perforation in the posterior inferior quadrant. There was a slight swelling over and in front of the tip of the mastoid, extending downward for 2 or 3 inches. A simple mastoidectomy was performed by Dr. Holinger on the day of admittance. There were numerous mastoid cells containing pus under pressure. In the tip of the mastoid, discolored bone, with many small cells containing granulations and pus, were found. The sinus was exposed on the level with the upper margin of the external meatus and followed down to the tip of the mastoid, where it lay directly below these discolored dark parts of bone. When the bone was broken away, a profuse hemorrhage occurred from the sinus, which was controlled by gauze packing. Next day, the ptosis and facial involvement were entirely gone. After forty-eight hours, the gauze packing was removed from the sinus. On the third and fourth days, the temperature was over 104. A week after the operation, the patient complained of severe pains in the legs, with hyperesthesia. Rigidity of the neck and a marked Kernig's sign were present. Spinal puncture gave a count of 110 cells. A smear revealed numerous short chained streptococci, and cultures revealed streptococci.

The second operation was now performed by Dr. Holinger, February 23, seventeen days after the first. This consisted of an exploration of the cranial fossae. The dura of the cerebellum was exposed 1 inch posterior to the lateral sinus, and an incision was made in the dura, which did not pulsate. A slightly pinkish colored cerebrospinal fluid was discharged under slight pressure. The dura of the temporal lobe was exposed. It did not pulsate. The sinus was punctured, and fluid blood escaped. Spasticity of the lower extremities and rigidity of the neck with retraction were observed. A week later, marked improvement in these signs occurred, the temperature became normal, and the general condition improved. The remainder of the clinical course was uneventful. The patient was discharged as recovered, March 25, one month and nine days after admittance to the hospital.

The positive culture of the spinal fluid places this case in the suppurative meningitis group. However, only one specimen of the spinal fluid was obtained for examination; consequently, it could not be checked up. It is possible that the bacteriologic findings may have come from accidental contamination. In the latter event, this case should be classified as sympathetic meningitis.

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[4] Mygind, Holgert: Ztschr. f. Nervenh. **40**, 1910.

[5] Sharpe, William: Surgical Treatment of Purulent Meningitis, M. Rec. **100**: 704 (Oct. 22) 1921.

[6] Eagleton, W. P.: Operative Treatment of Suppurative Meningitis, Laryngoscope **32**: 1 (Jan.) 1922.

[7] Plaut and Schottmüller: Leitfaden zur Untersuchung der Zerebrospinalflussigkeit, quoted by Strauss, I.: Meningitis Sympathetica, Am. J. M. Sc. **154**: 748 (Nov.) 1917.

Case 2.—*Chronic purulent otitis media; chronic mastoiditis; facial paralysis; labyrinthitis; meningitis.* A man, admitted, March 4, 1915, to the service of Dr. Boot, had had an acute purulent otitis media two months before. The left ear began to discharge in two or three days. Three or four weeks before he was admitted he noticed that he could not close the left eye, and his mouth moved to the right. He had had a severe headache, and noticed rigidity of the neck for the last three or four days. On entrance the temperature was 101. There was spontaneous nystagmus when the head was turned to the left, but none when turned to the right. The left ear was discharging through a perforation in the drum. There was some tenderness over the left mastoid. The patient was unable to use the left side of his face or close the left eye. There was marked rigidity and retraction of the neck. Kernig's sign was marked, Brudzinski's and Babinski's signs were absent. The spinal fluid was under increased pressure, cloudy and numbered 400 cells per cubic millimeter. Polymorphonuclears were 4 plus; globulin was positive, and no bacteria were found.

Before operation the patient did not appear to hear any tuning forks with his left ear. The Weber test lateralized to the right. The patient had a spontaneous nystagmus to the right, and lay on the right side. There was a large polyp at the bottom of the left canal. After the patient was anesthetized, his left ear was irrigated with hot water, and a horizontal nystagmus, rotatory in character, resulted to the left. A distinct papillitis was present in the left fundus.

March 6, a radical mastoid operation was performed. There was a large antral cavity filled with cholesteatoma, and a granulating area on the external semicircular canal and facial canal. Pressure on this granulating area set up a nystagmus toward the left (fistula symptom). The dura was found exposed and granulating, when the cholesteatomatous mass in the anterosuperior part of the tympanum was cleared away.

This is a case of invasion of the labyrinth by cholesteatoma by extension, i. e., there were other attacks of vertigo, probably, on which point the history is deficient. In these cases of cholesteatoma invasion, a wall of protective granulation tissue precedes the invasion, most frequently. The labyrinth in this case was not totally destroyed. The meningitis was of the sympathetic type, as witness the absence of bacteria in the spinal fluid, and the rapid recovery.

COMMENT

Given a case of meningitis, in a person with a history of chancre, or with clinical evidences of syphilis or with a positive Wassermann test, in the presence of an otitic infection, it becomes a very difficult matter to decide correctly the etiology of the meningitis in some of the cases, before the therapeutic test has been tried. An otitic meningitis can develop in a syphilitic patient who is harboring an otitic infection, with the same ease as in one who is not syphilitic; the same may be said of syphilitic meningitis; i. e., it may develop in a syphilitic person harboring an otitic infection. In this connection I will cite a case of probable syphilitic meningitis which is not included in this series:

Syphilitic meningitis and acute suppurative otitis media. A man, aged 30, admitted, Jan. 7, 1918, and discharged as cured, Feb. 6, 1918, has been well until three days before, when he noticed stiffness and pain in the neck, which later involved the arms, back and legs. This was accompanied by headache and vomiting. He was seen by his family physician, who diagnosed "pressure on the brain." He had no convulsions. At present, he complained of persistent frontal headache and stiffness of the neck. He admitted having had a chancre six years before. The temperature was 99.8; pulse, 72; respiration, 18. He was rational, but drowsy. He lay in a flexed position with his head slightly retracted. The pupils were unequal, small, and did not react to light. The neck showed marked rigidity. Kernig's sign was marked, Brudzinski's and Babinski's signs were absent. The patellar, Achilles and plantar reflexes were absent on both sides; the other reflexes were present and were normal. The ears were normal. The Wassermann test of the blood was negative, but the spinal fluid Wassermann test showed a four plus positive. The leukocyte count was 11,200. The diagnosis was cerebrospinal syphilis or tabes, with marked meningeal symptoms. The patient was placed on large doses of potassium iodid, one-half ounce (15 gm.) a day, and steadily improved. While in the hospital, he developed an acute suppurative otitis media. A paracentesis was performed, and the subsequent course was uneventful.

This case of meningitis, though complicated with an acute suppurative otitis media, responded promptly to large doses of potassium iodid. How easy it would have been to jump to the conclusion that the case was an otitic meningitis, because of the presence of an otitic suppurative disease. Each and every case should be thoroughly studied from every angle. In this case, the history and the Wassermann test gave the clue, and a speedy recovery under antisyphilitic treatment proved the case to be one of undoubted syphilitic meningitis. We must ever bear in mind that cerebral syphilis may closely imitate the clinical picture of meningitis, even to having a very turbid spinal fluid, with a very much increased cell count.

TREATMENT

What can be done to combat successfully otitic meningitis? As we are powerless to cure suppurative meningitis, in the great majority of cases, we can best attack the disease at its source; i. e., our rôle is one of prevention rather than of cure. Granting that it is possible to do this successfully, 5 per cent. of the deaths from meningitis are more or less preventable.

The presence of a sympathetic meningitis denotes the presence of some intracranial suppuration, and warrants operative exploration beyond the mastoid cells; and if a sinus thrombosis or an extradural abscess is absent, the middle and the posterior cranial fossae should be explored. The persistence of a sympathetic meningitis, when there is an otitic or nasal focus of infection, signifies that the intracranial focus has not yet been found.

In this series, an operation was performed in twenty-nine of the sixty-three cases, or 46 per cent. A simple mastoidectomy was performed in twenty-one cases, a radical mastoid operation in five cases, and cranial exploration in eight cases, one of which was a Haynes cisterna magna operation. Of the sixty-three patients, only two recovered, on the first of whom a lumbar puncture and a simple mastoid operation were performed, followed by an exploratory operation of the cranial fossa, and on the second of whom a lumbar puncture was followed by a radical mastoid operation—a mortality of 97 per cent.

A few of the patients were given antimeningococcic serum before the bacteriologic diagnosis of the meningitis was definitely established. An intraspinal injection of antimeningococcic serum should be administered in all suspicious cases of meningococcic meningitis that may be associated with an otitic infection. Indeed, the intraspinal injection of a serum independent of the specificity of the serum for the infecting microorganism has definite therapeutic value,[8] owing to a tissue reaction produced by a foreign protein. This reaction will result in the production in the spinal fluid of the same findings as those obtained in a sympathetic meningitis.

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[8] Neal, Josephine B.: Purulent Meningitis Not Caused by the Meningococcus, in Tice's Practice of Medicine **10**: 255.

Lumbar punctures were used, not only for the purpose of diagnosis but also for therapeutic purposes, to relieve increased intracranial pressure. The procedure generally results in a temporary symptomatic relief.

CONCLUSIONS

1. Meningitis of otitic origin is more frequent than is generally supposed. Five per cent. of the cases of meningitis due to all causes, seen in a large general hospital, were found to be of otitic origin; 1 per cent. were of nasal origin.

2. All cases of meningitis should be carefully examined, to ascertain the presence or absence of an otogenic or rhinogenic focus of infection.

3. Diffuse suppurative leptomeningitis is a fatal complication of suppurative middle ear disease; therefore our rôle is solely one of prophylaxis; our efforts should be directed toward the prevention and early cure of suppurative middle ear disease.

4. The presence and especially the persistence of a sympathetic meningitis, when there is associated an otitic focus of infection, in the absence of sinus thrombosis, perisinuous abscess or extradural abscess, denotes the presence of some intracranial suppuration, as subdural abscess or cerebral or cerebellar abscess, and calls for an immediate operative exploration of the middle and posterior cranial fossae.

25 East Washington Street.

ABSTRACT OF DISCUSSION

Dr. Norval H. Pierce, Chicago: The first point that strikes me is that out of this enormous number of cases only 5 per cent. are cases of meningitis ascribed to otitic origin; and balancing that, 20 per cent. are cases of meningitis of unknown or uncertain origin. I believe that, if otologists were called in more frequently as consultants in these cases of meningitis, more cases of otitic meningitis would be uncovered. This has a special bearing in fractures of the skull which end fatally from suppurative meningitis. It is my belief that in the presence of chronic suppurative otitis media and fractured skull a radical mastoid operation should be performed. That is proved by my own experience in a few cases. The routes of invasion, say the invasion of the arachnoid, give us a very definite prognostic standpoint. Either the sinus or meninges may suffer (1) local, hematogenous invasion from osteophlebitis originating in the mucosa without softening of the bone, or (2) from a softening process, as Dr. Yerger has stated, by continuity of the softening process coming in contact with the sinuses or meninges in acute cases. In this regard we should always have in mind the differentiation of acute and chronic cases. The acute cases are the cases that almost invariably terminate fatally and quickly, so operations have no effect on them at all. A vast majority of patients die quickly because we cannot get beyond this osteophlebitis when it has once gotten into the cranial cavity. In the softening process, however, it is quite different. Here we may get beyond the pathologic process and remove the cause that is producing the so-called sympathetic meningitis. The meninges may also be invaded by the labyrinth. This is not a blood vessel affair; it is the perilabyrinthine fluid, and has direct connection with the cerebrospinal fluid; when this invasion occurs in acute cases there is a rush of infectious material into the arachnoid space, and in these cases death almost invariably results from a spreading suppurative meningitis. In the chronic cases, however, we have our chance, because here it is usually the result of a cholesteatoma; and whenever a cholesteatoma invades the labyrinth there is always a protective wall preceding its advance, and if we remove the focus of infection we have a chance even in the presence of symptoms of meningitis. One more point is thus: I have never yet in my own experience seen a case of general suppurative meningitis end in recovery when one, two or three spinal punctures have shown viable micro-organisms. On the other hand, as the paper has shown, the absence of micro-organisms unfortunately does not give us the same cogent reason for believing that there is no suppurative meningitis. If viable micro-organisms are found in the cerebrospinal fluid, the prognosis as to life is most grave.

Dr. Jacques Holinger, Chicago: Dr. Yerger spoke about the patient I had occasion to observe in the Cook County Hospital. She was a nurse. I saw her on the third day of an acute otitis, and at that time she had meningeal symptoms —stiff neck, sleeplessness and fearful pain in the head. Next day the indications were urgent and I operated. She was a great deal better for at least a week and then she started again with violent headache and especially backache. The sleeplessness was constant. Lumbar puncture was made. The fluid was under increased pressure, was not quite clear, and showed many streptococci. The patient grew worse. The pain in the back was nearly unbearable. One Sunday afternoon, in trying to give her some relief, the intern gave her one-quarter grain of morphin every two hours without any result whatever. Toward evening I saw her again and instead of morphin I gave her 15 grains of acetylsalicylic acid. The change was prompt. She felt a great deal easier, and after the second dose, two hours later, she slept for some time. I continued this medication, and she continued to improve, and recovered. That was three years ago. I saw her two weeks ago. She was all right. There seems hardly room for doubt that this was a cured case of general cerebrospinal meningitis. Our views concerning the cerebrospinal fluid had to undergo a revision: Cerebrospinal fluid is not at all a homogeneous fluid throughout the whole cerebrospinal canal. It is a settled fact that one may find a positive Wassermann in the fluid of one part of the head and a negative Wassermann in the spinal canal. One may find turbid fluid and considerable numbers of microbes in one part of the cerebrospinal fluid, and clear fluid and no microbes in another part. These observations have been made and described over and over again; they must be accepted as proved.

Dr. Louis K. Guggenheim, St. Louis: I wish to emphasize the tremendous importance of differentiating between meningitis of otitic origin and epidemic cerebrospinal meningitis before any operation is performed. In several cases in St. Louis, acute middle ear trouble accompanied all the classical symptoms of meningitis. Fortunately, the spinal fluid was examined in each case and a diagnosis of epidemic meningitis made. The patients were not subjected to an unnecessary operation.

Dr. C. F. Yerger, Chicago: There are several other types of meningitis that I did not mention. Of course, all these other types of meningitis would have to be excluded, if possible. We may have a meningitis in anterior poliomyelitis that sometimes confuses. It is well known that in general paresis we may have a spinal fluid that will correspond to the spinal fluid found in meningitis sympathetica, viz.: a sterile, cloudy fluid in which there is an absence of micro-organisms, and which gives a reaction with Fehling's solution. One point I should like to emphasize: The presence of a meningitis sympathetica is an indication that the suppurative focus around the meninges has not yet been found. For instance, if in meningitis the spinal fluid is free from micro-organisms, we must investigate the region of the dura and find whether there is any meningeal irritation from a perisinuous abscess, an extradural or a subdural abscess, or a cerebral or cerebellar abscess.

Public Health in Spain.—The present appropriation for public health in Spain is about 8,000,000 pesetas ($1,200,000). Deaths among children are 200,000 a year; tuberculosis causes 40,000 deaths, and malaria, 2,000 deaths. The diphtheria death rate, however, is not very high, being 0.13 per hundred thousand inhabitants in 1920.

DOES CANCER ARISE IN CHRONIC GASTRIC ULCER? *

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There are two questions which have been almost constantly asked by members of the medical profession: Does cancer arise in chronic gastric ulcer? and What percentage of chronic gastric ulcers become malignant? These are unquestionably interesting and important inquiries, but their practical clinical significance has been greatly overestimated; the rather vicious discussion which has taken place in medical societies and in the literature has probably done some harm. Many physicians do not differentiate the things which are of purely scientific interest from those which are of practical importance. From a purely scientific standpoint, neither one of the questions as stated can be correctly answered. No one should state positively that cancer arises in chronic gastric ulcer until one experimentally produces chronic gastric ulcer and produces cancer in the ulcer, and then shows that all of the conditions of the experiments are comparable to the conditions which arise in human beings.

In the literature on the subject, practical surgeons and practitioners of medicine have misinterpreted published scientific facts relative to the close association of gastric ulcer and cancer, and have thought that those working on the subject had clearly demonstrated the origin of cancer in ulcer. They have confused association with origin, and hence a certain amount of chaos has arisen which has unintentionally misled the medical profession and brought about a state of uncertainty in the minds of the lay public relative to professional opinion.

If one were able to state the exact percentage of ulcers associated with cancer, or cancer associated with ulcer, from one year's experience, it would be seen to vary from year to year.

The important practical question is: Is cancer often associated with chronic gastric ulcer? From an experience of more than 1,400 gastric specimens, I can state that the association is so frequent that if I had a chronic gastric ulcer I should always consider the possibility of cancer being present, and I know of no clinical or laboratory methods by which the differential clinical diagnosis can be made. From actual experience also I know that most chronic gastric ulcerations with a diameter greater than 2.5 cm. are cancerous. I do not know whether the cancer or the ulcer was primary, but I do know that I would not temporize with the chronic gastric ulcer.

Ulcers of the stomach may be divided, for practical purposes, into five groups:

1. The simple acute peptic ulcer.
2. The chronic ulcers which are tuberculous or syphilitic.
3. The chronic ulcer, the exact etiologic factors for which are unknown.
4. The chronic ulcer in which there is a neoplastic process in the borders of the mucosa.
5. The gastric ulcer which shows carcinoma not only in the borders but also in the base.

There are no positive clinical signs, symptoms or laboratory tests by which these five groups of ulcers can always be differentiated, but it is very rare in my experience to see an acute peptic ulcer, a tuberculous ulcer or a syphilitic ulcer resected by my colleagues in surgery.

The last three groups of ulcers cannot always be differentiated clinically, or even grossly, after the ulcer has been resected. In my studies of 733 chronic gastric ulcerations, the differentiation was made in 29 per cent. only with a microscope.

Advanced carcinomas may be seen with the roentgen ray, and if the roentgenologist discovers an ulcer which he estimates to be larger than 2.5 cm. in diameter, the guess of cancer will be correct in a very high percentage of cases. It is, however, only a guess for practical purposes, but has some value.

Ulcers vary in shape and size; they may be multiple or single; one of the multiple ulcers may be simple and the others carcinomatous; they are usually confined to the pyloric end of the stomach, and are usually near the lesser curvature or posterior wall.

If one examines a large series of specimens, he will find three groups of cytologic findings in the gastric tubular glands:

1. The glands of the borders are sometimes composed of cells which have the morphology of normal gastric gland cells. The picture is certainly not that of cancer.

2. The glands of the borders of some ulcers (grossly indistinguishable from those of the first group) show the fact that the columnar cells of the normal gastric tubules are replaced by ovoid or spheroid cells which are morphologically indistinguishable from cancer cells. Such cells are intraglandular. I do not know that this is cancer, but the cytologic findings arouse suspicions that it might be a precancerous condition.

3. The glands of the borders of certain chronic gastric ulcers (grossly indistinguishable from those of the first and second groups) are identical with those of the second group plus the presence of the ovoid or spheroid cells in the stroma of the mucosa, or in the other gastric coats and sometimes in the base of the ulcer.

How to distinguish these three groups clinically I do not know, but I do know that, with our present methods, surgery and a microscopic examination offer the only means of making the differentiation in a large percentage of cases. Whether or not the members of the profession agree on the therapy to be applied to chronic gastric ulcer, it is certain that surgery offers the only means, with our present knowledge, of making the correct diagnosis, and certainly we have no medical or dietetic method of treating cancer.

CONCLUSION

It is important to make the diagnosis, and the differentiation of simple chronic gastric ulcer and early carcinomatous gastric ulcer cannot be made clinically. The important fact to be fully appreciated by the members of the medical profession and by the laity is the common association of gastric ulcer and cancer and the present impossibility of always making a clinical differentiation.

ABSTRACT OF DISCUSSION

Dr. Herbert R. Brown, Rochester, N. Y.: I should like to ask Dr. MacCarty whether he has ever seen carcinoma develop as a primary entity without a preliminary inflammatory process. It is my impression that some European pathologist is of that feeling, but as I look over tissues I have examined I cannot recall such a case. In regard to carcinoma, it seems logical that it should develop from the periphery owing to changes in hydrogen ion composition.

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* From the Mayo Clinic.

* Read before the Section on Pathology and Physiology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

Dr. John J. Gilbride, Philadelphia: Surgeons now know that the best treatment for gastric ulcer is the excision of the ulcer. As Dr. MacCarty says, it is difficult to make a diagnosis of a specimen when it is out and on the table. How much more difficult it is to make a diagnosis while it is in the abdomen. From the histories of cases of cancer of the stomach, experience has taught that there are practically two groups if one wishes to group them arbitrarily. In one group, the history extends over a long period. This suggests that these patients have suffered from some form of chronic irritation, which might be the beginning of malignancy. In the other group, the onset appears to be comparatively sudden. Of course, we may have hardly any early symptoms in carcinoma of the stomach as long as there is no obstruction.

Dr. J. Shelton Horsley, Richmond, Va.: Many persons have been hanged on circumstantial evidence which is not so strong as that presented by Dr. MacCarty for the incidence of carcinoma with gastric ulcer. I should like to ask him whether he finds the same histologic appearance with duodenal ulcer as he has shown with gastric ulcer. It seems hardly probable that in such early histologic changes as he has indicated there are any clinical symptoms of significance.

Dr. Philip Hillkowitz, Denver: The question of incidence of irritation and origin of neoplasms has been taken up by pathologists just as it has by clinicians. I am glad to hear Dr. MacCarty make the statement that he does not know. We have overemphasized the causative fact of overirritation. Much radical surgery has been done, and, in my opinion, unnecessarily. A great deal of emphasis has been laid on the so-called precancerous stage, which in my opinion does not exist. I remember the time when we spoke of the pretuberculous stage. When we did not know the cause of tuberculosis we said it was due to cold. How rarely do we find carcinoma of the hand? The consequences of this and other far fetched teachings is that breasts have been removed unnecessarily, and cervices have been taken off on account of laceration. Carcinoma will develop even at the site of an amputated cervix. The conclusion that Dr. MacCarty reaches is, "If I have an ulcer of the stomach I want it taken out." You must remember that the practitioner in every community looks to what is done here. We must remember our responsibility. It is not a simple operation, and we should feel our way carefully as to our responsibility for our words. It is all right to discuss from the academic standpoint whether irritation is the cause of cancer, but in the application, the question is weighty, and involves a great deal of responsibility.

Dr. William H. Stewart, New York: Some unfortunate experience must be accountable for Dr. MacCarty's constant reference to the inability of the roentgenologist to differentiate between malignant and benign lesions of the stomach. Most conservative roentgenologists agree with the author that small, budding, penetrating ulcers are benign—at least, the roentgenologist, as well as the surgeon and the pathologist, is not able to differentiate between these benign ulcers and those which are malignant. The microscopic examination is the one and only accurate method. When these penetrating ulcers assume an unusual size, such as a diameter of 2 cm., they are usually malignant. Early annular growths of the pylorus can be recognized roentgenographically. They are especially malignant. Growths producing irregular defects in the stomach outline are easily recognized as cancer.

Dr. D. J. Davis, Chicago: Dr. MacCarty has called attention to the fact that if these ulcers are approximately 2.5 cm. in diameter, the probabilities are that they are malignant. I wonder whether his data will permit of an analysis in actual percentage.

Dr. Eugene L. Opie, St. Louis: My experience is in accord with the view of Dr. MacCarty that it is seldom, if ever, possible to obtain evidence that cancer has developed on an ulcer. He has emphasized the similarity between the ulceration of cancer and peptic ulcer. It seems to me not unlikely that the conditions that bring about the ulceration of cancer are very similar to those that bring about peptic ulcer. One of the essential features of peptic ulcer is its failure to heal, and with a considerable variety of injuries to the stomach peptic ulcer may occur. The gastric juice doubtless has an important part in dissolving injured tissue. With the injury caused by cancer, superficial ulceration is likely to occur. Ulceration and subseqent solution of tissue may destroy all the cancer in the center of the growth, but cancerous tissue still remains in the edges of the ulcer. These changes may explain some of the histologic characters cited as evidence of the development of cancer on a peptic ulcer.

Dr. W. C. MacCarty, Rochester, Minn.: The question of cancer developing without injury is a big question. I give you my personal opinion. I have studied the histogenesis of neoplasms, and I do not believe that any neoplasm occurs without a previous injury, not necessarily something which we can see grossly. I am speaking of chemical injury. As to the clinical history, the most extensive cancer of the stomach I ever saw gave a clinical history that could not be interpreted as cancer until a week before the patient died, and then he had obstruction of the common duct and jaundice, and we knew what he had. So the history is not always an index as to whether there is cancer. In duodenal ulcer, we did not see these cytologic changes. I do not like the word "precancerous," I rather prefer "pro," using it in the same sense as "pro" botany. Precancerous means to me everything that goes before development of cancer. I have never seen a cancer of the breast in which I could not show definitely that there was not an inflammatory condition present at the time. I wish to apologize to Dr. Stewart; I have no reflection to make on radiologists, and the best paper I have read on this subject was read before the Radiological Society. I have always hoped in dealing with the radiologists to get rid of the extremists who say they can always diagnose gallstones. Dr. Davis spoke of size and percentage of malignancy. I have not compiled any statistics. I am frequently quoted as giving a percentage. I have never yet given a percentage of gastric carcinoma. Dr. Opie asked about ulceration. The same histologic pictures are seen in cancer of the stomach as in simple ulcer of the stomach. The reaction is all the same. I do not know how we are going to settle this question whether these are ulcerated cancers or cancerous ulcers.

Clinical Notes, Suggestions, and New Instruments

CULLEN'S SIGN IN ECTOPIC PREGNANCY: A SUGGESTION FOR ITS DETERMINATION

F. H. Jackson, M.D., Houlton, Me.

The diagnosis of ectopic pregnancy before the onset of the tragic stage is sometimes difficult. But it is needless to point out that diagnosis made before this period will result in a much better prognosis. Cullen has called attention to the dark appearance of the umbilicus in those cases in which rupture has occurred and free blood is found in the abdominal cavity. Naturally, such a sign is simply one of the methods that enable one to come to a definite conclusion.

Busch[1] reports the case of a woman, aged 60, with an ovarian cyst the size of a child's head, that gave this sign with no intra-abdominal hemorrhage. He points out that the sign is not always evidence of intra-abdominal hemorrhage, let alone ectopic pregnancy. Such an isolated example does not make the sign of any less value, for one would hardly be confused or in a quandary as to ectopic gestation in a woman of such an age. There are many cases, however, in which the finding of the condition might clinch the determination as to whether or not the abdomen should be opened, for many times with a clinical history that is very suggestive, the findings by vaginal examination are such that one is in doubt. This is especially likely in those cases in which, with the ectopic pregnancy, we have uterine enlargement corresponding to a normal pregnancy.

The method here described was stumbled on by me in a recent case, and is given with the idea that it may be of help to others. For fear that it has been used and published before, I might say that if such is the case the notice has been missed by me. A very obese young woman had a history most suggestive of ectopic gestation. She had an abdomen that was decidedly heavy, but the sign noted by Dr. Cullen was not discernible. The thought occurred that a dark room with a light directed to the umbilicus might be of help. The room was therefore made dark, and the light from one of the modern flashlights was directed on the umbilicus. The greenish-blue discoloration could then be made out. I attempted to discover the absence or presence of the sign before making the vaginal examination. Vaginal findings were such that the patient was removed to the hospital, and operation disclosed a nonruptured gravid tube, a large amount of free blood in the abdominal cavity, and an ovarian cyst on the side corresponding to the gravid tube. The cyst was the size of an orange, and was attached to the sigmoid and posterior broad ligament, with the gravid tube situated on top.

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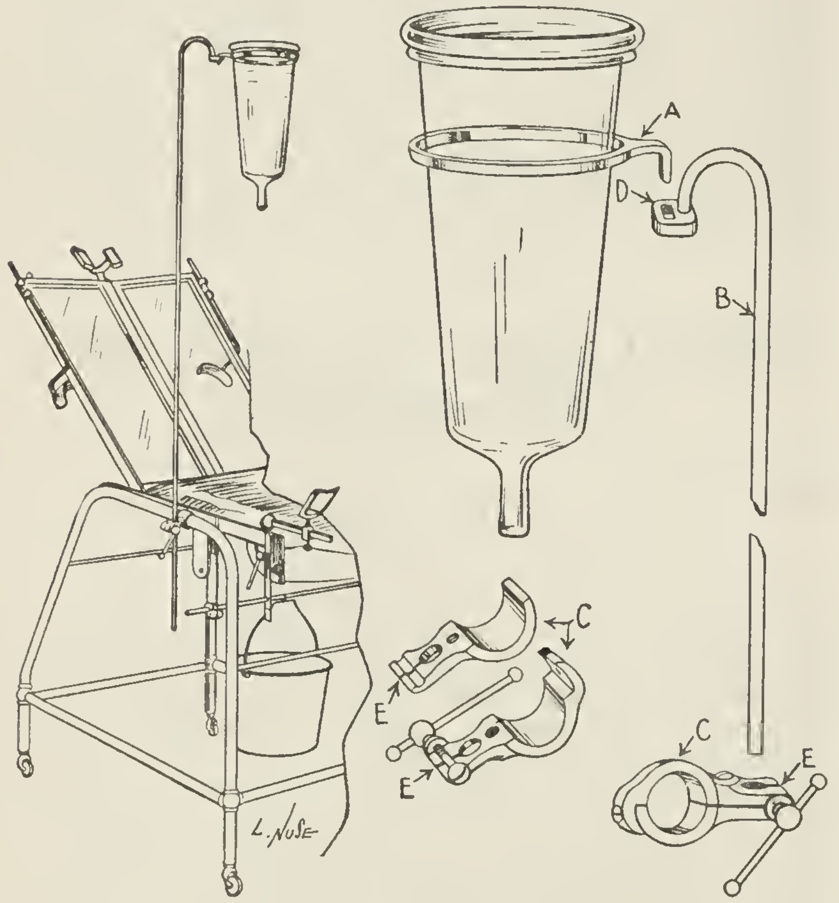
[1] Zum Busch, J. P.: Cullen Sign in Diagnosis of Extra-Uterine Pregnancy, Deutsch. med. Wchnschr. **48**: 941 (July 14) 1922; abstr. J. A. M. A. **79**: 1371 (Oct. 14) 1922.

ATTACHABLE IRRIGATOR STAND

Maximilian M. Nemser, M.D., New York
Clinical Assistant, Department of Urology, New York Post-Graduate Medical School and Hospital

One or two unusual features in connection with this apparatus would seem to warrant its complete description. The floor stand and irrigator undoubtedly have their proper place in the hospital or office; all too often, however, the practitioner finds himself cramped for space. It was with this point in mind as well as the fact that it was possible to convert an ordinary table, provided with a drain, into a cystoscopic table, that this apparatus was devised.



Attachable irrigator stand.

The stand may briefly be said to consist of three parts: (*a*) the ring; (*b*) the rod, and (*c*) the clamp.

The ring presents a rather novel feature in that it is a separate and distinct part. It is easily and quickly attached to the rod, with or without the irrigator in place. The ring is firmly held at right angles to the rod by means of a small, downward curved tongue or beak projecting from its circumference.

The rod is seven-sixteenths inch in diameter and 4½ feet long, with its upper end curved into a semicircle 2½ inches in diameter. Here, at the termination of the curved end, it is widened somewhat and provided with a slot (*D*) into which the beak of the ring fits.

The clamp here illustrated may be attached to the tubing of a metal table in a moment's time. In the manufacture of the clamp an economy of parts has been effected in that the two halves not only grip the table but also hold the rod at any desired level. This is accomplished by means of a perpendicular slit (*E*) running up and down through the two halves of the clamp. The slit abruptly widens out into a round opening through which the rod passes. Thus the traditional screw and lever hold the two halves of the clamp, as well as the rod, in place.

The fact that the ring may speedily be lifted out of and as quickly returned to the supporting rod makes it very much easier to fill the irrigator. It is not necessary to reach up to the irrigator; the irrigator can be brought down to a convenient level without the rod being lowered. Then again, it is not necessary to lift the irrigator through the ring to effect its release. It is simpler to take the ring and irrigator off together. Rapid and complete demobilization of the apparatus is obtained by this feature.

The 2½ inch curve at the top of the rod permits swinging of the irrigator toward or away from the operator or table. The clamp may be modified for wooden tables so that it may be screwed rather than fitted on. If the table is needed for other purposes, the rod may be withdrawn and laid aside.

56 East Eighty-Seventh Street.

A CASE OF CHOLERA GRAVIS WITH COMPLICATIONS

A. C. Selmon, M.D., Shanghai, China

The patient was a Chinese woman, aged 35. In addition to being eight and one-half months' pregnant, she had also an active tuberculous lesion in one apex, with recent hemoptysis. The attack of cholera came on with malaise, mild diarrhea, noises in the ears and pains in the legs, which continued for two days. Acute cholera symptoms began during Monday night. When first seen, early Tuesday morning, she was very restless, tossing about on the bed and passing frequent and copious rice-water stools. Every few minutes she vomited material very similar to that passed in the stools, only of a darker color. There was almost complete anuria. The mind was clear, and her chief complaint was the torturing pains in the calf of the leg and the uncomfortable, dry, parched feeling inside the nose. The mouth temperature was 38.5 C. (101.5 F.). The pulse was 108 and barely palpable at the wrist. The skin was cold; the lips and fingers were livid. When a fold of skin on the back of the hand was pulled up and released, the skin stood up in a distinct ridge, owing to loss of fluid from the subcutaneous tissues. Rogers has shown that in the collapse stage of cholera from half to a third of the fluid of the blood has been lost. In the midst of a cholera epidemic no time is lost in starting a transfusion with saline solution when this sign is present.

Treatment had to be carried out in the home, since circumstances made it impossible to take the patient into the hospital. An attempt to give kaolin was unsuccessful because it aggravated the vomiting. Three liters of hypertonic saline solution was given, made up of sodium chlorid, 16 gm.; potassium chlorid, 0.8 gm.; calcium chlorid, 0.55 gm., and water, 1 liter. The temperature in the flask was kept at about 38 C. (100.4 F.). The solution was run in slowly, and there was no rigor following. During the transfusion, the patient became more quiet and the condition of the pulse improved markedly. The systolic pressure rose to 90 mm. The blood pressure was not ascertained before the transfusion was begun.

In addition to the hypertonic saline solution, the patient was given potassium permanganate, 0.13 gm., made up with kaolin and petrolatum into a pill and then coated with phenyl salicylate. One pill was given every half hour for six hours. The stools showed marked improvement following this treatment. The use of potassium permanganate has become a standard treatment in cholera hospitals here in the Orient. The cholera toxins are probably albumoses, and are rendered inert by the oxidizing power of the potassium permanganate.

Early Wednesday morning the patient gave birth to a well-developed, still-born child. No difficulty was experienced in the delivery, and the blood lost was negligible. Following the delivery there was some improvement in her condition for a few hours, and then quite suddenly an exacerbation of the cholera symptoms. The restlessness, the profuse rice-water stools passing involuntarily, the vomiting, the syncope and the shriveled skin were all more severe in the relapse than in the primary attack. The axillary temperature dropped to 35 C. (95 F.); the rectal temperature was 36.8 C. (98.2 F.); the systolic blood pressure dropped to 75 mm.

On account of the severe collapse, we decided to transfuse an isotonic saline solution and to inject slowly for several hours. Sterilized tap water was used in making up the solution. This was passed through the candle of a Berkefeld filter before being run into the vein. Two and five-tenths liters were run into the vein in a little more than five hours. The patient was given bits of ice to control the vomiting, and artificial heat was applied, together with hot compresses, to the lumbar region. Another course of twelve potassium permanganate pills was administered. There was prompt improvement in the stools, but amelioration of the other symptoms was not so marked as that following the first administration of saline solution. As the patient rallied, the flow of urine started again, after having ceased for almost twelve hours.

No food of any kind was allowed from the outset until twenty-four hours following the relapse. During this time she was given cold water, cracked ice, cold tea and lemonade. The first food given was strained rice-water made by boiling browned rice. Convalescence was complicated with a severe gastritis and myocarditis.

Examination of the stools revealed large numbers of the cholera vibrio. The urine passed during the attack had a heavy content of albumin.

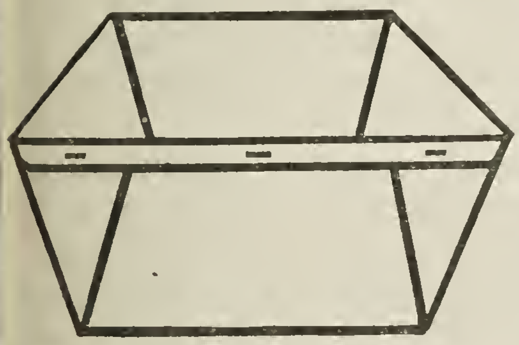
[While we have no cholera in this country, it is interesting to hear of such cases in the hands of our confrères abroad, and how they manage them.—Ed.]

Edward Ezra Building.

A SIMPLE METHOD FOR THE COLLECTION OF SPECIMENS FOR THE EXAMINATION OF SUSPECTED TYPHOID CARRIERS

Walter C. Klotz, M.D., Johnson City, Tenn.
Medical Director, National Home for Disabled Volunteer Soldiers

When a large number of persons are to be examined as suspected typhoid or paratyphoid carriers, it is occasionally difficult to devise a satisfactory method of obtaining specimens of stools. This is especially true in the case of an institution, for example, in which a large number of food handlers are to be examined at regular intervals as a matter of routine and prevention, for the detection of carriers, in the absence of any occurrence or suspicion of enteric disease.



Cup used in Klotz method of obtaining specimens in examination of typhoid carriers.

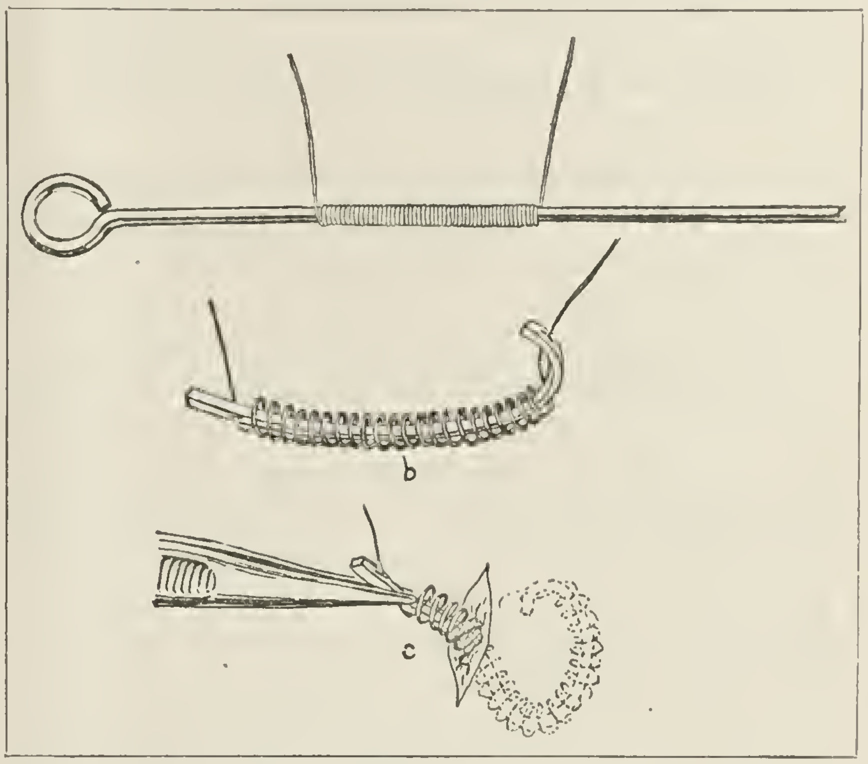
If the persons to be examined are quartered in dormitories or barracks, and are using common toilet facilities, suitable vessels for the collection of stools are not usually available. A satisfactory sterilization of toilet bowls is practically impossible. Their use for this purpose might, therefore, readily result in contamination by a carrier, leading to serious error in the findings obtained for other members of the group. To obviate this difficulty, use has been made of a large paper container, known as a "hemorrhage cup." These cups are carried and sold by some of the manufacturers of burnable paper sputum cups for tuberculosis institutions. This style of cup, which is about 6½ inches square and 3½ inches deep, is made of heavy paraffined card board and is water-proof. It has straight, flaring sides and is not provided with any flange or fold of the upper edges. Stools are evacuated directly into the paper cups, and a small thoroughly mixed portion transferred with a spatula (ordinary wooden tongue depressor) into a small tin pill-box, and labeled for laboratory investigation. The paper cup and its contents are immediately deposited in a large paper sack, and, as soon as the specimens have been collected or the paper sack is filled, it is taken to the boiler house and burned.

This method has proved so simple, satisfactory and practical that it is recommended to others for trial.

A SUPERFICIAL DRAIN

Herbert T. Wikle, M.D., Brooklyn

Realizing the importance of small incisions with free drainage, particularly in infections of the face, I have been using, in preference to rubber tissue or rubber band forms of drains, a small drain made from horsehair.



Drain made from horsehair.

The horsehair may be kept in a small jar of alcohol; and, when a drain is needed, one of the horsehairs is removed from the jar and wrapped tightly and closely about a probe, as illustrated at *a* in the accompanying illustration. The portion of the probe about which the horsehair is wrapped is then passed through the flame of an alcohol lamp. This helps to sterilize and dry out the horsehair, and makes it set in the desired shape, that of a coil, as illustrated at *b*. The size of the drain depends, of course, on the diameter of the probe about which it is wrapped. The horsehair is then removed from the probe and is gradually fed into the wound with the notched probe or small forceps, as illustrated at *c*. A small rubber band may be inserted through the center of the coil, forming a cigaret drain, as illustrated at *b*. The ends of the horsehair may be drawn through small openings in the rubber band. This prevents the drain from uncoiling; but this procedure makes the drain a little more difficult to make, and is not necessary when the drain is changed daily. The black silkworm gut is a very good substitute, if the horsehair is not available.

This type of drain acts exceedingly well for twenty-four hours or thirty-six hours, after which time it begins to uncoil, and does not give very free drainage; but, if well placed in an infected area with a small incision, it remains in place better and gives freer drainage than either the rubber band or rubber tissue forms of drainage.

I have found this very satisfactory in furuncles and infections about the face, and also as a drain to place between the sutures of a wound.

43 Pierrepont Street.

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SATURDAY, DECEMBER 2, 1922

HYGEIA: A JOURNAL OF INDIVIDUAL AND COMMUNITY HEALTH

For years the medical profession has felt the need for a periodical through which the public might be enlightened in matters of medical science. At the session of the House of Delegates in St. Louis, the sentiment crystallized and the Board of Trustees was authorized to proceed with this publication. As shown by the minutes of the last session of the board (page 1936), plans have now matured sufficiently to permit definite announcement. The April, 1923, issue —ready in March—of *Hygeia: A Journal of Individual and Community Health,* the first number of a scientific medical magazine for the public, will mark what, it is hoped, will prove to be another great step in the service which the American Medical Association is rendering to the medical profession and to the people of our country.

Aside from the utilitarian aspects of the title *Hygeia* —its brevity, ease of pronunciation, simplicity and attractiveness—it is symbolic of the very foundation of medical science and preventive medicine. The name signifies the purpose of the periodical: to interpret medical science to the public; to inform the layman concerning the fundamental facts of physiology and pathology; to keep him in touch with the advance that scientific medicine is making in the prevention and alleviation of disease. By its physical form, its attractiveness, its interest and its practical value, *Hygeia* should appeal to the lay reader as a publication worthy of his attention.

It is hardly necessary to tell physicians that there are many special problems confronting the editorial staff of the new publication. Every physician has been faced with the difficulty of placing a medical subject suitably before a lay audience. The speaker or writer has to put himself in the place of those whom he would enlighten; he must speak in the language of the masses; he must interpret technical terms in words of every-day usage. For the understanding of facts in relation to disease, for comprehension of immunologic reactions, for explanations of the way in which bacteria gain entrance into the body and produce infection, for knowledge of how various drugs produce effects within the body, certain fundamental knowledge is necessary. Unfortunately, the vast majority of our public do not have it; they have no knowledge of the essentials of either the anatomy or the physiology of their own bodies. The problem, as has been said, is a difficult one; but it is hoped that, by leading from the elementary to the advanced, and by the use of chart, diagram, table and picture, *Hygeia* may be of service to every reader.

Everywhere, the Board of Trustees, the Council on Health and Public Instruction and the editorial staff have met a most enthusiastic response and are receiving offers of whole hearted cooperation. Among the contributors whose articles will appear in early issues are scientists of note who can write in the language of the intelligent layman; moreover, many lay writers whose names are household words among the American reading public have agreed to give their assistance. It now remains for the medical profession to do its share in placing this journal in the hands of the public. On their cooperation will depend largely the success of the enterprise. In this connection see advertising page 17, this issue.

BONE ATROPHY FROM DISUSE

Although the phenomena of atrophy are familiar, the nature of the changes involved is for the most part still obscure. The word atrophy is, in fact, sometimes applied to quite unlike conditions. Muscular atrophy, for example, may or may not be associated with paralysis of the contractile tissues. In the case of the muscles, simple atrophy should be distinguished from so-called degenerative atrophy. In the former there is only a quantitative diminution in size; in the latter there is in addition an actual degeneration of the muscle substance. Bradley[1] has called attention to the fact that atrophy occurs commonly under conditions of reduced blood supply.

The occurrence of atrophy due to disuse of an organ is familiar in various connections. That it arises in the case of the bones also is not so generally appreciated. In an experimental study of the subject at the Washington University Medical School, St. Louis, Allison and Brooks have found that the degree of atrophy of a bone is directly proportional to the degree of nonuse. Mechanical fixation produced as rapidly developing and as marked bone atrophy as nonuse due to section of nerves or injury to joints. A more recent clinical study of the changes in bone which result from nonuse[2] shows essentially the same sort of effects in man. There was no evidence that bone atrophy was ver the result of specific nerve influence on bone, and is therefore unwarranted to assume that bone atrophy ever a neurotrophic phenomenon. The initial atrophic changes due to nonuse of an extremity are the ame, regardless of the age of the individuals. The ltimate result of the changes in the bones of an xtremity which is not used is different in the person ho has reached his complete growth from that in the erson who is in his growing period at the time of eginning of nonuse. In the former instance, the procss of bone atrophy is operating alone. In the latter, the rocess of bone atrophy is associated with the process f growth which is inhibited but not arrested by nonuse. The changes in bone which result from lack of use during adult life are such that the general shape nd contour of the bone as a whole are only slightly nodified. The diameter of the shaft may be very lightly decreased. The length is not changed. The nedullary canal is increased in diameter, producing a orresponding diminution in the thickness of the cortex, which after a long period of nonuse is reduced to a thin bone shell. The cancellous bone becomes much nore porous, with fewer and thinner trabeculae. After a long period of nonuse, the compact bone of the shaft becomes porous.

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[1] Bradley, H. C., and Taylor, J.: Studies of Autolysis, III, The Effect of Reaction on Liver Autolysis, J. Biol. Chem. **25**: 261 (July) 1916.

[2] Allison, Nathaniel, and Brooks, Barney: Bone Atrophy: A Clinical Study of the Changes in Bone Which Result from Nonuse, Arch. Surg. **5**: 499 (Nov.) 1922.

If disuse occurs during the period of adolescence, he bones may grow at a decreased rate, or growth nay stop earlier in the nonused extremity. Under such conditions, permanent changes in the size and shape of the affected structures may ensue; whereas n the adult, recovery from bone atrophy is usually far nore successful when suitable activity is restored. According to Allison and Brooks, bone atrophy and recovery from bone atrophy are manifestations of the function of bone cells to produce bone matrix, which s in whole or in part distinct from the function of the bone cells to regenerate themselves. Bone atrophy and recovery from bone atrophy, they add, are processes which are not necessarily associated with cell death or cell proliferation. Regeneration is a process which is directly the result of cell multiplication.

THE RÔLE OF STASIS IN INTESTINAL CONDITIONS

In the current popular discussions on "securing health through proper diet," as well as in the widespread propaganda for "saner nutrition," the part played by the intestine in promoting man's well-being or the reverse receives conspicuous reference. There can be no doubt that alimentary factors are exceedingly important in the success or failure of any regimen. The reasons for this conclusion are not so easily established; for the present it must be admitted to rest primarily on decidedly empiric observations. Attention has been centered largely, of course, on the possible disturbances caused by bacteria that inhabit the gastro-intestinal tract, sometimes in enormous numbers, from the day of birth. Their activities may undoubtedly be beneficent or baneful, as also their varieties may be numerous. The products of bacterial metabolism have been charged with a diversity of toxic actions, many times on the basis of merest conjecture. Consequently, a better understanding of the problems of intestinal bacteriology is bound to promote our knowledge of certain important factors which are often expressed as physiologic comfort or discomfort rather than in terms of violent disease or bodily disorder.

Lately the influence of diet on the nature of the intestinal flora has received wide consideration. The interest in this aspect of the subject began with Metchnikoff's engaging presentation that the body is injured by the absorption of toxic substances formed in the intestine through the agency of putrefactive bacteria. It was furthered in a somewhat more scientific way by the studies of Herter and his followers showing how a diet consisting largely of animal tissues (which means a ration rich in protein) modifies the bacterial flora of the intestine and influences the physical and psychic condition of those eating such food. As has been reported in THE JOURNAL [1] from time to time, the upshot has been to demonstrate that proteolytic micro-organisms productive of putrefaction thrive in the absence of carbohydrates and acid conditions in the bowel, whereas they are repressed by the acid-producing varieties which depend on a liberal supply of potential sources of sugar, notably dextrins and lactose.

Largely through the work of American bacteriologists, notably Kendall, Torrey, Rettger, Cannon and their co-workers, interest has been focused on the effects of changes in diet. A recent writer has summarized the prevalent view by the statement that the addition of lactose or dextrin to the diet brings about the change in the intestinal type because these carbohydrates, unlike others, are slowly absorbed and hence reach the region of maximal bacterial activity. Under these conditions it would seem that the suppression of proteolytic organisms, which grow best in a slightly alkaline medium, is due to the accumulation of acid metabolites and the consequent change in the reaction of the medium. The aciduric bacteria, on the other hand, apparently prefer a slightly acid medium, and so would find conditions for their growth more favorable.

The evidence is increasing, however, to show that diet is by no means the sole factor contributing to satisfactory alimentary conditions. According to Dragstedt, Cannon and Dragstedt [2] of the University of Chicago, either a complete obstruction or a stasis in the passage of the intestinal content results in a proteolytic flora irrespective of the character of the diet. It is probable, however, that the mechanism of bacterial control is identical in the two cases and is dependent on the presence of utilizable carbohydrate in all parts of the small intestine and colon. In conditions of stasis or obstruction, even such carbohydrates as dextrin and lactose are probably completely absorbed in the upper part of the intestine, and so cannot affect bacterial growth lower down. It is thus easier to understand why stasis of the intestinal content is unfavorable and unwelcomed under any sort of dietary regimen. In a discussion of meat eating in America, McCollum[3] has expressed the view that disturbances of nutrition believed to be referable to excessive protein ingestion may well be due, not so much to the amount of protein eaten, as to failure to take a complete diet. Such a diet is to be secured only through the proper selection of foods which make good one another's deficiencies. It is the completeness of the diet rather than an unusual amount of some one factor that is the most important feature. Similarly, in the consideration of the bacteriology of the intestine with its possible unfavorable features, attention should not be centered solely on the type of food supplied, but should be directed, perhaps primarily, to the problem of stasis, which may counteract the advantages of a supposedly satisfactory diet.

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[1] Diet and Intestinal Bacteria, editorial, J. A. M. A. **73**: 1844 (Dec. 13) 1919; Changing the Flora of the Intestinal Tract, ibid. **73**: 1889 (Dec. 20) 1919; Simplification of the Intestinal Flora, ibid. **77**: 626 (Aug. 20) 1921.

[2] Dragstedt, L. R.; Cannon, P. R., and Dragstedt, C. A.: Factors Controlling the Intestinal Bacteria: The Effects of Acute Obstruction and Stasis on Bacterial Types, J. Infect. Dis. **31**: 209 (Sept.) 1922.

THE TUBERCLE BACILLUS

The science of bacteriology is still too young to afford any very detailed pictures of the life history of the micro-organisms with which it deals. It is not long ago that they were usually depicted in the guise of the most baneful enemies to mankind. Thus there are accounts of "the swarms of germs present almost constantly in our noses, throats, stomachs, bowels, etc.," awaiting the chance they have been looking for—to break through the cell barrier and run riot in the body. The beneficent work of bacteria has received recognition more tardily. To the species which help rather than hinder the tasks of mankind and the higher animals, Long[4] has paid this well deserved tribute:

> Some of these are very adaptable, wonderfully equipped foragers, not overly particular, within reasonable limits, about the temperature at which they work or the form in which the great classes of foodstuffs are supplied to them. They grow in relatively large masses, many dying that others may live, and in their process of dissolution many kinds of them liberate powerful ferments which make more food available for the rest. In view of their relation to organic decay they have received the name of "saprophytes." Etymologically they are decay-growers. They live their day, grow, die and decay themselves, and by virtue of their involuntary sacrifice serve the high purpose of maintaining those great cycles of the elements in which a certain amount of carbon, nitrogen and sulphur is continually available in a mobile state suitable for the nutrition of other forms.

There are bacteria of other types which serve no such useful purpose. Some of them are extremely helpless in "the region of bounteous plenty outside." They crave a condition of parasitism in which almos inevitably they come into conflict with the body cell of the host. The modern story of immunology tells o the devices by which many marauding micro-organism are converted from dangerous enemies into harmles guests.

For obvious reasons, the bacillus of tuberculosis has been the subject of more intensive study than have most of the other harmful bacteria. Its metabolism the product which it elaborates, the reactions which it excites, and the modifications which it may undergo in different environments are some of the topics which have received investigation in recent years. We recall few more trenchant descriptions in the study of disease than that which Long has given of the first link in the progression of tuberculosis, the tubercle bacillus: "a wax-armored micro-organism, maintaining itself in necrotic tissue, picking and choosing its nutriment from the heterogeneous mass set before it, utilizing the glycerol of hydrolyzed fats, and probably building its wax therefrom, taking ammonia from certain of the amino-acids produced in the digestion of dead protein, utilizing others directly to speed up the process of synthesis of its own protein, autolyzing to a slight extent, sufficiently to sensitize the surrounding host to its diffusible protein products, being carried by the lymph, by phagocytes and otherwise, to new soil, there to be met by a nonspecific foreign body response, which in the end operates to produce anemia and death of the isolated cells." Then we have the failure of that dead tissue to autolyze, Long adds, perhaps because of the presence of ferment-inhibiting substances within the bacillus—the phenomenon of caseation. Finally, he concludes, there is more or less absorption of foreign protein from that focus, that of the bacillus itself and that of the disintegrating tissue, both toxic to the body protoplasm, both capable of causing fever and stimulating the metabolism of the host, so that in severe cases the typical picture of consumption ensues. Such a masterful summary would have been impossible only a few years ago, because of the meagerness of our knowledge. Today it points the way to the further investigation of prophylaxis and therapy.

Differential Diagnosis of Chickenpox.—The diagnostic criteria which have proved in practice the most reliable in differentiating some 500 cases of chickenpox, mostly among adults, from among about 11,000 cases of smallpox and similar diseases, in London, during the last twenty years, are, according to Wanklyn, four in number, namely: (1) the presence or absence of marked general prostration in the early stages; (2) the relatively large number of macules, papules, vesicles or pustules concentrated in areas subjected to friction, pressure, or other irritation; (3) the relative depth of the lesions in the skin; (4) the progressive maturation of the lesions. Wanklyn adds: ". . . as any acute febrile attack, however mild, may in reality be smallpox, every such illness calls for an examination of the skin and buccal mucosa for hemorrhages, papules, pocks, or other blemish, in order to prevent the escape of a case which, however trivial in itself, may yet occasion many fatalities. — *Lancet* **203**:884 (Oct. 21) 1922.

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[3] McCollum, E. V.: The Newer Knowledge of Nutrition: New York, the Macmillan Company, 1922, p. 393.

[4] Long, E. R.: The Biochemistry of Tuberculosis, Bull. Johns Hopkins Hosp. **33**: 246 (July) 1922.

Current Comment

THE BLOOD IN EARLY LIFE

Those who have made careful examinations of the lood in recent years, in an effort to ascertain the ariations in the number of erythrocytes at different ges, agree that the content of the red cells for each ubic millimeter is much higher in the new-born than n the adult. The range from the former to the latter s represented by the difference between approximately ,000,000 and 5,000,000. The hemoglobin content of he blood is likewise much higher in early infancy than n later life. According to Williamson,[1] the hemoglo-in of the new-born infant averages 23.2 gm. of hemo-lobin for each hundred cubic centimeters of blood. he hemoglobin falls rapidly, and by the end of the econd month the content is 18.3 gm. At the end of he fifth month it is 13.7 gm., and then remains about onstant during the next few months, falling to 12.5 m. at the end of the first year. From this point up o the sixth year there is a steady ascent, when it pproximates the height of adult life. Thus, it appears hat whereas the erythrocyte count in children of 1 and years of age is somewhat higher than in the adult, he hemoglobin values are exceptionally low at that eriod. This lack of parallelism has led Mayers[2] to aise the pertinent inquiry as to whether the low hemo-lobin values are to be regarded as strictly normal or hether they might be altered by a different plan of nfant feeding. The pitfalls of dietetics during the early eriods of adolescence are being disclosed in various nexpected diseases of infancy, such as rickets and curvy, among those that are charged with a deficiency tiology. May it be that the blood pigment is another eretofore little appreciated index of the degree of ietary success that attends the nutrition of the young?

INTESTINAL PARESIS IN PERITONITIS

The problem of proper procedure in cases of serious ntestinal stasis was reemphasized, in 1918, by he suggestion of Alvarez[3] that it would be wise o abolish the routine purge usually given on the second r third day after certain types of operations. More ecently, statistics have been presented by the same riter and his colleagues[4] at the University of Cali-ornia Medical School which again seriously raise the uestion as to the advisability of postoperative purges nd enemas. They still regard it as wise in most cases o avoid the use of cathartics for as long a time after peration as possible. A rational solution of the ques-ion at issue depends fundamentally on a correct knowl-dge of the pathologic factors responsible for stasis in he conditions cited. A paresis of the intestine ccurs not only after abdominal operations but also in arious infectious diseases. It is observed in peritonitis, in which its significance has been variously interpreted. Some writers have attributed the disturbance in gastro-intestinal motility to the local changes in the enteric tract, particularly to an inflammatory condition of the tissues sufficient to interfere with their usual contractility. This is equivalent to assuming a paresis of the intestinal musculature. Others have postulated a toxic cause of the paralysis, assuming in the case of peritonitis that the bacteria present elaborate a poison which acts directly on the ganglions in the motor apparatus of the bowel. Nothnagel long ago proposed a still different explanation in the suggestion that a reflex inhibition of peristalsis is somehow produced through nervous paths. This would help to account for the speed with which marked stasis often occurs at the very beginning of an acute peritonitis. The recent studies of Arai[5] at Utrecht confirm the part played by the sympathetic nervous system in the pathology of intestinal function during peritonitis. The symptoms were induced experimentally by means of bacterial invasions in the abdominal cavity, and also by the use of chemical irritants. The latter at once exclude the participation of the supposedly effective bacterial toxins. In all cases, peristalsis could be restored by cutting the splanchnic nerves so as to interrupt an effective connection with the motor organs involved. It seems likely, therefore, that the condition of the sympathetic system demands as much, if not more, consideration in the management of the intestinal paresis of peritonitis and allied conditions as do the local changes induced in the bowel by the infectious agents. The current teachings of gastro-intestinal physiology are not out of accord with this conclusion.

SILICON IN TUBERCULOSIS

The use of silicon in therapy finds no mention in either the Handbook of Useful Drugs or New and Nonofficial Remedies, published under the auspices of the American Medical Association. It has, however, found advocacy by some German clinicians[6] in the treatment of tuberculosis; and, as might be expected, proprietary preparations of silicon[7] have promptly become available on the market. The theory on which this mode of medication is based depends on the assertion that silica is found in calcified tuberculous lesions and lung stones, and that consequently silicon as well as calcium is an important element in the formation of the beneficent scar tissue whereby the lesions are healed. Some of the proprietary products of calcium[8] are advertised as adjuvants to the therapeutic use of silicon compounds. It is true that calcified peribronchial lymph node and pulmonary lesions may contain a small proportion of silica; but Maver and Wells[9] of the University of Chicago have lately demonstrated that the content is no larger than one finds in the comparable uncalcified tissues of adults. Their analytic findings, coupled with other data on record, make it highly probable that the silica is derived chiefly, if not entirely, from inhaled silicious dust. Calcified tuberculous mesenteric lymph nodes do not contain appreciable amounts of silica, and only a trace was found in a calcified tuberculous pleural exudate. Silicosis in man is no novelty; and among healthy persons exposed to silicious dust the ordinary process of inhalation often brings about deposits of silica surpassing those found in tuberculous patients. If we agree with the conclusions of the Chicago pathologists, whose analyses have failed to furnish chemical evidence to support the hypothesis that silica plays an important part in the healing of tuberculous lesions, the use of silicon preparations in therapy will require better substantiation than it now possesses. From the standpoint of patients, unwarranted therapy sometimes becomes not merely useless but even detrimental.

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[1] Williamson, C. S.: Influence of Age and Sex on Hemoglobin, rch. Int. Med. **18**: 505 (Oct.) 1916.

[2] Mayers, L. H.: A Study of the Erythrocyte Curve at Various ges, and Its Relationship to Hemoglobin Curve, Arch. Int. Med. **30**: 78 (Oct.) 1922.

[3] Alvarez, W. C.: Is the Purgation of Patients Before Operation ustifiable? Surg., Gynec. & Obst. **26**: 651 (June) 1918.

[4] Taylor, F. B.; Terry, W. I., and Alvarez, W. C.: Improvements n Preoperative and Postoperative Care, J. A. M. A. **79**: 1578 (Nov. 4) 922.

[5] Arai, K.: Experimentelle Untersuchungen über die Magen-Darmbewegungen bei akuter Peritonitis, Arch. exper. Path. u. Pharmakol. **94**: 149 (Aug. 11) 1922.

[6] Kahle: München. med. Wchnschr. **61**: 752, 1914; Beitr. z. Klin. d. Tuberk. **47**: 296, 1921. Kuhn: Therap. Monatsh. **33**: 201, 1919; München. med. Wchnschr. **67**: 253, 1920.

[7] For example, Silicol, a colloidal preparation of silicic acid and protein, is advertised in German medical journals.

[8] For example, Tricalcol, a "colloidal compound of calcium phosphate and protein."

[9] Maver, Mary E., and Wells, H. G.: Studies on the Biochemistry and Chemotherapy of Tuberculosis, XXIII, The Chemical Composition of So-Called Tuberculous Lesions, Am. Rev. Tuberc. **6**: 649 (Oct.) 1922.

THE ALLEGED HABITUATION TO ARSENIC

Few chapters in toxicology are more confusing or mystifying than those dealing with the alleged instances of tolerance to poisonous substances, or the records of habituation to potent drugs. It is not easy to understand how one person can consume with impunity a dose of a toxic material that is usually fatal to others. To refer the favorable outcome to idiosyncrasy usually consists, after all, merely in clothing ignorance in "high sounding phrases." In the case of organic poisons, one can easily assume a growing capacity of the organism to destroy the harmful substance by oxidation or some other effective form of detoxication. When the problem involves fixed inorganic poisons like mercury, lead and arsenic, however, such an hypothesis no longer satisfies. It is often stated that after repeated careful administration of arsenic by mouth, the tolerance for it increases so that undoubtedly harmful or occasionally even larger than fatal doses are tolerated without detriment.[1] Not only has this been observed experimentally on animals, but remarkable stories of tolerance are commonly told of the arsenic eaters of Tyrol. Cloetta has attempted to explain the observations on animals by the hypothesis that, after the oral use of arsenic, the alimentary canal becomes more and more impervious to the poison, a consequence easily visualized in the light of the irritating action which the substance is known to have on the intestinal mucosa. At any rate, the habituation certainly is not systemic, for in all the instances carefully studied even the most tolerant individuals readily succumbed to small doses introduced subcutaneously. The facts in regard to habituation to arsenic will require a new interpretation before the criticisms of Schwartze[2] of the federal Bureau of Chemistry. His experiments on various species show that the toxicity of different preparations of arsenous oxid administered undissolved by mouth varies markedly, according to the coarseness or fineness of their subdivision. The finer the particles of a preparation, the more potent it is, and vice versa. In view of such findings, as Schwartze points out, the mere consumption with impunity of large doses of undissolved arsenous oxid is not proof that habituation exists. The toleration of such large doses may be due not to any attribute inherent in the consumer (i. e., an immunity), but to an attribute inherent in the preparation of the arsenous oxid consumed, namely, its relatively slow solubility, which has been further decreased because of its coarse state of subdivision. At any rate, the traditional doctrine of ready habituation to arsenic has been severely shattered by these studies.

Association News

ANNUAL CONFERENCE OF STATE SECRETARIES

The Annual Conference of Secretaries of Constituent State Medical Associations was held at the offices of the American Medical Association in Chicago, November 17 and 18. The secretaries of thirty-six state associations were in attendance. The states not represented were Arkansas, Florida, Georgia, Idaho, Illinois, Maryland, Massachusetts, Michigan, New York, Oregon, Rhode Island, South Dakota and Washington. Dr. G. E. de Schweinitz, President, Dr. Ray Lyman Wilbur, President-Elect, and the members of the Board of Trustees of the American Medical Association were in attendance at the conference. The members of the Council on Health and Public Instruction were also present. The papers read before the conference and the discussions thereon will appear in the *American Medical Association Bulletin.*

BOARD OF TRUSTEES

Report of Session Held Nov. 16, 1922

The autumn meeting of the Board of Trustees of the American Medical Association was held at the Association headquarters, November 16. The meeting was called to order by the chairman, Dr. Dowling, at 10:15 a. m., all members of the Board being in attendance. There were also present: the President, George E. de Schweinitz; the President-Elect, Ray Lyman Wilbur, and the General Manager, George H. Simmons.

In addition to the transaction of routine business relating to the salaries of heads of departments, based on a policy suggested by the General Manager, the approval of the purchase of two additional printing presses and inspection of the addition to the headquarters building now in course of construction, the following items of business were considered and carried out:

EDITOR OF ARCHIVES OF NEUROLOGY AND PSYCHIATRY

Dr. E. W. Taylor of Boston, professor of neurology at the Medical School of Harvard University, was elected a member of the editorial board of the *Archives of Neurology and Psychiatry*, to fill the vacancy created by the decease of Dr. Pearce Bailey.

APPOINTMENT OF MEMBER OF COUNCIL ON PHARMACY AND CHEMISTRY

Dr. F. W. Peabody of Boston, professor of medicine at the Medical School of Harvard University, and physician-in-chief of the Boston City Hospital, was elected a member of the Council on Pharmacy and Chemistry to fill the vacancy created by the resignation of Dr. C. L. Alsberg, formerly chief of the Bureau of Chemistry, Department of Agriculture, and now connected with the Food Research Institute of Stanford University.

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[1] Meyer, H. H., and Gottlieb, R.: Die experimentelle Pharmakologie, Vienna, 1921, p. 468.

[2] Schwartze, E. W.: The So-Called Habituation to "Arsenic": Variations in the Toxicity of Arsenious Oxide, J. Pharm. **20:** 181 (Oct.) 1922.

BUREAU OF LEGAL MEDICINE AND LEGISLATION

Dr. W. C. Woodward, Executive Secretary of the Bureau f Legal Medicine and Legislation, presented a report, of hich the following is an abstract:

The Bureau of Legal Medicine and Legislation had, since e meeting of the Executive Committee on October 20, evoted much time to the matter of the defense of animal esearch, because of the activity of the organized forces pposing the use of animals in medical research and the revention of disease.

In Colorado, the people were compelled under the initiative decide at the November election on a measure forbidding e use of animals for this purpose. The Colorado State edical Society organized an effective campaign through e Colorado Association for the Protection of Public Health defeat the measure. The Executive Secretary was invited assist in the campaign, and spent eleven days in Colorado, isiting Denver and ten outlying cities and towns, speaking rom one to four times in eight of them, and conferring with terested parties in all. The measure was defeated by a ote of about six to one.

In California, the opponents of medical research had, also nder the initiative, organized a campaign similar to that aged in Colorado. A similar measure was defeated in 1920. uring the recent campaign, at no time did the situation eem so critical as in Colorado. The California State Med- cal Society, the California League for the Conservation of ublic Health and other forces were organized for the pro- ection of research, and at the polls the measure to prevent e use of animals was overwhelmingly defeated.

The effort that is now being made by the antivivisectionists induce Congress to enact legislation to prevent the develop- ent by the Army and Navy of means of defense against gas ttack is still pending and will receive attention.

An act was passed by the Washington legislature in 1921, endering it discretionary with the parent whether his child hould or should not be examined in connection with the edical inspection of schools, and compelling the school uthorities to procure the consent in writing of the parent f each schoolchild before requiring such child to submit to accination. This act was defeated at the polls, November 7, nder a referendum, by a vote of about two to one.

A demand by the collector of internal revenue at Omaha, at the Nebraska State Medical Association file annual eturns under the federal income tax law, was withdrawn by e Commissioner of Internal Revenue after the Executive ecretary had personally presented the case to him. The riginal demand had been based on the hypothesis that the edical defense service maintained by the Association was utside of the activities of a scientific organization not rganized for profit, and for that reason rendered the Asso- iation liable to the making of annual reports and to the ayment of an income tax if its income were large enough to all for such payment.

It has been impossible as yet to procure a reversal of the reasury decision to the effect that the expenses of a physi- ian incident to the attendance at a medical convention were ot "ordinary and necessary expenses" included in carrying n his profession, notwithstanding that the act provides that aveling expenses while away from home in the pursuit of a ade or business may be included as ordinary and necessary xpenses thereof. Further efforts will be made to procure a eversal of this decision.

The resolution adopted by the House of Delegates, "that rovision be made for supplying bottled-in-bond whisky, for edicinal use only, at a fixed retail price to be established y the government," has been met to the the extent that egulations recently formulated have been framed so as to ncourage the dispensing of whisky in original bottled-in- ond containers. The entire matter is still pending, and it hoped that further concessions may be obtained.

The U. S. Veterans' Bureau, despite protests, continues to ain veterans as chiropractors. The Bureau of Legal Medi- ine and Legislation is, however, still active in the matter, ith a view to procuring a discontinuance of the practice.

Looking toward the preparation of the report, directed by e House of Delegates, concerning legal defense indemnity, onferences have been held with representatives of certain surance companies issuing medical defense policies, and ther studies have been undertaken.

A study is being made of the laws regulating the practice f medicine and of submedical callings such as chiropractic, that the bureau may be of service to state societies in eir efforts to prevent unwise legislation.

That part of the report dealing with medical practice acts was discussed by various members of the Board. Dr. Woodward expressed the opinion that it is important to ascertain the consensus of the medical profession regarding the requirements of a standard medical practice act, and that probably the best way to do this would be to call conferences of the legislative committees of the constituent state associations to meet in various sections of the country to work out the details of a model law.

Dr. Woodward's report was accepted by the Board, and he was directed to present it at the meeting of the state secretaries to be held at headquarters, November 17 and 18.

COMMITTEE ON CULTS

In accordance with the resolution adopted by the House of Delegates at St. Louis at the last annual session of the Association (Proceedings of the House of Delegates, The Journal, June 3, 1922, p. 1713), the President of the Association, Dr. de Schweinitz, nominated as a special committee, to coöperate with the "Association of American Universities, the National Education Association, the Carnegie Foundation for the Advancement of Teaching, and Federation of State Medical Boards, . . . for the purpose of collecting and disseminating all reliable data and information in regard to the methods of the various systems of drugless therapy": Dr. Charles E. Humiston (chairman), Illinois; Dr. F. B. Lund, Massachusetts; Dr. John D. McLean, Pennsylvania; Dr. A. D. Dunn, Nebraska, and Dr. T. S. Cullen, Maryland.

MEMORIAL TABLETS AT HEADQUARTERS

The following resolution was unanimously adopted: That the President of the Association be authorized to appoint a committee of not less than three or more than five, including himself as chairman, in accordance with the resolution passed by the House of Delegates (Proceedings of the House of Delegates, The Journal, June 3, 1922, p. 1713) to study the subject of memorial tablets to be placed in the headquarters building, with especial reference to the placement of a tablet in memory of Dr. Joseph N. McCormack, as directed by the House of Delegates. The President, Dr. de Schweinitz, appointed Drs. Phillips, Simmons and Billings to act with him on this committee, with the understanding that the report be made to the Board of Trustees at the annual meeting in February, 1923.

ADVERTISING OF COMMERCIAL LABORATORIES

At a former meeting of the Board, a resolution was adopted directing the advertising department of The Journal not to accept advertisements of commercial laboratories in which the personnel, including consultants, and the prices of the various tests are mentioned. Following this action of the Board, the Advisory Advertising Committee at headquarters, which consists of six members and which meets every Thursday morning to consider applications for advertising in The Journal, held several conferences to consider the principles which should govern the acceptance of advertising of clinical pathologic laboratories. At the September meeting of the Executive Committee of the Board, the Advisory Advertising Committee presented the following report:

To the Board of Trustees:

Recommendations have been made to the Advertising Committee that in advertising commercial laboratories in The Journal, the names of the personnel, their qualifications for rendering service and the price to be charged for such tests should be omitted. Believing that such action was not in the interest either of the physician or of the public, the Advertising Committee submits the following brief:

Omission of Price.—The omission of price permits the man who calls himself a laboratory specialist to make charges for laboratory tests on a sliding scale. Such variations in price are not warranted by the character of the work done. It permits the laboratory man to be a superspecialist of the type which is being opposed in other branches of the profession. The status of the clinical pathologist is not the same as that of the internist or surgeon. The latter deals with variables—human beings. The former conducts manipulations on fixtures—inanimate substances. If the tests are scientifically performed, the results must be the same in the hands of all well-qualified men. Personality does not enter in; training does. It is known that when the prices are not generally known, some laboratories charge physicians unwarranted fees for services. At the same time, when prices are not made public, an unscrupulous physician may charge patients unwarranted prices for laboratory work. Such work as the Wassermann test, urinalyses, blood counts and similar technical procedures are standard *commodities* which can be furnished by persons of a certain minimum training at a reasonable fixed price which may be estimated and controlled through the advertising committee of The Journal.

Personnel.—The personnel is a variable factor in laboratory service. If, then, prices are to be made public, as we believe they should be, it naturally follows that, rather than omitting the names of the personnel, their inclusion in the advertisements should be encouraged. At least, the Advertising Committee must have the names in order to ascertain the training and competence of those doing the tests, and thus to judge whether or not the advertising is acceptable. In the interest of physician and public alike, it is desirable to make public both personnel and fees, and thus stimulate competition on the basis of the qualifications of those doing the work. The interests of the public are served by competition, provided that advertised claims are verified and honesty established; they are not served by the secrecy that would inevitably follow if advertising of laboratory service were limited merely to the names of individual clinical pathologists.

Consultants.—Only a few commercial laboratories now advertise a consulting staff. As far back as 1905, there appeared in The Journal laboratory advertisements with the names of the consulting staffs, so that precedent is available. Needless to state, a consulting staff which renders actual service to the laboratory in advising regarding methods and in standardizing the work increases the value of the service. It remains for The Journal, through its Advertising Committee and its Bureau of Investigation, to ascertain whether the consulting staff actually functions. Those laboratories which list names of "consultants" who lend only their names for purpose of advertising will not be permitted to advertise in The Journal. But a consulting staff which actually works may well be a worth while feature and should be encouraged.

It is to be especially emphasized that the advertising of commercial laboratories in The Journal is not addressed to the public but to the medical profession. Commercial laboratories whose advertisements are acceptable to The Journal do not perform services for the public except through the physician, and report only to the physician who sends the patient. Laboratories advertising in The Journal are asked to submit the name of the director, who must be a physician. They are also requested to submit statements of fees charged for routine tests.

In conclusion, the committee believes that the best interests of the medical profession and the public might be served through establishing a committee of the Association which would investigate and standardize laboratory service and check the claims made for various commercial institutions.

The Executive Committee received this report, and recommended that it be presented to the full Board at this meeting.

The subject of the character of the advertisements carried in The Journal, and especially of commercial laboratories, aroused general discussion by all of the members of the Board, by the President, the President-Elect, the General Manager, and by some members of the Advisory Advertising Committee who were invited to the conference. Finally, by resolution, the Board rescinded its former action and adopted the principles contained in the report of the Advertising Committee. In this connection the Executive Committee of the Board was directed to give close scrutiny to advertisements appearing in The Journal, and it was recommended that the Committee on Advertising endeavor to have the commercial laboratories make the circulars sent through the mails to the medical professional correspond in principle with the advertisements placed.

INDEXING THE CONTENTS OF THE JOURNAL

Attention was called to the new method of indexing the contents of each number of The Journal. This method was put into effect as an experiment, to be carried through the year. Many of the physicians who have written on the subject have emphasized the great advantage of this form of indexing.

SECRETARY OF THE ASSOCIATION

Dr. Billings, Chairman of the Executive Committee of the Board, stated that since the death of Dr. Craig the members of the Board of Trustees, the executive officers and others had made inquiries as to an available, qualified Fellow of the Association to fill the position of Secretary; that suggestions had been offered, and that some correspondence had been had with physicians mentioned for the position, but that nothing had been accomplished. Meantime, the work of the Secretary had been assigned to Dr. Olin West, who had filled the position of Field Secretary since April, 1922. Attention was called to the fact that Dr. West had had experience as Secretary of the Tennessee State Medical Association, and had a wide acquaintance with the medical profession of the country. After considerable discussion, Dr. Olin West was unanimously elected by the Board as Secretary of the Association to fill the vacancy created by the death of Dr. Craig.

LAY MEDICAL JOURNAL

The Board invited the Council on Health and Public Instruction to meet in joint session to reconsider the adopted and future policies of the Association in the publication of the health journal. Drs. Victor C. Vaughan, Haven Emerson and Milton Board of the Council on Health and Public Instruction were present.

By resolution, after free discussion, it was unanimously decided that the page-size of the health journal should be the same as that of The Journal. The title of the journal has been the subject of considerable discussion at numerous conferences of the Trustees, the Executive Committee and the Council on Health and Public Instruction. The name *Hygeia* was finally adopted, with the subtitle "A Journal of Individual and Community Health, Founded and Published by the American Medical Association." The price of the journal was tentatively established at $3 a year and 25 cents a copy.

Dr. Victor C. Vaughan, who is now giving his full time at Association headquarters to the organization and collection of material for *Hygeia,* presented a provisional table of the contents of the first number. The Board concurred in Dr. Vaughan's statement of the present understanding that the members of the Council on Health and Public Instruction are the editorial board of *Hygeia* and that for the present the executive editorial board at headquarters shall consist of Dr. Victor C. Vaughan with the cooperation of Drs. Morris Fishbein and Arthur J. Cramp of the editorial staff of The Journal.

The Board adjourned, subject to the call of the Secretary.

On Friday, November 17, all members of the Board, the President and President-Elect attended the Annual Conference of Secretaries of Constituent State Medical Associations.

On Saturday morning, November 18, the Board reconvened with Chairman Dowling presiding, all members of the Board, the President, the President-Elect and the General Manager, were in attendance.

MEMORIAL RESOLUTIONS ON THE DEATH OF DR. CRAIG

The Board ordered the Secretary to prepare resolutions expressive of its sentiments in regard to Dr. Alexander R. Craig. These resolutions read:

> The Board of Trustees is very mindful of the great loss sustained by the American Medical Association in the death of Dr. Craig, its Secretary since 1911. His counsel and advice in the many difficult problems which confronted the Association from time to time were especially valued. Always he was modest, patient, tolerant and able to see more than one side of a problem under discussion.
>
> His associates at headquarters and others who were fortunate enough to come in frequent contact with him respected him for his ability and efficiency as an official, and loved him for his manliness, gentleness and other qualities of a Christian gentleman.
>
> In placing these inadequate estimates of the splendid character of our departed friend in the minutes of the Board, we also extend our deep sympathy to his widow, who for many years shared his joys and sorrows, and who, we sincerely hope, will be sustained and comforted by treasured memories of a man whose life was characterized by the precepts of the Golden Rule.

SCIENTIFIC EXHIBIT

Dr. D. Chester Brown, Chairman of the Committee on Scientific Exhibit, presented a report in which he called attention to the splendid character of the exhibits made at St. Louis, and made suggestions for the general improvement of the Scientific Exhibit. The Board directed the committee to give consideration to the subject of the responsibility for the Scientific Exhibit, and to report at the meeting of the Board in February, 1923.

PUBLIC HEALTH EXHIBIT

Dr. Walter T. Williamson advocated the utility and need of a public health exhibit for the education of the general public in addition to the Scientific Exhibit. Mention was made of the public health exhibition given recently at Portland, Ore., under the auspices of the Oregon State Medical Association and the local medical, dental, pharmaceutical and nurses' organizations. The initiative for the public health exhibit at Portland, and in four or five other cities during the past year or longer, was due to the National Committee of Public Health officers, composed of representatives of the U. S. Public Health Service, the department of health of the several states, municipalities and others. The main purpose of these public health exhibits is to educate the public in health principles, and at the same time to discourage commercialism in public health exhibits, of which examples exist.

By resolution, the Board directed the Committee on Scientific Exhibit to investigate the question of public health exhibitions to be made under the auspices of the American Medical Association or in cooperation with the national committee of health directors here mentioned, and to report to the Board at the annual meeting in February, 1923.

The Board then adjourned.

Frank Billings,
Secretary, Board of Trustees.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

CALIFORNIA

Physician Put on Probation.—Dr. Daniel E. Mason, Oakland, was placed on probation for one year by the state board of medical examiners, for operating a cancer cure sanatorium in conjunction with an unlicensed person, recently.

Dr. Case's Petition Denied.—The state board of medical examiners, October 19, denied the petition of Dr. Elias P. Case, physician of Corning, to set aside its recent action in suspending his license for one year. Dr. Case's license was suspended after he had been convicted on a charge of obtaining money under false pretenses.

Hospital News.—A psychopathic ward will be erected at the Fresno County Hospital, Fresno, immediately, it is announced. It will be completed next year at a cost of approximately $75,000. Under present arrangements, it is necessary for alleged insane persons to be confined in the county jail until a lunacy commission can be summoned to determine their condition. When the new ward is completed, they will be confined at the hospital pending hearings. The children's ward and the contagious disease ward will also be remodeled.——A two-story fireproof addition will be erected at the Japanese Hospital, Los Angeles.——Construction work will be started in March, 1923, on a new $250,000 sanatorium for Alameda, it has been announced by the superintendent of the Alameda Sanatorium. The new institution will be three stories high and will be erected on the site of the present sanatorium.——The new Antelope Valley Hospital, Lancaster, was formally opened to the public, October 15.

COLORADO

Personal.—Dr. John H. Bush, Sterling, secretary of the Northeast Colorado Medical Society, has been appointed city health officer of Boulder to succeed Dr. John R. Barber who has removed to Portland, Ore., his former home.——Dr. Frederick S. Spearman, Rifle, has gone to Rice, Ariz., to take charge of a small hospital conducted by the Indian Service.——Dr. Gerald B. Webb, Colorado Springs, read papers before the meeting of the Northwestern Ohio Medical Society in Lima, recently.

Rehabilitation for Cured Tuberculous Patients.—A system of industrial rehabilitation for tuberculous patients who have been restored to health will be inaugurated by the Jewish Consumptives' Relief Society, immediately, it is announced. Abram Gideon, Ph.D., New York, will have charge of the new social service department, which will include operation of the industrial rehabilitation system and all other forms of contact between the society and the public. A factory will be opened on a small scale in which the patients will produce, under strict medical technical supervision, such merchandise as they can handle.

DISTRICT OF COLUMBIA

Dairy Congress. — The World's Dairy Congress Program Committee on Regulation and Control held a meeting in Washington, November 17. H. E. Van Norman, president of the congress, described conditions prevailing in the dairy countries of western Europe last summer. He stated that Canada is one of the leaders in the grading of butter and cream; while Holland, Denmark and Australia have worked out efficient systems of control over butter intended for export.

GEORGIA

New Health Council Appointed.—The Floyd County Health Council was recently formed in Rome with Dr. William H. Lewis, president, and Dr. Buena V. Elmore, secretary. The council was organized for the purpose of holding a series of public health lectures in order to instruct the public in the care and prevention of disease. The first lecture was given on cancer during Cancer Week.

ILLINOIS

Health Educational Program in Scott County.—In cooperation with the Winchester Women's Club, Dr. C. S. Nelson, district health superintendent of the state department of public health, carried out an extensive and successful public health educational program in Scott County during the week of November 12-18.

Revised Rules for Reporting Tuberculosis and Venereal Disease.—Rules and regulations of the state department of public health pertaining to reports of cases of tuberculosis and venereal diseases have recently been revised. A number of rather important changes were made relative to each of the diseases. Copies of the revised editions of the rules may be had on application to Dr. Isaac D. Rawlings, Springfield.

Library Offered to Medical Society.—Attorney Thomas Gill has offered the library of his brother, the late Dr. George P. Gill, to the Winnebago County Medical Society, provided the society will assume responsibility of creating and maintaining a medical library in Rockford. Dr. D. B. Penniman, president of the medical society, appointed a committee to confer with other organizations on the matter of accepting Dr. Gill's library.

Pasteurization Campaign Started.—The district health superintendents of the state department of public health have been instructed to start educational propaganda in favor of milk pasteurization in all cities of the state having 5,000 or more inhabitants. All such activity is to follow a prearranged plan, with a view of causing municipalities to adopt the model milk ordinance recently drafted and now recommended by the department. The ordinance was recently adopted in Rock Island, DeKalb and El Paso and is before city councils for action in a number of other places.

Public Welfare Conference.—The annual Illinois Conference on Public Welfare was held in East St. Louis, November 12-14, under the presidency of John L. Whitman of Chicago. Dr. Evans, chairman of the Illinois Board of Public Health Advisors, was appointed chairman of the committee on health and the physically handicapped. Among the visiting speakers were: Drs. Isaac D. Rawlings and C. W. East of Springfield; P. S. Winner, Elgin; Thomas H. Leonard, Lincoln; E. T. Sloan, Bloomington; J. M. Furstman, Peoria, and Harold N. Moyer and E. H. Ochsner of Chicago.

Hospital News.—Plans for a $60,000 addition to St. Charles Hospital, St. Charles, have been announced. A three-story annex for maternity cases will be built and a training school for nurses will be added.——The St. Mary's Hospital, a new institution at DeKalb, has recently been opened.——The foundations have been put in for the new nurses' home of Hammond City Hospital, Genesee.——The mayor of Girard has purchased a building which he is having remodeled for use as a hospital. It is expected that the institution will be ready for occupancy, Jan. 1, 1923.——Dr. George Greenbaum has purchased the residence of C. E. McClintock at Johnston City and will establish a hospital in the city.——Dr. Edward K. Disney, formerly head of the Municipal Hospital, Louisville, Ky., has been appointed medical director of Oak Knoll Sanatorium, the tuberculosis hospital for Tazewell County, Mackinaw.——The new 130 bed institution at St. John's Hospital, Springfield, is expected to be opened to the public in February, 1923.

INDIANA

Hospital News.—The Grant County Hospital, Marion, has been given a donation with which to outfit a laboratory.——The Union Hospital, Terre Haute, will open its new addition this month. Only a part of the wing will be used, but the entire addition will accommodate 100 patients. A campaign for funds is contemplated to supply equipment.

Medical Society Reorganized.—The first meeting of the Fifth District Medical Society since 1917 was held at Terre Haute, November 14. A banquet was held before the meeting. Dr. Jacob F. Smith, Brazil, was elected president; Dr. Alfred E. Rhein, Rosedale, vice president, and Dr. Charles Wyeth, Terre Haute, secretary. Dr. William A. Jenkins, professor of medicine and clinical medicine, University of Louisville, Medical Department, Louisville, Ky., was the guest of the evening, and gave an address.

IOWA

Personal.—Ruth Okey, Ph.D., has resigned from the biochemical laboratory of the University of Iowa Hospital, Iowa City, to take up the teaching of nutrition at the University of California.——The council of the Iowa State Medical Association has appointed Dr. Addison C. Page, Des Moines, treasurer of the association to succeed Dr. Thomas F. Duhigg, who resigned recently. Lieutenant Duhigg, U. S. Navy, sailed from San Francisco for a two-year cruise around the world with the Asiatic fleet. His place in Des Moines as examining surgeon for the naval recuiting office has been taken by Lieut. Zacariah A. Barker.

LOUISIANA

Résumé on Anatomy Sections.—The library of Tulane University School of Medicine, New Orleans, has published a résumé on the preservation of anatomy sections by Dr. Edmond Souchon, professor of anatomy at the university. A copy may be obtained by applying to the librarian of Tulane University School of Medicine, 1551 Canal Street, New Orleans.

Hospital News.—St. Luke's Private Sanatorium, New Orleans, recently converted from St. Simeon's school into a sanatorium, will be formally opened to the public this month. The institution is the enterprise of Dr. Benjamin F. Gallant, for many years superintendent of the Charity Hospital. In addition to about thirty private rooms and suites, there will be accommodations for about 100 patients.——The Knights of America, a fraternal order, will erect a sanatorium in the near future near Panchatoula, it is announced. The institution will have accommodation for twenty-four patients.

MARYLAND

Convention of Clinical Surgical Society.—The Clinical Surgical Society held a two-day convention at the Johns Hopkins Hospital, Baltimore, November 16-17. In addition to business sessions at the hospital, an inspection of the Johns Hopkins Hospital and clinics, the School of Hygiene and Public Health, Johns Hopkins University, and the Maryland University was made by the members, who came from all parts of the country to attend the meeting. Among the former Hopkins physicians present were Dr. Harvey Cushing and Dr. George Hoyer.

New Eye, Ear and Throat Dispensary.—Establishment at the Bay View General Hospital of a free eye, ear, nose and throat clinic, to be open three days a week for the benefit of children in the eastern section of Baltimore has been approved by the supervisors of city charities. This clinic will be in operation shortly and is intended to supply means of removing adenoids and tonsils for children of this district whose parents are without means. Facilities for such clinics will be provided by the health department in connection with the group of municipal hospital buildings to be erected at Montebello, but it will be some time before the new group is completed.

Convention of the Association of Hospital Social Workers.—The Middle Atlantic District of the Association of Hospital Workers held a two-day convention in Baltimore, November 21-22. The principal meeting during the convention was held, November 21, at Osler Hall, Medical and Chirurgical Faculty Building, with Dr. Winford H. Smith, director of the Johns Hopkins Hospital, presiding. Among the speakers on this occasion were Miss M. A. Cannon, executive secretary of the American Hospital Association committee on training, Dr. Esther L. Richards, Phipps Psychiatric Clinic, Johns Hopkins Hospital; Dr. Francis Lee Dunham, psychiatrist to the Maryland Child Labor Commission; J. Prentice Murphy, executive secretary of the children's bureau, Philadelphia, and Dr. George Bennet, Johns Hopkins Hospital. Various phases of social service work were under discussion on this occasion. On the afternoon of the 21st, a round-table discussion on psychiatric problems took place at the U. S. Veterans' Hospital, Fort McHenry; and on the afternoon of the 22d, another round-table discussion was held at the Henry Phipps Psychiatric Clinic, Johns Hopkins Hospital. Several hundred members of the association attended the convention.

MASSACHUSETTS

Boston Medical History Club.—A meeting of the club was held at the Boston Medical Library, November 17, in commemoration of the third centenary of the birth of Molière (1622). Dr. Joseph W. Courtney read a paper on "Molière and the Faculty."

Assistant Physicians Meet.—At the fifty-seventh annual meeting of the Massachusetts Association of Assistant Physicians in Boston, November 16, Dr. Arthur E. Pattrell, Boston, was elected president; Dr. Roderick B. Dexter, Boston, vice president, and Dr. Neil A. Dayton, Wrentham, secretary-treasurer.

Harvard University Appointments.—At a meeting of the president and fellows, October 30, it was voted to make the following appointments for one year, from Sept. 1, 1922: James Percy Baumberger, teaching fellow in physiology; Thomas J. Duffield, instructor in vital statistics; Harold V. Hyde, and Carl E. Johnson, assistants in anatomy; Walter W. Fray, Austin teaching fellow in bacteriology; Francis Browne Grinnell and Harry Weiss, assistants in bacteriology; M. R. Everett, teaching fellow in biologic chemistry; William Breed and Henry Jackson, Jr., assistants in medicine; Robert Bayley Osgood, professor of orthopedic surgery; Trevor G. Browne, Robert J. Kirkwood and Monroe J. Schlesinger, assistants in pathology; Michael J. Conroy, instructor in pathology; William J. Merle Scott, Arthur Tracy Cabot fellow in surgery; Harold Everett Smiley, Charles Follen Folsom teaching fellow in preventive medicine and epidemiology; Edwin T. Wyman, instructor in pediatrics, and Bronson Crothers, Robert D. Curtis, Paul Waldo Emerson, Martin J. English, Hyman Green, Francis Browne Grinnell, Arthur B. Lyon and Arthur R. Newson, assistants in pediatrics.

MICHIGAN

State Health News.—A specially prepared book, entitled "Your City," containing facts, figures and illustrations of venereal disease control measures in Michigan, was issued by the state department of health, in cooperation with the U. S. Public Health Service, and sent out to mayors of twenty-eight cities in the state, recently. Accompanying each book was a personal letter from Dr. R. M. Olin, state health commissioner.

MISSOURI

Public Health Lecture Course.—The advisory staff of the Tuberculosis Society of St. Louis, in cooperation with the St. Louis Medical Society Speaker's Bureau, are giving a course of eleven free public health lectures for all persons interested in health work. The lectures are given on the first and third Tuesday of each month at the Melbourne Hotel, St. Louis. The first of these lectures was delivered by Dr. M. P. Ravenel, professor of preventive medicine at the University of Missouri.

NEVADA

State Board of Medical Examiners.—Dr. William M. Edwards, Mason and Dr. Albert R. Da Costa, Reno, were appointed to the state board of medical examiners, November 16. Dr. Da Costa succeeds Dr. Arthur P. Lewis of Reno, who resigned recently.

NEW MEXICO

State Board of Public Welfare.—At a meeting of the board, November 20, eight new regulations were passed, together with complete revisions of four others as follows:

(1) Governing the operation of sewage disposal plants; (2) sanitation of public camp grounds; (3) the prevention of ophthalmia neonatorum; (4) the protection of records of births and deaths; (5) the sanitation of construction camps; (6) the construction and operation of public swimming pools and appurtenances; (7) the qualifications of certain county health officers; (8) the practice of midwifery; (9) the disposal, interment, disinterment and transportation of the dead; (10) the reporting of notifiable disease and accidents; (11) the reporting of births and deaths, and (12) the control of communicable diseases.

NEW YORK

Society News.—At a meeting in Brooklyn, November 21, the Kings County Medical Society went on record as unanimously opposing a number of questions pertaining to medical legislation which will be discussed at Syracuse, December 2, at a meeting of the Medical Society of the State of New York to formulate a definite policy and program to be submitted to the newly elected assembly. Group medicine, pay clinics, health centers, compulsory insurance, registration for the profession and the workmen's compensation law (in case of one not allowed to choose his own physician) were all disapproved, and the legislative committee of the society will voice this general opposition to these items at the Syracuse meeting.——Twenty new members were elected into the New York Society of Anesthetists at its November meeting. The program was a recognition of the seventy-fifth anniversary of the discovery of chloroform. Dr. Palmer, president of the California Society of Anesthetists, was the guest of honor. Instruments and apparatus were exhibited for constructive criticism. Dr. Charles H. Sanford, presided at the meeting. ——The New York Society for Clinical Psychiatry was organized, November 9, at the New York Academy of Medicine. Four meetings will be held yearly at the different psychiatric hospitals in the city. Dr. George H. Kirby, professor of psychiatry, Cornell University Medical College, was elected president of the society; Dr. William C. Garvin, superintendent, Kings Park State Hospital, vice president, and Dr. Louis Casamajor, professor of neurology, College of Physicians and Surgeons of Columbia University, elected secretary.

New York City

Addition to Rockefeller Institute.—John D. Rockefeller, Jr., has purchased the block bounded by Avenue A, Sixty-Third and Sixty-Fourth streets and East River, at a price of about $1,000,000. While the future use of the property has not been announced, it is understood that it will eventually be used for additional buildings of the Rockefeller Institute for Medical Research, which occupies the three adjoining blocks.

Personal.—Dr. Charles L. Gibson, professor of surgery, Cornell University Medical School, New York, was the guest of the St. Louis (Mo.) Surgical Society, November 8.——Dr. Henry D. Silver fell down the subway stairs recently, fracturing his left patella in four places. He was operated on by the open method and is now making a satisfactory recovery.——Dr. James A. Hamilton, commissioner of correction of the city of New York for several years, has been elected secretary of state for the state of New York on the Democratic ticket.——Prof. E. G. Conklin, Princeton University, delivered the anniversary discourse of the New York Academy of Medicine, November 2, on "Problems of Organic Adaptation."——Dr. Frankwood E. Williams, medical director of the National Committee for Mental Hygiene, delivered a lecture at the New York Academy of Medicine on the afternoon of November 22, under the auspices of the National Committee for Mental Hygiene, the Public Health Committee, Education Committee of the Medical Society of the County of New York and the New York Academy of Medicine.

NORTH CAROLINA

Hospital Convention.—The fifth annual meeting of the North Carolina Hospital Association was held at Wilson, November 2, under the presidency of Dr. John A. Williams, Greensboro. The following officers were elected for the ensuing year: Dr. Eugene B. Glenn, Asheville, president; Dr. Charles A. Woodard, Wilson, first vice president, and Dr. James R. Alexander, Charlotte, secretary-treasurer. The meeting closed with a banquet given by the Wilson County Medical Society.

OHIO

Epidemic of Rabies.—Twenty persons were recently bitten by mad dogs in Coshocton County and fifteen dogs have been killed as the result of an epidemic of rabies. Pasteur treatment was given the victims. Meetings are being held to plan action against the spread of the menace. In many rural districts, cattle have been attacked by rabid dogs.

Social Welfare Conference.—The thirty-second annual session of the Ohio Welfare Conference opened in Columbus, November 1-4, under the presidency of Dr. Walter H. Brown, director of the National Child Health Demonstration. Problems of public welfare were discussed and the means to disseminate information concerning philanthropic endeavor and to promote social reform. It was stated that the child health demonstration conducted at Mansfield for the last year is proving sucessful according to reports; and it is proposed to open the health center formally to the public. Dr. Brown said that the mayor of Mansfield, the health officer and members of the board of education had cooperated and helped the project in every way possible, physicians and dentists giving their time free. Through the Women's Federation, the Farm Bureau and the American Red Cross, a health census has been taken of Richland County; and, through the cooperation of the Richland County Medical Society and the Ashland-Richland County Dental Society, a series of demonstrations in health examinations of the children in the schools were conducted, also health institutes, lectures and pageants.

PENNSYLVANIA

Anniversary Meeting of Academy of Medicine.—The twenty-eighth anniversary of the Harrisburg Academy of Medicine was celebrated, November 24, in the Penn-Harris Hotel. Dr. Lawrence Litchfield, Pittsburgh, president of the State Medical Society of Pennsylvania, was the speaker of the evening. His subject was "Clinical Observation on the Management of the Diabetic and the Prediabetic."

National System to Test Shop Workers.—At the meeting of the National Personnel Association in Pittsburgh, recently, it was announced that psychologic and physical tests of prospective employees, to determine their fitness for positions, will be made the rule in all of the larger Erie industries. Mental defects and diseases must be cured before even common laborers will be acceptable in modern shop organizations.

Philadelphia

Conference of Industrial Physicians and Surgeons.—At the sixteenth annual conference held in Philadelphia, November 17, Dr. Frederick L. Van Sickle, secretary of the Medical Society of the State of Pennsylvania, spoke on "Revamping Medical Legislation in Pennsylvania." Other physicians present at the meeting were C. E. A. Winslow, professor of public health, Yale University, New Haven, Conn., and Dr. Royd R. Sayers, chief surgeon, U. S. Bureau of Mines, Washington, D. C.

Massed War on Tuberculosis.—The massing in three separate sections of all the city's facilities for fighting tuberculosis, to get a grip on the disease in those districts and to demonstrate the effectiveness of a well-ordered campaign against a rising tide of tuberculosis, is recommended in a survey by Dr. Murray P. Horwood of the Massachusetts Institute of Technology. This plan was indorsed, November 22, by the executive committee of the Philadelphia Health Council and Tuberculosis Committee. The campaign will extend over five years. Dispensary facilities, hospital beds and nurses for follow-up work would be obtained from the pooled resources of the Jefferson and Eaglesville hospitals and other agencies in the city. Three wards, in which foreign-born whites, native-born whites and negroes predominate, will be selected for the experiment.

SOUTH CAROLINA

Physician Sentenced to Prison.—Charged witn violation of the Harrison Narcotic Law, it is reported that Dr. David L. Bryson, Calhoun Falls, was found guilty in the federal court, recently, and sentenced to serve eighteen months in the Atlanta penitentiary. He was charged with dispensing narcotics unlawfully.

Personal.—Dr. Archibald E. Baker, Charleston, department editor of surgery of *Southern Medicine and Surgery*, is convalescing from an attack of dengue fever.——Dr. Baxter M. Haynes, Spartanburg, and Josiah S. Matthews, Denmark, have been appointed members of the state board of medical examiners.——Dr. Clough H. Blake, Greenwood, has been appointed a member of the city board of health.——Dr. William R. Wallace, Chester, has been elected a member of the executive committee of the state board of health.

VIRGINIA

Memorial for José Anselmo Lazo.—At a meeting of the Whitehead Medical Society, recently formed in honor of the late Dr. Richard Henry Whitehead, dean of the University of Virginia, by the medical students, it was decided to erect a tombstone at the grave of José Anselmo Lazo in the university cemetery. Lazo, a Nicaraguan by birth, entered the third year medical class of the university in 1918. In October of the same year, during the influenza epidemic, some of the medical students acted as nurses. Lazo volunteered, developed the disease, and died within four days.

State Medical Meeting.—At the fifty-third annual meeting of the Medical Society of Virginia, held in Norfolk, October 31-November 3, under the presidency of Dr. Edward C. S. Taliaferro, Norfolk, Dr. John Staige Davis of the University of Virginia was elected president for the ensuing year. Other officers elected were: vice presidents, Drs. Edwin L. Kendig, Victoria, George C. Griffith, Basic City, and Charles R. Grandy, Norfolk, and secretary-treasurer, Mr. George H. Winfrey (reelected). Dr. G. E. de Schweinitz, President of the American Medical Association, read a paper at the meeting. Dr. Frank Smithies, Chicago, was also a guest of the society.

WASHINGTON

Personal. — Dr. Jerry E. Vanderpool, Walla Walla, has been appointed county health officer to succeed Dr. W. G. Gowan.——Dr. Annie E. Reynolds, Tacoma, has been appointed assistant supreme medical examiner for the Women's Benefit Association, with headquarters at Port Huron, Mich.——Dr. Charles H. Doe, Tacoma, has gone to Europe for a year's study in European institutions.

WEST VIRGINIA

Personal.—Dr. Joseph C. Brown, Nallen, recently fractured his arm while cranking his automobile.——Dr. Lucian N. Yost has been appointed full-time health officer of Marion County.

WISCONSIN

Hospital News.—A new wing containing twenty beds and additional roentgen-ray and laboratory facilities will be erected at the Columbia Hospital, Milwaukee, of which Dr. William E. Kylie is superintendent.——The old Simpson Hospital at Tomah, closed during the World War, will be rehabilitated and operated by the city, it is announced.——The site has been selected for the new isolation hospital for Madison.

Physician Found Guilty.—In a malpractice suit that was brought by Frederick Kasten against Dr. Henry T. Brogan, West Allis, a verdict of guilty was found, and an assessment of damages aggregating $14,951 was made by the circuit court jury, recently, it is reported. Brogan, it was charged, attended Kasten's wife during childbirth, and through alleged negligence in a minor operation at the time, extracted 28 feet of intestine, the woman dying shortly afterward.

CANADA

Ontario Medical Association Convention.—The forty-third annual meeting of the association will be held in Windsor, Ont., May 29-June 1, 1923, under the presidency of Dr. Edward R. Secord, Brantford. The Essex County Medical Society will entertain the members of the provincial association, on this occasion.

McGill Memorial.—A stained-glass window was unveiled at McGill University, October 5, to three members of the faculty of medicine who were killed in the World War. It is dedicated to Lieut.-Col. John McCrae, author of the poem, "In Flanders' Fields," Lieut.-Col. R. P. Campbell and Lieut.-Col. H. B. Yates. Sir Arthur Currie, principal of the university, unveiled the window.

University News.—Applications for admission to the new school of graduate studies in the University of Toronto were recently passed on, when 263 graduates from twenty-two universities were registered.——Organization is under way at the University of Toronto to provide all students with free medical attention, by means of a fee of $1, levied generally.——The joint committee of the chamber of commerce of Hamilton, Ont., is now ready and waiting on the authorities of McMaster University, Toronto, to open negotiations relative to the transfer of the university to a site in Hamilton.——Applications for loans to returned soldiers received this year by the alumni federation of the University of Toronto number 188, and the total amount involved is $35,445. More than 60 per cent. of the applications are from medical students.——The University of Montreal was recently damaged by fire to the extent of $300,000. Radium valued at more than $100,000, which was kept in a fireproof vault, escaped destruction.

GENERAL

National Committee for Mental Hygiene.—The thirteenth annual meeting of the committee was held in New York, November 9. Dr. Walter B. James, New York, was reelected president of the committee; Drs. Charles W. Eliot, Bernard Sachs and William H. Welch, vice presidents, and Mr. Beers, secretary. Prof. Elton Mayo, University of Queensland, Australia, gave an address.

Assistantships at the University of Rome.—The Italian Medical Society of New York has been notified by the department of ophthalmology of the University of Rome that two assistantships without salary are offered to American medical graduates of Italian extraction. The living expenses of these assistants will be paid. Further information can be obtained from the above named society.

Lampert Milk Bill. — The consideration of the Lampert pure milk bill for the District of Columbia will be one of the subjects of legislation that will be taken up at the present session of Congress. Hearings have already been held on the measure by a subcommittee of the House. The proposed law safeguards the purity of milk sold to the public in the District of Columbia and prevents profiteering in its distribution.

Southern Medical Association.—At the sixteenth annual meeting of the association, held in Chattanooga, Tenn., November 13-16, under the presidency of Dr. Seale Harris, Birmingham, Ala., Dr. Walter S. Leathers, Oxford, Miss., was elected president, and Dr. Lawrence T. Royster, Norfolk, Va., vice president. Dr. Marye Y. Dabney, Birmingham, Ala., was appointed editor and publisher of the *Southern Medical Journal*, for a period of three years. Dr. Vilray P. Blair, St. Louis, was awarded the medal for the best individual display of plaster casts, moving pictures and drawings of the results of plastic surgery. The attendance totaled 1,866.

Millions for Oriental Medical Colleges.—The Laura Spellman Rockefeller Fund has offered $1,000,000, provided another $2,000,000 is raised, for additional buildings of the Seven Union Christian Colleges for Women in the Orient. A part of this sum has been raised. Of these seven colleges, one is in Japan, three in China and three in India, two of them being medical colleges. The women of Albany, N. Y., have pledged $5,000 for the new Albany ward in the Medical School for Women, Velore, India, of which Dr. Ida S. Scudder is principal. Dr. Scudder is in this country, lecturing in the larger cities to raise the stipulated amount, in order to receive the additional million.

Bequests and Donations.—The following bequests and donations have recently been announced:

Stanford University, San Francisco, $20,000, for the first unit of a new convalescent home for children, to be erected on the campus, by Mrs. Henry Crocker; twelve divisions of civic, alumni, medical and women's groups, $43,015; $10,000, by Seelah Chamberlain, and $10,000, anonymously; $7,500, by B. F. Schlesinger; $5,000, each, from Frank Anderson, J. Leroy Nickel, Mayo Newhall and John D. Hooper; $10,000, from manufacturers of the city; $2,500, each, from the Honolulu Oil Company and the Columbia Steel Corporation; $1,000, each, from Fleischmann Company, Miss E. Marian Warren, Welch & Co., Mrs. Hellman, Alaska Packing Company, John Breuner Co. and the Coffin Redington Co.; $1,500, from William F. Herrin, and $500, each, from William Fries, Guggenheim & Co., Mrs. E. J. Williams and Henry Keller, Los Angeles.

University of California, San Francisco, an endowment of $500,000, by Mrs. George William Hooper, in addition to the $2,000,000, already given the university by the Hooper Foundation.

For a children's hospital in Chicago: on the death of her five children without issue, the sum of $200,000, for the establishment of the Munn Hospital for Children, under the will of Mrs. Carrie Munn.

Eye, Ear, Nose and Throat Hospital, New Orleans, $100,000, by Mrs. Dibert.

Presbyterian Hospital, New York, $50,000; New York Orthopedic Hospital, $25,000; Babies' Hospital, $15,000, and the Women's Hospital, New York, $10,000, by the will of Mrs. Annie Hyde.

Lake View Hospital, Danville, Ill., $15,000, by Rochester Sandusky of Indianola, and $10,000, from Joseph Cannon of Danville.

Ohio State University, as an endowment fund for the library of the department of chemistry, $17,000, by Mr. Charles C. Sharp.

For the American Legion Veterans' Camp, at Tupper Lake, N. Y., $10,000, by Edwin Gould.

Goshen Emergency Hospital, Goshen, N. Y., $3,000, from the proceeds of a benefit dance.

Philadelphia Home for Incurables, and the Babies' Hospital of Philadelphia, each, $1,500, and the Pennsylvania Hospital, Philadelphia, $2,500, by the will of James Butterworth.

Presbyterian Old People's Home, Evanston, Ill., $2,500, by the will of Dr. Robert P. MacArthur of Chicago.

Elgin (Ill.) Health Center, $1,000, by the Elgin National Watch Co.

Dover General Hospital, Dover, N. J., $500, by the hook and ladder company of that city in recognition of services rendered to the members.

LATIN AMERICA

Personal.—Dr. Jenaro Escalona, a professor in the Mexico City Medical School, and Dr. C. Rodríguez Mendoza, quarantine officer at Veracruz, represented the Mexican government at the Sixth Latin American Medical Congress, held in Havana in November.——Dr. Antonio Diaz has been appointed president of the board of aldermen of the city of Morelia, Mexico.

Foot and Mouth Disease Congress.—The Second International Foot and Mouth Disease Congress convened at Rio de Janeiro in October. Extensive reports were made on preventive inoculation against the disease and on treatment. Dr. R. Kraus reported the transmission of the disease to guinea-pigs and rabbits, which materially facilitates experimental study of vaccination and treatment. Vesicles developed on the tongue and feet of the rabbits and guinea-pigs resembling the aphthae in the large animals and in man.

The Oswaldo Cruz Foundation.—A society has been organized in Brazil for the purpose of planning a suitable memorial tribute to Oswaldo Cruz. It was decided that the best tribute would be in the form of institutions and efforts to promote public health, and it now reports the offer of Dr. Guilherme Guinle to construct with his private means an institute for research on and treatment of cancer. The offer has been accepted and the *Brazil-Medico* states that the committee is consulting experts and studying ways and means to make the new institution a model. The *Folha Medica* relates that the society has already 400 members enrolled. Dr. Salles Guerra has been elected president; Dr. Guilherme Guinle, vice president; Dr. C. Fraga, secretary, and Dr. J. Pedroso, treasurer.

FOREIGN

Malmö's New Welander Home.—The *Hygienisk Revy* reports the inauguration of another institution for receiving and treating children with inherited syphilis until cured. This one is at Malmö, and owes its inception to Dr. C. Cronquist. Funds were obtained from a Welander home lottery and other sources.

Naval Medical Memorial.—Surgeon Vice Admiral Hill unveiled the memorial designed for the Royal Naval Hospital, Chatham, November 11, and Archdeacon Ingles, chaplain of the British navy, made the dedicatory address, in memory of the members of the medical corps who died during the World War.

Typhus in the Transvaal.—A serious outbreak of typhus fever was reported from the diamond fields in the vicinity of Kimberly, South Africa, recently. Twenty deaths from the disease were reported from Gong-Gong, twelve from Winters Rush and Longlands, and also from Delport. The disease has occurred only among the natives thus far.

Physician Donates to University.—Under the will of the late Arthur Marmaduke Sheild of London, provision is made for the founding of a Marmaduke Sheild Scholarship in human anatomy of the annual value of $500 on such terms and conditions as the board of medical studies of Cambridge University shall select. The remainder of his estate is bequeathed to the university medical department for general medical purposes, on the death of his sister.

London School of Tropical Medicine.—At the annual dinner held, November 1, it was announced by Sir Arthur Robinson of the ministry of health that a scheme was under consideration whereby the London School of Tropical Medicine would be incorporated with the new Institute of Hygiene, which was made possible by a gift from the Rockefeller Foundation of New York. Sir Havelock Charles said that, if the aspirations of the school were met, the support of the staff and students would be freely given the new arrangements.

Commercial Disinfection of Wool and Hair.—The advisory committee on anthrax, set up by the International Labor Organization, will meet in London, England, December 5, with Sir William Middlebrock in the chair. Belgium, France, Germany, India, Italy, Japan, South Africa, Spain and Sweden will send representatives. The United States, which has not joined the organization and will not be officially represented, is sending the chief of its biochemical division of the bureau of animal industry to act in an unofficial capacity.

International Cancer Research Society.—The *Nederlandsch Tijdschrift* relates that at the recent international conference at Amsterdam of workers on tar cancer, it was decided to organize an international society, and to call it the Leeuwenhoek Experimental Cancer Research Society, with its headquarters at Amsterdam. The gathering at Amsterdam in October has already been mentioned in these columns, page 1779. Antonj van Leeuwenhoek, the Dutch microscopist, 1623-1732, was a wealthy naturalist who is said to have discovered the red corpuscles, and was the first to see protozoa, bacterial chains and clumps, and he described the capillary circulation.

Russian Medical Congress.—The *Deutsche medizinische Wochenschrift* relates that the Sixth All-Russian Congress on Internal Medicine convened in September at Petrograd, with 500 members in attendance. Professor Kontschalowsky of Moscow presided and Dr. Seyfarth was the vice president. The latter is professor at Leipzig but is at present in charge of the German Hospital at Petrograd and representative of the German Red Cross. He presented a collection of medical books and delivered an address on his method of puncturing the sternum to obtain bone marrow for diagnostic purposes. More than 104 communications were presented to the congress, and Moscow was appointed for the next meeting, to convene in 1927. The Fifteenth All-Russian Surgical Congress met the same week in Petrograd, with 685 members, and 158 communications were read.

Psychiatric Congress.—The second congress of Scandinavian psychiatrists was held recently at Stockholm, after an interval of nearly ten years. Over eighty members were inscribed. The *Ugeskrift for Læger* mentions that the meetings were held in the fine auditorium of the Swedish Medical Association, which "filled with envy the eighteen Danish members present," The liveliest discussion was on the question of "Sterilization," introduced by A. Petrén. Wigert's communication on the "Care of the Insane Outside of Institutions" also led to much discussion. Sjöbring's address was on "The Constitution Problem," and J. Smith's on "Different Converging Inherited Taints and the Psychoses Resulting Therefrom." Evensen spoke on "Mental Tests for Adults," Ehrnroth on "Serous Meningitis," and Winther on "Psychic Changes After Epidemic Encephalitis," describing the observations at Copenhagen.

International Congress on Social Hygiene and Pasteur Centennial.—The *Presse médicale* announces that this congress, which had been appointed for December, has been postponed to May, 1923. It is to meet at Paris and form part of the official celebration by the city of Paris of the centennial of Pasteur, May, 1923. Roux, director of the Pasteur Institute is to preside, and Calmette and Breton are the vice presidents already appointed. This Paris celebration is planned to precede the main celebration at Strasbourg, which opens, June 1, with the unveiling of the Pasteur statue in University Place. The Pasteur centennial exposition will be inaugurated on that day and will keep open to October 30. Special medical and other meetings have been planned for June and July at Strasbourg, international congresses on tuberculosis, cancer, syphilis, child welfare work and hydrology, refrigeration, stock raising and gardens for the working classes. The general commissioner of the Strasbourg celebration is Dr. Borrel, professor of bacteriology and hygiene at the University of Strasbourg. Dr. G. Weiss, dean of the medical faculty, is the president of the committee of organization.

French Colonial Public Health Congress.—The *Journal de médecine* of Bordeaux brings a full report of this gathering at Marseilles, the Third Colonial Congress, with 439 members inscribed. Numerous important studies of tropical medicine were presented, eliciting lively discussions. The army and navy physicians stationed in the tropics were nearly all present, as well as many in civilian medical posts. The work of the congress was divided into four sections, medicine, hygiene, hospitals and prophylaxis. The main addresses were published beforehand, and were presented to the members on arriving, forming a volume of 542 pages. Among the principles emphasized was the necessity for European nations realizing that the Europeans in the colonies are often the ones that bring and spread diseases, and that local medical officers must realize their responsibility, and the imperious duty of protecting the natives, especially the children, against these imported maladies. It seemed to be the general opinion that medical treatment should be preferred for amebic abscess of the liver, leaving to the surgeon only the encysted, dead abscess. Emetin can cure acute amebic dysentery but seldom cures the chronic form.

Personal.—Prof. L. S. Fridericia of Copenhagen has been decorated with the Swedish Order of Vasa.——Dr. Jiménez Encinas, a well known laryngologist of Madrid, was recently summoned to his home town, Monda, to be present at the unveiling of a memorial tablet on the house where he was born and preside at a banquet in his honor. A dedicatory address on vellum was also presented to him by the city authorities.——Dr. Richard Sievers of Helsingfors was elected honorary member of the Finland Medical Association on the occasion of his seventieth birthday, recently.——A gold medal and album were presented, October 10, to Dr. A. Lanari on the completion of his term as dean of the medical department of the University of Buenos Aires.——A party of French physicians and officials of the public health service have been visiting the tuberculosis sanatoriums and preventoriums of Milan, Bologna and Turin and their vicinity.——A banquet was tendered Dr. Calleja, professor of histology at the University of Madrid, on the occasion of his fiftieth professional anniversary.——The *Medicina Ibera* mentions the arrival at Madrid of Prof. M. R. Castex of the University of Buenos Aires, one of the three directors of the *Prensa Médica Argentina.* He is on a tour through the medical centers of Europe.——Dr. Bordet, of the Bordet-Wassermann reaction, has been given an honorary degree by the University of Paris. He is professor of bacteriology at Brussels.

Belgian Congress on the Venereal Peril.—The Belgian League to Repress the Spread of Venereal Diseases organized recently a series of public conferences at Brussels, the first national congress on the venereal peril, held in the large hall of the Palais des Académies. On the platform were two members of the cabinet, the governor, the president of the lower house, and Drs. Bayet, Morelle and Dandoy, with Mme. Derscheidt, the organizer of the "home familial" for the soldiers, and Miss Burls, secretary of the league. Dr. Bayet spoke on the extent of the ravages of syphilis, the modern methods of diagnosis having revealed its previously incredible prevalence. Leredde called the syphilis spirochete "the most intelligent of parasites. It starts in with lesions so insignificant that the subject does not heed them, and by the time it is recognized the entire system is contaminated. . . . Most, if not all, malformations are due to inherited syphilis, from hare-lip to absolute idiocy. . . . The physician has powerful weapons at his disposal to combat syphilis, but he must dare and know how to detect it and treat it before pregnancy, during pregnancy, and in the child." Those who spoke on gonorrhea said that modern progress has been meager in the matter of combating gonorrhea. The gonococcus succumbs to a temperature of 42 C., and this has given encouraging results in some cases, but not in all, and the results of vaccine treatment have been irregular. "The physician must have the courage to forbid marriage as long as symptoms persist."

Deaths in Other Countries

Dr. **Cyril L. Clarke,** mayor of Peterborough, South Australia, was killed in an automobile accident, September 16. ——Dr. **P. C. Woudberg** of Wellington, South Africa.——Dr. **J. F. Hoare** of London, England, at Ladybrand, South Africa, October 7.——Dr. **Alexander C. Brown,** emeritus professor of chemistry in the University of Edinburgh; winner of the Keith prize in 1875; October 28, aged 84.——Dr. **George Rendle,** secretary of the Medical School of St. Thomas' Hospital, London, in October.——Dr. **Lachlan G. Fraser,** surgeon to the Tynemouth Infirmary, president of the North of England Branch of the British Medical Association, October 5, at North Shields.——Dr. **G. Wallace-James** of Haddington, England, October 19.——Lieut.-Col. **Robert T. Beamish,** R. A. M. C., retired, October 26, in London.——Dr. **P. Briquel,** formerly professor of pathologic anatomy at the University of Nancy.——Dr. **P. Mantel** of Paris, aged 64.——Dr. **G. Watrin** of Liége.——Dr. **Germán Valenzuela Basterrica** of Santiago, surgeon to the San Juan Hospital.——Dr. **Manuel Rodríguez,** physician in charge of the dispensaries of Santiago. The *Revista de Beneficencia Pública* states that he succumbed to typhus.——Dr. **F. Ciá,** dean of the profession at La Plata.——Dr. **P. Osorio** of Bagé, Brazil.——Dr. **O. Zippel** of Hamburg, aged 59.

Government Services

U. S. Veterans' Bureau Activities

Major Leon Fraser, former executive officer of the U. S. Veterans' Bureau, who left the United States, June 24, to make a survey of conditions affecting the bureau's beneficiaries in Europe and also to gather data as to what foreign countries are doing for their war-disabled, reports to the director that beneficiaries resident in Europe are receiving satisfactory care through the offices of the U. S. consular service and the U. S. Public Health Service officers attached to American legations; in fact, that an European office of the bureau will not be necessary. Germany with 3,800,000 pensioners is spending only $7,000,000 annually, whereas the United States expends approximately $500,000,000 annually. In France, the disabled veteran is allowed to travel on the state railways at one-fourth the regular fare; is exempt from many taxes, and is protected against increased rent. Major Fraser states that the foreign nations are having the same hospitalization difficulties as the United States, particularly with regard to mental diseases. England with more than 2,000,000 disabled men has fewer than 80,000 in vocational training service. Russia pays the highest for a disability, namely, 30 per cent., while England and France pay as low as 10 per cent. A recent innovation in the eighth district (Chicago) is the placing of a district office man in the field to act as district representative in all financial matters. This scheme fills a long felt need.

A new program and plan for the care and treatment of disabled ex-service men will be put into effect by President Harding within the next week, when the national executive will make a public announcement from the White House. Immediate construction of at least thirty-one modern hospitals and a reorganization of the methods of administration in the U. S. Veterans' Bureau are among the changes that will be inaugurated. There will also be a revision of the regulations for admittance to the government-owned institutions, and sufficient accommodations will be provided to prevent any delay in the admission of any applicant. Mental ailments that have caused no end of unsatisfactory response to treatment are to be cared for in hospitals especially constructed for such cases. The President's special board of hospitalization has completed its work and is ready to make it public. An exhaustive study has been conducted under the supervision of Dr. W. C. White, head of the committee on hospitalization.

The U. S. Veterans' Bureau issued Regulation 13, November 7, relative to the sale of by-products of occupational therapy. This regulation, which concerns articles made only at bureau hospitals, does not concern by-products of the activities of vocation training courses of the bureau covered in Regulation 29. This regulation provides that the articles made in the course of occupational therapy treatment shall be of a type that will have salable value, and will be the property of the government to be disposed of by a board of appraisers in the following manner: (*a*) sold without favoritism at a price fixed by the board of appraisers; (*b*) sold to the patient for the cost of material only; (*c*) salvaged when defective by reason of unskilled workmanship or faulty design, or (*d*) given to the patient when he makes a similar article, equivalent in material, value and design, for the government.

Hospitals Authorized

The Secretary of War has authorized the organization of the following hospitals, organized reserves:

General Hospital No. 70 (City Hospital Unit, Worcester, Mass.).

Evacuation Hospital No. 18 (Methodist Episcopal Hospital Unit, Indianapolis, Ind.).

Col. C. B. McCulloch, M. O. R. C., Indianapolis, Ind., has been assigned as commanding officer of General Hospital No. 70.

World War Veteran a Leper

U. S. Public Health Service officials this week took charge of Getulio Le Abelino, a native of the Philippines and an ex-service man, who was declared to be a leper after an examination by Washington, D. C., health officials. Abelino was taken to the United States leprosarium at Carville, La. He came to Washington to consult the U. S. Veterans' Bureau regarding compensation due him as a result of disabilities due to service in the World War.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Nov. 8, 1922.

Outbreak of Smallpox in London

A serious outbreak of smallpox has occurred in London. It began, October 27, at St. Andrew's Hospital, Bromley-by-Bow (in the east end), when the rash appeared on an inmate admitted from the Poplar workhouse on the 24th. The same evening, vaccination of the immediate contacts was begun, and subsequently the staff and nearly all of the inmates were revaccinated. On the 28th, five cases were discovered in the Poplar workhouse, which was at once quarantined. The inmates having smallpox were removed to a hospital, and disinfection was carried out. All the inmates were carefully examined. The dates of onset indicated that the five patients had been infected from one source, about October 13 to 15. Inquiry disclosed that a person who had fallen ill about that date had the rash of smallpox. Where the disease was contracted was not known. Other cases followed; and altogether thirty-eight cases occurred, with eleven deaths, including four outside the institution in persons connected with it.

The outbreak, which threatened to be extensive, now appears to be over, thanks to the alertness of the medical staff. All over London, vaccinations are being performed. In view of the neglect of vaccination, they are very necessary. Curiously, persons who at ordinary times regard vaccination as useless alter their view when confronted with the danger of smallpox. The ministry of health has issued memoranda enjoining vaccination. Only 40 per cent. of the babies are now being vaccinated, which greatly increases the risk of an epidemic. Health officers are authorized to vaccinate contacts; but the primary responsibility for vaccination at the public expense remains with boards of guardians (poor law authorities). District medical officers attending a case of smallpox are entitled to payment from the guardians for vaccinating any person resident in the house. The prompt vaccination of children between the ages of 6 months and 14 years is recommended; also of children under 6 months, in infected localities. On receipt of a notification of smallpox, the public vaccinator should offer to vaccinate all the inmates of the house. In ordinary circumstances it is held that no infant should be vaccinated under the age of 2 months, but it is recommended that younger infants be vaccinated if exposed to infection. Health officers are asked to examine the weekly statistical returns, so that the liability of any district to the disease shall be recognized early. Compulsory notification of chickenpox is advised if an extensive outbreak of smallpox appears probable. Every person suffering from smallpox should be removed to the smallpox hospital. Removal may be ordered by a justice, if required.

An Ex-Lord Chancellor on Professional Secrecy

The ex-lord chancellor, Lord Birkenhead, has published two volumes of essays entitled "Points of View," in which among other subjects, he discusses the question, "Should a doctor tell?" He states that the whole tendency of our law for many years has been in the direction of opening the mouths of those who can assist the course of justice, and not in the direction of closing them; in reducing those classes whose testimony, for whatever reason, cannot be accepted in a court of law, rather than in increasing them; and, in this, as in other matters, breaking down barriers of privilege. The obligation of silence with regard to professional communications to lawyers has, on the other hand, become more extensive; but it has grown under the hand of the judiciary, who can be trusted to curb any abuse of it. The obligation is not such as is claimed for physicians. To establish a class which, at its will, assists or obstructs the judges in their work would be a retrograde step. "Is the physician's first duty," he asks, "to the patient or to the state?" He declares that no case can be made out for privilege when privilege may come in conflict with law. The physician must tell all he knows about his patient, no matter what pain the telling may cause innocent people. No general statutory prohibition against disclosure by the physician in the witness box is consistent with the administration of justice.

Lord Birkenhead condemns even the tactful way in which, in a well known case, a physician voiced his suspicions that his patient was being poisoned, although no one prepared or administered the food except the patient's wife. Looking her steadily in the face, he said: "Were it not that I know that you prepared his food, I should have said that he was dying of poisoning." The consequences were that the patient began to mend, and that his wife eloped with another man. Lord Birkenhead thinks that the physician should have denounced the wife to the police. He overlooks the fact that the physician only suspected poisoning, and that if he had denounced the wife and his opinion had proved wrong, the consequences for him would have been serious. He also loses sight of the importance of the confidential relation between physician and patient. To abolish this would not serve the ends of justice. It would only prevent the physician's being allowed to treat disease in cases in which disclosure would be feared. The consequence would be injury to the community, whose interests Lord Birkenhead professes to have at heart.

A Physician's Retort to the Parson

At a meeting of the Wigton (Cumberland) Rural District Council, the Rev. J. Ewbank remarked that, despite medical science, infectious cases continually cropped up. The health officer, Dr. Briggs, replied, amid much laughter: "I may remind the speaker that the profession to which he belongs has been trying to put down sin for 2,000 years, but has not succeeded yet."

Arsphenamin Fatalities

In a letter to the *British Medical Journal,* E. C. Grey, the professor of chemistry, and R. S. A. Heathcote, professor of pharmacology of the Government Medical School, Cairo, call attention to an error in attributing toxic effects to faulty manufacture of arsphenamin. One fatality and some toxic phenomena were observed at the Lock Hospital, Cairo, and some of the arsphenamin ampules were handed to them for examination and investigation. The tubes were suspected of being faulty and of allowing decomposition of the contents, because, when immersed in alcohol, the contents became sticky and adhered to the glass. It was thought that the alcohol had penetrated into the interior. But the stickiness did not appear until after withdrawal from the alcohol, and lasted only a brief time, after which the contents became powdery as before. The phenomenon was exaggerated when ether was used in place of alcohol.

This gave the clue. When the ampules were plunged into ice, the powder adhered even more tightly to the glass. This may be explained by the fact that in all the cases, the cooling increases the partial vacuum in the ampule, especially of the spaces between the particles of light powder and between the powder and the walls of the ampule, because the glass and the powder conduct and absorb heat more quickly and to a greater degree than the air within the ampules. The particles brought together by contraction of the imprisoned air adhere by cohesive force until shaken apart. The phenomenon appears to occur only with certain powders. It does not show that the ampules are unsound. Thus, again, the explanation of arsphenamin fatalities by some adventitious cause, whether in the drug, its mode of administration, or in the patient, breaks down. We come back to the fact, never adequately grasped because never satisfactorily explained, that arsphenamin, however correctly administered, is in some cases a deadly poison.

PARIS

(From Our Regular Correspondent)

Nov. 3, 1922.

The Progress of Urology in France

Three new chairs of urology have been created in France since 1920, at Lyons, Nancy and Montpellier. Prof. Emile Jeanbrau has been appointed to the chair at Montpellier. Jeanbrau has become known through his excellent works, to which I referred in a previous letter (The Journal, Nov. 26, 1921, p. 1749). He recently inaugurated his course by an instructive lecture on the part that France has played in the genesis and progress of urology. Jeanbrau states that suprapubic lithotomy was used on the living the first time successfully in France. It was described in detail by Rousset, a physician of Montpellier, who studied this operation so carefully on the cadaver that he was able in his book to formulate the technic in a very precise manner. However, suprapubic lithotomy was not to be reintroduced in France, where it first saw the light, until 1727, when it was brought in by Morand, who made the journey to London to learn it from Cheselden. Morand, furthermore, is to be praised for thinking out and applying the Trendelenburg position 150 years before the man whose name it now bears.

But it was especially during the course of the nineteenth century that France contributed mightily to the progress in urology, by creating, on the one hand, an ingenious stock of technical tools (instruments and procedures pertaining to catheterization, lithotrity, urethrotomy, endoscopy, ureteral catheterization), and, on the other hand, by introducing scientific urology as a substitute for empiric urology. It was due especially to Guyon and Albarran, the two great leaders of the school of the Hôpital Necker, that the fundamental principles of the pathologic physiology of the kidneys and the bladder were discovered; the great syndromes of urinary pathology, such as pyuria, hematuria and urinary infection, reduced to order, and the laws respecting the functioning of healthy and diseased kidneys formulated. At the International Congress of Urology, held in 1910, Professor Israel (Germany) paid just homage to Guyon with these words: "All the urologists in the world, whether they know it or not, have been his pupils." It is likewise due to the French works of Widal, Achard, Teissier and others that the study of nephritis has been established on an entirely new basis.

As Jeanbrau has so well said, urology does not in our day present itself as a specialty desirous of isolation and jealous of its independence, but rather as eager to absorb the nutrient juices of pathologic histology, experimental physiology, bacteriology, physics and chemistry, in order to furnish in exchange notions of general pathology applicable to medicine and surgery as a whole.

Comparative Statistics of Students at the University of Paris in 1921 and 1922

The University of Paris recently published comparative statistics of students matriculated in 1921 and 1922. July 31, 1921, the total matriculation reached 21,185 (17,993 men and 3,192 women). In 1922 the number had grown to 21,612 (18,066 men and 3,546 women), or an increase of 427 students. The department most strongly represented in 1922 was law. Then came medicine, with 4,639 students (738 women); belles-lettres, with 3,381 students (1,450 women); sciences, with 3,179 students (532 women) and pharmacy, with 743 students (234 women). The department in which the most women are enrolled is that of belles-lettres (1,450 women as against 1,931 men). From 1921 to 1922 the number of French students at the University of Paris increased by 959, while the number of foreigners decreased by 332. Of the 4,639 students enrolled in the department of medicine in 1922, 3,828 were Frenchmen and 811 foreigners, a decrease of 134 Frenchmen and 113 foreigners.

The Celebration of the Centenary of Pasteur

The ceremonies that will be held in the Pasteur Institute will include the convocation, under the auspices of the Pasteur Institute and the relatives of Pasteur, of representatives of all the societies of which Pasteur was a member. These representatives will speak of the part he took in the work of the various societies, following which a visit will be paid to the tomb of Pasteur. There will be an exhibit of relics of the scientist that have been carefully preserved by the Institute; more particularly, apparatus used by the master in making his researches. A commemorative medal will be struck, and the invited guests will each receive one as a souvenir of the occasion. The medal will bear the inscription: Hundredth anniversary of the birth of Pasteur, 1822-1922.

The Distress of Our Laboratories

In several previous letters I have referred to the fact that our laboratories are lacking in financial resources, and that they find it difficult to supply what is indispensable in the way of instruments and to secure the new men needed. This state of affairs, so profoundly regrettable, was clearly brought out at a recent meeting of a group of scientists held under the auspices of the *Bienvenue française,* to which representatives of the lay press had been invited. Two ways are open to remedy the situation. Professor Appel, rector of the University of Paris, has announced that a national committee for the aid of scientific research has been founded. It is also planned to address an appeal to Monsieur Poincaré, president of the council of ministers, to authorize, in connection with the centenary of Pasteur, a *journée nationale* in favor of our laboratories.

A Partnership Between Two Physicians

The voluntary surrender of a medical clientage, although it is often carried out in actual practice, is not considered in French law as a legal act, since it deals with something that is not a commercial product. In that connection, the question arises whether an agreement is valid by which a physician contracts to introduce and recommend another physician to his clients. What shall we say of articles of partnership according to the terms of which one party to the contract—a physician—contributes his clientage, and the other party furnishes a certain sum of money? The Court of Appeals of Paris recently annulled a contract of this nature. A physician who for eight years had practiced medicine in a certain city, where, according to his declaration, he had built up an extensive practice that brought him in a minimum of 45,000 francs annually, wished to secure a confrère as an associate partner in order that better care might be given his clientage. He accordingly associated with himself another physician, in order to practice together and conjointly the profession of medicine for an indefinite period, it being understood and agreed that the two parties to the contract should share equally the total amount collected in fees. This form of cooperation was accepted by the confrère, who agreed to pay in return the sum of 40,000 francs, 20,000 francs of which was to be paid the day that he began to function in his new position, and the balance to be retained by him among the receipts.

The civil tribunal of the department of the Seine gave its decision to the effect that this partnership was legal in its aspects; but the Court of Appeals of Paris held a different opinion and annulled the contract, basing the decision on the fact that the patients, according to the terms of the contract, were to be divided equally between the two physicians without distinction as to the character and needs of the clients, the result being that the two physicians would visit alternately the same patient, so that the latter was not free in his choice of a physician. Consequently, the court held that "the clientage of a physician rests solely on the confidence of the patients."

Awarding of Prizes by the Academy of Sciences

From the Montyon prize fund, the Academy of Sciences has awarded several prizes: 2,500 francs to Dr. Charles Dopter, professor in the Ecole d'application de médecine et de pharmacie militaires of Val-de-Grâce; 2,500 francs to Monsieur Eugène Wollmann, director of the laboratory of the Pasteur Institute; 2,500 francs to Dr. Edmond Lesné, physician to the hospitals of Paris, and 2,500 francs to Dr. Léon Binet, director of the laboratory of the Faculté de médecine of Paris.

Death of Dr. J. Janicot

Dr. J. Janicot, formerly chief editor of the *Bulletin médical,* which office he filled for more than thirty years, has died, at the age of 75.

MADRID

(From Our Regular Correspondent)

Oct. 27, 1922.

Medical Conditions in the Central Plateau of Spain

Dr. Yagüe, gastro-enterologist, who has resided for years in Madrid, revisited the towns where he first practiced, and, on his return, gave an illustrated lecture based on his survey. It is saddening to return to those towns, where years and decades go by bringing no change, and where modern ideas divide the people into sects without increasing the general culture. In comparing present conditions with those existing thirty-eight years ago, Dr. Yagüe said: "The intellectual level has not risen at all. The improvement in the means of communication does not seem to have influenced it. A typical town some time ago had no roads; now it possesses two, which give the town three outlets and ready access to the capital of the province; but there are no signs of improvement."

Dr. Yagüe says, without hesitation: "I would again go through all my suffering just to get away and forge ahead. For years, many years, I lived just to work. But I would begin anew rather than return to that field where I began and which I deserted." Indeed, he was only too glad to get away from that vast steppe with its bare lands, where in summer the sun burns the stones, since there are not trees to protect them, and where the only plants are thorny grasses and dwarfed bushes. No birds are in sight, and the only sound is the howling of the wind in the winter.

An idea of the physician's life in such villages is illustrated by an episode in Yagüe's practice. One of the shepherd boys wintering cattle in Valencia contracted malaria. The disease was so serious that he was forced to return, prostrated with anemia. He was just recovering when he developed lobar pneumonia. Dr. Yagüe treated him according to indications. The parents, however, insisted on his bleeding the boy. He refused, as the patient's condition did not justify such a step. Then they went to protest to the mayor and the judge, asking for "justice on behalf of their son's blood." Dr. Yagüe suggested a consultation with another physician, but the patient was a charity case and the parents pleaded their poverty. In the meantime, the disease had reached its crisis, with a favorable prognosis. This was fortunate, as otherwise something unpleasant might have befallen the physician in charge. The one redeeming feature seen by Yagüe was the change for the better in the medical profession. Thanks to the strength derived from organization and close cooperation, physicians in the small towns are winning for themselves a more independent and dignified position.

Plague in Barcelona

A few cases of bubonic plague have been reported from Barcelona. To combat the disease at its start, Dr. Martin Salazar, the director general of public health, assumed charge personally. On his return to Madrid, he made the following statement for The Journal: Since 1905, small outbreaks of plague have occurred repeatedly at Barcelona. It is asserted that they are of foreign origin, as Barcelona trades extensively with Eastern countries and world ports in general. Some of the more recent outbreaks seem, however, to be due to latent epizootics in rats. As for the present epidemic, there is doubt as to its originating in an imported focus, as the port was built ratproof and the patients were employees of inland shops having no contact with the seagoing population. The foci were in flour mills and grain storehouses about the railroad station for Bilbao and Irún (French frontier) trains. There were twelve cases, with a 30 per cent. death rate. The most serious feature of the epidemic was the presence of infection in rats in the Northern Railway station, as shown by laboratory examinations.

The usual antiplague measures have been enforced. The authorities are carrying out a vigorous deratization campaign, and have succeeded in interesting the people in it. All storehouse owners are compelled to take similar action, being punished if they fail to do so. Antiplague vaccine is administered to all coming in contact with patients, or living or working on the same premises. Thus, if a case of plague occurs in a biscuit factory, the place is closed and antirat measures are taken. On reopening, employees before securing work must submit to immunization with antiplague vaccine. The port is free from plague, not a single case occurring among the people employed there. As a further precaution, measures for cleanliness have been pushed, rats have been trapped all along the harbor front, all workingmen have been vaccinated against plague, and disinfection measures are thoroughly enforced.

Marriages

Malvine I. Judell, San Francisco, to Prof. Alfred von Decastello of Vienna, Austria, October 24, at Vienna.

Henry Bernard Hibbe, Oak Park, Ill., to Miss Marjorie McCollins of Davenport, Iowa, at Dubuque, recently.

Albert W. Pigott, Tylertown, Miss., to Miss Olga C. Hammer of Odin, Minn., at New Orleans, recently.

DeWitt Ray Austin, Charlotte, N. C., to Miss Allie Margaret West of Marshall, N. C., September 20.

Oscar Hunter McClung, Lexington, Va., to Miss Nancy Bourne Wayland of Corzet, Va., October 11.

Lola D. Clark Mighell to Mr. Glenn Kenderdine, both of Iowa City, at Cedar Rapids, Iowa, recently.

Joseph C. Jones, Spearman, Texas, to Miss Claudia Irene Claypool of Waco, Texas, November 13.

Leo Jermain Camche, Williamsport, Pa., to Miss Anna Ruth Daniels of Brooklyn, recently.

Forrest M. Barfield, to Miss Dorothy Virginia Orr, both of Atlanta, Ga., November 2.

Helen Irene Ahrens to Mr. Roy Carey, both of Portland, Ore., at Seattle, October 14.

Deaths

Albert Henry Buck, Cornwall, N. Y.; Medical Department of Columbia College, New York, 1867; clinical professor of diseases of the ear, College of Physicians and Surgeons, Columbia, 1888-1904; one of the founders and first president of the New York Otological Society; edited the first two editions of the "Reference Handbook of Medical Sciences," and author of several medical books; died, November 15, aged 80, from senility.

Sylvester Daniel Fox, St. Louis; Beaumont Hospital Medical College, St. Louis, 1898; member of the Missouri State Medical Association; on the staff of the St. Louis City Hospital; served in the M. C., U. S. Army, during the World War; aged 46; died, November 12, at U. S. Public Health Service Hospital No. 35, from pleurisy.

Grahame D. Johnson, Reading, Pa.; Medical School of Harvard University, Boston, 1896; aged 57; for sometime a patient in the Pennsylvania Hospital for Mental Diseases, Philadelphia; his body was found, weighted with bricks, in the Schuylkill River at Philadelphia, November 11; presumably a suicide.

Adelaide E. Merritt Hunt, Providence, R. I.; New York Medical College and Hospital for Women, Homeopathic, New York, 1878; died, October 24, aged 78, at the State Hospital, Scranton, Pa., as the result of exposure and lack of food, while lost in the mountains west of Scranton.

George A. Still, Kirksville, Mo.; Northwestern University Medical School, Chicago, 1904; president and professor of surgery of the American School of Osteopathy; aged 40; was accidentally shot and instantly killed, November 24, while showing his revolver to some friends.

Thomas William Pallister Flinn, Halifax, N. S.; Bellevue Hospital Medical College, New York, 1874; United States immigration medical officer for the Port of Halifax; formerly assistant inspector for the New York State Board of Health; died, November 9, aged 72.

Arthur Magill Buchanan, McColl, S. C.; University of the South Medical Department (Sewanee Medical College), Sewanee, Tenn., 1904; member of the Tennessee State Medical Association; died suddenly, November 5, aged 41, from acute dilatation of the heart.

John Joseph Twohey ⊕ Buffalo; Niagara University Medical Department, Buffalo, 1888; member of the American Psychiatric Association; medical superintendent of the Providence Retreat; aged 61; died, October 29, from uremia and chronic nephritis.

Frank Meagher Boyle, Anchorage, Alaska; Medico-Chirurgical Faculty of Philadelphia, 1895; formerly member of the state legislature; founded hospitals in Valdez and Anchorage; aged 49; died, November 7, at the Meadows Sanatorium, Seattle.

Elchana Gardner Ford, Troy, Ala. (licensed, Alabama, 1878); member of the Medical Association of Alabama; Confederate veteran; aged 81; died, November 3, at the home of his son in Bradleyton, from mitral insufficiency.

John N. Records, Franklin, Ind.; Medical Department, University of Louisville, Ky., 1894; member of the Indiana State Medical Association; formerly postmaster of Franklin; died, November 14, aged 60, from chronic nephritis.

Jesse Eugene Thomson ⊕ Rutland, Vt.; Medical Department of the University of the City of New York, 1878; formerly member of the state legislature; aged 69; died suddenly, November 12, from heart disease.

Luther Denison Harrison, Clarksdale, Miss.; Medical College of Ohio, Cincinnati, 1875; member of the Mississippi State Medical Association; formerly county and city health officer; aged 68; died, November 8.

Russell Bigler Armor, Pittsburgh; Hahnemann Medical College and Hospital of Philadelphia, 1898; served in the M. C., U. S. Army, with rank of captain, during the World War; aged 47; died, October 12.

Warren Frederick Brown ⊕ Tacoma, Wash.; Bellevue Hospital Medical College, New York, 1889; aged 63; died, November 9, from the results of a motor accident from which he had never entirely recovered.

Joseph M. Stuart, Owensboro, Ky.; Medical Department, University of Louisville, Louisville, Ky., 1888; member of the Kentucky State Medical Association; died, November 9, aged 59, from heart disease.

Georgia Merriman, Bucyrus, Ohio; New York Medical College of Hospital for Women, Homeopathic, New York, 1873; died, November 5, aged 78, at the Home for the Aged, Columbus, from senility.

Robert James McGay, New York; Medical Department of Columbia College, New York, 1868; formerly head of the Northwestern Dispensary; died, November 15, aged 79, from pneumonia.

Virgil A. Walden, Bethpage, Tenn.; University of the South Medical Department (Sewanee Medical College), Sewanee, Tenn., 1898; died suddenly, November 10, aged 50, from heart disease.

Garnet L. Hunter, Westfield, N. Y.; University of Toronto Faculty of Medicine, Toronto, Ont., Canada, 1898; member of the Medical Society of New York; aged 49; died, November 8.

William Aerions Quigley, Hawarden, Iowa; Rush Medical College, Chicago, 1880; formerly postmaster; aged 65; was found dead in his office, November 11, from heart disease.

J. F. D. Fontaine, Maniwaki, Que., Canada; University of Montreal Faculty of Medicine, Montreal, Que., 1887; died, October 14, aged 60, at Ottawa, Ont., from paralysis.

John L. Ray, Burnsville, N. C.; College of Physicians and Surgeons, Baltimore, 1887; aged 61; died, October 27, from injuries received when he fell from his barn loft.

Wilber Pray Safford, Brockton, Mass.; Dartmouth Medical School, Hanover, N. H., 1892; member of the Massachusetts Medical Society; aged 67; died, November 16.

William Erwin Dozier ⊕ Susanville, Calif.; University of Virginia Department of Medicine, Charlottesville, Va., 1883; aged 58; died, November 9, from pneumonia.

Augustus Frank Miller, Batavia, N. Y.; University of Buffalo Department of Medicine, 1878; aged 64; died suddenly in his office, November 9, from heart disease.

E. J. Barr, Lima, Ohio; Medical College of Ohio, Cincinnati, 1880; formerly sheriff of Allen County; died suddenly, October 22, aged 65, from angina pectoris.

Joseph Pressly Lyle, Toledo, Ohio (licensed, Ohio, 1896); died, November 8, in the Robinwood Hospital, aged 72, from cerebral hemorrhage, following a fall.

James A. Dickinson, Washington, D. C.; Howard University, School of Medicine, Washington, D. C., 1889; Civil War veteran; aged 74; died, November 11.

Jonathan Beadmore Hammersley, Springfield, Mass.; American Eclectic Medical College, Cincinnati, 1888; aged 91; died, November 12, from senility.

Howard Parker Mansfield, Ridgefield, Conn.; Long Island College Hospital, Brooklyn, 1893; aged 59; died, November 16, from cirrhosis of the liver.

Francis Joseph Lammer ⊕ Philadelphia; Medico-Chirurgical College of Philadelphia, 1898; died, November 13, aged 58, following a long illness.

James Arthur Jackson, South Levonia, N. Y.; University of Buffalo Department of Medicine, 1895; died, November 15, aged 54, at Dansville.

Clifton O. Champion, Mooresboro, N. C.; Atlanta Medical College, Atlanta, Ga., 1887; died, November 2, from heart disease, aged 60.

Francis A. Kirch, Toledo, Ohio; Cleveland Medical College, Homeopathic, Cleveland, 1895; died suddenly, November 5, aged 81.

Ossian Crockett, Nashville, Tenn.; University of Nashville, Medical Department, 1887; also a druggist; died, November 5, aged 57.

W. H. Carlisle, Antlers, Okla.; Louisville Medical College, Louisville, Ky., 1872; died, October 23, aged 80, from paralysis.

George C. Sweeney, Grand Chenier, La. (licensed, years of practice); died, November 6, aged 71, from acute gastroenteritis.

Lewis E. Parks, Bussey, Iowa; College of Physicians and Surgeons, Keokuk, Iowa, 1880; died, October 4, aged 67.

Samuel H. Starbuck, Seattle; Cincinnati College of Medicine and Surgery, 1898; died, September 28, aged 61.

R. C. Carr, Foster Mills, Ga. (licensed, Georgia, 1892); died, October 17, aged 80, from cerebral hemorrhage.

Marshall Beaty, Cincinnati; Jefferson Medical College, Philadelphia, 1877; aged 70; died, November 14.

⊕ Indicates "Fellow" of the American Medical Association.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

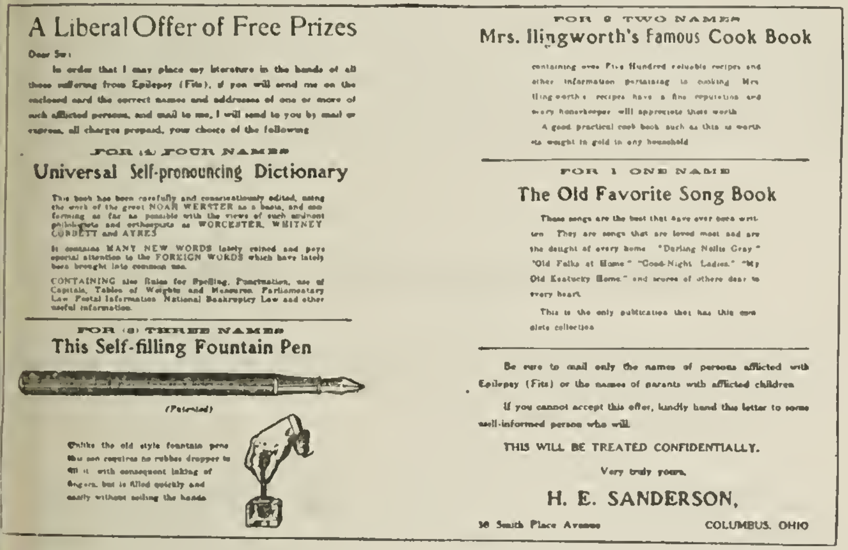
GETTING A "SUCKER LIST" OF EPILEPTICS

How the Converse Treatment Company Gets in Touch with Its Victims

The fact that some physicians, in addition to practicing medicine, also hold some civic office, is probably responsible for bringing to the attention of THE JOURNAL one of the crude tricks of a "patent medicine" concern. The Converse Treatment Company, Columbus, Ohio, sell, on the mail-order plan, an alleged cure for epilepsy. The "company," according to the letterhead, has the following men connected with it:

Herbert E. Sanderson	Frank J. Dawson
Nathan Dawson	Edgar J. Martin, M.D.

Sanderson is, apparently, the head of the outfit and, it is said, has been in the "patent medicine" business for forty years. Nathan Dawson appears to be a lawyer, while Frank J. Dawson, it is said, is, or was, in the fire insurance business. Edgar J. Martin, M.D., is described on the Converse letterhead as "Medical Referee." According to our records, Martin was born in 1868; was graduated by the Medical College of Ohio, Cincinnati, in 1889 and specializes in gynecology. Martin is a member of the Columbus Academy of Medicine,[1] and, by virtue of that membership, has qualified as a Fellow of the American Medical Association.



A Liberal Offer of Free Prizes

Dear Sir:

In order that I may place my literature in the hands of all those suffering from Epilepsy (Fits), if you will send me on the enclosed card the correct names and addresses of one or more of such afflicted persons, and mail to me, I will send to you by mail or express, all charges prepaid, your choice of the following

FOR (4) FOUR NAMES

Universal Self-pronouncing Dictionary

This book has been carefully and conscientiously edited, using the work of the great NOAH WEBSTER as a basis, and conforming as far as possible with the views of such eminent philologists and orthoepists as WORCESTER, WHITNEY, CORBETT and AYRES.

It contains MANY NEW WORDS lately coined and pays special attention to the FOREIGN WORDS which have lately been brought into common use.

CONTAINING also Rules for Spelling, Punctuation, use of Capitals, Tables of Weights and Measures, Parliamentary Law, Postal Information, National Bankruptcy Law and other useful information.

FOR (3) THREE NAMES

This Self-filling Fountain Pen

(Patented)

Unlike the old style fountain pens this one requires no rubber dropper to fill it with consequent inking of fingers, but is filled quickly and easily without soiling the hands.

FOR 2 TWO NAMES

Mrs. Ilingworth's Famous Cook Book

containing over Five Hundred valuable recipes and other information pertaining to cooking. Mrs. Ilingworth's recipes have a fine reputation and every housekeeper will appreciate their worth.

A good practical cook book such as this is worth its weight in gold in any household.

FOR 1 ONE NAME

The Old Favorite Song Book

These songs are the best that have ever been written. They are songs that are loved most and are the delight of every home. "Darling Nellie Gray," "Old Folks at Home," "Good-Night, Ladies," "My Old Kentucky Home," and scores of others dear to every heart.

This is the only publication that has this complete collection.

Be sure to mail only the names of persons afflicted with Epilepsy (Fits) or the names of parents with afflicted children.

If you cannot accept this offer, kindly hand this letter to some well-informed person who will.

THIS WILL BE TREATED CONFIDENTIALLY.

Very truly yours,

H. E. SANDERSON,

30 Smith Place Avenue
COLUMBUS, OHIO

Photographic reproduction (greatly reduced) of a two-page leaflet sent out by Sanderson of the Converse Treatment Co., in an effort to obtain a "sucker list" of epilcptics. The "mayor," "president of the city council" or "justice of the peace" to whom these leaflets are sent is offered trivial bribes for the names of sufferers from epilepsy.

The Converse Treatment has already been dealt with in THE JOURNAL. The product was analyzed in 1915 by the A. M. A. Chemical Laboratory. The matter has been reprinted in easily available form in the pamphlet, "Epilepsy Cures and Treatments" (15 cents), issued by the Propaganda Department. It is not necessary at this time to go into this phase of the subject in greater detail than to quote the conclusions of the A. M. A. Chemical Laboratory in its report on the product. These conclusions were:

"Essentially each 100 c.c. of the ["Converse Treatment"] solution contains about 7.3 gm. ammonium bromid, 5 gm. calcium bromid and 8.7 gm. potassium bromid. Calculating from the bromid determination, each dose, 1 teaspoonful (1 fluidram), contains the equivalent of 14.5 grains of potassium bromid, or each daily dose (4 teaspoonfuls) corresponds to 58.0 gr. potassium bromid."

The phase of the business to be dealt with in this article is the method employed by the Converse Treatment Company for getting its list of prospective victims. A two-page leaflet (reproduced in miniature with this article) is mailed to individuals holding civic office in small towns. The "President of the City Council," the "Justice of the Peace" and the "Mayor" are some of the persons addressed. The matter is mailed in an envelope bearing the return address "30 Smith Place Ave., Columbus, Ohio." The advertising leaflet is signed, as will be noticed, "H. E. Sanderson." Enclosed with the leaflet is a postal card addressed "Mr. H. E. Sanderson, 30 Smith Place Ave., Columbus, Ohio." On the reverse side of the card is a serial number and statement "The number on the postal indicates your name. You need not sign." Then there is space for the names and addresses of the victims of epilepsy or their guardians.

Sanderson offers certain premiums for the names of prospective victims: For four names he will send a dictionary; for three names, a fountain pen; for two names, a cook book, and for one name, a song book!

MORE MISBRANDED NOSTRUMS

Abstracts of Recent Notices of Judgment Issued by the Bureau of Chemistry of the United States Department of Agriculture

Simmons' Cough Sirup.—The A. B. Richards Medicine Co., Sherman, Texas, in February, 1920, and January, 1921, shipped a quantity of "Simmons' Cough Sirup" to California which was misbranded. Analysis showed the product to consist essentially of ammonium chlorid, glycerin, chloroform, vegetable extracts, alcohol, sugar and water, flavored with anise. It was falsely and fraudulently recommended for consumption, whooping cough, influenza, sore throat, asthma, bronchitis and bronchial affections. In August, 1921, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 9977; issued March 21, 1922.*]

Hobbs' Nerve Pills.—A quantity of "Dr. Hobbs' Nerve Pills" was shipped by the Hobbs Spanish-American Medicine Company, Chicago, in November, 1919, from Illinois to California. When analyzed by the Bureau of Chemistry, the pills were found to consist essentially of powdered iron, quinin, licorice, starch and traces of arsenic and strychnin. The product was falsely and fraudulently labeled a "blood purifier" and a remedy for neuralgia, palpitation of the heart and female disorders, and as a cure for rheumatism and a "food for fagged brains." In August, 1921, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 9985; issued March 21, 1922.*]

Mando Tablets.—Gracey's Drug Store, Philadelphia, shipped in August, 1920, some "Mando Tablets" from Pennsylvania to New Jersey. When analyzed by the federal chemists, the pills were found to contain extracts of nux vomica and damiana. The pills were falsely and fraudulently sold for the cure of "Nervous Debility," "Lost Vitality," "Varicocele," and "Seminal Weakness." In January, 1922, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 10209; issued May 16, 1922.*]

Castleberry's Sexual Pills and Fackler's Compound Extract of Damiana.—This product was alleged to have been shipped by the Allan-Pfeiffer Chemical Co., St. Louis, the shipment being made in June, 1921, from Missouri to Georgia.

Castleberry's Sexual Pills.—The federal chemists reported that these pills contained an iron compound, extracts of Spanish fly and nux vomica, chalk and sugar. They were falsely and fraudulently labeled as remedies for hysteria, nervous prostration, and general weakness.

Fackler's Compound Extract of Damiana.—This preparation, the federal chemists reported, contained extract of plant drugs, including nux vomica, damiana and saw palmetto and also extract of Spanish fly, sugar, alcohol and water. It was falsely and fraudulently labeled as a tonic for both sexes, "A Liquid Aphrodisiac" and as "Useful in Nervous Debility."

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[1] After this matter was in type, it was brought to the attention of ie Ohio State Medical Association, which, in turn, took up the matter ith the Columbus Academy of Medicine. A communication from the xecutive secretary of the Ohio State Medical Association, just received, ates that, at a meeting of the Council of the Columbus Academy of ledicine on November 23, the resignation from membership of Dr. dgar J. Martin was submitted and accepted. On November 25 a letter as received from Dr. Martin addressed to the American Medical Association and stating that he could not "consent to any interference" with s "private practice" and tendering his resignation.

In December, 1921, judgments of condemnation and forfeiture were entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 10243; issued May 16, 1922.*]

Correspondence

"HEMOLYSIS FOLLOWING TRANSFUSION"

To the Editor:—After reading the article by Dr. P. S. Astrowe on "Hemolysis Following Transfusion" (The Journal, Oct. 28, 1922, p. 1511), I referred to my notes written before the war. They disclosed that I had performed agglutination and hemolysis tests similar to if not exactly the same as those described. The only difference was that the hemolysis test was left in the icebox over night. There was no agglutination and no hemolysis. After the transfusion, when the performance of a second transfusion was considered, the surgeon asked me again to test out the previous donor and recipient, both of whom were adults: This was done and there was no agglutination, but the recipient's serum hemolyzed the donor's cells.

Because of the positive statements made by men in the conservative East, no mention was made except to the surgeon, who did not do the second transfusion.

Under "Transfusion of Blood," U. S. Army Memo. 12, A. E. F., Blood Groups, is the statement (p. 11): "Hemolysis never occurs when agglutination is absent; hence the agglutinative reaction determines the possibility of hemolysis." It seems that these statements are too sweeping.

P. C. West, M.D., Seattle.

"DENY" IN CASE REPORTS: A MUCH NEEDED CRITICISM

To the Editor:—Until recently, physicians taking histories have permitted patients to state facts regarding their previous ailments and ills, without being especially incredulous if the patients' assertions referred to some such ordinary disease as chickenpox or measles. According to the usual case history which one reads nowadays, the patient is never permitted merely to say he has never had a venereal disease, but he must perforce "deny" such a thing.

Webster's Collegiate Dictionary defines "deny" as follows: (1) To declare not to be true; (2) contradict; (3) to reject as a false conception; (4) to refuse to grant or gratify (as a request); (5) to refuse to accept. It is apparent, therefore, that in order to deny something, (1) some one must have declared it to be true; (2) or an assertion must have been made which had to be contradicted; (3) or, at least, one must have formed and expressed a definite opinion which had to be refuted by denial; (4) or else, in the connection to which I refer, the patient is inconsiderate enough not to grant the physician's request that he have venereal disease, presumably for the physician's gratification in unearthing it; (5) or he denies himself the privilege of venereal disease.

The mental picture which is therefore conjured by this commonly used phrase ("the patient denied having had venereal diseases") is that of a frowning, fist-shaking, medical individual thunderingly accusing some cringing creature of having been steeped in vice. The patient may "deny" this if he likes, but one always has one's own opinion, like Mr. Pickwick, who "knew all and suspected the rest."

According to the current issue of The Journal (Nov. 25, 1922) the human race is becoming more and more secretive, and it is now necessary to apply "third degree" methods to elicit information not only regarding the "social" (!) diseases but also on any subject that might not be tea-table talk. For example, on page 1841 we are told of a German saloonkeeper who complained of enlarged abdomen. Because he was German, and a saloonkeeper, it is presumed that he might rightly be suspected of almost anything; but he promptly "denied" not only venereal diseases but even "all acute infectious diseases." Baffled, one turns to the German's wife, who in turn had a denial to make, this being that she "denied any miscarriages." It is stated as a positive fact, however, that the man is the father of a grown son, there being no question as to his veracity in this occasionally doubtful matter.

On the same page of The Journal there appears the history of a man who denies "any venereal disease or unusual sexual practices." Unless the authors originally believed otherwise and so expressed themselves to the patient, their use of this word is incorrect.

I am presenting the foregoing in order to protest against the loose use in manuscripts of the word "deny." According to the quoted definitions of the word, such usage is wrong unless the examining physician actually believes the patient to have had something which the latter may now deny.

Without wishing to seem a purist, I must say that it always arouses in me a feeling of resentment in favor of the patient who is compelled to "deny venereal diseases," while the doubt as to whether or not he is telling the truth is always left in one's mind by this obnoxious little verb.

Paul Titus, M.D., Pittsburgh.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

PREVENTION AND TREATMENT OF COMMON COLDS

To the Editor:—I am anxious to get in touch with anything bearing on the treatment of the "common cold" (acute coryza), especially in children. We are in the habit of saying that nothing can be done for a cold in the head; but I am meeting this condition so constantly, and it is the cause of so much real discomfort, not to mention its dangerous potentialities, that I want to get hold of something tangible in the way of a technic, both preventive and curative. F. H. R., New York.

Answer.—There is no sure way of preventing an acute cold in children or adults. Much may be accomplished, however, by attention to minor details. One should dress so as to be warm. This does not imply wearing such heavy flannel underclothing as to keep the body damp with sweat when indoors. One should avoid wet feet, and not sit in drafts, especially when tired or "rundown." An evening at the movies in a crowded room that is poorly ventilated will often result in a cold, particularly if the feet are damp, if the overcoat is kept on, and one is tired to begin with. Then much can be done by seeing that the child, or the adult, gets fresh air at night and is outdoors in the daytime as much as possible, even in cold and perhaps unpleasant weather. Cool baths in the morning help materially in the hardening process that enables one to resist the infection that would otherwise result in a coryza. Offending adenoids and tonsils should be removed, and the sinuses about the nose kept in as good condition as possible. By these simple or common sense methods alone, a large proportion of common colds may be avoided.

The active treatment of the simpler cases is largely one of ordinary care, little medicine being required. The patient should stay at home a day or two, preferably in bed, take light food, and empty the bowels thoroughly. A hot foot bath, hot lemonade and warm blankets may be helpful. Perhaps a dose of powder of ipecac and opium, U. S. P. (the old fashioned Dover's powder) will be in order. Sprays to the nose, and gargles or sprays to the throat may be of benefit. Each physician has his favorite preparation. The good, we believe, is largely from the cleansing effect. Physiologic sodium chlorid solution has perhaps as much virtue as any other. Many give salicylates freely for a day or two. We think they are helpful. And the combination of camphor, quinin and Dover's powder with perhaps belladonna is used by many who have found it useful.

Because many people ignore a cold in the head, do not give up to it and come through all right is no argument for the neglect of this seemingly trifling ailment. Rest at home for a day or two with simple treatment undoubtedly saves many a patient from severer forms of inflammation in the nose and sinuses, from bronchitis and pneumonia and possibly even from more serious conditions.

I. W. LONG AND D. V. IRELAND

To the Editor:—Almost daily for the past two weeks my mail has included a letter or printed circulars purporting to come from one I. W. Long, Columbus, Ohio. These communications all relate, in one form or another, to a course of lectures and clinical demonstrations of diseases of the colon, rectum and adjacent organs, the same to be delivered in Kansas City and Chicago. The lecturer is to be D. V. Ireland, M.D., Columbus, Ohio. The price for the course is $100.

Can you inform me concerning this Dr. D. V. Ireland? Who is he, and what is his professional history and standing? Inasmuch as he is seeking his pupils from among the ranks of the profession on the assumed basis of superior skill and knowledge, I think it is your duty as the publicity organ of the A. M. A. to give him a very helpful degree of publicity in an appropriate manner. When any man sets himself the task of doing the practitioner a service to the tune of $100 per service, we should be fully informed concerning the quality of his service and his professional attainments. We do not wish to miss anything of real merit nor do we care to be exploited.

P. P. Halleck, M.D., Durham, Kansas.

Answer.—I. W. Long seems to make a business of promoting the activities of those members of the medical profession who have sensational or bizarre theories to exploit and who wish to commercialize these theories. Long also seems to act as an agent for the sale of such devices and publications as may be necessary to the proper practice of the particular brand of therapy that is being exploited. Long has acted as publicity agent for courses in "Electrotherapy" by C. L. Ireland, in "Diseases of the Rectum" by D. V. Ireland, in "Zone Therapy" by W. H. Fitzgerald, in "Bio-Dynamo-Chromatic Diagnosis" by George Starr White, in "Spondylotherapy" by Albert Abrams, etc. He has also sold "abdominal supporters" books on osteopathy, devices for performing stunts in "Zone Therapy," a chart advertised as "A Key to the Practice of Osteopathy, Chiropractic, Massage and All Drugless Methods" and many other things.

According to our records, D. V. Ireland was born in 1855 and was graduated by a homeopathic school in 1881—forty-one years ago. He seems to have practiced exclusively in Ohio and to have stayed but a few years in each town. The medical directories record:

1886—Mansfield, O.
1890—Xenia, O.
1893—Fredericktown, O.
1896—Mt. Sterling, O.
1900—London, O.
1902—Dayton, O.
1906—London, O.
1908—Columbus, O.
1910—London, O.
1914—Chillicothe, O.
1916—Wilmington, O.
1918—Columbus, O.

A study of the medical literature of importance for many years past fails to show that D. V. Ireland has published anything. He is not, and never has been, so far as our records show, a member of his local society.

DIPHTHERIA ANTITOXIN IN TONSILLITIS

To the Editor:—1. Is there any deleterious effect in giving diphtheria antitoxin in a case of tonsillitis? 2. Does the giving of antitoxin to onsillitis patients shorten the course of the disease? 3. If a prophyactic dose of antitoxin has been given, and the patient within from hree to twenty days develops diphtheria, is there any danger in giving a herapeutic injection of antitoxin, from 5,000 to 10,000 units? Please omit my name.

G. S. A., Iowa.

Answer.—1. No.
2. Probably not.
3. No, unless the second injection is given intravenously.

Location of Tuberculosis Hospital.—The Louisiana supreme ourt decided that the establishment of a tuberculosis hosital in the city is not a menace to health. In a suit to njoin the city of New Orleans from establishing and mainaining a tuberculosis hospital in the city, one of the objecions of the plaintiffs, who lived in the vicinity of the proposed ite, was that the hospital would endanger their health. The upreme court of Louisiana did not take this view.—*Pub. ealth Rep.* **34**:1977 (Aug. 29) 1919.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Alabama: Montgomery, Jan. 9. Chairman, Dr. Samuel W. Welch, Montgomery.
Arizona: Phoenix, Jan. 2. Sec., Dr. Ancil Martin, 207 Goodrich Bldg., Phoenix.
Colorado: Denver, Jan. 2. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.
Delaware: Wilmington, Dec. 12-14. Sec., Dr. P. S. Downs, Dover.
District of Columbia: Washington, Jan. 9. Sec., Dr. Edgar P. Copeland, Stoneleigh Court, Washington.
Hawaii: Honolulu, Jan. 8. Sec., Dr. G. C. Milnor, 401 Beretania St., Honolulu.
Illinois: Chicago, Jan. 9-11. Supt. of Registration, Mr. V. C. Michels, Springfield.
Indiana: Indianapolis, Jan. 9. Sec., Dr. W. T. Gott, Crawfordsville.
Kentucky: Louisville, Dec. 5-7. Sec., Dr. A. T. McCormack, State Board of Health Bldg., Louisville.
Louisiana: New Orleans, Dec. 7-9. Sec., Dr. Roy B. Harrison, 1507 Hibernia Bank Bldg., New Orleans.
Maryland: Baltimore, Dec. 12. Sec., Dr. J. McP. Scott, 141 W. Washington St., Hagerstown.
Minnesota: Minneapolis, Jan. 2-4. Sec., Dr. Thomas S. McDavitt, 539 Lowry Bldg., St. Paul.
New Mexico: Santa Fe, Jan. 8-9. Sec., Dr. R. E. McBride, Las Cruces.
North Carolina: Durham, Dec. 12. Sec., Dr. Kemp P. B. Bonner, Raleigh.
North Dakota: Grand Forks, Jan. 1. Sec., Dr. G. M. Williamson, 860 Belmont Ave., Grand Forks.
Ohio: Columbus, Dec. 6-8. Sec., Dr. H. M. Platter, Hartman Hotel Bldg., Columbus.
Oklahoma: Oklahoma City, Jan. 9-10. Sec., Dr. J. M. Byrum, Shawnee.
Rhode Island: Providence, Jan. 4-5. Sec., Dr. Byron U. Richards, State House, Providence.
South Dakota: Pierre, Jan. 6. Director, Dr. H. R. Kenaston, Bonesteel.
Virginia: Richmond, Dec. 5-8. Sec., Dr. J. W. Preston, McBain Bldg., Roanoke.
West Virginia: Charleston, Jan. 9. State Health Commissioner, Dr. W. S. Henshaw, Charleston.
Wisconsin: Madison, Jan. 9-11. Sec., Dr. John M. Dodd, 220 E. Second St., Ashland.

Arkansas May Examination

Dr. Claude E. Laws, secretary, Arkansas Eclectic Board of Medical Examiners, reports the written examination, held at Little Rock, May 9-10, 1922. The examination covered 12 subjects and included 120 questions. An average of 75 per cent. was required to pass. Sixteen candidates were examined, all of whom passed. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
Eclectic Medical University	(1918)	91.5
Kansas City College of Medicine and Surgery	(1916)	89.5,
	(1922)	78.3, 78.4, 79.1, 79.6, 79.9, 81.2, 81.3, 81.7, 81.8, 83.3, 84.4, 85.6, 91.9
Eclectic Medical College	(1922)	85.6

South Carolina June Examination

Dr. A. Earle Boozer, secretary, South Carolina State Board of Medical Examiners, reports the written and practical examination held at Columbia, June 27-29, 1922. The examination covered 17 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 19 candidates examined, 18 passed and 1 failed. One candidate received an osteopath license by examination. Four candidates were licensed by reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
Emory University	(1915)	78.6
University of Michigan Homeopathic Medical School	(1922)	90.4
Jefferson Medical College	(1922)	85.2, 85.2, 89.6
Medical College of the State of South Carolina	(1921)	87.5, 89.2,
	(1922)	81.2, 81.5, 83.2, 83.5, 84.5, 85.4, 85.6, 87.2, 88.9, 89.2, 90.2, 92.1
Osteopath		82.6

FAILED		
University of Tennessee	(1905)	*

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Georgia	(1900), (1911)	Georgia
Tulane University	(1921)	Louisiana
Johns Hopkins University	(1920)	Maryland

* No grade given.

Book Notices

The Oxford Index of Therapeutics. Edited by Victor E. Sorapure, M.B., Ch.B., F.R.C.S. Cloth. Price, $12. Pp. 1126, with 111 illustrations. New York: Oxford University Press, 1921.

This book represents the views of about 100 English and American contributors. In Part One, the various diseases are discussed in alphabetical order, with a consideration of the method of treatment; in Part Two, the agents used in therapeutics are listed, with the dosages and indications, the preparations being taken, the authors announce, from the British and American pharmacopeias and the National Formulary, and from the catalogues of several pharmaceutic manufacturers. In Part Three, drugs are classified in groups, according to their general uses. The volume represented a conglomeration of great unevenness. Some of the articles are excellent; others appear to have been hastily compiled. Many of the prescriptions are simple and satisfactory; others include numerous ingredients and are of the "shotgun" type. Many include secret proprietary preparations. When the scientific writers on therapeutics obtain information regarding the therapeutics of drugs from catalogues of pharmaceutic manufacturers, the remainder of their material must certainly be questioned. It is stated, for example, that Elixir Lacto-Peptine contains all the active enzymes of digestion and in practice is found to be active and efficient. This opinion will hardly be accepted by well educated American physicians. Such books as Sorapure's Oxford Index of Therapeutics are no longer printed by American publishers; the unclassified, uneven guide to uncritical therapeutics has little American appeal.

Obstetrics for Nurses. By Joseph B. De Lee, A.M., M.D., Professor of Obstetrics at the Northwestern University Medical School. Sixth edition. Cloth. Price, $3 net. Pp. 525, with 244 illustrations. Philadelphia: W. B. Saunders Company, 1922.

In the sixth edition of a textbook, we expect to find the highest degree of literary and scholastic excellence. We expect all circumlocutions and English solecisms to be eliminated, and the best medical doctrine to be upheld consistently. In this volume, these high ideals are not altogether achieved. The English is often faulty, as on page 18, line 10, where the auxiliary lacks its verb, and on page 267, line 4, where the verb lacks its auxiliary. The meaning, too, is sometimes obscure, as on page 68, in the sentence, "No surgeon tolerates such conditions." We suppose that the general surgeon is meant, but the phrase implies that the obstetrician is not a surgeon. On page 68 the author states that "icterus has several causes, but the exact nature is not known." It would seem that if any one cause were known, it would be highly enlightening. On page 84, the word "warning" is used when advising is evidently meant, and on page 119, "curing" is made to act for relieving. Not many obstetricians will indorse the author's constant advocacy of strong solutions of mercuric chlorid, and very few would agree to have the entire chain of asepsis broken by using a filthy daily newspaper in place of a sterile napkin (page 177) for the sake of economy in the nursery. There are also occasional errors in balance, as when the author devotes eleven pages to cesarean section, in which apparently he is much interested, and makes no mention whatever of impetigo or multiple abscess, which come more nearly into the daily work of the nurse. Some anachronisms are cherished unduly. The tight binder for engorged breasts has long ago been abandoned as useless and unnecessary. The iteration of the midwifely tradition (pages 369 and 341) that "tongue-tie" interferes with nursing is surely an oversight. It has been shown by the physiologists that "tongue-tie," if there is such a thing, can have no influence on nursing, since the act of suckling is performed entirely by the masseter muscles without lingual participation. The author apparently advises (page 139) the neutralization of both the 1 per cent. and the 2 per cent. solution of silver nitrate. If the 1 per cent. solution is neutralized, it is valueless; and if the 2 per cent. solution is not neutralized, the cornea may be injured. This distinction should be made clear. On page 375 is pictured what is said to be the author's modification of Byrd's method of artificial respiration. The illustrations do not show any difference between this method and the modification brought out by Dew thirty years ago. The four hour nursing interval is spoken of (page 412) as the "optimum period, even from birth." Assuming the sincerity of the conviction, it seems queer that the Lying-In Hospital should choose, up to the fifth week, to make the interval from three to three and one-half hours, as shown by the table on the same page. The word optimum, too, which is used so easily by the author, might be less familiar to a student nurse whose Latin had slipped a little. Yet the vocabulary, which has exhaustive definitions of such rare terms as enema, binder, dilute and eliminate, does not mention optimum. These citations may seem hypercritical, but they are not—for a sixth edition. Doubtless we are unduly particular; for, on the whole, the body of the doctrine is fairly good. The book presents quite fully the ideas and methods that are recognized, practiced and taught everywhere by competent technicians.

The Practice of Medicine. By A. A. Stevens, A.M., M.D., Professor of Applied Therapeutics in the University of Pennsylvania. Cloth. Price, $7.50. Pp. 1106, with 36 illustrations. Philadelphia: W. B. Saunders Company, 1922.

This work resembles other textbooks on the practice of medicine in its arrangement and general plan. The reader is impressed first, however, by the condensation of the information. The sentences are brief and to the point, and there is little of the embellishment which too often appears in some textbooks. In virtually all instances, the facts are up to date. The references to periodical literature are presented, however, in an incomplete, inconsistent form. Many of the references consist merely of the name of the periodical, month and year, some of the name and volume, some of the volume and page. If a bibliography is to be presented to students, it should follow some systematic and accurate form. In his discussions on therapeutics, the author is modern in that he follows established guides as to useful drugs. However, he sometimes suggests proprietary drugs without giving sufficient information for identification of their actual character. In the treatment of mercuric chlorid poisoning, nothing is said of the recently advocated methods involving the encouraging of elimination by sweating and the giving of large quantities of fluids. In the section on the treatment of gastric ulcer, the advice as to diet is incomplete and unsatisfactory. The reader must refer elsewhere for adequate descriptions. On the whole, the chief value of this book lies in its concise presentation of the material it contains.

Die neurologische Forschungsrichtung in der Psychopathologie und andere Aufsätze. Von Dr. A. Pick, Professor an der deutschen Universität in Prag. Paper. Price, 48 marks. Pp. 247, with 11 illustrations. Berlin: S. Karger, 1921.

This pamphlet is No. 13 of a series of monographs which appear as supplements to the *Monatsschrift für Psychiatrie und Neurologie,* published by the same firm and edited by Bonhoeffer. There are eight articles by Pick, the one named in the title being the longest. Most of the others deal with phases of the aphasia problem. The author is one of the most learned psychiatrists of Europe, with a philosophical turn of mind and also possessed of a thorough knowledge of organic brain disease. Physicians interested in the more theoretical aspects of neurology will profit by reading these essays.

The Causes of Heart Failure. By William Henry Robey, Assistant Professor of Medicine in Harvard University. Cloth. Price, $1. Pp. 45. Cambridge: Harvard University Press, 1922.

It is difficult to write on a medical subject in a manner that is at the same time scientific and popular. The writer must put himself in the place of the layman, must sense his intellectual needs and supply the knowledge that meets these wants, and no more. Too often, as in this book, scientific facts or technical matters, correct in themselves, are referred to in such a way as to bewilder. What is said in this little volume seems to us true—except the statement that there is one main trunk of the coronary artery. What is needed is a liberal pruning of confusing details, a rewriting of some obscure sentences, and a more intensive stressing of the few important facts that should be firmly fixed in the mind of the lay reader. The statement of the publisher's blurb that heart disease is preventable by early recognition of its causes is only partially true. But the public should know what may be done to prevent this disease, what may be its effects when it occurs, and how the day of serious results may be postponed. We believe this story could be more simply and effectively told in 6,000 words than has been done here.

Medicolegal

Malpractice Found in Treatment After Miscarriage

(Kruger v. Bossingham (Minn.), 188 N. W. R. 324)

The Supreme Court of Minnesota says that, in this case of alleged malpractice causing death, the complaint was construed to allege negligence in the discharge of professional duties subsequent to the day the defendant went to attend the plaintiff's wife after her miscarriage as well as on that day, when she had a few hours before been delivered of a four-months fetus. The pivotal facts were in sharp dispute. The plaintiff maintained that the defendant was then told that the placenta had not been expelled. The defendant contended that when he inquired concerning the matter, he was informed that it had been expelled, and had been thrown away. Again, the plaintiff testified that, some days later, he went to town and told the defendant that Mrs. Kruger had severe hemorrhages, chills, and headaches; that he was given some pills for her use and assured that she would be well directly; that a day or so after that he again sought the defendant and told him conditions were not improved; that he was again put off with the statement that she would be well in a few days. The defendant's testimony was that, as he casually met the plaintiff on the street, he inquired concerning Mrs. Kruger, and was informed that she was doing nicely. On the twelfth day after that of the miscarriage, Mrs. Kruger's condition became alarming, and the defendant was sought, but was away. Another physician was then called in. Six days later, the patient was taken to a hospital, where decomposed parts of the placenta were removed. After the first ten days, there was an improvement; then came a turn for the worse, and death followed on the thirty-fourth day after the miscarriage. Medical experts for the plaintiff attributed the death to anemia and blood poisoning caused by the presence of parts of the placenta in the uterus; while those for the defendant ventured the opinion that death was not from such cause, but from embolism. The plaintiff recovered a verdict, and the court, without stating the amount of the verdict, says that it is unable to find any legal ground for disturbing such verdict, approved as it was by the trial court.

The important question in the appeal was whether the evidence supported the verdict, or, in other words, was the jury authorized to find that the defendant did not exercise professional judgment in the treatment of the case, and, if he did not, was his failure so to do the proximate cause of death? Of course, if the jury had accepted the defendant's contention that he was told the placenta had been expelled and that the information he had after his visit was that Mrs. Kruger was doing well, there could have been no basis for a verdict against him. But the jury could find that the defendant was told that the placenta had not been expelled when he was there; also, that, a few days thereafter, he was informed on two occasions of conditions that called for treatment or action on his part; and the consensus of expert opinion seemed to be that, if the defendant knew or was told that the placenta had not been expelled, his duty toward the patient required him to keep close watch of her condition so as to be ready to give proper care if unfavorable symptoms appeared; and that hemorrhages, chills, and headaches were such symptoms. The jury could well find, too, that the part of the placenta that remained after the miscarriage caused the hemorrhages and consequent anemia which was a contributing cause of death. There was also room for a finding that infection existed in some form previous to the time that the other physician was called in. In short, the court holds that there was evidence supporting the verdict finding the defendant negligent, and that such negligence proximately caused the patient's death. That the negligence of other physicians may also have been a contributing cause did not absolve the defendant, if his negligence was a proximate cause.

Nor did the trial court err in refusing to submit to the jury the question of contributory negligence on the part of the patient, there being no adequate proof of such negligence as a contributing cause of death. It is true a patient should follow the directions of the physician, and the defendant did testify that he told Mrs. Kruger to be more careful than in a normal case and to stay in bed; but there was no direction how long she was to stay in bed, and no expert testimony on that subject, so there was no foundation for a finding that Mrs. Kruger did any negligent act or that she failed to follow some direction which contributed to her death. The burden of proving contributory negligence was the defendant's.

Knowledge of Medical Examiner Imputed to Company—Health Clause

(New York Life Ins. Co. v. Smith (Miss.), 91 So. R. 456)

The Supreme Court of Mississippi, Division A, in affirming a judgment in favor of Mrs. Smith on a life insurance policy issued to her husband during his lifetime, says that the company's medical examiner, who examined the insured and wrote down his answers as to the condition of his health, testified on behalf of the plaintiff that, notwithstanding the fact that his report of the examination, which he turned over to the company's soliciting agent, showed that he found the insured free from any disease of the internal organs, he found a slight trace of albumin in the urine and some inflammation of the liver. This condition, the witness said, did not necessarily mean ill health, though he made a private report of it in writing to the company's medical director, which was customary under the circumstances. But it was entirely immaterial, the court holds, whether the medical examiner communicated his knowledge of the condition of health of the insured to the company, for his knowledge was the company's. A medical examiner for a life insurance company is the agent of the company in making examination of an applicant for life insurance and in recording his answers, and his knowledge thus acquired is the knowledge of the company, which is estopped from taking any advantage thereof.

The court also holds that when an application for a life insurance policy, which by its terms became a part of the contract of insurance, provides that the policy applied for should not take effect until delivered to the insured during his lifetime, "while in good health," and the evidence showed that he, although not in good health, was in the same condition of health at the time of the delivery of the policy as at the time of his application therefor, the provision in question was not violated, because it meant only that the defendant's health had not undergone any change between the date of the application for and the delivery of the policy.

Society Proceedings

COMING MEETINGS

American Physiological Society, Toronto, Canada, Dec. 28-30. Dr. Chas. W. Greene, University of Missouri, Columbia, Secretary.

Isthmian Canal Zone, Medical Association of, Ancon, Dec. 15. Dr. L. S. Chapman, Ancon, Secretary.

Philippine Islands Medical Association, Manila, Dec. 20-22, 1922. Dr. I. Concepcion, College of Medicine and Surgery, Manila, Secretary.

Porto Rico, Medical Association of, Ponce, Dec. 15-17. Dr. Augustin R. Laugier, San Juan, Secretary.

Radiological Society of North America, Detroit, Mich., Dec. 4-8. Dr. M. J. Sandborn, Appleton, Wis., Secretary.

Society of American Bacteriologists, Detroit, Dec. 27-29. Dr. A. P. Hitchens, Army Medical School, Washington, D. C., Secretary.

Southern Minnesota Medical Association Mankato, Minn., Dec. 4-5. Dr. H. T. McGuigan, Redwing, Secretary.

Southern Surgical Association, Memphis, Tenn., Dec. 12-14. Dr. H. A. Royster, Raleigh, N. C., Secretary.

Western Surgical Association, Minneapolis, Minn.. Dec. 8-9. Dr. Warren A. Dennis, Hamm Building, St. Paul, Secretary.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Obstetrics and Gynecology, St. Louis

October, 1922, **4**, No. 4

*Uterus After Cesarean Section. E. P. Davis, Philadelphia.—p. 335.
*Extent of Renal Lesion in Toxemias of Pregnancy. A. B. Spalding, M. C. Shevky and T. Addis, San Francisco.—p. 350.
*Retroversions of Uterus Following Delivery. F. W. Lynch, San Francisco.—p. 362.
Clinical and Embryologic Report of an Extremely Early Tubal Pregnancy; Together with Study of Decidual Reaction, Intrauterine and Ectopic. W. A. N. Dorland, Chicago.—p. 372.
*Pathology and Treatment of Hydatidiform Mole. E. A. Schumann, Philadelphia.—p. 386.
Prolapse of Female Urethra and Eversion of External Urethral Orifice. R. R. Smith, Grand Rapids, Mich.—p. 395.
Clinical Aspects of Uterus Didelphys. N. F. Miller, Ann Arbor, Mich. —p. 398.
*Degeneration of Conserved Ovaries After Hysterectomy in Rat; Experimental Study. I. Kross, New York.—p. 408.
*Influence of Placenta on Mammary Gland. C. M. Stimson, Philadelphia. —p. 413

Uterus After Cesarean Section.—Davis has had several opportunities to examine the uterine scar after the classic cesarean section. The method of performing cesarean section in the first operation on these patients consisted in closing the uterine muscle with silk and peritoneal tissue with catgut. Women who had been examined outside of hospital, had been long in labor and brought in as emergency cases, were further treated by packing the uterus with iodoform gauze with the hope of averting serious hemorrhage and infection. This method was successful. So far as rupture of the uterus in subsequent labor is concerned, in one case the uterine muscle ruptured but the scar remained firm and was stronger than the uterine muscle. In the second case, the uterus was the site of so much fatty degeneration that extensive rupture occurred as soon as labor began. This patient was given no opportunity to recover from her previous section and she was denied the benefit of hospital care during the last month of her pregnancy. In all of these multiparas the degenerative processes which inevitably occur in multiparas without proper care in their pregnancies and labors was present, namely, fibrosis uteri and atrophy to some extent of muscular tissues. In the patient toxic at the time of operation, fibrosis and atrophy were present but in addition we have the occlusion of blood vessels by emboli and thrombi and marked round cell infiltration at the junction of the placenta and uterus. The multiple embolism in the case of a toxemic patient is an unusual but natural illustration of the pathology of toxemia.

Extent of Kidney Lesion in Pregnancy Toxemia.—A method developed at the Stanford School of Medicine which measures the amount of actively functioning renal tissue in the living kidney is based on the observation that under certain special conditions the function of the kidney is limited by, and becomes a measure of, the quantity of effective tissue it contains. These conditions comprise: first, the application of strain, so that all the functioning tissue present is called upon to exercise its maximum capacity, and, second, a constancy in the environment of the organ, so that various factors which have a specific stimulating or inhibiting effect on the functioning tissue, are excluded. Strain is applied by administering by mouth large amounts of urea and water. The second requirement is met by abstention from food and by delaying the measurements until three hours after the urea and water have been taken. Two measurements are required: first, the amount of urea excreted in one hour's urine, and, second, the amount of urea contained in 100 c.c. of blood removed at the middle of the period of urine collection. Spalding, Shevky and Addis believe the figures they have obtained justify them in emphasizing the point that the treatment of the toxemia of late pregnancy should be directed not to the relief of a supposed renal insufficiency, but to the removal of the cause of the toxemia. Therefore, if such measures as sweating and the giving of intravenous injections of alkaline solutions are indicated, it must be on the ground that they diminish the general toxemia and not that they are necessary because renal function is so depressed that the patient's life is on that account in danger. The view they provisionally take is that the renal lesion in pregnancy toxemia is important not before, but after, delivery. The danger lies not in the extent of the lesion during the acute toxemia, but in the fact that it may fail to heal, and may become a continuing and self-perpetuating disease which either alone or with the help of a complicating arterial disease may ultimately lead to the death of the patient in uremia.

Retroversions of Uterus Following Delivery.—The pelvic condition of 1,230 women who were delivered at term were examined by Lynch at intervals for a minimum of four months and a maximum of twelve months. There were no known pelvic inflammations in the series. Retrodisplacements were noted in 505 cases, or 41.1 per cent. In 32 per cent. of the 505 retropositions pelvic symptoms developed. Of 725 controls with upright uteri 10.5 per cent. complained of slight symptoms. Of 186 private patients 19.6 per cent. presented retropositions in contrast to 44.8 per cent. found in 1,044 clinic cases. Hard work may, therefore, be an important etiologic factor in retrodisplacements. Replacement of the uterus and pessary support gave anatomic correction in 72 per cent. of the cases which wore pessaries. Symptomatic cure and anatomic correction were obtained by identical procedures in 68 per cent. of the 161 cases presenting symptoms. Subsequent pregnancies were observed in 15 per cent.. of a portion of the series in women who did not have displacements, in 10 per cent. of women who had treated retropositions, and 5 per cent. of women whose retroposition had not been corrected. No one type of suspension has been entirely successful in Lynch's hands. There were two recurrences in 155 operations which made a new round ligament fixation on the uterine fundus necessary (108 Webster, 31 Coffey, 16 atypical). There were four recurrences following twenty-eight Kelly-Neel suspensions, together with the shortening of the upper part of the uterosacral ligaments. The need of early correction of retropositions following labor, Lynch believes, is evident.

Hydatidiform Mole.—It seems rational to Schumann to regard every hydatid mole clinically as a malignant tumor, carrying with it a high mortality, and in consequence to attempt no half-way measures for the removal of such growths, but to extirpate them, together with the fundus of the uterus. The procedure advocated is as follows: On the diagnosis of hydatidiform mole being established, no vaginal work is done whatever. Laparotomy is performed, the uterus isolated by gauze packs and an abdominal hysterotomy is done, the mole being inspected in situ. Should it be distinctly limited in attachment to the decidua, and show none of the little hemorrhagic areas in the uterine muscularis, which bespeak invasion of the uterine wall, the tumor may be shelled out and the uterine wound closed, after the cavum has been disinfected with iodin. Should areas of invasion of uterine muscle be present, however, and this is true in the majority of cases, no attempts are made at shelling out the tumor, but an immediate supravaginal hysterectomy is performed, the only exception to this plan being in the case of a primipara desirous of family to whom the situation has been carefully explained and who is willing to assume the risks of either curettage or abdominal hysterotomy with removal of the mole by this route.

Degeneration of Conserved Ovaries After Hysterectomy.—In consideration of the numerous clinical evidences of degeneration, especially cystic, and in view of the evidences of degeneration that were almost invariably found by Kross in the ovaries of the animals studied experimentally, it seems that one may justly conclude that conservation of sound ovaries where the uterus is removed is of no avail in preventing distressing menopause symptoms. The dangers of cystic and other degenerative changes are so great that the retention of the ovaries constitutes a serious danger. Hence, it is safer to remove the ovaries in all cases in which a hysterectomy is performed.

Archives of Dermatology and Syphilology, Chicago

November, 1922, 6, No. 5

*Experimental Aspects of Iodid and Bromid Exanthems. U. J. Wile, C. S. Wright and N. R. Smith, Ann Arbor, Mich.—p. 529.
Drug Eruptions from Clinical Aspect. F. Wise, New York, and H. J. Parkhurst, Toledo, O.—p. 542.
*Industrial Dermatitis at Massachusetts General Hospital. C. G. Lane, Boston.—p. 565.
*Procain Dermatitis Among Dentists. H. K. Gaskill, Philadelphia.—p. 576.
*Intramuscular Injection of Turpentine in Treatment of Diseases of Skin. O. L. Levin and E. Rose, New York.—p. 584.
Lichen Planus Eruption after Arsphenamin. L. K. McCafferty, New York.—p. 591.
Multiple Benign Tumor-Like Growths of Schweninger and Buzzi. S. E. Sweitzer, Minneapolis.—p. 599.
Present Status of Leprosy in Hawaiian Islands. W. T. Corlett, Cleveland.—p. 607.
*Ultraviolet Light in Erythema Induratum. E. L. Oliver, Boston.—p. 619.

Iodid and Bromid Exanthems.—Certain definite things appear to have been established by the studies made by Wile, Wright, and Smith. Iodid and bromid exist in the body fluids following their ingestion, but are not found in the purulent material from acneiform lesions. Percutaneous sensitization tests for iodid and bromid are uniformly negative, and cannot, therefore, be used to indicate ingestion susceptibility. The ready substitution in the body fluids of chlorid by bromid leads to the hypothesis that the ultimate cause of this reaction in the skin differs somewhat from that caused by iodid. The percutaneous introduction of foreign protein in the presence of a circulating blood containing bromid resulted, in one case, in lesions simulating those caused by bromids spontaneously. Precipitins in the blood serum were not demonstrable, at least by addition in vitro of solutions of bromid and iodid salts in minute quantities to the blood serums. The local phenomena of iododerma and bromoderma do not find their explanation on simple bacterial nor simple chemical grounds. The ultimate explanation probably lies in a complex biochemical reaction. The classification of such cutaneous phenomena, however, as true sensitization or allergy is as yet unjustifiable in the light of present knowledge.

Industrial Dermatitis.—Seven per cent. of cases of dermatitis venenata and eczema, or almost 3 per cent. of all admissions to a skin clinic in a large hospital, from which records were examined by Lane, were occupational in origin. He suggests that some name, such as "dermatitis industrialis" or at least a more accurate place in our nomenclature should be provided for this definite etiologic group of cases.

Procain Dermatitis Among Dentists.—Nine cases of dermatitis among dentists are cited by Gaskill in which procain was believed to be the cause but was shown later not to be concerned in the etiology. For persons who are subject to irritation of the hand on account of certain chemicals Gaskill suggests the use of an ointment composed of 25 per cent. hydrous wool fat and 75 per cent. petrolatum, heated in a water bath; 2 per cent. of phenol is added, thoroughly mixed and allowed to cool in a jar. A small quantity of this is rubbed thoroughly all over the hands and the excess is wiped off. The taste is not especially unpleasant to the patient, though a small quantity of ointment of rose water can replace a part of the petrolatum.

Intramuscular Injection of Turpentine in Skin Diseases.—As a result of their experience with injections of turpentine in the treatment of a large number of skin diseases, Levin and Rose recommend its employment in certain conditions. It may be of real value in the pyogenic infections, especially when there is follicular involvement. In such instances the injections may be given in conjunction with the local application of the roentgen rays. Good results were observed in cases of tinea barbae. In old ulcers the administration of turpentine was followed by evidence of stimulation and a tendency to healing. Fair results were attained in acne indurata. A dose of from 0.5 to 1 c.c. of a 15 per cent. solution of rectified turpentine in sterile olive oil, injected intramuscularly, causes no pain and gives the best result. The effect is both local and general. Locally, there is apparently cell irritation, while the vital centers in the medulla oblongata are reflexly stimulated.

Ultraviolet Light in Erythema Induration.—Five cases of erythema induratum were treated successfully by Oliver with the Kromayer lamp. The treatments were carried out by pressing the quartz glass window of the lamp firmly against the indurated areas for from one to two minutes to each area. When the lesions were small, the healthy skin outside the area was protected with paper or zinc oxid plaster. The Kromayer lamp was used on a 110 volt direct current and was run at full strength for ten minutes before applying it to the indurated areas. None of these patients had had ulcerations at any time, so that none of the cases were examples of the severest type of the disease.

Archives of Surgery, Chicago

November, 1922, 5, No. 3

*Osteosclerosis Fragilis Generalisata: Marmorknochen: Albers-Schönberg Disease. G. G. Davis, Chicago.—p. 449.
*Osteopsathyrosis: Report of Case. D. M. Glover, Boston.—p. 464.
*Delbet Walking Plaster for Treatment of Delayed Union in Fractures of Both Bones of Leg. L. C. Abbott, Ann Arbor, Mich.—p. 485.
*Bone Atrophy: Clinical Study of Changes in Bone Which Result from Nonuse. N. Allison and B. Brooks, St. Louis.—p. 499.
*Experimental Study of Healing of Fractures. L. W. Ely, San Francisco.—p. 527.
Fracture of Tibial Spine: Experimental Study. F. E. Blaisdell, San Francisco.—p. 561.
*Corrective and Operative Treatment of Structural Scoliosis. A. Whitman, New York.—p. 578.
*Operative Treatment of Scoliosis. S. Kleinberg, New York.—p. 631.
*Bone Repair Following Injury and Infection. F. W. Bancroft, New York.—p. 646.
Lipping Fracture of Lower Articular End of Tibia. B. F. Lounsbury and A. R. Metz, Chicago.—p. 678.
Cases of Osteo-Arthritic Protrusion of Acetabulum (Intrapelvic Pfannenvorwölbung). A. E. Hertzler, Halstead, Kan.—p. 691.
Results of Treatment of Fractured Femurs in Children. W. H. Cole, St. Louis.—p. 702.

Osteosclerosis Fragilis Generalisata.—A patient who entered the hospital with a fracture of the right leg, the result of a rather trivial injury, giving a history of previous fractures, likewise following slight trauma, was found, on roentgen-ray examination, to have a pathologic fracture as the result of a rather obscure bone condition which has been termed osteosclerosis fragilis generalisata, Marmorknochen (marble bone), or Albers-Schönberg disease. Only nine other cases of this disease have been reported, all in the foreign literature, none in the English language. Davis records the history of his case, together with the roentgen-ray study of the entire skeleton, and gives a review of the literature of this subject to date.

Osteopsathyrosis.—By means of a series of roentgenograms, Glover gives a graphic fracture history of his patient from the time he was 9 months old until his death, at 7½ years.

Delbet Walking Plaster for Treatment of Delayed Union in Fractures.—The results obtained in practice have convinced Abbott that cases of ununited fracture of both bones of the leg of several months standing should be treated by some form of weight-bearing appliance, preferably the Delbet splint. Its use has made it possible to avoid operations in a number of instances. This method has proved successful when operation with plating has failed. Satisfactory results have also been obtained in cases in which operations had been performed either with or without bone grafts, the operation being followed by sepsis and osteomyelitis.

Study of Bone Atrophy.—The changes in bone which result from lack of use of extremities in various clinical conditions were observed by Allison and Brooks and these observations were compared with those made on experimental animals. The same atrophic changes in bone were observed when the lack of use was due to anterior poliomyelitis, spastic paralysis, peripheral nerve injury, Friedreich's ataxia, pseudomuscular atrophy, syringomyelia, chronic arthritis, tuberculosis of bone, pyogenic osteomyelitis, contracture, fracture, congenital deformities and astasia abasia. The character of the changes was the same in all instances, but the amount of the changes varied directly with the extent of the lack of use. There was absolutely no evidence that bone atrophy was ever the result of specific nerve influence on bone, and it is, therefore, unwarranted to assume that bone atrophy is ever a neurotrophic phenomenon. The initial atrophic changes in bone due to nonuse of an extremity are the same regardless of the age of the individuals, but the ultimate result of the changes is different. In the person who has reached his complete growth instance, the process of bone atrophy is operating alone. In the person who is in his growing period at the time of onset of nonuse the process of bone atrophy is associated with the process of growth which is inhibited but not arrested by nonuse. The changes in bone which result from lack of use during adult life are such that the general shape and contour of the bone, as a whole, are only slightly modified. The diameter of the shaft may be very slightly decreased. The length is not changed. The medullary canal is increased in diameter, producing a corresponding diminution in the thickness of the cortex, which after a long period of nonuse is reduced to a thin bone shell. The cancellous bone becomes much more porous, with fever and thinner trabeculae. After a long period of nonuse, the compact bone of the shaft becomes porous. This porosity explains the linear striae seen in the roentgenogram. Bone atrophy and recovery from bone atrophy are manifestations of the function of bone cells to produce bone matrix, which is in whole or in part distinct from the function of the bone cells to regenerate themselves. Bone atrophy and recovery from bone atrophy are processes which are not necessarily associated with cell death or cell proliferation. Regeneration without doubt is a process which is directly the result of cell multiplication.

Study of Healing of Fractures.—This study was undertaken by Ely to clear up several obscure points in the process of healing of fractures, but chiefly to ascertain the exact rôle assumed by the periosteum. After an ordinary fracture, hemorrhage takes place from the marrow canal under the periosteum. The periosteum is stripped up from the cortex by this hemorrhage and by the fracture itself. Then come the deposition of fibrin, the formation of granulation tissue and the formation of cartilage and fibrocartilage in the space beneath the stripped-up periosteum. Probably the function of the periosteum is only important in the early stages, up to the formation of the cartilaginous callus. The periosteum probably serves to keep the hemorrhage from escaping and the granulation tissue undisturbed. It has no bone-forming function, and bone is not built out of it. The subsequent ossification of the cartilaginous callus is carried out almost entirely, if not exclusively, from the external aspect of the cortex. The internal callus plays no effective part in the union. It is rudimentary when it is present.

Treatment of Structural Scoliosis.—Given a structural scoliosis of unknown origin in the case of an adolescent who applies for treatment because of progressive deformity, Whitman states, the prognosis as to the arrest of deformity is uncertain. A certain number of such conditions may be held in check by apparatus and exercises, provided the patients at all times take a personal interest in their posture. The only means of improving the actual deformity and the external appearance of the trunk is by apparatus embodying at least some of the principles outlined in the description of the corrective jacket. The maximum degree of improvement having been obtained, the spine must be held corrected for a period of years while accommodative changes in the vertebrae take place. This maintenance of correction can be effected only by a corrective jacket, recumbency, or operation. As a climax to the corrective treatment, and as postoperative fixation, recumbency on the convex stretcher frame has proved effective in still further reducing the deformity of the ribs, and in allowing full opportunity for chest expansion. While the amount of actual anatomic correction of the deformity of the vertebrae is exceedingly doubtful, the improvement in the patients' external appearance seems to have been maintained by the operation. It has also greatly abbreviated the period of their convalescence. The older the patient, the more rapid the ankylosis.

Operative Treatment of Scoliosis.—The treatment of structural scoliosis advocated by Kleinberg, consisting of a period of correction by means of traction on a convex frame followed by operative fixation of a large number of vertebrae by denuding the periosteum from the posterior arches of the vertebrae and inserting a large and long beef bone graft. The method is said to have given very satisfactory results. The use of the beef bone graft has many advantages. It may be prepared in advance, so that the operation is not needlessly prolonged. It may be cut of the desired length, shape and thickness. It affords support during consolidation of the vertebrae on which operation has been performed. It acts as a framework for new bone formation. It is especially valuable in the severe cases in which the deformity of the ribs and vertebrae is so marked that it is impossible and unsafe to carry out the Hibbs fusion operation thoroughly. The discomfort and disadvantages of plaster-of-Paris jackets are avoided and the surgeon is spared much hard work. The entire period of treatment is very much shortened, and it is hoped that it may not exceed nine months. Corrective treatment can be carried out more rapidly and just as efficiently on a convex frame with traction as by plaster-of-Paris jackets or braces. Finally, the results obtained are said to compare more than favorably with those following the use of plaster-of-Paris jackets, braces or gymnastic exercises.

Bone Repair Following Injury.—Bancroft advises that in these cases adequate drainage should be obtained with as little trauma as possible. In cases in which the patient is clinically progressing favorably, bone, which by roentgen-ray or gross examination, appears dead, may frequently be saved to advantage in order to prevent deformity and hasten convalescence. Bancroft thinks that in the past bone repair has been made to appear much too complex. It is much simpler to believe that bone occurs as a chemical deposition in connective tissue. Such a theory allows for bone formation as it appears in all parts of the body. Bone transplants act as a framework for new bone and stimulate osteogenesis. Therefore, grafts should be used that can easily have a blood supply established, and have sufficient free surface to stimulate bone production. In the treatment of fractures, care must be taken to increase the blood supply. This is more important than immobilization that constricts the limb. Early motion favors union for this reason.

Boston Medical and Surgical Journal

Oct. 19, 1922, **187**, No. 16

Obstetric Emergencies. R. S. Titus, Boston.—p. 564.

Contribution to Theory of Localization of Mental Functions. H. I. Gosline, Howard, R. I.—p. 570.

Nov. 9, 1922, **187**, No. 19

Convalescence: I. A Chronological Review to 1878. J. Bryant, Boston.—p. 653.

Journal of Cancer Research, Baltimore

January, 1922, **7**, No. 1

Appositional Growth in Crown Gall Tumors and in Cancers. E. F. Smith, Washington, D. C.—p. 1.

Journal of Nervous and Mental Diseases, New York

November, 1922, **56**, No. 5

Studies of Schizophrenic Reactions. G. W. Hall and C. A. Neymann, Chicago.—p. 433.

*Case of Recklinghausen's Disease with Involvement of Peripheral Nerves, Optic Nerve and Spinal Cord. H. L. Parker, Rochester, Minn.—p. 441.

Mental Symptom Complex Following Cranial Trauma. E. E. Hadley, Washington, D. C.—p. 453.

Recklinghausen's Disease with Involvement of Peripheral Nerves, Optic Nerve and Spinal Cord.—Interest in Parker's case is centered mainly on the widespread involvement of the central nervous system with a slight manifestation of cutaneous disease. The left ulnar, right external popliteal, and other peripheral nerves were involved. It was believed that there was also a tumor on the left optic nerve and one compressing the spinal cord at the level of the tenth dorsal segment, probably part of the same disease. Surgery was advised, and the nodules in the right antecubital fossa were removed to corroborate the diagnosis. The Krönlein operation was performed for removal of the orbital tumor from the left eye. Later a laminectomy was performed and the sixth, seventh, eighth and ninth laminae of the dorsal vertebrae were removed. Then the left ulnar nerve was exposed and the nodule removed, and also a nodule in the calf of the left leg. The tumors on the peripheral nerves were neurofibromas while the two occupying the orbit and spinal canal, respectively, were dural fibro-endotheliomas. The patient is still alive and leading an active life more than twelve months after the many operations. Thus far he has not developed any new signs of Recklinghausen's disease.

Laryngoscope, St. Louis

October, 1922, **32**, No. 10

Streptococcus Hemolyticus Mastoiditis. A. M. Dunlap, Peking, China. – p. 733.
Thrombosis of Superior Petrosal Sinus and Meningitis Following Acute Mastoiditis. H. E. Meleney, Peking, China.—p. 763.
Basal Metabolism in Hyperesthetic Rhinitis, Bronchial Asthma and in Cases in Which Roentgen Ray or Radium Has Been Applied to Tonsils. W. L. Simpson, Memphis, Tenn.—p. 768.
Lateral Sinus Thrombosis. D. M. Campbell, Detroit.—p. 775.
Two Cases of Head Injury, with Abnormal Otoneurologic Findings. M. J. Gottlieb, New York.—p. 783.

Minnesota Medicine, St. Paul

November, 1922, **5**, No. 11

Problems of Medical Profession, Past and Present. J. F. Corbett, Minneapolis.—p. 635.
Diagnosis of Focal Infection. J. Daland, Philadelphia.—p. 640.
*Coincidence of Shingles and Chickenpox. C. E. Riggs, St. Paul.—p. 646.
Hyperhidrosis of Cheek Associated with Injury to Parotid Region. G. B. New and H. E. Bozer, Rochester, Minn.—p. 652.
Bronchiectasis—Report of Fifty-One Cases. S. A. Weisman, Minneapolis.—p. 657.
*Low Virulence in Miliary Tuberculosis. M. I. Bierman, St. Louis.—p. 661.
Strangulated Hernia: Report of Cases. P. H. Kelly, St. Paul.—p. 666.
Part of Practicing Physician in Public Health Work. H. S. Diehl, Minneapolis.—p. 671.

Coincidence of Herpes Zoster and Chickenpox.—Riggs cites the case of a woman who developed herpes zoster of the left side of the face, affecting chiefly the second and third branch of the fifth nerve. There were a few scattered spots in the ophthalmic area, a few vesicles were observed in the external ear (the drum escaping), the mucous membrane of the mouth supplied by the superior maxillary and the inferior maxillary branches, also the left half of the tongue was covered with the herpetic eruption, which caused great suffering; the teeth were exquisitely painful and after recovery several cavities were found which were not present before the illness. Over the area of the left chin the vesicles were practically confluent and, where the skin approached the mucous membrane of the lip, formed a scab. There were no complications and recovery was uneventful aside from an aggravating paresthesia over the affected area, which still persists. About two weeks after the inception of this illness, a grandchild developed a typical case of chickenpox. The interesting fact is that there was no chickenpox around and she had not been anywhere where she could possibly have contracted it. After the usual incubation period, her brother, in turn, developed the disease.

Low Virulence in Miliary Tuberculosis.—Four cases of miliary tuberculosis of the lungs are cited by Bierman. None of these patients had any illness at all commensurate with the widespread pathology found in their chests on roentgen-ray examination. In a review of 3,500 roentgen-ray chest examinations, it was found that a greater or lesser dissemination of tubercles occurred in somewhat less than 1 per cent. of the cases examined. Arbitrarily fixing twenty-five calcified tubercles as a minimum, tuberculous calcified foci were found in thirty-four cases, an incidence of about one in 106 cases examined, or approximately 0.96 per cent. The number of healed tubercles ranged from about twenty-five to several hundred, and on stereoscopic examination they were found to be scattered all through the lungs, from the extreme apices to the extreme bases, as well as on the pleura. It is shown that the patients to whom an infectious accident occurs, following which there is a widespread dissemination of tuberculous colonies throughout both lungs, have a remarkable resistance to the toxins produced by the bacteria, and, without difficulty, in a short time calcify the tubercles and heal the lesions. Miliary tuberculosis is frequently a mild infection which may be below the level of clinical manifestation. It may even be that the patient does not know that he has any unusual conditions affecting his lungs. This lack of clinical phenomena is probably due to the high resistance of the patient, or even possibly the low virulence of the infecting organism, although the former is probably the case. The condition can probably not be diagnosed clinically except as an acute bronchitis. With the aid of the roentgen ray it is possible that the condition may be diagnosed; but even this is doubtful, as the tubercles would have to be recognized by the pneumonic exudate surrounding each one. If these areas of pneumonic consolidation were at all numerous, the absorption of toxins from them would in all probability lead to clinical manifestations of greater severity than merely those of a mild respiratory infection; so it is probable that no great amount of local reaction is present and therefore not roentgenographically dianogstic. None of the patients who showed the dissemination of the tuberculous colonies were colored, although their incidence was about 20 per cent.

Missouri State Medical Association Journal, St. Louis

November, 1922, **19**. No. 11

*Treatment of Pernicious Anemia with Special Reference to Arsenic and Hydrochloric Acid. P. T. Bohan, Kansas City.—p. 451.
*Unusual Case of Still's Disease. H. Schneiderman, Kansas City.—p. 456.
Diagnosis of Lesions of Esophagus. J. R. McVay. Kansas City.—p. 458.
Diaphragmatic Hernia—Nontraumatic: Report of Four Cases. E. H. Kessler, St. Louis.—p. 461.
Clinical and Radiologic Findings in Pleurisy. M. B. and P. F. Titterington, St. Louis.—p. 465.

Arsenic and Hydrochlorid Acid in Pernicious Anemia.—Treatment with hydrochloric acid and arsenic, combined with measures to improve the general health, in Bohan's opinion, gives these patients the best chance of prolonging their lives of any form of therapy so far suggested. It does not require the transporting of patients a considerable distance to a skilled specialist, but may be carried out in any home by the family doctor. This method of treatment is based on the most plausible etiologic theories. Although the cause of pernicious anemia is unknown, it is probable that the manifestations of the disease depend on a variety of factors, most important of these are dietary deficiencies, overwork, mental stress, loss of sleep, achylia gastrica and oral sepsis. It is the consensus of opinion that pernicious anemia is due to some hemolytic agent that reaches the blood stream via the gastro-intestinal tract. In some patients with the fish tapeworm, an anemia develops that is indistinguishable from pernicious anemia, there is an achylia gastrica and the course of the disease is characterized by remissions and relapses. Pernicious anemia in the horse is associated with the constant finding of the ova of a fly in the stomach or intestines. Evidence is accumulating to indicate that when there is absolute lack of gastric ferments some substance is formed, due to bacterial changes or as a result of an abnormal food splitting process in the proteins, that can be detrimental to the blood forming organs. Bohan gives from 10 to 15 drops of the dilute hydrochloric acid before, during and after meals, and solution of potassium arsenite (Fowler's solution), beginning with 3 drops three times a day, and gradually increasing the dose to 12 or 15 drops.

Elephantiasis in Still's Disease.—The unusual features in Schneiderman's case were elephantiasis of the legs, blindness and deafness. The elephantiasis was evidently due to the inflammation in the lymph glands next to the affected joints, causing an obstruction to the lymph flow from the extremities. The optic atrophy, corneal opacities, and deafness are hard to explain, unless caused by the same toxins or bacteria that caused the joint changes.

Nebraska State Medical Journal, Norfolk

November, 1922, **7**. No. 11

Carcinoma of Stomach. B. B. Davis, Omaha. p. 365.
Fundamental Principles of Radiation Therapy; Clinical Results Possible. A. F. Tyler, Omaha.—p. 370.
Primary Carcinoma of Lung: Report of Cases. W. O. Bridges and R. A. Moser, Omaha.—p. 377.
Pathology of Primary Carcinoma of Lungs. M. G. Wohl, Omaha.—p. 381.
Cancer Problem. P. Findley, Omaha.—p. 384.
Cancer of Esophagus. G. P. Pratt, Omaha.—p. 385.
Cancer of Rectum. L. E. Meen, Omaha.—p. 389.

New York Medical Journal and Medical Record

Oct. 18, 1922, **116**, No. 8

Some Deficiencies of Modern Therapeutics. J. M. Anders, Philadelphia. —p. 429.
Pharmacoendocrinology as Foundation for Rapid Progress in Therapeutics. C. E. de M. Sajous, Philadelphia.—p. 432.
Internal Secretions in Their Relations to Neurologist and Psychiatrist. F. X. Dercum, Philadelphia.—p. 438.
Primary Sterility. A. J. Rongy, New York.—p. 439.
Acute Osteomyelitis. F. L. Hupp, Wheeling, W. Va.—p. 445.
Hypertrophied Anal Papillae (Papillitis). C. J. Drueck, Chicago.—p. 448.
Intussusception: Review of Recent Literature and Report of Cases. G. Schwartz, New York.—p. 449.
Malnutrition Due to Carbohydrate Excess. S. Z. Orgel, New York.—p. 453.
Selective Action of Drugs and Biological Products. H. K. Craig, Washington, D. C.—p. 455.
Clinical Psychiatry. S. DeW. Ludlum, Philadelphia.—p. 459.
Preschool Age. M. S. Reuben, New York.—p. 462.
Significant Results Obtained in Treating Catarrhal Deafness. P. V. Winslow, New York.—p. 466.

Nov. 1, 1922, **116**, No. 9

Some Recent Advances in Urologic Surgery. H. G. Bugbee, New York. —p. 489.
Prevention of Venereal Disease. H. W. Bayly, London.—p. 493.
Case of Accidental Occlusion of Male Urethra by Thread Around Corona. W. Bisher, New York.—p. 498.
Impotence in Male. B. S. Talmey, New York.—p. 499.
Food Allergy as Cause of Irritable Bladder. W. W. Duke, Kansas City, Mo.—p. 505.
Hypernephroma of Kidney: Removal with Perirenal Fat en Masse. A. R. Stevens, New York.—p. 507.
Emergencies in Urology. W. J. Ezickson, Philadelphia.—p. 508.
Choice of Anesthetic in Major Urologic Surgery. W. H. Thomas, Philadelphia.—p. 511.
Treatment of Syphilis. W. J. Moore, Glasgow, Scotland.—p. 514.
Diagnosis, Interpretation and Biologic Treatment of Renal Disease. N. P. Norman, New York.—p. 518.
*Unusual Case of Renal Calculi. A. Denenholz, Brooklyn.—p. 520.
Incidence of Urochromogen Reaction of Weiss in 888 Examinations. R. A. Kilduffe, Pittsburgh.—p. 523.
*New Method for Quantitative Determination of Sugar in Urine. J. B. Ogden and J. M. Connolly, New York.—p. 524.
Review of Hereditary Syphilis of Ear. M. L. Breitstein, Baltimore.—p. 526.
New Cystoscopic Table. O. S. Lowsley, New York.—p. 528.
Tabetic Kidneys Diagnosed as Tuberculous. H. S. Jeck, New York.—p. 529.
Case of Chancre on Penis at 71, Apparently with no History of Sexual Contact. A. M. Crance, Geneva, N. Y.—p. 531.
Hydropyonephrosis Due to Calculi: Papillary Carcinoma of Kidney. J. S. Read, Brooklyn.—p. 530.

Unusual Case of Renal Calculi.—Denenholz reports the case of a young man, 22 years of age, suffering with right abdominal pain who had been operated on for appendicitis but the symptoms persisted. Roentgen-ray examination of the kidneys was negative; the urinary findings were negative. The patient disappeared from observation and returned with severe symptoms in the right lumbar region. A cystoscopy was done and the patient almost went into collapse on the table. There was grave doubt as to the interpretation of the roentgen-ray findings. The doubtful looking shadow in the lower pole of the kidney gave a suspicion of the presence of more calculi in that kidney. On the exploration of the pelvis, the finding of a large branched stone, entirely different in shape and size from what Denenholz had been led to anticipate from the picture, made him feel more strongly than ever that the kidney was riddled with stones. A nephrotomy failed to reveal any stones. However, because of the symptoms present and still believing that there were many other stones, Denenholz removed the kidney, especially knowing the left kidney to be normal. The patient made a complete recovery and is now in excellent health, and is working steadily at his original trade. His present urinary findings are normal.

Quantitative Determination of Sugar in Urine.—A new modification of Pavy's solution is proposed by Ogden and Connolly as an improvement on any formula heretofore published. A new (reversed) method of titration is offered, more rapid and convenient in use than the usual procedure. The claim is made that by this formula and method more accurate results can be obtained than by any other titration method at present available, and fully as accurate as those of the best colorimetric methods, the results of which it closely duplicates with less expenditure of time and labor.

Ohio State Medical Journal, Columbus

November, 1922, **18**, No. 11

Historical Review of Anorectal Diseases: Limitations and Technic of Local Anesthesia in Rectocolonic Operation. S. G. Gant, New York. —p. 733.
Pleurobronchial and Pleurocutaneous Fistulas. J. A. Sherbondy, Youngstown.—p. 739.
Rational Use of Digitalis Especially in Auricular Fibrillation. R. Dexter, Cleveland.—p. 742.
Problems of Present Obstetric Situation. W. W. Brand, Toledo.—p. 746.
Wassermann Reaction in Nonsyphilitic Patients: What It Conveys. C. J. Broeman, Cincinnati.—p. 748.
*Treatment of Chorea by Intravenous Injections of Pure Protein. E. G. Horton, Columbus.—p. 751.
Influence of Hospital Standardization on Preventive Medicine. C. D. Selby, Toledo.—p. 754.
Tachycardias of Neurotic Origin. C. E. Kiely, Cincinnati.—p. 757.
Early Diagnosis of Cancer of Stomach. J. Forman, Columbus.—p. 764.

Intravenous Injections of Pure Proteins in Chorea.—Horton is of the opinion that a chemically pure protein may be used intravenously with as great success as autoserum or horse serum, and with greater convenience. The results obtained are probably due to foreign protein alone. The use of protein is most effective (and perhaps only so) in those cases of chorea in which there is a rheumatic or tonsillar history. Whether the presence of an eosinophilia will aid in eliminating cases that will not respond to this form of treatment requires further study.

Public Health Journal, Toronto

October, 1922, **13**, No. 10

How to Control Diphtheria in Small Country Village. J. A. Morgan, Peterborough, Ont.—p. 433.
Some Results of Campaign Against Venereal Diseases in Montreal. N. Fournier, Montreal.—p. 439.
Nature of Substances Responsible for Complement Fixation in Tuberculosis. R. W. Hodge, Toronto.—p. 442.
Safe and Clean Milk Supply. E. H. Stonehouse.—p. 449.
Public Health Nurse in Tuberculosis Work. K. J. McLeod, Sydney, N. S.—p. 455.

Rhode Island Medical Journal, Providence

November, 1922, **5**, No. 11

Cancer of Uterus. L. Davis, Boston.—p. 333.
Lethargic Encephalitis as Complication of Pregnancy. A. Corvese, Providence.—p. 337.

Texas State Journal of Medicine, Ft. Worth

November, 1922, **18**, No. 7

*Cystic Disease of Breast. J. E. Thompson, Galveston.—p. 344.
Cancer of Breast: Combined Treatment by Surgery, Radium and Roentgen Ray. J. T. Moore, Houston.—p. 352.
Adenocystoma of Ovary. E. W. Bertner, Houston.—p. 355.
New Roentgenotherapy in Gynecology. J. T. Case, Battle Creek, Mich. —p. 360.
Treatment of Uterine Cancer. R. Duncan, Los Angeles.—p. 366.
Radium in Gynecology. O. L. Norsworthy,. Houston.—p. 370.
Glioma Retinae. E. H. Cary, Dallas.—p. 376.

Cystic Disease of Breast.—Thompson made an examination of all the cancerous breasts kept in the museum of surgical pathology of the University of Texas in order to determine the frequency of cystic disease in the noncancerous areas of the gland. The following is the result of the inquiry: cystic carcinoma, 16 cases; noncancerous area of breast showed general cystic disease (4 of Reclus type), 13 cases; multiple tiny cysts in fatty breast, 2 cases; fibrosis (no cysts), 1 case. Unselected carcinoma (excluding cystic carcinoma), 33 cases; noncancerous area of breast showed: cystic disease, 11 cases; fibrosis, 4 cases; adenomatoid mastitis, 1 case; normal, 4 cases; a few cysts in a fatty breast, 1 case; whole breast involved in cancer, 12 cases. This analysis shows that in cystic carcinoma almost all the cases (15 out of 16) showed cystic changes in the remainder of the breast; and further, that in 4 cases (25 per cent.) the cystic disease was of the proliferative type (Reclus disease). Thompson favors radical treatment in these cases.

U. S. Naval Medical Bulletin, Wahington, D. C.

October, 1922, **17**, No. 4

Yellow Fever in St. Thomas, with Special Reference to Its Spontaneous Elimination. E. Peterson.—p. 555.
Kidney Function. C. W. O. Bunker.—p. 570.
Functions and Organization of Medical Corps Units Serving with Marine Corps in Field. S. N. Raynor.—p. 578.
Hygiene of Submersibles. C. M. Belli.—p. 589.
Gas Warfare—Organization in Peace and War. W. R. Galwey.—p. 611

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Bristol Medico-Chirurgical Journal

September, 1922, **39**, No. 146

Oral Sepsis as Source of Systemic Infections. W. R. Ackland.—p. 76.
*Differential Diagnosis of Malignant Disease of Cecum from Chronic and Subacute Appendicitis. C. A. Morton.—p. 82.

Differential Diagnosis of Malignant Disease of Cecum from Appendicitis.—Morton records a case of chronic appendical abscess simulating malignant disease of the cecum; a case of malignant growth of the cecum in which the diagnosis from chronic appendicitis was difficult; a case of malignant growth of the cecum with secondary appendicitis; a case of appendicitis somewhat suggestive of the possibility of new growth and a case of malignant disease of the base of the cecum simulating subacute appendicitis.

British Medical Journal, London

Oct. 28, 1922, **2**, No. 3226

Certain Developments in Medicine. L. Dawson.—p. 781.
Light Sense, with Special Reference to Navigation. A. F. Fergus.—p. 783.
Mechanism of Hearing. W. M. Bayliss.—p. 785.
Luminal in Migraine. W. Harris.—p. 786.
Administration of Anatomy Act. A. MacPhail.—p. 788.
Relation of Ureters to Vagina. J. C. Brash.—p. 790.
Anatomy of Bone Marrow: with Special Reference to Distribution of Red Marrow. A. Piney.—p. 792.
Radiology in Teaching of Anatomy. J. M. W. Morison.—p. 795.
Structure of Vertebrate Head. W. B. Primrose.—p. 796.
Shape of Palate in Children. W. K. Connell.—p. 800.
Mesenteric Cyst of Jejunal Origin Complicated by Retrojejunal Position of Transverse Colon. J. I. Hunter.—p. 800.
Two Cases of Acute Lymphatic Leukemia. W. E. Cooke.—p. 802.
Case of Splenomedullary Leukemia. A. D. Pocock.—p. 802.

Nov. 4, 1922, **2**, No. 3227

Insulin and Diabetes. J. J. R. Macleod.—p. 833.
Surgery of Pituitary Gland. A. J. Walton.—p. 835.
Mental Symptoms in Physical Disease. M. Craig.—p. 841.
*Treatment of Rodent Ulcer by Chromic Acid Solution. A. D. Kennedy.—p. 844.
Prophylactic Rectification and Version at Antenatal Clinic. J. W. Ballantyne.—p. 845.
Case of Conversion Neurosis. P. C. Livingston.—p. 846.

Chromic Acid Solution in Treatment of Rodent Ulcer.—The treatment of rodent ulcer by the application of chromic acid solution, 10 per cent. in distilled water, was suggested to Kennedy in 1910 by George T. Beatson, senior consulting surgeon to the Royal Cancer Hospital, Glasgow. Since then he has treated twenty-five cases with good results. The crust is removed, the floor of the ulcer cleansed with plain sterile water and chromic acid solution is applied to it and to the surrounding skin by means of a fine camel-hair brush. This is repeated daily until the patient complains of pain coming on about an hour after treatment and usually lasting an hour. At this stage, varying from the fifth to the tenth day, the treatment should be discontinued and a bland ointment substituted till the pain and inflammation subside. Chromic acid diluted to 10 per cent. strength, while inimical to rodent ulcer cells, does not effect those of healthy tissue however tender.

Edinburgh Medical Journal

November, 1922, **29**, No. 5

Esophageal Achalasia. D. M. Greig.—p. 217.
*Congenital Hyperkeratosis. W. E. Foggie.—p. 229.

Congenital Hyperkeratosis.—Foggie records the case of a child born with a thick, hard, covering layer, which was completely shed. A general widespread keratotic condition has persisted. The child has been seen at frequent intervals during the last fifteen years. The general health has been well maintained She began to walk at the usual age. The mentality is very fair but the physical disability hindered for a time her education. Latterly she has made considerable progress at an invalid school.

Irish Journal of Medical Science, Dublin

October, 1922, **5**, No. 8

Case of Fibrocystic Disease of Tibia; Treated by Resection and Bone-Grafting. W. Pearson.—p. 341.
Deep Roentgen-Ray Therapy in Surgical Work. W. Doolin.—p. 357.

Journal of Pathology and Bacteriology, London

October, 1922, **25**, No. 4

*Experimental Production of Sarcoma in Mice and Rats. B. R. G. Russell.—p. 409.
Partial Activity of Kidney and the "All or Nothing" Principle. V. R. Khanolkar.—p. 414.
*Lipoid Degeneration of Kidney: So-Called "Myelin Kidney." J. W. M'Nee.—p. 425.
*Experimental Intestinal Tuberculosis: Effect of Treatment with Naphthalene Emulsion. T. Redman.—p. 433.
Studies in Respiratory Infections in Southern Australia: III. Pneumococcus and Other Members of Viridans Group of Micrococci. S. W. Patterson and F. E. Williams.—p. 450.
Routine Preparation of Diphtheria Toxin. P. Hartley and O. M. Hartley.—p. 458.
Toxin and Reaction Changes Produced by Diphtheria Bacillus in Culture. P. Hartley and O. M. Hartley.—p. 468.
Value of Douglas' Medium for Production of Diphtheria Toxin. P. Hartley.—p. 479.
Diameters of Red Cells in Pernicious Anemia and in Anemia Following Hemorrhage. C. Price-Jones.—p. 487.
Studies in Group Agglutination: I. Salmonella Group and Its Antigenic Structure. F. W. Andrewes.—p. 505.
Periodic Opacity of Wassermann "Antigen" in Progressively Increasing Concentrations of Sodium Chlorid. J. Holker.—p. 522.

Experimental Production of Sarcoma.—It is shown by Russell that sarcoma of rats and mice can be produced by repeated subcutaneous inoculation of coal tar.

Myelin Kidney: Lipoid Degeneration.—Three cases of "myelin" kidney are discussed by M'Nee. The term "myelin kidney" is applicable to a special form of fatty degeneration of the kidney, in which lipoid (cholesterin-ester) fat is present in such large amount that a characteristic and easily recognizable appearance is given to the organ. The doubly refracting fat, which contains always an admixture of neutral or glycerin-ester fat, is deposited chiefly in the interstitial tissue of the cortex. It is at first contained within cells. Later, the fat lies free in the connective tissue spaces, the outline of the cells having disappeared. Similar lipoid fat, in smaller quantity, occurs both in the cells of the tubal epithelium and in the interstitial tissue, in many degenerative lesions of the kidney (large white kidney, amyloid disease). In all three examples of myelin kidney described, there was found a late stage of an intracapillary glomerulonephritis, with commencing interstitial changes, and degeneration of tubular epithelium. The following explanations are given by M'Nee to account for the extraordinary lipoid degeneration found in the "myelin kidney": (*a*) that the damage to the tubular epithelium has in these cases been of more severe degree than is usual in glomerulotubal nephritis, in which neutral fat is generally found in the cells; (*b*) that syphilis is concerned in the production of the lesion.

Naphthalene Emulsion in Intestinal Tuberculosis.—The therapeutic value of naphthalene emulsion in intestinal tuberculosis was studied by Redman to ascertain whether it had any retarding effect on the rate of progress of the disease. The emulsion used had the following composition: oil of naphthalene, 1 ounce; liquor potassae, 1 dram, 40 minims; water, 8 ounces. The naphthalene oil was prepared by dissolving naphthalene in warm olive oil and allowing excess to crystallize out. In vitro it was found that 20 c.c. of naphthalene emulsion killed half a slant of a virulent culture of human tubercle bacilli in less than twelve hours. No trace of tuberculous infection of twenty days' standing was found from fourteen to seventy days after the use of naphthalene emulsion. The rate of progress of infection of the lymph glands was markedly retarded. Seventy-five days after the administration of naphthalene emulsion to infected animals the only evidence of tuberculosis was in three small cecal glands, the control animals showing great enlargement of mesenteric and other glands; while, in 111 days, the mesenteric glands of treated animals were enlarged, but no others, and there was no infection of the organs such as occurred in controls. Infection of the spleen was prevented for between fifty-four and seventy-five days. The liver and lungs were protected from infection for about 115 days after ingestion by the animal of tuberculous material. Even in very severe cases of infection life was prolonged. Microscopically, there was a marked difference between the tuberculous glands of treated and untreated animals, fibrous tissue forming fairly early and often replacing typical tubercle structure in treated animals sooner than in untreated animals.

Journal of Tropical Medicine and Hygiene, London

Oct. 16, 1922, **25**, No. 20

*Outbreak of Smallpox in Anguilla.—p. 321.

Smallpox in British West Indies.—Aug. 1, 1921, a case of smallpox arrived in Anguilla, B. W. I., from Santo Domingo, where the disease was prevailing in epidemic form. The number of cases finally increased to twenty-three. There being no quarantine station for isolation purposes, the 400 contacts were released by Jones and kept under daily surveillance for fourteen days. Prompt isolation of infected persons, vaccination and revaccination succeeded in checking the disease, so that only two persons in the population of more than 4,000 contracted the disease. The clinical symptoms were those of modified variola occurring in a population of British West Indians, unlike the Haitians, accustomed to vaccination in childhood. Jones says that the absence of "conscientious objectors," and the loyal cooperation of the whole population were contributory factors toward the successful stamping out of the epidemic within the space of six weeks.

Lancet, London

Nov. 4, 1922, **2**, No. 5175

Mental Symptoms in Physical Disease. M. Craig.—p. 945.
Assessment of Elderly Lives for Life Assurance. R. A. Young.—p. 950.
Temperature and Other Changes in Women During Menstrual Cycle. W. C. Cullis, E. M. Oppenheimer and M. Ross-Johnson.—p. 954.
*Variations of Blood Pressure During Menstruation. S. E. Amos.—p. 956.
*"Ammonia Coefficient" in Menstruation. M. Bond.—p. 957.
Colloidal Calcium in Malnutrition, Chronic Sepsis, and Emotional Disturbance. T. C. Graves.—p. 957.
*Blood Immunization Method for Tuberculosis: Suggestion for Combined Therapy. A. S. Boyd.—p. 960.
Chronic Disease of the Verumontanum and Sexual Neurosis. M. W. Browdy.—p. 961.
Antidote to Toxic Effects of Excess Protein Diet During Lactation. G. A. Hartwell.—p. 963.

Variations in Blood Pressure During Menstruation.—Amos asserts that early in the menstrual period there is a decided fall of pressure, and this is often preceded, a day or so before the commencement of the period, by a rise, and further, after the rather sudden fall, there is again a rise toward the end of menstruation, or a day or so after the period has finished.

Ammonia Coefficient in Menstruation.—It would appear from Bond's work that there is a certain relation between the value of the "ammonia coefficient" and menstruation. In the postmenstrual and intermenstrual periods the coefficient varies little from the intermenstrual average, but during the seven days previous to the period—i. e., the premenstrual period—there is a marked rise. This rise appears to be due to a rise in (total) output of urinary ammonia rather than to a decrease in (total) output of urinary nitrogen.

Blood Immunization Method for Tuberculosis.—Boyd discusses the work he has done in treating tuberculosis patients with the blood serum and cells of an animal naturally resistant to tuberculosis and an immunized animal as well as the serum of a pregnant animal, as pregnancy is said to raise the power of the tissues. The animal used was a pregnant donkey mare who was injected with a mixture of sputum from a tuberculous patient and a plate culture (unmeasured) of tubercle bacillus (human). Three tuberculous patients were then injected with the whole blood of the donkey in a proportion of 10 c.c. of blood to 1 c.c. of a 1.5 per cent. sodium citrate solution.

National Medical Journal of China, Shanghai

September, 1922, **8**, No. 3

Water and Allied Fluids as Therapeutic Agents. K. H. Li.—p. 151.
Height, Weight and Chest Measurements of Chinese. W. W. Cadbury.—p. 158.
Traumatic Intramuscular Ossification. R. F. Maddren.—p. 177.
Active Principle of Organ Extract. S. Kubota.—p. 185.
Prophylaxis Controversy. C. Franks.—p. 200.

Tubercle, London

November, 1922, **4**, No. 2

Advanced Pulmonary Tuberculosis. F. R. G. Heaf.—p. 49.
*Treatment of Pleural Effusions, Notably Effusions of Artificial Pneumothorax. Body's Resorptive Processes in Tuberculosis. N. Lunde.—p. 57.
Methods for Demonstrating Genesis of Pulmonary Tuberculosis in Childhood. A. Brinchmann.—p. 62.
Treatment of Osteo-Articular Tuberculosis. C. L. Pattison.—p. 65.

Treatment of Pleural Effusions by Calcium and Potassium.—To restore the calcium-sodium balance in the organism, small quantities of calcium and potassium are given by Lunde regularly over a long period. At Lyster sanatorium a standard solution is used, one teaspoonful (5 c.c.) of which contains 1 gm. potassium acetate and 0.5 gm. calcium chlorid. With the same object highly salted foods are soaked in water to deprive them of much of their salts before being eaten, and the addition of salt to food is reduced to a minimum. Certain, carefully regulated, respiratory exercises are advocated with a view to facilitating the drainage of an organism suffering from water retention. The regular exhibition of small doses of cod liver oil is recommended on account of its high content of fat soluble vitamin which is of importance to calcium metabolism. Various other principles are discussed, and an account is given of the results achieved by applying these principles to cases of pleural effusion complicating treatment by artificial pneumothorax.

Archives de Médecine des Enfants, Paris

October, 1922, **25**, No. 10

*Nephritis in Hereditary Syphilis. V. Hutinel.—p. 577. Cont'd.
*Pneumothorax in Children. L. Babonneix and L. Denoyelle.—p. 599.
*Familial Hernia. G. Schreiber.—p. 607.
Congenital Cyst in Hyoid Bone Region. H. L. Rocher et al.—p. 611.
Convalescents' Serum in Measles. J. Comby.—p. 614.

Nephritis in Infantile Hereditary Syphilis.—Carrière said in 1903 on the subject of renal manifestations in hereditary syphilis: "Everybody speaks about them, but examples are rare." Queslier, however, was able to gather 101 observations. Hutinel says that with inherited syphilis nephritis may appear in all sorts of forms. It seems that in children we can hold hereditary syphilis responsible for interstitial nephritis and arteriosclerosis, the same as in adults. It is undoubtedly its most typical form, but it is not the only one, nor is it the one most frequently found. We have a tendency to incriminate syphilis, as we do tuberculosis and malaria, for all manifestations occurring in those who have any one of the three. Other toxic or infectious agents may combine their effects with those of syphilis. Syphilis may facilitate the action on the kidney of ordinary infections, which, as a rule, have no marked predilection for this organ. In conclusion Hutinel states that mixed nephritis occurring in syphilitic subjects develops on this soil with special characteristics. Renal aplasia may be included in the study of nephritis in hereditary syphilis, but it does not strictly belong under this heading.

Artificial Pneumothorax in Children.—Babonneix and Denoyelle found in 280 children with progressive pulmonary tuberculosis that the disease was strictly unilateral in 12. Of this number, 7 were treated with artificial pneumothorax. In 5 others, pleural adhesions interfered; in only 2 of these cases had the adhesions been diagnosed. They conclude from their observations that shrinking of the wall on the side of the pneumothorax and scoliosis occur very early. In 3 cases out of 7, the pneumothorax was followed rapidly by the appearance of a localized pneumonic focus on the opposite side which retrogressed fairly quickly and completely. It seemed to be due to the contamination of the healthy lung by expectoration of bacilli from the diseased lung. To prevent such accidents, compression should always be slow and progressive so as not to force out into the bronchi the contents of the cavity. In one case, the general condition improved but bacilli persisted in the sputum. In 3 other cases, the local and general results were excellent and seem durable.

Congenital Diaphragmatic Hernia.—Schreiber's case is a congenital diaphragmatic hernia with dextrocardia and the stomach, small intestine, spleen and the left lobe of the liver in the thorax. The mother developed eventration after delivery. Weakness of the abdominal wall is found in nearly all the members of the family. Among her five children, a boy of 8 was treated at 6 for right inguinal hernia; a girl who died from appendicitis at 5 had had a right inguinal hernia; a boy of 2, an umbilical hernia, and the female child here described, diaphragmatic hernia. The woman's father was operated on for double inguinal hernia and two of her sisters for double and simple hernia, respectively. Her pregnancies were accompanied by extensive varices, and her father, mother, four sisters and three brothers also had varices.

Bulletin de l'Académie de Médecine, Paris

Oct. 17, 1922, **88**, No. 33

*Respiratory Anaphylaxis. F. Arloing et al.—p. 138.
Mechanism of Hemoclastic Crisis. F. Arloing and L. Langeron.—p. 141.

Respiratory Anaphylaxis.—This is a report of research done at the laboratory for experimental and comparative medicine at the Lyons medical school. The sensitized guinea-pigs developed anaphylactic phenomena after introduction of the antigen by the respiratory passages. The anaphylaxis thus induced was a general phenomenon, but preliminary tuberculous infection of the lungs attracted the anaphylactic phenomena to the lungs.

Bulletins de la Société Médicale des Hôpitaux, Paris

Oct. 13, 1922, **46**, No. 27

*Skin Affections During Treatment for Syphilis. P. Ravaut.—p. 1318.
Radiography in Leprosy. G. Delamare and H. Chukri.—p. 1321.
*Diabetes with Multiglandular Lesions. H. Claude and H. Schaeffer.—p. 1326.

Action on Skin of Treatment of Syphilis.—Ravaut remarks that acquired or inherited syphilis is often found in the antecedents of cases of eczema and other skin affections rebellious to treatment. This explains the cases in which the skin disease has improved during a course of treatment for syphilis. A course of small doses of calomel alternating with arsenicals—all by the mouth—has often resulted in the cure of long rebellious skin affections. The results of treatment were so clear that it is impossible to overlook the prime importance of the constitutional disturbance, the *troubles humoraux*, in many skin affections. And these may be transformed by patient and persevering internal treatment.

Diabetes with Endocrine Lesions.—Necropsy of the man of 38—a diabetic for six years with terminal pulmonary tuberculosis—revealed lesions in the pancreas, pituitary and suprarenals, which were all extremely atrophied. The thyroid seemed approximately normal. The first symptoms of the diabetes had developed in the course of acute nephritis.

Encéphale, Paris

October, 1922, **17**, No. 8

*Pathology of the Sympathetic. W. Langdon Brown.—p. 473.
Psychic Hallucinations. R. Dupouy.—p. 485.
*Precocious Puberty. K. H. Krabbe.—p. 496. Conc'n.
*Mental Anorexia and the Thyroid. L. Lévi.—p. 507.
Neuritic Facial Diplegia. D. E. Paulian.—p. 516.
Inherited Syphilis and Feeblemindedness. Roubinovitch et al.—p. 518.

General Pathology of the Sympathetic.—Brown emphasizes the essentially defensive rôle of the sympathetic nervous system. It sends the flood of energy toward the exterior, while the parasympathetic nervous system sends it inward. The sympathetic functions in the plane of the subconscious. Pain, fear and anger are the special stimuli which rouse it to action, and when the adequate motor reaction is prevented or restrained, the preparations for defense are thus diverted from their natural purpose and may display a pathologic character of perseveration or dissociation. The restraints of civilization are liable to entail this perversion of a primary defensive mechanism, and this, he reiterates, is the key to the general pathology of the sympathetic nervous system. Among the instances he cites are the almost epidemic appearance of hyperthyroidism after the San Francisco carthquake, after the massacres at Kishineff and during the period of airplane bombing of London. He adds that as the sympathetic is the intermediator between the skin and the endocrine glands and the brain, this explains how the effect of climate on the skin can modify brain functioning. Certain associations of ideas can act on the autonomic nervous system independently of the will. Hence if we can realize this association of ideas voluntarily, the same autonomic reactions may follow.

Precocious Puberty.—This long article discusses the connection between tuberose sclerosis of the brain (Bourneville's disease) and hydrocephalus and precocious puberty. Krabbe's conclusions are negative as to a direct relation between these brain affections and the precocious genital development, except as they may all be due to some primary cause.

Mental Anorexia and the Thyroid.—Lévi reports some cases of mental anorexia in which thyroid treatment restored conditions to normal. The appetite returned and the three women gained in weight. Analysis of the cases shows absence of appetite from thyroid insufficiency. On this had become superposed a mental condition aggravating the anorexia and perpetuating it.

Gynécologie et Obstétrique, Paris

September, 1922, **6**, No. 3

*Thyroparathyroid Insufficiency and Pregnancy. A. Fruhinsholz.—p. 145.
*Suppurating Strumitis During Puerperal Infection. L. Grimault and H. Brino.—p. 167.
*Fetal Smallpox. P. Puig y Roig.—p. 176.
Gonorrhea in Women. H. Hartmann.—p. 184.

Thyroid-Parathyroid Insufficiency and Pregnancy.—Fruhinsholz reports four instances of pregnancies in women with typical abortive myxedema. He was impressed by the constancy of renal disturbances in these cases: eclampsia and slight albuminuria in the first case; slight and transient albuminuria in the second; albuminuria and "eclampsism" in the third, and edema in the fourth observation. He does not draw any conclusions from these cases, and states that he has merely tried to record the facts as they were, rather than to solve the question of thyroparathyroid insufficiency in relation to pregnancy. His aim is to supply a base for obstetricians to study the question anew from fresh observations. He reviews the publications he has found on pregnancies in women with thyroid insufficiency, and theorizes that this may explain a number of puzzling phenomena.

Suppurating Strumitis in Puerperal Infection.—Grimault and Brino give a detailed account of a case of acute suppurating strumitis during puerperal infection. Their study deals only with suppuration of a goiter under the influence of puerperal infection; they cite seven cases from the literature. It seems, from their observations, that its prognosis is not as grave as reported; the mortality is limited to 11 per cent. The prognosis depends usually on the gravity of the puerperal infection, but in many cases it seems to depend more on the direct mechanical and infectious complications of the strumitis. The most dreaded is death from asphyxia, occurring frequently, when, under some influence, the goiter suddenly increases in size. Suppurating strumitis may have, however, some fortunate consequences, as it may entail the disappearance of the goiter. This occurred partially in their case, and in others mentioned by Petit, Lebert and Heidenreich. Thus, the prognosis depends mostly on the surgical treatment, but, if it is not resorted to, the patient should be closely watched so as to be ready to apply emergency treatment in case of sudden asphyxia.

Fetal Smallpox.—Puig y Roig here publishes a case of smallpox in a fetus, similar to Legros' case in which a woman, recently vaccinated, who had had sexual intercourse with a convalescent from smallpox, aborted five months later of a fetus with smallpox pustules. The woman had not presented any smallpox symptoms during her pregnancy. In Puig y Roig's case the woman had expelled a 5 months' ovum containing a semimummified fetus covered with smallpox pustules, although she was not visibly contaminated with the infection. She lived in one of the poorest parts of the city in which isolated cases of smallpox had been reported a few weeks before her abortion, but had never come in contact with any infected person. Puig y Roig theorizes that the mucous membrane of the respiratory tract had been infected through the air, and that the smallpox virus passed from Pfeiffer's protopustule into the patient's blood invading, through placental lesions, the fetal circulation. The woman's organism being fully immunized against infection, the smallpox virus attacked only the frail organism of the fetus, which was not immunized, and was formed of immunized female elements, and male elements in a state of receptivity. Thus, the eruption appeared on the fetus' skin only. The woman developed intense fever occurring suddenly with syncope, corresponding probably to the period of invasion of the disease, or, perhaps, incited by the fetal suppuration producing strong toxinemia in the mother.

Journal de Radiologie, Paris

September, 1922, **6**, No. 9

Treatment of Painful Abdominal Syndromes. M. Ménard and S. Nemours-Auguste.—p. 397.
Roentgenology in University Teaching. G. Holzknecht.—p. 402.
Present Status of Deep Radiotherapy. Nadaud.—p. 405. Conc'n.
The Choice of an Ionometric Unit. I. Solomon.—p. 418.
New Fluorometer for Deep Radiotherapy. M. Huguet.—p. 419.
New Radiochromometric Process. M. de Laroquette.—p. 420.
Plastic Substance for Surface Radiotherapy. T. Nogier.—p. 423.
*Radiotherapy in Pulmonary Tuberculosis. Rechou.—p. 425.

Radiotherapy of Pulmonary Tuberculosis.—Rechou gives his personal technic and the results with Manoukhine's irradiation of the spleen, and states that it is as yet impossible to foretell what will be the outcome of this treatment in pulmonary tuberculosis, as experiments and studies are still incomplete. His conclusions, however, are that irradiation of the spleen seems to be a method susceptible of improving a restricted number of pulmonary tuberculous patients. The subjects that may benefit from the treatment are those who show, after irradiation, a strong increase of red corpuscles. In certain subjects the leukocytes increase and in others they decrease. The number of polynuclears seems very variable, but the lymphocytes always decrease. The study of the method deserves to be continued but the blood changes and the modification of the spleen should be more thoroughly investigated.

Médecine, Paris

October, 1922, **4**, No. 1

*Recent Progress of Surgery. P. Mathieu.—p. 5.
Treatment of Acute Appendicitis. P. Lecène.—p. 14.
*Treatment of Hare-Lip. L. Ombredanne.—p. 21.
Osteoma in Patellar Ligament. C. Dujarier.—p. 28.
*Congenital Scoliosis. A. Mouchet.—p. 32.
*Subnormal Pressure in Cerebral Fluid. R. Leriche.—p. 37.
Colon Bacilli Pyelonephritis. E. Michon.—p. 40.
*Gonorrheal Arthritis. H. Rouvillois.—p. 45.
*Treatment of Severe Injury of Limbs. G. Cotte.—p. 51.
Treatment of Coxalgia. E. Sorrel.—p. 57.
Sequelae of Nephrectomy for Tuberculosis. E. Papin.—p. 64.
Dental Cysts. F. Bonnet-Roy.—p. 70.

Recent Progress in Surgery.—Mathieu discusses in particular the publications during 1921 and 1922 on anesthesia, radiotherapy and vaccine therapy. He says that vaccine therapy has not gained any ground lately in surgical affections. Especially in treatment of osteomyelitis, many surgeons have lost their early enthusiasm. But the benefit, as an adjuvant, from antistaphylococcus vaccines in osteomyelitis and of polyvalent vaccines in suppurating adnexitis is observed so often that it deserves serious attention, although it is inconstant. He mentions among the recent surgical achievements the success of gastrectomy in treatment of perforated ulcer. Duval has compiled a long list of cases in which this was done. It is indicated only with recent perforation without much change in the peritoneum. He mentions further Latarjet's success in curing a tendency to ulceration or tabetic crises by resecting the gastric nerves, and thus reducing sensibility and secretion. He urges closer collaboration between physicians and surgeons in study of disease in the thorax, especially for thoracoplasty in pulmonary tuberculosis in which artificial pneumothorax is indicated but not practicable. Dujarier with arthrotomy for gonococcus arthritis, suturing without drainage, and Auvray with intra-articular serotherapy, have each demonstrated patients cured, with excellent functioning of the joint. Their success suggests a more favorable prognosis for these complications of gonorrhea in future.

Treatment of Harelip.—Ombredanne discusses the general principles to be followed, and the preferable age and sequence of interventions for treatment of congenital fissures in lips and gums.

Congenital Scoliosis.—Mouchet declares that malformation of a vertebra is a frequent source of scoliosis which does not develop until the age of 8 or 9 or 12 or 13. The back is flat with this type of scoliosis. At puberty the sacrum develops and slants, its base pivoting forward, and this strains the fifth lumbar vertebra. The slightest tendency to asymmetry here, vertical or transverse, throws the spine out of balance, and scoliosis results in the effort at mechanical compensation. It is thus a congenital scoliosis although it does not become manifest till puberty. This form of scoliosis is much graver than scoliosis of muscular origin, which may be amenable to treatment.

Disturbances from Hypotension in Cerebral Fluid.—Leriche's warning of the disturbance liable to follow excessive loss of cerebrospinal fluid or the inadequate production or an abnormally large subarachnoid space, was summarized in these columns, May 20, 1922, p. 1578. Too little cerebral fluid may cause frontal headache, nausea, vertigo, and even convulsions. Treatment is by subcutaneous injection of small amounts, up to 200 gm., of physiologic saline. Intravenous injection of 40 or 50 c.c. of distilled water acts even more promptly, and thus confirms the diagnosis. He suggests also possible benefit from pituitary treatment, ligation of the inferior longitudinal sinus, of the internal jugular vein, or periarterial sympathectomy of the carotid.

Gonococcus Arthritis.—Rouvillois remarks that the distinction between arthritis with a simple effusion or with pus and the plastic form has not been made with precision in the past. Treatment, however, and the attainable results vary with each type. His experience justifies arthrotomy when the synovialis is readily accessible, as in the knee. Before suturing, he injects into the cavity antigonococcus serum. He reserves puncture and local injection of the antiserum for the less accessible wrist and ankle. Early arthrotomy allows removal of the fibrinous deposits in the plastic form.

Modern Treatment of Wounds.—Cotte explains how the lessons learned in the war should be applied to crushing and other severe injuries of the limbs in civilian practice.

Paris Médical

Sept. 9, 1922, **12**, No. 36

Prognostic Import of Reaction to Epinephrin. S. Sterling.—p. 233.
*Experimental Congenital Tuberculosis. H. Malherbe and L. Fortineau.—p. 237.
*Meningitis of Otitic Origin. H. Aboulker.—p. 240.
*Indirect Center Therapy. A. Leprince.—p. 244.

Experimental Research on Inherited Tuberculosis.—Malherbe and Fortineau found evidences of heredodystrophia in an exceptionally large proportion of the offspring of tuberculous guinea-pigs, possibly because the animals were kept under observation for an unusually long period. A few of the young presented actual congenital tuberculous lesions, so that placental transmission of the infection must be accepted as possible, although rare.

Serous Meningitis of Otitic Origin.—Aboulker has been able to compile from the records only six cases of pseudocystic cerebral meningitis of the convexity, and here adds another to the list. He has previously published sixteen cases of recovery from meningitis of otitic origin; in thirteen the meningitis was aseptic. The symptoms from hypertension are alike in both the aseptic cases and those with suppuration. But they are much more pronounced, more numerous and more impressive in the purely serous cases than with an abscess. This difference in the intensity of the symptoms allows correct treatment, avoiding the mastoid and trephining at a distance from the ear, in the temporal region. The course of the case described explained it as a tuberculous otitis with secondary serous meningitis with turbid fluid. Marked improvement followed during the four months the young man was under observation. In another case of tuberculous otitis plus serous meningitis the fluid was clear, and the symptoms subsided after releasing a few drops of it. There was a fistula into the mastoid in this case.

Indirect Nerve Center Therapy.—Leprince has been treating eczema, furunculosis, asthma, neurasthenia, etc., by cauterization of a certain point in the nose or by treatment with Danysz' entero-antigens. He accepts that these measures act on the nerve centers involved, and hence he calls it center therapy. The aim is to elicit a curative reflex action. He has been applying these two methods in parallel series of tests. The nasal cauterization acts more rapidly, but Danysz' method may succeed where the other has failed, and it always seemed to have a tonic effect. He gives the details of nearly twenty cases, many of them promptly and completely cured.

Presse Médicale, Paris

Oct. 18, 1922, **30**, No. 83

*Radiology of Pylorospasm. G. Barret and H. Chaufour.—p. 897.

Roentgenography of Stenosis and Spasm of the Pylorus.—The roentgen-ray findings in adults and in infants are compared and analyzed.

Revue de Chirurgie, Paris

1922, **60**, No. 5

*Biologic Condition from Surgical Standpoint. A. Chenut.—p. 287.
*Postdysenteric Osteitis. Charbonnel.—p. 345.

Relations Between the Biologic Condition and Postoperative Mishaps.—Chenut discusses how to estimate the patient's resisting powers as a whole in considering an operation which is not imperative. Unexpected postoperative mishaps might be warded off with closer study of the biologic condition, especially the functional capacity of the kidneys (elimination of sulphonephthalein and the Ambard index), the metabolism, and the mental and emotional condition. J. L. Faure defers operations when possible during periods of serious epidemics. Chenut adds that intercurrent infection is usually the most important factor in the course after an operation, but much light is thrown on it by the ratio between the total nitrogen and the nonprotein nitrogen. His formula for this latter is the quotient of the *azote titrable au formol* divided by the *azote titrable à l'hypobromite*. It is an index of the power of transforming ammonia into urea. Lanzenberg styles it also the coefficient of total acidosis, as it represents the ratio between (1) the nitrogen neutralizing the acids and (2) the neutralizing nitrogen plus the nitrogen that has already neutralized the acids. It is thus the index of the neutralization by the ammonia of the acids from organic disintegration. These two phenomena of such different orders are manifested by the same urologic signs, hence the formula: $\frac{\text{nitrogen by formaldehyd titration}}{\text{nitrogen by hypobromite titration}}$ answers for every purpose. In the normal, the quotient averages from 5 to 8. A figure above this reveals a toxic condition from incomplete transformation of the ammonia into urea or from accumulation in the body of acids resulting from disintegration of proteins, or both. Chenut analyzes the various cases in which postoperative mishaps were observed in Chavannaz' service, his conclusion being that nearly all could have been foretold from the responses to the biologic tests beforehand if they had been interpreted correctly and heeded.

Postdysenteric Abscess in Bone.—The previously healthy man of 45 had dysentery in 1917, and two months after apparent recovery a lesion developed in one tibia, but it apparently healed after an incision. It persisted in a latent form, and four years later a large abscess developed in the region. The colon bacillus alone could be cultivated from it.

Revue Médicale de la Suisse Romande, Geneva

September, 1922, **42**, No. 9

*Epidemic of Scarlet Fever. H. Cristiani and R. Gautier.—p. 545.
*Scarlet Fever in Adults. C. Saloz and P. Schiff.—p. 560.
Pneumonic Tuberculous Lesions. Jaquerod.—p. 576.
*Present Status of Gout. N. Betchov.—p.582.
*Acute Fatal Osteomyelitis. P. Gautier.—p. 589.
Cirrhosis of Liver in Streptococcus Sepsis. G. Turrettini and E Frommel.—p. 592.
Subcutaneous Myiasis in Little Girl. G. Gander.—p. 597.

Atypical Scarlet Fever.—The epidemic of scarlet fever at Geneva in December, 1921, has already been mentioned in THE JOURNAL. From the average of 27 cases in November, the number ran up to 794 in December and 255 in January, and then dropped back to the usual low figure. Only 41 per cent. of the cases were in schoolchildren, adults forming a large proportion of the explosive, brief and benign epidemic. Saloz and Schiff comment on the frequency of hemorrhagic manifestations, epistaxis, or conjunctival hemorrhage (7 cases) or hemoptysis (2 cases). Tests for urobilin were positive in 65 per cent. during the eruption, in 35 per cent. at the fifteenth, and in 12 per cent. after the fortieth day. This evidence of insufficiency of the liver in such a mild form of scarlet fever was confirmed in 89 per cent. of 113 cases by the sodium salicylate test. This is based on the retention by the normal liver of a small dose of sodium salicylate. Capillaroscopy further confirmed the tendency to intense congestion during the disease; some writers even say the special feature of scarlet fever is a "generalized capillaritis." This is the explanation of the various signs of scarlet fever, the spontaneous petechiae in the bend of the elbow or below, after compression of the elbow. The extinction phenomenon never failed to be instructive, and the fixation of complement tests revealed the scarlatinal nature of certain sore throats, without eruption, during the epidemic. They found it very difficult to enforce for adults the full period of quarantine after the patients felt that they had recovered. They had to keep 200 patients in this way to the end of the six weeks, and there was danger of "barbed wire psychosis," but only four developed contractures and convulsions from this cause. The most serious complications were in two cases in which the return to business could not be prevented.

Present Status of Gout.—Betchov compares recent publications on gout, saying that Guelpa, "the *enfant terrible* of the diatheses," has upset all preconceived ideas by his assertion that chronic gout is usually only an overtreated gout. He insists that the attack of gout is the salutary house-cleaning, and to combat it is like doing away with the police to insure public peace. Others recently have sustained his view that the attack is the mobilization of the urates, not precipitation of them. Colchicum is useful, given a week after the beginning of the attack. The views are conflicting as to the diet, but all agree on fruit, sugar and fat as being harmless, with water as the beverage and not in excess, and Guelpa insists "not alkaline." As to drugs, aside from sodium salicylate, their use may sometimes be advisable for the sole reason that the physician may be confident that the patient will take some drug, whatever the physician's directions may be, and that it is better to keep this under control than to ignore it.

Osteomyelitis Simulating Acute Articular Rheumatism.—The retrospective diagnosis was osteomyelitis with multiple foci and septicemia in the girl of 12, fatal the seventh day. The foci had developed close to joints, and the diagnosis of acute articular rheumatism seemed certain, especially as friction sounds were evident in pleura and pericardium.

Schweizerische medizinische Wochenschrift, Basel

Sept. 28, 1922, **52**, No. 39

Therapeutic Intratracheal Injections. H. Mantchik.—p. 949.
"Anginosis" and Tonsillectomy. J. Fein.—p. 953.
*Diagnosis of Active Tuberculosis. H. Trenkel.—p. 955.
Prognosis of Dislocation of Shoulder. H. Gubler.—p. 960. Cont'd.

Diagnosis of Active Tuberculosis.—Trenkel reports tests of Fornet's method for serodiagnosis by the agglutination of tubercle bacilli freed from their waxy cover by a special mechanical and chemical process. It seems to be an improvement over other methods of serodiagnosis in tuberculosis but sometimes, when the disease is advanced and progressing, the agglutination titer was as low as in the healthy. On the other hand, the titer sometimes kept high long after clinical healing of the disease. The highest agglutination figures were found in the beginning and very active cases, without a decidedly unfavorable prognosis.

Oct. 5, 1922, **52**, No. 40

Relations Between Chemical Composition and Action of Drugs. A. Oswald.—p. 973.
Research with Test for Urobilinogen. E. Herzfeld.—p. 976.
Specific Alkaloid from Ergot. E. Rothlin.—p. 978.
*Spring Conjunctivitis and Hay Fever. J. Strebel.—p. 981.
The Silver Salts and Argyria. H. Koller-Aeby.—p. 983.
*Prognosis with Dislocation of Shoulder. H. Gubler.—p. 985. Conc'n.

Vernal Conjunctivitis and Hay-Fever.—Strebel comments on the common mistakes in differentiating what he calls spring catarrh. The eosinophilia in the secretion is instructive, also the long glassy threads in the conjunctival folds, formed from the viscous secretion. He discusses treatment, and theorizes on means of prophylaxis of hay-fever. Honey is a traditional folklore remedy for hay-fever, and he suggests that this may have a grain of truth for its basis, as honey contains pollen from various blossoms. It might be possible to desensitize in time by drinking decoctions of the dried pollens which have been found to be responsible for the hay-fever. Or the grass blossoms could be eaten fresh, or cooked in an omelet.

Dislocation of the Shoulder.—Gubler discusses this question from the workman's compensation standpoint, tabulating a large number of cases from the insurance records. The older the patient, the longer the course of treatment required, and the poorer the outcome, but complete recovery followed in 94.1 per cent., with an average of thirty-eight days of treatment. Luxation with paralysis gave the gravest prognosis, with 50 per cent. disability and requiring nearly six months of treatment. Fracture of the greater tuberosity entailed 17 per cent. disability, but 70 per cent. of the complications healed without disability. The report analyzes 252 cases of dislocation of the shoulder.

Annali Italiani di Chirurgia, Naples

July 20, 1922, **1**, No. 4-5

*Ligneous Perinephritis. F. Greco.—p. 281.
Resection of the Colon. B. Schiassi.—p. 291.
Radiography of the Hip Joint. C. M. Zuco.—p. 320.
*Spontaneous Cures of Cancer. D. B. Roncali.—p. 332. Cont'n.
*Autoplasty with Preformed Skin Canals. F. Nassetti and D. Pizzetti.—p. 369.
*So-Called Cystic Disease of the Testicle. R. Grignani.—p. 382.
The Parlavecchio Method in Cancer of the Breast. G. Aperlo.—p. 404.
Etiology and Pathogenesis of Non-Traumatic Diaphragmatic Hernia. E. Aievoli.—p. 407.

Woody Perinephritis.—The lumbar fascia formed part of the hard woody mass extending down to the iliac crest. The knife squeaked as it cut down to the kidney, which seemed to be normal. A few small foci were seen here and there with a few drops of pus. The incision was left open and the inflammatory mass softened and rapidly retrogressed. Healing was complete the fortieth day.

Spontaneous Cure of Cancers.—In this second article on this subject, Roncali analyzes twenty cases which have been published as the natural or spontaneous cure of a chorio-epithelioma. His conclusion is that none of the cases will stand criticism. Nineteen of the growths in question were not chorio-epitheliomas, and the twentieth is dubious. The others were merely infiltration of the walls of the uterus with molar or chorionic villi or heteromorphous chorion. This infiltration may predispose to chorio-epithelioma but it is not chorio-epithelioma, and this disposes of the tradition of a spontaneous cure. The only possibility of a cure is when it is recognized and cut out in time to avert metastasis.

Autoplastic Operations with Preformed Skin Tubes.—Nassetti makes the tube out of skin at a point where conditions are most favorable for circulation, etc. When the canal has thus been formed, and has healed to make a perfect tube, it is twisted around or transplanted in the place desired. He describes extensive experiments on animals. In one group the whole skin-fascia flap on which the ready-made tube lay was twisted around into its new bed. One end of the tube faces the pedicle, the other end the tip of the flap. The sides of the thorax and the abdomen of rabbits were particularly favorable for this form of autoplastics; the skin stretched easily to cover the gap left. In another group of animals the tube was made entirely loose, except for its pedicle at one end, and the tube could be introduced under the skin or passed through a muscle. These preformed complete canals healed rapidly in their new position, except in four animals in which the outer end of the tube became necrotic; these four tubes were exceptionally long. In twisting the flaps around into place the direction of the vessels must be heeded to maintain good circulation. The advantages are obvious of having the tube healed and ready for the autoplastic operation. This method seems to be especially promising in operations for hypospadias, and to insure muscular control of prostheses after amputations, and in reconstruction of the urethra.

Cystic Disease of the Testicle.—In Grignani's case the tumor had slowly developed in the man of 47 in the last few months. It seemed to be a mixed tumor of embryoid type, benign, but liable to become malignant at any time.

Pediatria, Naples

Oct. 15, 1922, **30**, No. 20

*Infant Advice Center. A. F. Canelli.—p. 937.
*Attempt to Immunize Infants. R. Pastore.—p. 950.
*Diagnostic Seroreaction in Leishmaniasis. G. Milio.—p. 957.
Granulations in Lymphogranulomatosis. G. Goglia.—p. 960.

Nutritional Diseases at Infant Advice Center.—Canelli states that 45.5 per cent. of mother-nursed children brought to the infant welfare station at Naples had diarrhea: 76 per cent. of the wetnurse infants, and 74 per cent. of the artificially fed. Only 1.5 per cent. died of the first thousand infants brought to the station. The weak point is the ignorance of the mothers.

Protein Therapy for Infants.—Pastore injected six healthy infants from 3 to 8 months old with rabbit serum, and records the differential blood count at brief intervals thereafter, and the response to hemolytic and agglutination tests. The aim was to study the possibility of stimulating immunity at this age by a kind of protein therapy. An antibody developed but there was no production of precipitin.

Precipitation Test in Internal Leishmaniasis.—Milio confirmed in fourteen cases the constancy and reliability of Brahmachari's diagnostic test of kala azar. This is the turbidity observed when to the blood serum is added two or three times its volume of distilled water, poured down the wall of the test tube. The test was constantly negative in the fourteen controls with other diseases.

Policlinico, Rome

Sept. 4, 1922, **29**, No. 36

Indications for Artificial Pneumothorax. Zuccòla.—p. 1161.
Typhoid in the Pregnant. A. Ferri.—p. 1163.
Case of Conjugal General Paresis. L. Cacioppo.—p. 1167.
Autolymphotherapy in Tuberculosis. B. Zaniboni.—p. 1169.
Voluntary Diplopia. A. Guerricchio.—p. 1170.

Sept. 11, 1922, **29**, No. 37

*Experimental Encephalitis and Keratitis. G. Mariani.—p. 1193.
*Torsion of Ovarian Cyst. G. Onano.—p. 1195.
Partial Symphysiectomy. R. Bader.—p. 1196.
Pathogenesis of Pallor with Arteriosclerosis. Grossi.—p. 1198.
Test for Urea. P. Clara.—p. 1198.
Prophylaxis of Influenza. D. Falcioni.—p. 1199.

Experimental Encephalitis and Keratitis.—Mariani inoculated rabbits with secretions from cases of herpes zoster and febrile herpes. The inoculations in the rabbit cornea induced keratitis in nearly all the animals and in 20 per cent. a hemorrhagic encephalitis. The keratitis did not develop when the secretion inoculated was from cases of herpes zoster.

Torsion of Ovarian Cyst.—The pedicle of the cyst had grown to the pregnant uterus and, when torsion occurred, the intense pains and other symptoms suggested a ruptured tubal pregnancy.

Riforma Medica, Naples

Sept. 4, 1922, **38**, No. 36

Encephalitis with Erysipelas. G. Tarozzi.—p. 841.
*Tubercle Bacilli in Subcutaneous Tissue. A. I. Saggioro.—p. 842.
*The Predisposed to Tuberculosis. A. Della Cioppa.—p. 844.
*Serotherapy of Cancer. G. Gianturco.—p. 845.
Surgery of the Pericardium. E. Aievoli.—p. 848.

Destruction of Tubercle Bacilli in Subcutaneous Tissue.—Saggioro relates that not only killed tubercle bacilli but living virulent bacilli, injected subcutaneously (0.25 c.c.) in guinea-pigs, all became disintegrated and destroyed. The subcutaneous tissue has the property of destroying tubercle bacilli in this way. The tissues respond with the production of antibodies. This is the basis of Maragliano's vaccine therapy. Examination every ten days of tissues from the animals showed the gradual disappearance of the bacilli. After the fortieth day, only traces of the bacilli that had been living when injected could be detected.

Ear, Nose and Throat Lesions in the Predisposed to Tuberculosis.—Della Cioppa found among the 100 children in an Italian preventorium sanatorium that 68 per cent. had catarrhal pharyngitis; 54 per cent. enlarged tonsils; 51 per cent. adenoid vegetations, and 62 per cent. incipient disease of the middle ear. The throat was normal only in 9 per cent. The corresponding figures for the average schoolchildren at Naples were, respectively, 36, 20, 18 and 38, with normal throats in 48 per cent.

Serotherapy of Cancer.—Gianturco injected normal human blood serum directly into the cancerous growth, or intravenously (up to 100 or 200 c.c.) or he transfused normal citrated human blood. He urges others to experiment in this line, with control injections, aiming to induce passive immunity in time.

Sept. 11, 1922, **38**, No. 37

*Bacteriology of Acute Disease of the Bladder. N. Pane and G. Cirillo.—p. 865.
Serodiagnosis of Echinococcus Disease. P. del Torio.—p. 867.
The Blood in the Elderly. A. Terzani.—p. 871.
Traumatic Arteriovenous Aneurysm in Arm. L. Durante.—p. 873.
Roentgen Ray Treatment in Dermatology. C. Guarini.—p. 876.

Bacteriology of Acute Disease of the Bladder.—In the ten cases reported, the bacteria had evidently reached the bladder by way of the urethra. The infection was mixed in all but 30 per cent.

Archivos Latino-Amer. de Pediatría, Buenos Aires

August, 1922, **16**, No. 8

Chronic Nephritis in Children. V. Hutinel.—p. 417. Conc'n.
Chorea Cured by Measles. L. Ayerza.—p. 441.
Skimmed Milk in Infant Feeding. J. A. Bauzá.—p. 445. Conc'n.
*Pseudotumor in Brain. L. Volonté.—p. 460.
*Meningeal Form of Acute Poliomyelitis. M. Acuña and A. Casaubón.—p. 464.
*Chronic Encephalitis. A. A. Ugón.—p. 472.
*Meningeal Hemorrhage in Boy. J. L. Vera.—p. 476.

Pseudotumor in Brain.—The child presented symptoms suggesting a tumor in the brain, including bilateral optic neuritis. After intercurrent typhoid the symptoms all subsided, but they returned two years later. The clinical picture then was extremely grave, with atrophy of the optic nerve and cachexia, but the symptoms—except those from the irreparable lesions in the optic nerve—nearly all subsided under decompressive trephining, plus ligation and resection of the longitudinal sinus.

Meningeal Form of Epidemic Poliomyelitis.—Two cases are described. In one the disease was of the purely meningeal type, with no paralysis or focal symptoms at any moment. The differential diagnosis in this type can never be positive without necropsy, but the complete recovery is strong presumptive evidence. Lymphocytosis and abnormally high albumin content in the lumbar puncture fluid suggest tuberculous meningitis, but are never quite so pronounced as in the latter. The details are given also of a case in which the meningeal symptoms were accompanied by paralysis.

Chronic Encephalitis.—The clinical pictures suggested a brain tumor in the boy and epilepsy in his sister, aged 3. The boy died from tuberculosis after having presented symptoms ascribed to a brain tumor, headache, vomiting, bilateral optic neuritis and, finally, idiocy. Necropsy failed to reveal the anticipated tumor in the brain. The girl developed an epileptiform condition at the age of 9. The child died after four years in which there had been waves of convulsions and, finally, idiocy and blindness. The familial nature of the disease was manifest in the blindness and idiocy in both and the four year course, and the distention of the ventricles and abnormally large amount of cerebrospinal fluid. There was a history of abuse of alcohol in the parents, but nothing to suggest syphilis was discovered.

Meningeal Hemorrhage in Child with Inherited Syphilis.—The apparently healthy boy of 14 suddenly fell, unconscious, and the spinal fluid contained blood afterward, with symptoms of meningitis. There had been no trauma or hemorrhagic tendency, and Vera accepts some syphilitic lesion in the walls of the meningeal arteries as the explanation for the clinical picture. It had retrogressed completely by the third month. Both parents were alcoholic in addition to the syphilitic taint they had transmitted to the child.

Semana Médica, Buenos Aires

Aug. 24, 1922, **2**, No. 34

*Obstetric Compression of Aorta. J. B. González.—p. 381.
*Diabetes During Pregnancy. M. L. Pérez.—p. 393.
Obstruction of Nose in Schoolchildren. J. Weiss.—p. 398.
*The Medical Thesis. O. L. Bottaro.—p. 404.
Case of Traumatic Neurosis. A. A. Masciotra.—p. 409.
Carbuncle in a Diabetic. C. A. Vago.—p. 412.

Improved Technic for Obstetric Compression of Aorta.—González declares that the method of compressing the aorta with the ulnar edge of the hand arrests the circulation through it immediately and completely, while it is harmless for the mother and the action is durable. His illustrations of the anatomy demonstrate that the point for effectual compression is at the fourth lumbar vertebra, two fingerbreadths above the umbilicus. This arrests practically all hemorrhage from the uterus. The compression is applied with the ulnar side of the hand, slightly flexed, and held stiff, perpendicular to the abdomen, crossing the median line just above the fundus of the uterus. The edge of the hand is worked down into the abdominal wall as deep as possible, the palm facing the pubis, without applying force. The pressure is reenforced with the first three fingers of the other hand. The beat of the aorta can then be felt without any force being exerted by the hand applying the direct pressure. Pushing in a little farther, the thrill of an incompletely closed vessel is perceived. Pushing a little more, this thrill stops, and the femoral pulse stops at the same time, and the uterine hemorrhage likewise. With this technic, one person can take the place of another in case of fatigue, without interrupting the compression. The slight curve of the hand allows it to fit over the vertebrae. The control of the femoral pulse gives oversight of the condition. If the pulse keeps at the same rate, we can be confident that the compression is effectual. Seven illustrations show the exact technic.

Diabetes in Pregnancy.—The typical diabetes mellitus developed in the previously healthy but obese young woman late in her second pregnancy. The unusually large child was born cyanotic and died in thirty minutes, but all symptoms of the diabetes subsided during the puerperium. The hemoclastic crisis could be elicited during the diabetes by ingestion of the test 200 gm. of milk, and even by a small dose of glucose (30 gm. dissolved in a glass of water).

The Medical Thesis.—Bottaro criticizes the present regulations and offers suggestions to improve conditions.

Deutsche medizinische Wochenschrift, Berlin

Sept. 15, 1922, **48**, No. 37

A Survey of Medicine as Presented at the Meetings of German Scientists, 1822-1920. K. Sudhoff.—p. 1229.
Causes and Preconditions; Natural Laws in Relation to Rules. W. Roux.—p. 1232.
The Causal and the Teleologic Point of View in Medicine. T. Ziehen.—p. 1233.
The Conscious and the Subconscious Mind. H. Driesch.—p. 1234.
Positivism and Its Conception of the World. B. v. Kern.—p. 1235.
Theories on Color Vision Since Newton. W. Ostwald.—p. 1237.
Vision in Insects and Crabs. C. v. Hess.—p. 1238.
The Science of Heredity; Its History and Present Significance. O. Hertwig.—p. 1239.
The Synthetic Theory of the Animal Organism. M. Heidenhain.—p. 1240.
Applications of the Notion of Inflammation to the Nervous System. F. Marchand.—p. 1242.
Prevention of Inflammation in Subcutaneous Injections of Remedies That Commonly Have an Inflammatory Effect. H. H. Meyer and P. Freund.—p. 1243.
Pseudocrystalline Gallstones. B. Naunyn.—p. 1244.
Pain and Its Treatment. A. Hoche.—p. 1246.
Management of Acute Bronchitis. Goldscheider.—p. 1248.
Traumatic Pseudoabscesses of the Brain. A. Eiselsberg.—p. 1249.
Recollections of an Ophthalmologist of Long Practice. J. Hirschberg.—p. 1250.

Münchener medizinische Wochenschrift, Munich

Sept. 15, 1922, **69**, No. 37

Rudolf Virchow, Felix Marchand and Cellular Pathology. W. Hueck.—p. 1325.
The Pepsin-Pregl Solution in the Treatment of Inoperable, Malignant Growths. E. Payr.—p. 1330.
Treatment of Rupture of Extensor Tendon of Third Phalanx. Sonntag.—p. 1333.
Quick Cure for Scabies. O. Kiess.—p. 1335.
*Outbreak of Trichinosis in Erlangen. B. Fuchs.—p. 1336.

Intraperitoneal Infusion. K. Renz.—p. 1338.
The Effect of Caffein on Performance of Athletes. H. Herxheimer.—p. 1339.
*Phototherapy in Eye Diseases. F. Schanz.—p. 1341.
Chronic Hereditary Hemolytic Icterus with Fatal Issue. Nonnenbruch.—p. 1343.
Bilateral Division of the Phrenic Nerve in Singultus. J. Oehler.—p. 1344.
Prolapse of Bladder Through Urethra. Klauser.—p. 1344.
Cutaneous Hemorrhages After Injections of Arsphenamin. H. Feit.—p. 1345.
Value of Sauerbruch Cineplastic Procedure. C. ten Horn.—p. 1346.
Gregor Mendel; a Biographic Sketch. F. Lenz.—p. 1349.
Treatment of Eclampsia. E. Bumm.—p. 1351.

Outbreak of Trichinosis in Erlangen.—Fuchs recounts the course of an outbreak of trichinosis in Erlangen, which was caused by the eating of sausage infected with trichinae. About 100 persons became infected. The symptoms were: edema of the eyelids, pains in the muscles, high fever in some cases, strongly positive diazoreaction, and pronounced eosinophilia. Leukocytosis, observed in former epidemics, was not noted; nor was disappearance of the patellar reflex one of the manifestations. Injection of blood serum of trichinous patients produced in guinea-pigs an increase of eosinophil cells, whereas the injection of blood serum of healthy persons caused a decrease. No deaths resulted from the outbreak.

Phototherapy in Eye Diseases.—Schanz has experimented for the past ten years with phototherapy in eye disease. He has found this mode of treatment successful, and gives an account of his methods and results.

Wiener klinische Wochenschrift, Vienna

Aug. 17, 1922, **35**, No. 33

Practical Roentgen-Ray Dosage in Internal Medicine. R. Lenk.—p. 695.
*Galvanopalpation and Roentgen-Ray Diagnosis. M. Kahane.—p. 698. Conc'n in No. 34.
Practical Experiences with the Intravenous Use of Glucose. H. Planner.—p. 701.
*Influencing of Scar Formation by Exclusion of Light. J. v. Ries.—p. 702.

Aug. 24, 1922, **35**, No. 34

Roentgenographic Diagnosis of Intracranial Affections by Means of the Dandy Procedure. A. Schüller.—p. 709.
Heart and Vessel Changes in Experimental Diphtheria in the Guinea-Pig. T. Iwabuchi.—p. 711.
Scientific Justification of the Classification of Pulmonary Tuberculosis as Open and Closed Types. A. Winkler.—p. 713.
Adhesion of the Labia Minora Occurring Post Partum. O. Knopf.—p. 715.

Galvanopalpation and Roentgen-Ray Diagnosis.—Kahane states that his investigations have shown that the hypersensitiveness reaction of the sensory and vasomotor nerves of the skin to the galvanic current is a reflection from foci in the various organs. These foci are usually affections of an irritative nature, which are characterized by pains, spasms, active hyperemia, inflammation, ulcers or scar formation at the site of an old inflammation. The site of the skin reaction was found to correspond very closely to the site of the underlying disease focus, constituting a projection, as it were, on the surface of the skin. For instance, if there is an irritative affection of the gallbladder (cholecystitis), the spot on the skin overlying the gallbladder shows the typical hypersensitiveness of the sensory and vasomotor nerves of the skin to the galvanic current in the form of sensitiveness to pain and redness of the skin, which seemingly are confined to the affected region. The technic of galvanopalpation is simple and consists in the repeated application for very short intervals of a current that is weaker than the currents that cause a primary reaction of the sensory and vasomotor nerves of the skin in normal conditions.

The Effect of Light Filters on Scar Formation.—Ries observed that smallpox vaccination scars from six to ten months old were usually much larger and redder in women than in men. At first he thought the difference was due to the more tender skin in women, but later he concluded that the chief reason lay in the heavier clothing worn by men, which the rays of light penetrate less easily. For the past year he has applied a bandage to filter the light over the vaccination scars in a large series of cases. On comparing the scars after several months, he was surprised to note that the scars of the controls were large and red, while those that had been protected by the filter bandages were scarcely visible and in spite of previous large sores were small, soft and white. Ries holds that the vaccinated portions of the skin become extremely sensitive to light, and react strongly to every ray that constitutes a chemical irritant. The use of filters eliminates the irritating blue, violet and ultraviolet rays. From his observations he is convinced that all scar formation can be favorably influenced by protection against the light.

Zentralblatt für innere Medizin, Leipzig

July 8, 1922, **43**, No. 27

Determination of Blood Indican by the Jolles-Haas Method. F. Eigenberger.—p. 445.

Hospitalstidende, Copenhagen

Sept. 13, 1922, **65**, No. 37

*Gastric Ulcer with Indentation. K. Secher.—p. 597.
*Premature Separation of the Placenta. P. Kühnel.—p. 604.

Gastric Ulcer of Greater Curvature with Indentation.—Secher remarks that there are only twenty-three cases on record of an actual diverticulum in the stomach. In a case described, an ulcer in the greater curvature was accompanied with a pocket which suggested a diverticulum. This protruding part of the stomach wall was not adherent to other organs, and its size varied at different times and in different positions. The wall of the pocket must have retained its contracting power. The cases on record of a "functional diverticulum" were probably of this nature, a gastric ulcer with a niche.

Premature Separation of the Placenta.—The retrospective diagnosis was that an accessory placenta was responsible for the hemorrhage. The maternal vessel feeding it had ruptured, and the blood collected inside the placenta at first, in a preformed cavity and then back of the placenta. He has found these preformed cavities even in normal placentas.

Sept. 20, 1922, **65**, No. 38

*Clinical Study of Myocarditis. O. V. C. E. Petersen.—p. 613.
*Treatment of Disease of the Hair. C. With.—p. 622.

Blocking of Superior Branch of His' Bundle.—Petersen adds five new cases to the four he has previously published of bundle branch block. Analysis of his total nine cases in five years and necropsy in several has confirmed that it is a symptom of focal myocarditis, usually far advanced. The electrocardiograph reveals the only sure sign of it, and when syphilis is a factor, improvement may follow specific treatment; otherwise treatment can be only symptomatic. As it is a manifestation of myocarditis rather than of the conducting apparatus, digitalis is not contraindicated. He has given digitalis with good effects in these cases and no injurious consequences. All except two of his patients were in fair condition when first seen, all with good earning capacity. The heart disease was of several years' standing in some; in only one was the course as short as one year. He has never encountered but one instance of block of the lower branch of the His-Tawara bundle.

Treatment of Hair Disease.—With reviews what has been published on the subject of treatment of hair disease with extracts of horny substance. He then reports his own experience with 100 patients taking internally a hydrolysate of keratin. In 23 of 37 patients with alopecia areata, no effect was apparent as also in 6 of 9 cases of seborrheic dropping of the hair and in 5 of 9 with disease of the nails. The other patients in these and other groups seemed to benefit by the treatment, and the results, he says, justify further trials on man and animals. As might have been expected, some of the men complained of the annoyingly rapid growth of the beard and some of the women, of the growth of hair outside of the normally hairy areas. If further research confirms that the amino acids of keratin have an influence on the growth of hair and nails, the assumption seems plausible that certain skin diseases, such as psoriasis, might be due to an excess of horny substance in the diet, or at least might be influenced by excluding it from the diet. The work issues from the Finsen Light Institute at Copenhagen, and concludes with an appeal for closer cooperation between dermatology and pathologic physiology.

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UNCOUNTED FACTORS IN INFANT FEEDING *

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CHICAGO

The scientific development of infant feeding has been very largely a matter of the last twenty years. Previous to that time, most of the discussion on the subject was along empiric lines and represented the individual experience of various observers. During the last two decades, however, there has been a very definite attempt to place dietetics of infancy on a scientific basis. One after another of the various food elements has been the subject for investigation, with the result that at present the scientific standards by which we may judge of the food for the baby have been fairly well established. This marks an era not only in pediatrics but also in medicine.

Infant feeding is essentially a therapeutic measure. It is that branch of dietetics which requires the most exhaustive knowledge of scientific facts and the most thorough observation of clinical cases, to be carried out successfully. It has shown that dietetics is essentially an individual proposition: that diets are to be prepared not for groups but for individuals. This is much more true, unquestionably, at this age than later in life. While we have many excellent observations which bear on the scientific side of infant feeding, there still exist wide differences of opinion as to the application of these scientific facts. In other words, infant feeding s far from being an exact science, and still depends, to a large extent, on the judgment of the physician in the ndividual case. Nor does it seem likely that we shall ever be able to set down absolutely hard and fast rules o govern the various situations which we may meet. At least, one may say that the probabilities are that such rules, if they come at all, will come only in the remote future. I think that most men who have a practical knowledge of this branch of medical science vill agree with these statements. If these are true, we hould endeavor to take account of those factors which have not as yet been determined, and if possible either liminate or conquer them so that the practice of infan-ile dietetics may become more simple and, as a result, more easily mastered by all the members of the profession.

In the practice of infant feeding I have endeavored o make my recommendations as simple as possible in rder to do away with those unnecessary things which requently appeal to the parents but are of no real value o the child. One can go too far in this direction, and one should be careful not to eliminate essentials. By the elimination of the nonessentials one is better able to judge of those factors in the practice of infant feeding which are not of a dietetic nature, and yet which, in many instances, determine success or failure. It is with such factors that I propose to deal.

I approach this subject with all humility because, in the first place, the factors, such as they are, are known to every one, and because, in the second place, I shall by no means be able to cover the field as it should be covered. I shall endeavor, however, to point a reason for the wide differences of opinion which have existed and still exist, and to give some indication as to why we succeed with certain of our patients and fail with others.

PSYCHOLOGY OF INFANT FEEDING

Perhaps the most important phase of the subject is the practical psychology that enters into the situation. One is so likely to think that in the therapeutics of infancy he can disregard the psychologic side that he often leaves this out of consideration entirely. Most of us, I think, though, size up the combination with which we have to deal and act accordingly. For some years, most of the sick infants which I have taken care of have been hospital cases. When I compare my former experience with the more recent one, I feel that there has been a decided difference. I do not believe that this rests altogether on added experience. It seems to me that to a large extent the better results obtained have been due to elimination of certain psychologic elements which enter into every case of infant feeding.

There is brought to one an infant which is crying continuously and which has a great deal of distress. As a consequence, the mother or attendant has been on a nervous strain, with the resulting reaction on the child. The child cries; the mother picks it up. It soon learns to cry to be picked up; it does not sleep well, and the mother fusses with it at night. In two or three days after being taken to the hospital, the same child, without change of food, becomes a different individual. The fussiness largely disappears; the child sleeps well, it begins to gain in weight, and many of the gastro-intestinal disturbances begin to disappear. In this instance we may readily ascribe the child's improved condition, not to any scientific knowledge that we may have of infant feeding, but entirely to a change of environment.

Again, an infant approaching the end of the first year is brought to one because it does not gain. It has been altogether on a bottle feeding and one feels that it is now high time that it be given some other kind of food, such as a dish of cereal. The child refuses this cereal, and the mother, in the desire to make the child gain, forces the feeding. What is the result? Frequently the child resists strenuously, and from the repeated efforts works itself into such a nervous state that it not only rejects the new type of food but vomits everything. That this is purely a matter of disturbed psychology can be easily proved in two ways. One may let the child stay hungry until it will take the food; the food then no longer produces vomiting; or one may continue one's efforts with smaller quantities of food, and after a short time the resistance of the child is weakened; it becomes accustomed to the new diet and, far from rejecting it, takes it eagerly and without any untoward results. These are only examples of some of the more evident effects of psychology of the infant and its attendants on infant feeding. It seems altogether likely that less disturbing conditions may produce slighter variations from the normal but still be the cause of ultimate failure.

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Another side to this psychology which must not be overlooked is the confidence with which the attendant carries out the orders of the physician. It is certainly true that different types of physicians appeal to different individuals, and, as a consequence, the confidence which our patients feel in us is determined to a large extent by their reaction to our personalities and our reaction to theirs. This is a very important factor in success in infant feeding, because it is frequently necessary to have a complete mastery of the situation over a long time if we are to be successful. We are sometimes surprised by the results that are obtained by men with large reputations. Certainly, to some extent such results are to be attributed to broader experience and better methods; but there also enters here the fact that such men command the confidence of the parents of their patients, and as a result are able to keep their cases under observation for a longer period and consequently obtain greater and more lasting benefits.

We all know how the spoiled child influences the results of treatment, and we all know how early an infant may be spoiled and how complete the spoiling process may be. Often the health of the patient is determined by just this factor, and only by eliminating it are we able to produce cures, no matter how carefully or how intelligently we may supervise the preparation of the diet. It is such psychologic factors as these that determine success or failure in many instances, and they are not at present to be measured with any scientific accuracy.

HOSPITAL CARE VERSUS HOME CARE

Quite intimately associated with the psychologic factor is that of infant care. Some years ago I had service in two hospitals; one was a large public hospital, the other a private hospital with a public ward. In each of these hospitals, charity cases were taken whenever there was a vacant bed. The type of case, as nearly as I could judge, was about the same in each. The facilities from an infant feeding standpoint were equally good. The nurses in both were very conscientious, and the head nurse in the children's ward in the private hospital had received her preliminary training in the public hospital. Yet in the private hospital we were able to get excellent results with our feeding cases, while in the public hospital child after child died. This situation has been noticed by several of my colleagues and commented on. It seems to me that the answer lies in the number of nurses allotted to children's work. In the children's ward of the private hospital we had an average of one nurse to every four or five patients; in the public hospital, perhaps one nurse to twice that many children. The result of this was that the infants were not changed frequently, that they perforce could not be cleaned up immediately after vomiting; the nasal discharges were not immediately attended to, and very little could be done in the way of isolation.

We have heard so much in the past about hospitalization and so little about what the term really means that it is time we stopped to analyze the situation. The difference between hospitalization of infants and home care is a difference in the amount of individual care given each child. In the average home, this is frequently too much. In the poorly conducted hospital, it is always too little. If the pediatric wards of a hospital are properly conducted, that is, if there are proper facilities for the care of children and a sufficient personnel properly educated and intentioned, a hospital may be a most excellent place for a sick child over many months. In fact, in my opinion it is the only proper place to care for sick babies, just as it is the only proper place to care for sick adults. With a highly trained and conscientious personnel, the hospital becomes the one place where the physician may eliminate certain accessory sources of error and apply himself more directly to the case in question in respect to its physical needs, and he may leave out of consideration entirely, or to a very great extent, many of the irritating factors that must enter into consideration in the home. Once a mother is persuaded that her child is getting adequate care, she is much more easily satisfied if the child is in the hospital. The responsibility is not on her shoulders, and she can get a better perspective. This, of course, is not true in all instances, but it is certainly true in a large proportion. We have heard so often that the hospital is not the place for the sick infant that I feel I must take this opportunity to express my views on the subject and to offer the suggestion that, if the results obtained in the hospital are not to one's liking, it would be well to investigate the conditions under which these children receive treatment.

In the home, too, the care of the infant makes much difference. This is no more clearly shown than in the results obtained in infant welfare work in this country during the last fifteen years. The first efforts to reduce infant mortality were directed toward the giving of clean milk. This did not prove altogether satisfactory, and the next efforts were what might be termed wholesale feeding, that is, Formulas 1, 2, 3, 4 and so on were put up in bottles. An infant was brought to the dispensing station and, according to its age and weight, was given Formula 1, 2, 3 and so on. The milk, as a general rule, was excellent, and the formulas were more or less appropriate; but the results obtained in this way were not satisfactory. The present idea may be spoken of as the retail feeding of infants. By this method each child is given individual attention. The milk is probably no better and no worse than it was in either of the other two instances. The formulas are usually simple milk mixtures, often with sucrose additions. They are, perhaps, somewhat better adapted to the individual child than were the earlier formulas.

This fact alone, however, does not account for the success of this method in caring for large numbers of infants over 3 months of age (since we have been able to influence mortality in infants under 3 months of age very little). We must take into consideration the fact that each child is carefully examined by the physician, and that the nurse goes into the home, looks after the hygienic conditions there, shows the mother how to prepare the food in a sanitary manner, and secures her cooperation by making her do the work for her child and by bringing up her child nutritionally in competition with other children of the same age. The children, in other words, are better cared for at home. They are bathed more frequently; the clothing is washed more frequently; they are not over and under clothed to the same degree, and the mother knows not only that she should do these things but why she should do them.

The success of infant welfare work in this country is probably due more to the betterment in the care of the child than to any advances in scientific knowledge of the subject of infantile dietetics, great as these advances have been. This is true not only of the normal infants at home but also, to a less degree, of the sick infants which we have in our hospitals. We have learned to individualize. We know now that the poor, puny infant suffering from a severe form of malnutrition is not to be put out in the open air on a cold day. We know that during hot weather the child is not to be swathed in a woolen band. It is attention to such details as these that often determines our success. So much is this true that I frequently think that almost half of the success of infant feeding is in the care which the child receives.

METHODS AND RESULTS

But there is another side to infant feeding which has puzzled many and has been the source of much amusement to our eminent colleagues in other branches of the profession. Years ago, before diagnosis was on as accurate a basis as it is now, when the experience of one man was usually quite limited and his conclusions inaccurate, there was a great deal of difference of opinion as to the efficacy of different drugs in different diseases. The interpretation which one man placed on his experience was contradicted in no uncertain manner by his no less honest and experienced competitor. The result was bitter controversy as to whether this or that drug was effective. It has seemed to me that such a situation has existed in relation to infant feeding. In one place, one method is advised; in another place, another method. One man gets satisfactory results with one food, another with something else. Certainly the infant organism is able to adjust itself to various combinations of food. It seems not unlikely that we may find that combinations of food which apparently are at wide variance may be in effect, from a physiologic standpoint, very much the same.

The explanation of this difference of opinion probably lies not in scientific interpretation, but rather in the fact that the physician has been treating his case by a method that he has mastered. It has always seemed to me that in no other way could we explain the differences of opinion that exist among intelligent pediatricians, and the uniformity of results from widely varying methods. Pediatricians are not unlike surgeons: different surgeons use different instruments, but with these they frequently obtain the same good results. In my wards I have tried out various types of infant feeding, and men who have been associated with me have done the same. We have nearly always come back to our old ideas and methods. None of us feel that we can claim any special superiority for these methods, but we do feel that our familiarity with the old ideas has brought about greater efficiency in their use than we can readily acquire for the newer methods. Such an attitude results in a not wholly satisfactory conservatism, and one should try to reserve a sufficiently open mind so that real progress can be made. It is not easy for one to learn a method thoroughly. The pediatrician must be sensitive to the various little symptoms which necessitate changes in the diet. He must know when it is wise to continue the diet unchanged. He should know what to expect in the way of prognosis in the given case; in many instances he will be able to predict what changes are to be expected both in the treatment and in the condition of the infant. All these things are not learned in a minute. It requires long months and years of careful application and interpretation to develop such knowledge, and as a consequence the practitioner becomes less receptive of new ideas because he finds it hard to introduce them into his scheme of treatment.

VALUE OF SCIENTIFIC KNOWLEDGE

One might think from the foregoing that there is no place in this scheme for the scientific facts that we have gathered together as the result of so much devoted effort. If I have seemed to dwell on certain factors that have only an indirect relation to dietetics of infancy, it is only because I feel that in the past such factors have not received their due attention. It is certainly true that many have obtained results in infant feeding whose knowledge of the scientific bases of this branch of medical science has been entirely inadequate. It is not from the results obtained by such men that we can draw our final conclusions. Effective work in medicine is produced only by those who have as thorough a knowledge of the subject as can be obtained. Others may have success in a fair proportion of cases, but in the long run the percentage of satisfactory results lies with the man who has the intimate knowledge of his subject. He must also have the ability to interpret outside conditions and to take advantage of situations that may arise. No one, I think, realizes better than I the importance of the scientific side of infant feeding. The years of hard work along these lines have not been wasted. As one fact after another accumulates, we eliminate more and more the sources of error. Gradually we are coming to know what should be done under given circumstances, and the man who has the wealth of present scientific knowledge at his disposal is much better prepared to feed the infants placed in his care than he was twenty years ago when empiricism was rampant and we were groping in the dark.

It is necessary, however, in order to use this scientific knowledge that one have in his possession not only scientific facts, but also a knowledge of the indications for their use. It seems to me that in infant feeding, as in every other therapeutic measure in medicine, the basis of success lies not so much in a knowledge of the therapeutic measures as in the diagnostic ability of the man who would apply them. In order to feed infants properly, it is necessary that a thorough diagnosis of the condition be made. This diagnosis consists not only in the differentiation between those conditions of gastro-intestinal origin and those of parenteral nature, but also in a proper interpretation of the gastro-intestinal symptoms that arise. Without such interpretation, one is very likely to be led astray in his therapeutics. It is here more than anywhere else that knowledge of the basic principles underlying alimentary physiology and pathology is of service. We must try to visualize the hidden conditions and to direct our therapy accordingly. I have always felt that far too little was taught about the diagnosis of gastro-intestinal disorders in infants, and far too much about their treatment. The basis of all treatment must be diagnosis; and if we are to enjoy the greatest success, we must first learn to estimate accurately the various factors that are presented.

There is a decided tendency on the part of laymen to regard the feeding of the infant as altogether responsible for any conditions that may arise. They do not take into consideration that respiratory and other affections have their repercussion on digestion and metabolism, and that very often what is needed is not a change of diet but the treatment of some condition far removed from the gastro-intestinal tract. Here, again, adequate diagnosis will help greatly in the interpretation of the case, and usually in its successful treatment. Probably one of the mistakes that is most frequently made is to expect that a child may recover from a severe gastro-intestinal onslaught without a convalescent period. Such recovery is not expected of adults. Often, in the infant, repair comes only after days and weeks of careful attention to diet. It is an exceedingly hard thing in chronic nutritional disorders to know just when repair is so far advanced that one may proceed with an increase of food, and perhaps it is this more than anything else that has led laymen and some of the less enlightened members of the profession to assume a certain skepticism regarding the success of conservative treatment.

I shall never forget an experience which I had during my first years as a pediatrician. It happened that I was taking care of a negro child in a dispensary. The infant, which was suffering from a severe degree of marasmus, was the child of a woman doing housework for a well known physician. I had not seen the child for several weeks when I met the physician on the street. He greeted me with, "Well, Maggie's baby is going along fine now," and I was all attention and animation. But the next sentence took the wind out of my sails. "Yes, she is feeding her bread and brown gravy." I have had many experiences like this since. Possibly my interpretation of the facts in this instance is not the correct one; but it has seemed to me that the bread and brown gravy might easily have proved fatal at an earlier stage of the infant's career; that in effect what happened was that the child was on a formula which permitted of repair of the nutritional disorder, and that my error in judgment had consisted in not recognizing the fact that the stage of repair was over and that the time for larger quantities of food had arrived. I find this determination the most difficult one that I have to make.

CONCLUSION

One thing further is of importance. We are very prone to judge of the success which we obtain by the immediate consequences of the method used. It seems to me that this is wrong. The feeding during the first few months of life may result in nutritional injuries which are not evident at the time, but which manifest themselves months later. Our judgment in the individual case as to whether or not we have been successful should come only after the child has passed out of infancy and we may sum up all of the factors involved: not only the end-results, but also how much inconvenience and disturbance have been caused during the time the child has been under our care. It is only by careful estimation of all the factors involved that we shall be able to advance our knowledge of infant feeding. To do this, we must take into account the many contributive elements which go to make up success.

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RÔLE OF UNRESOLVED PNEUMONIA IN BRONCHIAL ASTHMA *

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During the last few years considerable attention has been paid to the study of asthma, particularly from the allergic point of view. The progress that has been made along these lines has unquestionably added much to our knowledge of the subject. It has enabled us at least to classify between 40 and 50 per cent. of asthmatic cases as being due to sensitization by foreign proteins, so that the outlook for improvement and cure has been increased to that extent. This has largely been due to the work of Schloss,[1] Walker,[2] Cooke [3] and Vander Veer,[4] Longcope,[5] Mackenzie,[6] Rackemann [7] and Talbot.[8] Through the researches of these investigators, especially Walker,[2] Cooke [3] and Vander Veer,[4] it has been established that the majority of sensitive asthmatic patients fall into certain age groups. The greatest incidence of sensitive cases is to be found in the early years of life, and the smallest in the later years. Thus, Walker [2] states that four fifths of patients whose asthma began in infancy were sensitive to foreign proteins. Two thirds of those whose symptoms began during childhood and one half of those first afflicted in adult life were sensitive; but none was sensitive whose asthma began after the age of 50. One of the possible explanations for the foregoing conditions, no doubt, lies in the factor of inheritance, which Cooke [3] and Vander Veer [4] state occurs in accordance with the mendelian law, the transmission of hypersensitiveness being a dominant characteristic.

Although it must be borne in mind that the transmission of specific hypersensitiveness does not as a rule occur, it is probable that a general tendency to hypersensitiveness may be transmitted. While such are the facts in the group of sensitive asthmatic individuals, there exists the other 50 per cent. in whom the etiology is extremely varied and in whom sensitiveness cannot be readily proved, but in whom the asthmatic attacks may resemble very strongly and in every detail those of the true sensitive asthmatic patients. Walker [2] is inclined to include most of this group under the term atypical bronchial asthma or asthmatic bronchitis. The

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[1] Schloss, O. M.: A Case of Allergy to Common Foods, Am. J. Dis. Child. **3**: 342 (June) 1912; Allergy in Infants and Children, ibid. **19**:433 (June) 1920.

[2] Walker, I. C.: A Clinical Study of Four Hundred Patients with Bronchial Asthma, Boston M. & S. J. **179**: 288 (Aug. 29) 1918; Oxford Medicine **2**: 217, 1920.

[3] Cooke, R. A., in Tice: Practice of Medicine, Hagerstown, Md., W. F. Prior Company **5**, 1921.

[4] Cooke, R. A., and Vander Veer, A., Jr.: J. Immunol. **1**: 201 (June) 1916.

[5] Longcope, W. T.: The Susceptibility of Man to Foreign Proteins, Am. J. M. Sc. **152**: 625 (Nov.) 1916; Protein Hypersensitiveness and Its Importance in the Etiology of Disease, J. A. M. A. **77**: 1535 (Nov. 12) 1921.

[6] Mackenzie, G. M., and Baldwin, A. B.: Local Desensitization in Hypersensitive Individuals and Its Bearing on Prevention of Hay-Fever, Arch. Int. Med. **28**: 722 (Dec.) 1921.

[7] Rackemann, F. M.: A Clinical Study of One Hundred and Fifty Cases of Bronchial Asthma, Arch. Int. Med. **22**: 517 (Oct.) 1918; The Relation of Sputum Bacteria to Asthma, J. Immunol. **5**: 373 (July) 1920; A Clinical Classification of Asthma Based upon a Review of Six Hundred and Forty-Eight Cases, Am. J. M. Sc. **162**: 907 (Dec.) 1921.

[8] Talbot, F. B.: Asthma in Children, Boston M. & S. J. **175**: 191 (Aug. 10) 1916.

cases especially associated with respiratory infections, such as "colds," bronchitis, particularly the chronic variety, catarrhal conditions of nose and throat, or with infections of the teeth, tonsils or sinuses, are placed in this category. As with many other classifications, so many exceptions at once arise that to be too dogmatic seems inadvisable. While the terminology proposed by Walker[2] perhaps serves its purpose, namely to accentuate the difference between asthma due to known protein sensitiveness and that not so proved, this group and the true sensitive bronchial asthmas are often indistinguishable from one another from the nature of the attacks alone. One is rather hesitant in using Walker's[2] designation too freely, especially in the absence of bronchitis, or when, in the free interval, the chest is negative on physical examination. Even Walker[2] admits the possibility of there being some in this class who may be sensitive to the bacterial proteins per se and thus have true anaphylactic asthmas. Rackemann[7] fully supports Walker[2] in this conviction. Nevertheless, in our experience and apparently in that of Caulfeild,[9] the determination of sensitiveness to bacterial proteins has not been very satisfactory. This is also borne out by the recent observations of Cooke.[10]

In the light of the foregoing contentions, it has been interesting for us to find a group of nine cases, in a series of about 160 studied during the last year, which we regarded as distinctly bacterial in origin, and which did not respond to the cutaneous tests for the bacteria we employed. These cases were studied primarily from the allergic point of view, about 120 different proteins being employed in each case, of which fourteen were different bacterial proteins.[11] To none of these was there any reaction whatsoever. The age of these patients ranged between 40 and 50 years. They gave histories of asthmatic attacks of varying duration, dating the onset from definite pulmonary infection. While "colds," bronchitis, and other nasorespiratory nfections, as has been mentioned, have been conceded o be the starting point of asthmatic attacks, this group s particulary important in that the attacks were associated with unresolved pneumonias, in the majority of cases recent influenzal infections. In these cases, physical signs of unresolved pneumonia could not be elicited. This was due to the fact that in most instances the ocus was situated deep in the pulmonary tissue and was complicated by a superimposed emphysema, which also, in certain cases, perhaps was of recent origin. These patients, therefore, have been studied by repeated oentgen-ray examinations during the last year and the progress of the pulmonary condition noted. Each patient was subjected to a nose and throat examination y a specialist. Blood counts, sputum and Wassermann xaminations were made. In taking the histories, special stress was laid on previous allergic phenomena in he life or family of the individual, such as the existence f hay-fever and urticaria. No history to that effect was obtained in any case. Cardiorenal factors and other reflex phenomena were excluded in routine xaminations.

REPORT OF CASES

Case 1.—L. R., man, aged 55, was admitted, Oct. 31, 1921, omplaining of having had asthma for the last two years, ollowing influenza in 1918. The attacks had recurred in winter and in summer with equal severity, both by day and by night. He had had some expectoration, mucopurulent in character, expelled after violent coughing.

Physical examination of the chest revealed the presence of emphysema and no râles. Roentgen-ray examination of the chest disclosed scattered infiltrations at the right base which had the appearance of an unresolved pneumonia. Cultures of the sputum were made and an anhemolytic streptococcus, as well as *Micrococcus catarrhalis*, was recovered.

The patient was given roentgen-ray treatment to hasten resolution of the pneumonia. He received five treatments at biweekly intervals. The immediate results were at first discouraging. After each treatment, he said that he felt worse. Gradually, he began to improve and by January he felt much better.

Roentgen-ray examination, March 1, 1922, demonstrated no definite abnormality in the lungs. The physical examination was practically negative except for a moderate emphysema. When last seen, he had had only one mild attack in two weeks.

Comment.—This patient had a postinfluenzal, unresolved pneumonia of the right lower lobe. After five roentgen-ray treatments applied to the affected side, the pneumonia disappeared and the patient definitely improved within a period of five months. The immediate bad after-effects of the roentgen-ray treatments resembled closely those caused by other nonspecific forms of therapy, for example, foreign protein injections with the usual reaction followed by improvement.

Case 2.—A. K., man, aged 48, was admitted, April 25, 1921, with a history of having had pneumonia a number of years before, the exact date of which he did not remember. For the last eight years, he had had asthmatic attacks. These were decidedly worse during the winter and much milder during the summer "except when he caught cold."

Physical examination revealed crepitating râles throughout the chest. The temperature was 101 F. Roentgen-ray examination, April 26, demonstrated a pneumonic process in the right lower lobe. There was no evidence of tuberculosis. Roentgen-ray therapy was instituted. May 20, after four treatments, the patient reported definite improvement. Examination of the lungs revealed disappearance of the crepitating râles previously recorded.

He was comparatively well until the beginning of September, 1921, when he returned complaining of having caught another cold. Examination of the lungs disclosed numerous râles at both bases, more on the left than on the right side at this time. The asthmatic attacks had returned. They were, however, not so severe as the winter before. Gradually, under symptomatic treatment, he again began to improve. He was away from the clinic until Dec. 5, 1921.

On admission, he reported that he had been free from the severe asthmatic attacks since September 27. He had worked and felt well. A week before, however, he had experienced pains in the joints. Examination revealed a generalized polyarthritis and crepitations at the bases of both lungs. The right side of the heart was enlarged 1 inch (2.5 cm.) to the right of the right sternal border, and a short systolic blow was heard at the apex. The temperature was 100 F. He was sent to the hospital and his lungs were again roentgenographed. This time the lungs showed shadows at both bases which were interpreted as being pneumonic in nature. The right side of the heart was enlarged. In all probability, the symptoms were secondary to the unresolved pneumonia. He remained in the hospital for about two months. The joint symptoms gradually disappeared. During his stay in the hospital, he had no asthmatic attacks.

March 3, he returned to the clinic. He had had no asthmatic attacks since September, 1921. Physical examination revealed crepitations at the left base and nothing at the right base. The roentgen ray disclosed a broad diaphragmatic adhesion at the left base but no other abnormality.

Comment.—This patient had an unresolved pneumonia of the right lower lobe which was responsible for his attacks. After four roentgen-ray treatments, his symptoms definitely improved. He was away for four months, returning with a fresh cold and with physical signs of infiltration at both bases; but asthmatic attacks had been less severe. Three months later, he returned with an attack of acute polyarthritis, but no asthma, even though the roentgen ray proved the persistence of bilateral involvement of the lungs, which had been demonstrated by physical signs three months before. He went through a siege of joint affection, lasting two months, without any asthmatic attacks. On his discharge, the roentgen-ray examination was practically negative and the few crepitations at the left base were probably to be attributed to atelectasis following pulmonary adhesions. The interesting features of this case were the improvements (1) after roentgen-ray therapy and (2) after acute concurrent infection of the joints. Both apparently acted analogously to nonspecific therapeutic agents, with consequent improvement of the asthma.

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[9] Caulfeild, A. H. W.: Sensitization in Bronchial Asthma and Hay-ever, J. A. M. A. **76**: 1071 (April 16) 1921.

[10] Cooke, R. A.: IV. New Etiologic Factors in Bronchial Asthma, Immunol. **7**: 147 (March) 1922.

[11] The proteins prepared by the Arlington Chemical Company were nployed in this work.

Cases 3, 4 and 5.—These patients, aged 46, 58 and 49, respectively, were admitted with a history of having had influenzal pneumonia in 1917, 1918 and 1921, followed by asthma. Roentgenologic examination revealed unresolved pneumonia, in each case confined to the left base.

Case 6.—A woman, aged 51, gave a history of having had asthma for twenty-one years, both winter and summer. Roentgenograms, April 29, 1921, revealed infiltrations at both bases. The diaphragm was adherent. This patient received eight roentgen-ray treatments. Following these, she showed definite improvement. Oct. 6, 1921, a roentgenogram disclosed numerous adhesions at both bases, but no evidence of previous pneumonic process.

Comment.—This patient had a bilateral unresolved pneumonia which disappeared after eight roentgen-ray treatments, with practical disappearance of asthmatic attacks after five months. It is, of course, a question whether the unresolved pneumonia had persisted for twenty-one years. It is altogether possible that there were recurrent infections in the lungs at intervals during this period. In the light of our other cases, this possibility is to be strongly considered.

Case 7.—B. K., woman, aged 45, was admitted March 4, 1921, with a history of having had bronchopneumonia in 1920. This was followed by asthmatic attacks which occurred at any time during the day or night. Physical examination revealed crepitating râles at both bases and a moderate emphysema. A roentgenogram taken, March 22, 1921, revealed numerous diaphragmatic adhesions on both sides. The left lower lobe also gave evidence of a process which was interpreted as being due to an old pneumonia.

She was treated with nonspecific protein therapy, the New York Board of Health triple typhoid vaccine being used for that purpose. Subcutaneous injections of 0.5 and 1 c.c. of typhoid vaccine were given at weekly intervals for two months. During this treatment she felt very much better. She stopped coming to the clinic, April 6, 1921, and was not seen again until Nov. 2, 1921. During this period, she did her housework and was free from attacks. In November, she caught cold and the asthma recurred. Another series of three inoculations with the typhoid vaccine was given with the usual improvement, until the present date, September, 1922. A recent roentgenogram discloses no definite abnormality in the lungs.

Case 8.—J. P., man, aged 46, was admitted Jan. 6, 1921, with a history of having had asthma for ten years, both winter and summer. On three occasions, intranasal operations were performed on him, with little benefit. Recently, the asthmatic attacks had become more and more severe.

Physical examination revealed a marked emphysema. Roentgen-ray examination of the lungs revealed shadows at the left base, suggestive of an unresolved pneumonia. The patient consented to a bronchoscopy. This was performed by Dr. Sidney Yankauer, who found dilated bronchi on that side (probably evidence of a long-standing process). A small amount of secretion was aspirated from these, and cultures were made. The growth obtained was a pure culture of an anhemolytic streptococcus (*S. salivarius*). The bronchi were irrigated with saline solution.

After two weeks, the bronchoscopy was repeated. Very little secretion was obtained. The lung appeared to be clearer. The aspirated fibrin flakes this time again showed the presence of anhemolytic streptococcus. Therapy in this case has been symptomatic. At present, the patient feels comfortable and has practically no attacks.

Comment.—This is a case of asthma of ten years' duration due to unresolved left-sided pneumonia, with multiple bronchiectatic cavities that yielded anhemolytic streptococci on aspiration. Improvement followed irrigation of the bronchi.

Case 9.—H. S., man, aged 53, was admitted Jan. 16, 1922. He also gave a history of having had asthma for the last eleven years, which was aggravated following an attack of influenza in 1919. Roentgen-ray examination revealed unresolving pneumonia at both bases, with adhesions to the diaphragm.

The patient was placed on routine medication and disappeared from observation until the early part of March. On his return, he stated that the attacks had diminished because of the milder weather. Roentgen-ray examination at this time demonstrated that, although the diaphragm on both sides was still adherent, coarse infiltrations, probably due to unresolved pneumonia, were present only in the right lower lobe (March 7, 1922). The patient consented to bronchoscopic examination. Small bronchiectatic cavities were found, with very little secretion in the right lower lobe. Cultures were made of the fibrin flakes obtained on aspiration, and a pure growth of an anhemolytic streptococcus was obtained. The patient is still under observation.

COMMENT

The literature on the pathology of asthma is limited. Walker,[2] in discussing the cases that he terms atypical bronchial asthma, or asthmatic bronchitis, in which pulmonary changes would be most likely to occur, states that, with the exception of peribronchial thickening, nothing is found at necropsy except changes that may be determined by physical examination. Lord,[12] commenting on the varied pathologic lesions that may be found, stresses the fact that these are neither "uniform nor characteristic." He mentions redness of the bronchial mucosa, emphysema, partial or complete occlusion of the small bronchi by an exudate of mucus, all of which one may see as end-results in the evolution of asthma, irrespective of etiology. Huber and Koessler[13] in studying the histopathology of lung structure in bronchial asthma, describe two cases, among others, on an infectious basis. One was a well defined case of exudative type, characterized by an abundant secretion (bronchorrhea), associated with paroxysmal attacks, the "anatomic parallel" of which was furnished by a marked hypertrophy of the mucous glands of the bronchi. The other case, characterized clinically by a more or less unproductive cough that led to attacks of bronchial spasm, presented as the chief pathologic change a striking hypertrophy of the muscle fiber system. This suggested to them that in some cases the abundant exudate might be a factor in causing obstruction and asthma, while in others the infection might lead to profound injuries of the protective layers of the mucosa, causing loss in substance and absorptions of toxins. Since asthmatic patients rarely die of asthma, few postmortem findings have been recorded, and, since the changes are physiologic rather than anatomic, structural lesions are uncommon, except in well defined chronic cases. It was, therefore, fortunate that we were able to study cases in which, from the evidence at hand, the pathologic process as determined by the roentgen ray could be definitely located, and followed in its progress, and could be seen to disappear with improvement in the symptoms.

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[12] Lord, F. T.: Diseases of the Bronchi, Lungs and Pleura, Philadelphia, Lea and Febiger, 1915.

[13] Huber, H. L., and Koessler, K. K.: The Pathological Histology of the Lung Structure in Bronchial Asthma, Proc. Chicago Path. Soc. **11**: 128, 133, 1920-1921.

In the light of such findings, certain conclusions naturally present themselves: (1) The occurrence of a number of cases with small pulmonary lesions which may be overlooked without the roentgen ray must be realized. Acute infections in the respiratory tract may be so slight and transient that, especially when deeply situated in the lung tissue, it is impossible to diagnose them by physical signs alone, and yet they may be the starting point of much trouble. Very often a diagnosis of grip or bad cold is made. This is especially true of patches of bronchopneumonia, such as occur in influenza. (2) Unresolved pneumonias are much more common than is usually supposed. Pathologically, they are likely to be of the interstitial types, such as have been described by MacCallum[14] and others. (3) These pneumonias apparently act as foci which may initiate paroxysmal attacks of asthma. Such foci may remain stationary for a long period, may disappear with resultant fibrosis of the lung and the formation of diaphragmatic adhesions, or may serve as continuous sources of infection for other parts of the lung, as seen in Case 2. In this patient, improvement was noted coincidentally with the disappearance of physical signs at the right base. With the onset of a fresh "cold," evidence of involvement of the left base as well as the right was demonstrated by the roentgen ray.

That these unresolved pneumonias may advance to the formation of bronchiectatic cavities is well known, and it has been recognized that bronchiectasia may be a cause of bronchial asthma. The mechanism of the attacks is purely presumptive. Either the secretions in the cavities irritate the mucosa and cause reflex spasm, or absorption of toxins may play a rôle, or possibly bacterial proteins may be the exciting factor. That the presence of bacteria alone, without the occurrence of much exudate, may be responsible for attacks is quite evident from Cases 8 and 9. Here, as was noted above, a few fibrin flakes aspirated through the bronchoscope yielded a pure culture of anhemolytic streptococcus. As yet, we have no sufficient knowledge of the length of time that it takes for the complete disappearance of bacteria from lung tissue which was once the seat of inflammatory invasion. Even though there is no evidence of involvement that may be demonstrated either by the roentgen ray or by physical signs, there are no criteria for absolute, definite assurance that the lung is free from bacteria. The accompanying emphysema in pulmonary infections may not be due solely to compensatory factors, or, as in asthma, to mechanical difficulties. It may yet be shown that a low-grade inflammatory reaction in the interstitial tissues as a result of the continuous presence of bacteria in the lymph channels and follicles may be a contributory element. That bacteria do occur in the lymph spaces in streptococcic pneumonias as well as in other types, for example pneumococcal, has been demonstrated repeatedly by MacCallum[14] and others. That this method of invasion may be responsible for the pneumonia[15] has been pointed out, in my studies of influenzal pneumonias in 1920. Since then, Winternitz,[16] in this country, and Armstrong and Gaskell,[17] in England, have presented experimental evidence in support of this clinical observation. Winternitz[16] and his associates found that pneumococci introduced by needle puncture through the skin into the lumen of the trachea or by insufflation, provided the insufflation catheter damaged the epithelium of the trachea, spread by way of the lymphatics to the lung. The lymphatics of the submucosa of the trachea, therefore, afford a direct pathway of infection to the lung. This route is suggested by Armstrong and Gaskell[17] as the explanation of certain forms of pneumococcal infection usually encountered in children, as for example, relapsing pneumonia. By analogy, therefore, it may be supposed that our cases may have belonged to this group. At any rate, it is obvious from a review of these cases, irrespective of the method of their occurrence, that the pneumonias were responsible for the asthmatic attacks, and that these asthmas were presumably bacterial in origin. This we believe has been demonstrated not only by exclusion, i. e., ruling out every possibility of allergy, but by actual demonstration of the focus by the roentgen ray; by a history of onset following the pneumonia, and, lastly, by definite improvement with the disappearance of the pneumonia in four of nine cases thus far treated and observed.

Whether the improvement is accomplished by means of roentgen-ray therapy, typhoid vaccine, or any other nonspecific means, makes little difference. The object of treatment is to stimulate the defensive factors of the body (plasma activation) in order to get rid of the responsible disease focus.

The question of negative skin tests in these cases will be discussed in a subsequent report.

SUMMARY AND CONCLUSIONS

1. In nine cases of bronchial asthma in which the asthmatic attacks were dated from an antecedent pneumonia, five of the patients gave a history of influenzal bronchopneumonia in 1918, 1919 and 1920.

2. In all of the cases, the roentgen ray shadows were interpreted as being due to unresolved pneumonia.[18] In two of this group in which the asthma was of longer duration, bronchiectatic cavities were found by bronchoscopy. Aspiration of these bronchi yielded fibrin flakes from which anhemolytic streptococci were recovered in pure culture.

3. Four of these cases were treated by application of roentgen rays to the involved lung area, with disappearance of the pneumonia and with the formation of diaphragmatic adhesions within a period of from four to five months. One patient was treated with typhoid vaccine with similar results.

4. With the disappearance of the focus, as demonstrated by the roentgen ray, definite improvement of asthmatic attacks was noted. (We used the roentgen ray as well as typhoid vaccine as nonspecific therapeutic agents.) Whether this improvement will be permanent, it is at present too early to state. All of these cases have been observed for one year.

5. In none of these cases have positive cutaneous tests to foreign proteins or bacterial proteins been obtained.

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[14] MacCallum, W. G.: Pathology of Pneumonia Following Influenza, . A. M. A. **72**: 720 (March 8) 1919.

[15] Harkavy, Joseph, and Selby, J. H.: Influenza Pneumonia from a Clinical and X-Ray Study, Am. J. Roentgenol. **7**: 109 (Feb.) 1920; ibid. : 148 (March) 1920.

[16] Winternitz, M. C.; Smith, G. H., and Robinson, E. S.: Infection oute in Respiratory Tract, Bull. Johns Hopkins Hosp. **31**: 63 (March) 1920.

[17] Armstrong, R. R., and Gaskell, J. H.: Pathology of Pneumococcal Infections of Human Lung, J. Path. & Bacteriol. **24**: 369 (Oct.) 1921.

[18] The roentgenograms were read by Dr. Harry Wessler without knowledge of the clinical course of the cases. The writer is greatly indebted to him for his interest and cooperation.

RESPIRATORY PARALYSIS FOLLOWING QUINIDIN THERAPY *

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The treatment of auricular fibrillation and flutter by the administration of quinidin sulphate is attracting much attention. In order to establish the correct status of this drug in the therapy of these arrhythmias, it is essential that publicity be given to untoward effects as well as to successes. A single instance of respiratory paralysis has occurred in the use of quinidin sulphate in the wards of the Boston City Hospital.

Many fatalities have been reported following the administration of quinidin. Most of these have been attributed to embolism, and, for a few, the explanation of cardiac standstill, associated with heart block, has been given. Apparently, the occurrence of paralysis of respiration is rare. Von Frey,[1] who introduced quinidin in cardiac therapy, has recorded two cases in his second report,[1] and, more recently, a third was described by him and Hagemann.[2] One of Haass'[3] patients, who had taken 2.8 gm. (43 grains) of quinidin in three and a half days, suddenly became pulseless and cyanotic, and stopped breathing; after which a regular rhythm set in. In this case, it is probable, as Wilson and Herrmann[4] suggest, that the difficulty was due to the Stokes-Adams syndrome in heart block, the cessation of respiration following rather than preceding heart block. Cohn and Levy[5] say that four cases are reported in the literature, in all of which recovery occurred.

Since these cases are rare, it seems profitable to repeat von Frey's[1] original description:

> There occurred in two cases an entirely unexpected condition of cerebral paralysis following the administration of 0.4 gm. twice and 0.2 gm. five times, respectively, and about three hours after the giving of the last dose. The patients felt dizzy, experienced a sensation of intense heat, and then a marked weakness set in. The patient became pale; the breathing slowed, then ceased, and after a short time the pulse was no longer palpable. In both cases artificial respiration overcame the menacing cessation of respiration; breathing was resumed, and the heart action again came to life and grew in strength. Epinephrin, in small doses, appeared to have a favorable action; caffein and camphor were without visible effect. In one of these patients, consciousness was regained after twenty minutes, but the patient had changed to a condition of marked excitation with hallucinations, making of grimaces and motor agitation. During this period, she understood what was said to her; three quarters of an hour later, this patient was mentally clear and felt well. In the case of the other patient, the loss of consciousness was relieved after a duration of one hour, but three times it displayed an alarming deepening, which was characterized first by standstill of the respiration and later by paralysis of the heart action. The situation was very disagreeable. Cold sweat stood on the patient's forehead, and the extremities felt cool. In this case also, a condition of excitement ensued, with motor unrest, in particular, constantly repeated see-saw movements of the upper part of the body, as one may also observe in poisoning with quinin (Lewin). Four and a half hours after the first symptoms the patient was quieter, fell into a deep sleep, and awoke in the morning without the slightest knowledge of the previous happenings. During the entire next day the patient appeared psychically altered, displayed striking forgetfulness, and not until the following day was the condition as before the attack.

REPORT OF CASE

History.—A woman, single, aged 55, house worker, was admitted to the Boston City Hospital, March 11, 1922, complaining of indigestion of from eight to nine months' duration. She had never been ill until four years previously, when palpitation, slight precordial pain and moderate dyspnea on slight exertion occurred. She stated that she never had swelling of the ankles, hemoptysis, cough or nycturia, and that rheumatic fever, chorea, tonsillitis, pneumonia, typhoid fever, influenza and syphilis had never occurred. There were no symptoms of syphilis.

Examination.—The heart measured 3 by 13 cm., with the impulse palpable in the fifth interspace. No thrills were heard. At the apex there was a systolic murmur transmitted to the axilla. The aortic second sound was louder than the pulmonic; neither was accentuated. Absolute irregularity was present; the rate at the apex was 120, at the wrist 90, making a pulse deficit of 30.

Treatment and Results.—Digitalis was prescribed, its use resulting in the control of the fibrillation with considerable improvement in the patient's condition. An electrocardiogram, March 24, revealed auricular fibrillation, a heart rate of from 75 to 85, inversion of the T-wave (digitalis effect), and frequent ventricular extrasystoles, causing a coupled rhythm in Leads II and III. There was no ventricular preponderance.

The digitalis was omitted, and, March 29, 0.2 gm. of quinidin sulphate was administered and repeated after two hours. No effect was noted.

March 30 and 31, 0.4 gm. was given, three times daily. The maximum pulse rate was 104. No change was observed in the patient until 6:30 p. m., March 31, about two hours after the last dose (2.8 gm. [42 grains] had been administered in the three days), when the patient suddenly cried out loudly. She was semiconscious and covered with a profuse perspiration. After three or four minutes, she was again conscious, but somewhat confused. At 11 p. m. one-sixth grain (11 mg.) of morphin was administered, because the patient was restless.

At 5:45 a. m., April 1, there was an abrupt change in the patient's condition, with an attack of hiccuping; the breathing became very slow, and marked cyanosis appeared. The radial pulse disappeared, but the heart sounds were audible. The breathing ceased entirely for a period estimated to be from two to three minutes. A stimulant was administered hypodermically. Three such attacks occurred during the forenoon, and the patient remained in a semiconscious condition. About noon, a small amount of watery material was vomited. At 1:30 p. m., the last attack occurred. It was similar to the preceding, save that it persisted for about fifteen minutes, and gradually passed off. The patient regained full consciousness, for the first time since early that morning, at 3:30 p. m.

April 2, the general condition was poor, and the patient confused. April 3, she felt bright and well, and had practically no memory of the events of the last two days. The electrocardiogram was essentially the same as on March 24, except that the heart rate varied from 58 to 75.

COMMENT

Von Frey[1] pointed out that such symptoms may not necessarily be peculiar to quinidin, but that they appear to result from the use of quinin. He states that toxic symptoms may be present after the administration of 0.03 gm. ($\frac{1}{20}$ grain) of quinin (Lewin). Von Frey also refers to the records of three deaths after the ingestion of quinin, and notes that they were attended by collapse and symptoms similar to those occurring in his two quinidin cases. One of these reports is that of Freudenberger,[6] in 1880, of two sudden deaths following the use of 1 and 1.5 gm., respectively, of quinin as an antipyretic; the other is that of Strümpell,[7] of a fatality due to the accidental taking of 4 gm. of quinin.

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* From the Heart Service, Boston City Hospital.

[1] Von Frey, W.: Weitere Erfahrungen mit Chinidin bei absoluter Herzunregelmässigkeit, Berlin. klin. Wchnschr. **36**: 850, 1918.

[2] Von Frey, W., and Hagemann, E.: Klinische und experimentelle Daten über toxische Chinidinwirkung, Ztschr. f. d. ges. exper. Med. **25**: 290, 1921.

[3] Haass, H.: Ueber die Chinidintherapie der unregelmässigen Herztätigkeit, Berl. klin. Wchnschr. **58**: 540 (May 23) 1921.

[4] Wilson, F. N., and Herrmann, G. R.: Cerebral Embolism Following Arrest of Auricular Fibrillation by Quinidin, J. A. M. A. **78**: 865 (March 25) 1922.

[5] Cohn, A. E., and Levy, R. L.: Experiments with Quinidin on Conduction and on the Refractory Period in the Dog's Heart, abstr. J. A. M. A. **78**: 1839 (June 10) 1922.

Lewis,[8] in his recent discussion of quinidin therapy, writes (referring to respiratory paralysis): "Whether this method of small trial doses will eliminate danger from this source remains for the future to decide." No clue as to idiosyncrasy to quinidin was obtained in our case by the test doses, given March 29.

The exact etiologic type of heart disease in the foregoing case remains undetermined. Artificial respiration was not employed in the treatment of the attacks of cessation of the breathing. In this I am convinced that an error of judgment was made by the physician who treated the patient, and in this opinion he now concurs.

SUMMARY

Paralysis of respiration following quinidin therapy is a rare occurrence. The preliminary administration of test doses gave no hint of the approaching untoward result of its administration in a patient in the wards of the Boston City Hospital.

270 Commonwealth Avenue.

THE SEMEIOLOGY OF THE PINK DISEASE (ERYTHREDEMA, ACRODYNIA)

REPORT OF FOUR CASES

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The credit for the first descriptions of this remarkable disease must be given to Australian physicians. In February, 1914, Swift[1] of Adelaide, in a paper read before the Tenth Australasian Medical Congress, employed the term erythredema to designate a new disease of young children, characterized by anorexia, insomnia, fretfulness, swollen, cold, clammy hands and feet, and a discrete papular miliaria on the trunk. Clubbe[2] of Sydney, and other Australian physicians used the term "pink disease," a term which, I believe, should be generally used until the pathology of the disease is more perfectly understood.

The most extensive report of this disease was made by Wood[3] of Melbourne, who, in collaboration with Dr. F. H. Cole, compiled records of ninety-one cases.

The interest of American pediatricians in this disease was first aroused by a paper by Bilderback[4] of Portland. His associate, Dr. W. F. Patrick, sent a report of these cases to Dr. John Lovett Morse of Boston, who, in turn, referred the cases for diagnosis to Dr. William Weston of Columbia, S. C. Weston[5] suggested the term acrodynia to describe the affection. Then appeared the extensive study of Byfield.[6]

I was immediately interested in this syndrome, as I had seen three cases, which I had diagnosed as severe pellagra (no other name suggested itself), and reported two of the cases.[7] I presented three cases to the St. Louis Pediatric Society the same year.[8] An additional report of ten cases was recently made before the Missouri State Medical Association.[9] Meanwhile appeared the case reports of Cartin,[10] a report of a typical case by Emerson,[11] and one by Field.[12] Weber[13] gives a summary of the work of the Australian physicians and reports one case. Thursfield and Paterson[14] report a case of this disease under the name dermatopolyneuritis, which is similar to the term once suggested by Byfield (trophoneuroses due to an infection).

TERMINOLOGY

The disease seems to have been known in Australia for a quarter of a century or more. Dr. Wood mentions that before his time Dr. Snowball recognized the complaint and called it "raw beef hands and feet." It then became known as the pink disease, and finally Swift used the application erythredema. It is but proper that the terms used so long by the Australian physicians should be adopted by the profession generally, especially since its identity with pellagra has never been admitted by those most familiar with the latter disease, and the hypothesis that it is the same disease described by French physicians in the early part of the last century as acrodynia is not generally accepted (Weber, Bilderbach, Zahorsky).

SYMPTOMATOLOGY

Mode of Onset.—It is not at all clear how the disease begins. Apparently not many severe cases have been studied by one physician from the very onset to the end. As a rule, a rash seems to be the first symptom, and has been called eczema, erythema, scarlet fever, German measles, urticaria and impetigo by different physicians attending the child. In other cases the skin manifestations were overlooked, and the first striking symptom was a change in the disposition of the child. He acts, sleeps and eats differently than before. He becomes unhappy, irritable, peevish and sleepless. An acute febrile disturbance is sometimes mentioned. An acute inflammation of the respiratory tract as the beginning of the disease has been emphasized only twice in my series. A digestive disturbance at the onset has been observed a few times.

The Disposition.—I consider the change in disposition and activity the most constant manifestation of the pink disease. Whereas the child formerly was happy and active, it now has become unhappy, miserable and inactive. He sleeps irregularly and for short intervals. He wakes up from ten to twenty times during the night, and cries. Nothing pleases him; he is neither hungry nor thirsty, and is not interested in playthings or companions. He is not comfortable sitting or lying down.

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[6] Freudenberger: Ueber das Conchinin und seine therapeutische Verwendung, Deutsch. Arch. f. klin. Med. **26**: 576, 1880.

[7] Strümpell: Ueber die Anwendung und die antipyretische Wirkung des Conchinins, Berlin. klin. Wchnschr. **46**: 679, 1878.

[8] Lewis, Thomas: The Value of Quinidin in Cases of Auricular Fibrillation and Methods of Studying the Clinical Reaction, Am. J. M. Sc. **163**: 781 (June) 1922.

[1] Swift, H.: Lancet **1**: 611, 1918.

[2] Clubbe, C. P. B., cited by Wood (Footnote 3); Weber (Footnote 13).

[3] Wood, A. J.: M. J. Australia, Feb. 19, 1921; abstr. Lancet **1**: 811 (April 23) 1921.

[4] Bilderback, J. B.: Northwest Med. **19**: 263 (Oct.) 1920.

[5] Weston, William: Arch. Pediat. **37**: 513 (Sept.) 1920.

[6] Byfield, A. H.: A Polyneuritic Syndrome Resembling Pellagra-Acrodynia (?) Seen in Very Young Children, Am. J. Dis. Child. **20**: 347 (Nov.) 1920.

[7] Zahorsky, John: J. Missouri M. A. **20**: 317 (Aug.) 1920.

[8] Zahorsky, John: M. Clin. N. Am., July 6, 1922, p. 97.

[9] Zahorsky, John: J. Missouri M. A. **19**: 296 (July) 1922.

[10] Cartin, H. J.: Pennsylvania M. J. **24**: 287 (Feb.) 1921.

[11] Emerson, P. W.: A Case of Acrodynia, J. A. M. A. **67**: 285 (July 23) 1921.

[12] Field, M. C.: Arch. Pediat. **39**: 116 (Feb.) 1922.

[13] Weber, F. P.: Brit. J. Child. Dis. **19**: 17 (March) 1922.

[14] Thursfield, H., and Paterson, D. H.: Brit. J. Child Dis. **19**: 27 (March) 1922

The Skin.—While the skin manifestations are often the earliest sign of the disease, a careful inquiry will elicit the information that a change in disposition and habits occurred several days or even weeks before the eruption appeared. The rash often appears suddenly after a mild febrile movement, and is generally diagnosed measles, rubella or scarlet fever. It may appear more slowly, and its persistent scaly appearance justifies the diagnosis of eczema. It may be fleeting and changing in character, and be mistaken for erythema multiforme or urticaria. The eruption fades after a few days, and then reappears. The intensity of the skin manifestations vary from day to day.

The typical rash is not unlike that of prickly heat (miliaria.) It consists of minute papules surrounded by a narrow areola. It occurs profusely on the trunk and less marked on the extremities; it is often found encircling the hair and neck. The face shows the rash less plainly, although Byfield, Weber and others have described a characteristic erythematous patch on the cheek, which was present in only three of my cases. Sometimes erythematous patches appear on the outer side of the thigh, the loins, the buttocks, or the arms and neck. These may be scaly and covered with scratch marks, and thus resemble eczema. In one of my cases the trunk was covered with a confluent desquamating dermatitis, the scalp covered with an exudative dermatitis with copious outpouring of the sebaceous follicles, resulting in a foul smelling crust and associated with intolerable itching.

The miliaria may be associated with a marked redness of the whole integument, and may readily be mistaken for the punctiform rash of scarlet fever.

Secondary infections, furunculosis and impetigo, were seen in two cases. Ulceration and gangrenous areas have been observed. In one of my cases a large ulcer appeared over the coccyx.

An intolerable itching of the skin is generally present and has led to the diagnosis of scabies. Scratch marks are often present on the trunk and lower limbs. Many children continually rub the genital region. In fact, gentle rubbing and scratching seems to soothe these little patients. They want their feet stroked and rubbed. One child was made comfortable several times a day by the mother lightly rubbing the legs and feet.

Whether other sensations are present cannot be positively stated. Sometimes the child acts as if the skin had a burning sensation, which is relieved by an emollient. Two children pulled out their hair constantly, a symptom mentioned by Wood and by Byfield. Anesthesia of the skin is discussed later.

While the affection is called the pink disease, it is my judgment that the skin is not pink but a darker red; I would call it a dusky red, cyanotic red or garnet red, but the hue varies in children of different complexions and also depends on the blood changes present.

Fleeting rashes, erythematous in character, may be the only skin manifestation. In one of my cases no rash was observed at any time.

Excessive perspiration is generally present. This may be limited to the hands and feet or certain circumscribed areas, as the abdomen or neck. A peculiar odor is sometimes noticed.

Paronychia was marked in one of my cases. Actual shedding of the nails has been reported.

The Hands and Feet.—Among the diagnostic phenomena of the disease, the changes in the hands and feet occupy a conspicuous place. They have been described as the "raw beef hands and feet." The palmar and dorsal surfaces of the fingers and hands are bluish red and swollen, and often some desquamation is present. The whole hands appear enlarged, perspire freely, and in severe cases are icy cold to the touch. Sometimes the dorsal surface of the hands and fingers is covered only by a nonconfluent papular eruption, while the palmar side of the fingers and hands shows a uniform swollen, dusky red surface. The redness and swelling gradually fade as they approach the wrist.

The feet have a similar appearance. The toes, plantar surface and dorsum of the foot are red, swollen and often desquamating and cold to the touch. In one of my cases the feet were plainly involved, while the hands appeared normal.

The Gastro-Enteric Tract.—The mouth is normal in fully one third of the cases. In others, a congestion of the alveolar and buccal mucous membrane, associated with or without ulceration, may be observed. A severe ulcer of the tongue led to general sepsis and death in one of my cases. These young babies often seem to bite and chew their tongue. Some constantly suck their fingers, and gag themselves by pushing their fist into the mouth. One patient chewed the inside of the flabby cheek, and two large necrotic ulcers were present resembling the mucous patches of syphilis. The throat may be congested, but the tonsils are not enlarged.

A peculiar and characteristic change is a softening of the gums and a loosening of the teeth. The teeth, perfectly healthy, fall out. It seems to be a melting away of the cement substance. The lower jaw is almost always the one affected (Bilderback, Zahorsky), but the upper gum may also be implicated. The four lower incisors and the two lower canines were the teeth involved in my series. This occurred in five children in twenty-one cases. The gum around these loose teeth may be red and swollen; in other cases it appears neither swollen nor congested.

Obstinate anorexia is one of the cardinal symptoms. The young child must be coaxed, even forced, to eat. Vomiting is not a frequent manifestation. Diarrhea occurred in only two of my cases. The mother often states, however, that the stools have been green and slimy for some time. An obstinate proctitis with rectal prolapse at each defecation was an annoying feature in one of my cases. Congestion of the integument around the anus is common; ulceration around the opening has been observed.

The Respiratory Tract.—Three of my patients developed typical lobar pneumonia during the course of the disease. They recovered, and the symptomatology of this complication was no more severe than in the previously healthy child. Several of my children had bronchitis. A peculiar manifestation was observed in two cases: Although there seemed to be an abundant secretion of mucus into the bronchial tubes there was little cough. An insensitive condition of the bronchial mucous membrane was inferred from the symptoms in those two cases.

The nose is often the seat of obstructive symptoms. Even ulceration and necrosis of the nasal structures have been reported.

These children seem to be very susceptible to respiratory infections. Respiration is usually more rapid than normal.

The Nervous System.—The anorexia leads to inanition and atrophy. It is difficult to estimate whether certain changes are due to the disease or to the secondary inanition. The peculiar manifestations of the psychic centers have already been described. A pronounced atrophy of the muscles is striking in older children (one case is reported below). Paresthesia of the skin is certainly present in the majority of cases. In one of my cases, large areas of anesthesia could be definitely demonstrated. Hyperesthesia is more common. The child objects to having his skin touched or pinched. Movement of the limbs seems to elicit pain.

A weakness of the muscular apparatus is plain enough in nearly all cases. The patients will not sit up unsupported; they cannot stand. In two of my cases, voluntary movement of both lower extremities ceased completely for several weeks.

The reflexes vary. Sometimes little or no change can be demonstrated. All kinds of variations occur. The superficial reflexes may be diminished, and the deep reflexes exaggerated. At the onset of the disease, an increase in the deep reflexes is common, but in all severe cases sooner or later the deep reflexes, especially of the lower extremities, become weakened and often completely abolished. The skin reflexes are generally diminished or absent. The cremasteric reflex may be present or absent. The deep reflexes in the upper extremities do not show a marked change from normal, but atrophy of the muscles is common.

Photophobia is often a striking symptom. A mild optic neuritis was found in one of my cases.

The Circulation.—The heart sounds are normal, but the heart's action is very rapid. A tachycardia occurred in the majority of my cases. The blood pressure was very much increased in one of my series during the height of the disease (systolic blood pressure, 120).

The Temperature.—Marked variations in the temperature occur. In most cases no fever is present. One of my patients had an almost constant temperature of 101 for several weeks. During a complication—grip, bronchitis or pneumonia—the temperature usually rises. In one severe case a marked subnormal temperature was present for several days (rectal temperature from 96 to 98).

The Genito-Urinary System.—These children have a marked habit of rubbing and scratching the genitals. Erythematous patches in the groin, redness, swelling, and even ulceration of the penis or scrotum, may be observed.

Many children suffer acutely from dysuria and painful or even difficult urination. In one case this seemed to be due to a severe proctitis. In others, a weakness of the extrusor muscles was the most rational explanation.

The urine often contains an increased number of cells and leukocytes. No albumin or sugar was found.

The Blood.—Peculiar and even characteristic alterations are found in the blood. A marked hyperleukocytosis (from 12,000 to 30,000) is the rule in all severe cases. The differential count varies in different children. The polymorphonuclear cells seem increased, but in young infants the lymphocytes are found about equal in number.

The hemoglobin is not far from normal. No marked anemia in the usual sense is demonstrable. While the erythrocytes in mild and protracted cases are diminished in number, Bilderback[15] found a great polycythemia in one of his cases. The blood showed 6,000,000 red cells. This was paralleled in two of my cases (5,900,000 and 5,200,000). I fear that we have not been making enough counts in the acute stages of this disease.

My own rough clinical estimates seem to show an increase in the viscosity of the blood at the height of the disease. The blood coagulates rapidly; no hemorrhagic tendencies have been observed; no chemical analyses have been made.

Of the four cases here reported, one is somewhat atypical, yet I believe that it is the same disease.

REPORT OF CASES

Case 1.—*History.*—M. L., a girl, aged 15 months when first seen, June 7, 1922, was born of apparently healthy parents. A grandfather suffered from "rheumatism." There were no tuberculosis and no syphilis in the family history. The mother had no miscarriages. There was one older child in the family, aged 5 years. The baby was born at term after a normal labor. She was breast fed for ten months, during which time the mother had a generous diet. She ate vegetables, meat, eggs, milk, etc., but only white bread. She had no acute illness during lactation. The baby seemed perfectly well, although the mother noticed a flabbiness of the muscles, and she seemed "loose jointed." She did not sit up until 7 months of age, and began to walk at 13 months. Before weaning she was fed bread, milk, soup, potatoes and orange. During the winter when 1 year old, she developed a rash on the face which was diagnosed eczema. She was placed by the attending physician on a diet which consisted of rye bread and cream. This was continued for about two months, and the eczema improved.

Present Illness.—When the baby was 13 months old, the mother observed that the baby always had cold hands and feet. A disinclination to walk was another early symptom. Some irregular patches of "eczema" appeared on the trunk and limbs. She became a very cross baby, and did not sleep well. In the succeeding weeks these symptoms became aggravated. She refused to stand or sit up. A profuse rash appeared on the trunk and limbs. The hands and feet began to swell. She would not eat unless coaxed or forced. She did not sleep well; she woke up every few minutes and cried. She never seemed happy. She lost in weight. She perspired freely. She had marked pain when she attempted to urinate. She lay in bed all day and fretted. She was engaged most of the time in rubbing the genitals, scratching her body and pulling out her hair. Sometimes she sucked her hands, and forced her fingers down her throat until she gagged. She liked to have her feet rubbed, and rubbed them together frequently and persistently. She had been constipated, and had to have injections every day. There was no cough. There had been no vomiting.

Examination.—The body was moderately well nourished. The skin was dusky. A papular rash covered the whole trunk, neck and extremities. This rash consisted of minute papules surrounded by a faint areola, and resembled, almost exactly, miliaria. Scratch marks were numerous on the trunk and thighs. The head was covered irregularly with a fine hair; several places on the back and side of the head were bald. The bones of the skull were hard; the fontanel was almost closed. The parietal and frontal eminences were not prominent. The face was covered with a slight rash; the cheeks were flushed. Some photophobia was present, although the eyes appeared normal. The neck was covered by a miliaria. Very small lymphatic nodes were found. The heart and lungs seemed normal. Respiration was rapid (30); the pulse was rapid (140). The child seemed sore on handling. Movement of the extremities, especially the lower, brought cries of discomfort. Gentle stroking of the limbs was agreeable. The baby would not sit up or attempt to use the lower limbs in standing. The hands and feet were very much swollen, and felt icy cold to the touch. The palmar and dorsal surface had a livid red appearance, but there was no desquamation. Eight teeth were present. The gums looked reddened, but no ulceration or hemorrhagic change was seen. The teeth were firm in their sockets. The throat was normal. No rachitic rosary could be made out, and no swelling of the radial and ulnar epiphyses. There was no tenderness of the bones. The labia showed scratch marks, and had a congested, swollen appearance. Considerate induration and swelling of the anal mucosa was present. The liver and spleen were not enlarged. The inguinal glands appeared slightly swollen. The superficial reflexes were absent. No patellar or Achilles reflex could be obtained. The plantar skin reflex was present. Voluntary motion was nowhere completely abolished. There was no Chvostek, Brudjinski, Babinski or Gordon reflex. On the outer side of the thighs and lower abdomen, small areas of anesthesia could be made out. The muscular tone was poor; the joints were very lax. There was no spasticity. Rectal temperature was 96.6 F.

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[15] Bilderback, J. B.: Personal communication to the author.

Laboratory Findings.—The urine showed a few leukocytes, no sugar and no albumin. Blood examination revealed: leukocytes, 21,000; differential count: polymorphonuclears, 60; lymphocytes, 37; large lymphocytes, 3; no eosinophils; plenty of platelets; red cells, 5,900,000. No spinal puncture was made. The Pirquet and Wassermann tests were negative.

Subsequent History.—The baby was watched and treated at home for four months without any great change until the very end, when its improvement was slow but progressive. During this time she developed a marked tendency to rectal prolapse; every time the bowels moved a large mass of mucous membrane rolled out. During the hot weather the miliaria became greatly intensified. During the middle of July a bronchitis began which was characterized by rapid respiration (from 36 to 40), and moist râles all over the chest. The temperature rose to 103 on one day, and then persistently remained at from 100 to 101.4 for six weeks. A curious part of this was that the child almost never coughed, suggesting some anesthesia of the bronchial mucous membrane. Not until about the middle of September did a noticeable improvement occur. The baby took her food very well, and was fed on a diet as varied as possible, with plenty of protein and mixed vitamin in the form of butter, cod liver oil, fruits and vegetables. The leukocyte count ranged from 15,000 to 26,000. The polymorphonuclear cells were always in excess. Platelets were abundant. The red cells numbered 5,600,000. The coagulation time of the blood was two minutes. The hands gradually became warmed, the appetite returned, and the patient slept better. She liked to be outdoors, and watched the street traffic. She was apparently recovering. September 20-22, she slept better, looked better and ate well. The rectal prolapse still occasionally occurred. She sat up, but would not stand. The rash was limited to an erythema on the arms. The muscles were atrophic and flabby. The red cells numbered 5,200,000. The stools were normal; there was no dysuria.

Case 2.—*History.*—J. N., a boy, aged 18 months, seen first in May, 1922, was born of healthy parents, who lived on a farm in Illinois. The weight at birth was 10 pounds (4.5 kg.). The boy, an only child, was breast fed until he was 13 months old. He was fed on a general diet including bread, cereals, milk and vegetables after weaning. He had never been sick before the present illness. He had had no cold, grip or bronchitis. He sat up at about 6 months, and walked at 13 months.

Present Illness.—This began five weeks before, with constipation which persisted for one week. Some purgatives were given, and a diarrhea resulted which lasted ten days. Some sores were observed in the mouth at this time. At no time did the child seem to have fever. There had been no rash at any time, and no vomiting. Since this illness he would not eat; he felt miserable, and did not sleep well at night. He was losing in weight, although there had been no diarrhea for more than three weeks. He constantly sucked his thumb until a large ulcer appeared on it. He often gagged himself. He lay in his go-cart all day, and fretted.

Examination.—The baby was poorly nourished. The skin was somewhat dusky, but elastic. The abdomen was distended. The mouth was reddened, and there was a large ulcer under the upper lip. He had sixteen teeth; a few show marked congestion of the mucous membrane surrounding the crown. The two lower central incisors were loose in their sockets. The throat seemed congested. There were no palpable glands in the neck. The heart and lungs were normal. The abdomen was very much distended and tympanitic. No eruption was present. The genitals were normal. The hands and feet were red and somewhat swollen. There was a large ulcer on the middle of the right thumb. He seemed very tender on being handled. He refused to sit up or stand. The liver and spleen were normal. No bony changes that suggested rickets were present. There was no Chvostek's sign. The muscles were lax everywhere. The skin reflexes were diminished; the deep reflexes were somewhat exaggerated. He suffered from anemia and dysuria. No urine was obtained. The temperature was 100 F., the weight, 21 pounds (9.5 kg.). The leukocytes numbered 14,600; hemoglobin was 60 per cent.

June 11, the patient was seen again. He seemed weaker, although the food had been pushed and he had been given an emulsion of cod liver oil. The gums were very much swollen. Two lower incisors were very loose. There was an ulcer on the tongue and lip. There was no rash. There was a large ulceration and crust formation on the tongue. The hands were swollen. The plantar and skin reflexes were negative. The patellar reflex was very weak, the ulnar, strong. The pupils were sluggish. The leukocytes numbered 20,600. The weight was 19½ pounds (8.8 kg.). There was no general eruption.

It was reported later that the child died from sepsis originating in the ulcer of the tongue.

Case 3.—*History.*—R. S., a boy, aged 6 years, seen in June, 1922, had been fairly healthy on a good general diet until six weeks before, when he commenced to whine and complain of the navel. His usual activity became much less, and he preferred to lie in bed. His sleep became very poor. He became cross and irritable. Sometimes he complained of his joints. The preceding winter he had several colds and in February a severe vomiting attack. He seemed to be anxious and worried. He had no fever that the mother noticed. He had a rash six weeks before. He was constipated. He had had no diarrhea.

Examination.—The boy was very thin and atrophic. Some muscles, particularly those of the arms, shoulder and chest, were in a state of extreme atrophy. No rash was found, but scratch marks were present on the chest and abdomen. The genitals were normal. He seemed very weak, but could stand and use his extremities well. There were two decayed teeth. The gums were normal, the tonsils, small. The heart, lungs and abdominal organs were normal. The abdomen was boat-shaped when he lay down. Muscular tone was very poor. The skin reflexes were very weak. There was no spasticity anywhere. The patellar and cremasteric reflexes were present. The hands were somewhat congested, and the fingers were scaling but were not swollen. The feet were normal. There was tachycardia (140). The urine examination revealed nothing wrong. The Pirquet and Wassermann tests were negative. The leukocyte count was 18,600.

Treatment and Course.—Cod liver oil was administered, and he was put on a diet. June 28, the condition was about the same. The hands got very cold, and were scaly and red. The skin was moist; he perspired a great deal. One tooth was loose. He lost 2 pounds (0.9 kg.). Atrophy of the muscles seemed much increased; all bony eminences were very prominent. He now showed a large area of eczematoid dermatitis over the popliteal space, and a patch on the abdomen and the back. There was slight prickly heat on the back and the neck. The leukocyte count was 18,000.

July 6, there was no improvement. There was slight diarrhea. He complained of his stomach. The dermatitis was worse; he scratched his skin. He lost another pound in weight. There was impetigo on the nose.

July 14, his appetite was better. He still scratched. He had slight diarrhea; his weight was 34 pounds (15 kg.).

July 28, the condition was about the same. He still complained, mostly of pain in the stomach. Furunculosis vaccine, 10 minims, was injected. He still scratched. The dermatitis was better.

August 10, his appetite was better. There was no gain in weight. He slept better. The leukocyte count was 14,000. Furunculosis vaccine, 12 minims, was injected.

August 17, he did not complain so much. He weighed 35½ pounds (16.1 kg.). There was tachycardia (140).

August 24, he weighed 36 pounds (16.3 kg.), He still scratched his legs. He complained less. The body was still atrophic. He slept better.

Case 4.—*History.*—H. L., a boy, aged 3 years, first seen, July 20, 1922, had been losing in weight for two or three months. He was weak and irritable, and would not walk. He always had cold hands and feet. He slept poorly, and had severe crying spells without apparent cause. He was the only child of healthy parents. There was no tuberculosis or chronic disease in the family, and no chronic nervous disease in the grandparents or relatives. There had been no miscarriages. The mother was 41, the father, 43 years of age. The baby was nursed until he was 2 years old, although he was fed other things after 6 months. He was always subject to colds and bronchitis. He never had pneumonia; he had otitis twice. The present trouble began about three months before, when he suffered from a febrile bronchitis. Following this disease his disposition changed, and he had severe crying spells and showed a disinclination to walk. He had no eruption until the preceding week. There had been no itching of the skin, but he rubbed his nose frequently. He had no appetite, and cried out at night. There had been no diarrhea; he was generally constipated. The feet and hands always seemed cold. He perspired easily.

Examination.—He was poorly nourished. The weight was 28 pounds (12.7 kg.). The body was covered with a faint miliaria. Perspiration was marked. The hands and feet felt moist and cold, and were slightly red. General examination of the internal organs detected nothing abnormal. The temperature was 98.6; the pulse, 138. He seemed to have slight photophobia. The reflexes, both superficial and deep, were active but weak. There was no rigidity; the muscles were flaccid. There was no great tenderness of the muscles. The urine was normal. The leukocytes numbered 10,800.

August 2, he reported that sometimes he seemed to feel good. He had played awhile with a ball the day before. He took a good general diet, moderate in quantity. He perspired very much. He was flushed about the face; the hands were somewhat swollen. There was great atrophy of the muscles around the shoulders. There was pain in the feet; he would not stand. There were scratch marks on the abdomen. The joints were very lax. There was erythema on the back and chest. The mouth was healthy, but there was marked salivation when he was asleep. There was photophobia. The leukocytes numbered 17,200. The stool contained pinworms and a few pus cells.

August 4, he liked to lie quiet at times; then he was restless, and frequently changed his position. The lips were very red at times. He played for a short while, and then cried and was unhappy. The tongue had a spotted appearance. One thumb had a marked erythema. The patellar reflexes were absent, the skin reflexes weak. The Pirquet test was negative.

August 8, the mother gave the information that he suffered severely from hives the preceding summer. In the urine there was no sugar, no albumin, and a few cylindroids. He was still losing in weight.

August 14, the patellar reflexes were absent; there was some photophobia. The weight was 27 pounds (12 kg.). His appetite was better.

August 22, he tried to play. He liked to be outside. He had more energy, but liked to be held most of the time. There was a prickly heat rash on the body, and desquamation of the toes. The fingers and toes were still red. He weighed 27 pounds (12 kg.).

September 1, there was more rash on the body. The muscles were flabby. A marked dermatitis was present on the left arm. The patellar reflexes were absent.

September 7, he weighed 27 pounds (12 kg.). The leukocytes numbered 12,000; the red cells, 5,300,000. He seemed much improved, and slept better.

September 19, he had gained 2 pounds (0.9 kg.) and felt stronger. There was a patch of eczema on both forearms.

536 North Taylor Avenue.

THE RELIEF OF PAIN IN HERPES ZOSTER BY PARAFFIN *

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Herpes zoster is a self-limited disease whose course, it is generally conceded, cannot be modified by treatment. Medical assistance is, however, of value in protecting the eruption from traumatism and subsequent infection and in relieving pain. For the average case of zoster in which the pain is not intense, the local application of a dusting powder is all that is required. In some cases, however, the pain may be intense enough to warrant the use of an opiate.

The numerous remedies suggested for the relief of pain in this disease would seem to indicate that no one is entirely satisfactory. Galvanism, so highly praised by Duclos, is undoubtedly of considerable value. Other methods of treatment include faradism, high frequency currents, roentgen rays, wet and dry cupping over the affected ganglions, cocain salves and injections and freezing with ethyl chlorid spray, as suggested by Howard Morrow. The statement of Darier that an "occlusive dressing relieves the painful sensations" probably accounts for the favorable results of the method described in this communication.

The idea of trying an occlusive dressing of paraffin was suggested to me by a colleague who had suffered from a very severe attack of thoracic zoster. He had tried some of the customary methods of treatment without relief, when it occurred to him to use paraffin in the form of the proprietary parresine. Since the result in his case was quick and complete relief from pain, I have followed the same procedure during the last two years in twenty selected cases (mostly from the Department of Dermatology and Syphilis of the Harlem Hospital).

The new method was reserved solely for those suffering from pain severe enough seriously to interfere with sleep. Experience soon revealed that the best results were obtained by a daily application of the paraffin, it seldom being necessary to continue the treatment for more than a week. In even the severest cases, the applications of the paraffin gave almost immediate relief and were regularly followed by more or less freedom from pain for twenty-four hours and by a complete night's rest. The most convincing proof of the efficacy of this treatment was shown by patients who had obtained complete relief from pain, but who for some reason or other had not returned for several days, during which time the pain had returned. By further treatment, the pain was again promptly relieved.

The technic of treatment consisted simply of spraying the melted paraffin with an atomizer on all of the cutaneous lesions and covering such areas with a generous layer of absorbent cotton, held in place by bandages. For convenience, the atomizer was attached to a compressed air outlet. In a few cases the paraffin was applied by cotton swabs, an equally efficient, although slower and less convenient, method. When fresh applications were made, the previous layer of paraffin was gently removed. The form of paraffin used was parresine. This is described by the manufacturers as a "waxlike preparation consisting of paraffin so treated by the addition of gum elemi, Japan wax and a purified asphalt as to modify its physical properties, especially as regards ductility, pliability and adhesiveness." The preparation begins to melt at from 114 to 117 F. and becomes completely liquid at 120 F.

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* From the Department of Dermatology and Syphilis of the Harlem Hospital.

There were seventeen patients with active lesions selected for treatment. Of these, seven were males and ten females. Their ages ranged from 8 to 59 years, the average being 35. The duration of the disease at the time treatment was begun averaged six days. The eruption was situated on the trunk in thirteen cases, affecting usually the pectoral and dorsal regions. In four cases there was also some involvement of the neck and arm and in two cases of the abdomen. One case involved the thigh, one the hip, and one the buttock and two the supra-orbital region. The number of treatments varied from two to six.

The paraffin treatment was also tried in three cases of neuralgic pain persisting after the disappearance of the eruption. One patient had suffered from pain for two years, one for six weeks and another for four weeks, following an ordinary attack of zoster. In no one of these cases did the paraffin appear to be of any value in relieving pain.

A word of caution should be given to those who care to give the paraffin method a trial. When applying the new coat of paraffin to the lesions, care should be taken to remove the old layer very gently, avoiding possible rupture of the vesicles. This can generally be accomplished with ease. If the old layer tends to be too adherent, it should be allowed to remain in place and a fresh coat of paraffin sprayed on the surface.

In a few of my cases, some of the vesicles were ruptured because of the overzealous removal of the old dressing, and in one case (that of a colored woman), there was quite a severe pustular eruption lasting several days and accompanied by constitutional symptoms. However, with any method of treatment the eruption may become pustular or even gangrenous and produce severe and permanent scarring.

In conclusion, it should be said that the paraffin method is recommended only for cases of zoster during the eruptive stage and which are accompanied by severe pain. The treatment is simple and the results, in my experience, have convinced me of its value.

114 East Fifty-Fourth Street.

The Discovery of Necator Americanus.—It was not until 1893 that Blickhahn of St. Louis reported what appears to have been the first case recognized as hookworm disease in the United States. The infection was probably caused by *Ancylostoma duodenale,* as the patient was a brickmaker from Westphalia. Soon other endemic as well as imported cases were noted, chiefly in Texas; and from 1896 on, an increasing number of cases were reported from various parts of the country. Close study revealed that they were caused by a heretofore undescribed species of hookworm. On May 10, 1902, Dr. Charles Wardell Stiles, U. S. Bureau of Animal Industry, described the new species of hookworm and named it *Uncinaria americana.*—Bibliography of Hookworm Disease, International Health Board, New York, 1922.

HEXAMETHYLENAMIN AS A DIURETIC [*]

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Positive assertions that hexamethylenamin acts as a diuretic have been made by Nicolaier,[1] Lilienthal,[2] Flexner,[3] Impens [4] and Seifert and Müller.[4] Nicolaier reported that 1 gm. doses of the drug increase the output of urine. On the other hand, Thompson [5] and Strauss and Seibert [4] have denied the diuretic action of hexamethylenamin. The conclusions of all these authors are based almost exclusively on impressions, critical objective data being totally absent. *A priori,* it appears improbable that hexamethylenamin in small (1 gm.) and moderate doses could increase the urine output. Large doses could conceivably increase diuresis through a salt action, but this could not be attributed to any specific or peculiar property of hexamethylenamin. On the other hand, large doses might diminish the urine output because of renal injury, which has been declared by some to occur.

In connection with another study, we had an opportunity to test the alleged diuretic properties of hexamethylenamin under controlled conditions. Five experiments were made on three subjects, who received small and moderate doses of the drug. Very large doses were not tried because of the uncertainty that exists regarding the danger of inducing renal injury. In view of the statements that have been made, the use of small and moderate doses was more appropriate to the problem at hand.

Our object in this paper is to report the results that were obtained. It may be stated at once that these were entirely negative as to any beneficial effects of hexamethylenamin per se on the urine output.

METHODS

The experiments were conducted in a quantitative manner. Convalescent boys ranging from 5 to 8 years of age were used as subjects. Two sets of observations were made. In one set, three subjects maintained a constant fluid intake at the rate of from 2 to 3.4 c.c. per kilogram hourly for about eight hours before the drug was administered. Then the hexamethylenamin was administered and the same fluid intake was maintained hourly until the drug ceased to be excreted in the urine as indicated by a negative test (i. e., no precipitate) with bromin-water. Hourly collections of urine were made throughout. The specimens were carefully measured, the volumes recorded and aliquot portions used for quantitative estimations of hexamethylenamin. For this, the distillation colorimetric method described by Hanzlik and Collins [6] was used. The excretory results are useful in this study to indicate the possible influence of sojourn of the drug in the tissues on the output of urine.

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[1] Nicolaier: Deutsch. med. Wchnschr. **21:** 541, 1895; Deutsch. Arch. f. klin. Med. **81:** 181, 1904.

[2] Lilienthal: Imperative Surgery, New York, the MacMillan Company, 1900.

[3] Flexner, J. A.: Am. Pract. & News **20:** 484, 1895.

[4] Cited by Nicolaier (Footnote 1, second reference).

[5] Thompson: Boston M. & S. J. **141:** 492, 1899.

[6] Hanzlik, P. J., and Collins, R. J.: J. Biol. Chem. **25:** 231 (June) 1916.

In the other set of observations, two of the subjects used in the first set were allowed to follow their own inclinations as to fluid intake. All fluids that were ingested—soup, milk, water, etc.—were measured and recorded. The same doses of hexamethylenamin were administered and urine was collected each hour as much as possible, and until the excretion of the drug was completed. The excretion of the drug was also determined quantitatively in these urines. The total fluid intake in this set of observations was considerably greater than in the experiments with constant fluid intake. There was some irregularity in the time of ingestion of fluid, and, in order to facilitate comparison of the results and for the sake of uniformity, the data have been distributed on an hourly basis throughout. This was necessary only for certain periods in each experiment, the time relations of other periods coinciding closely with hourly administrations as practiced in the first set of experiments.

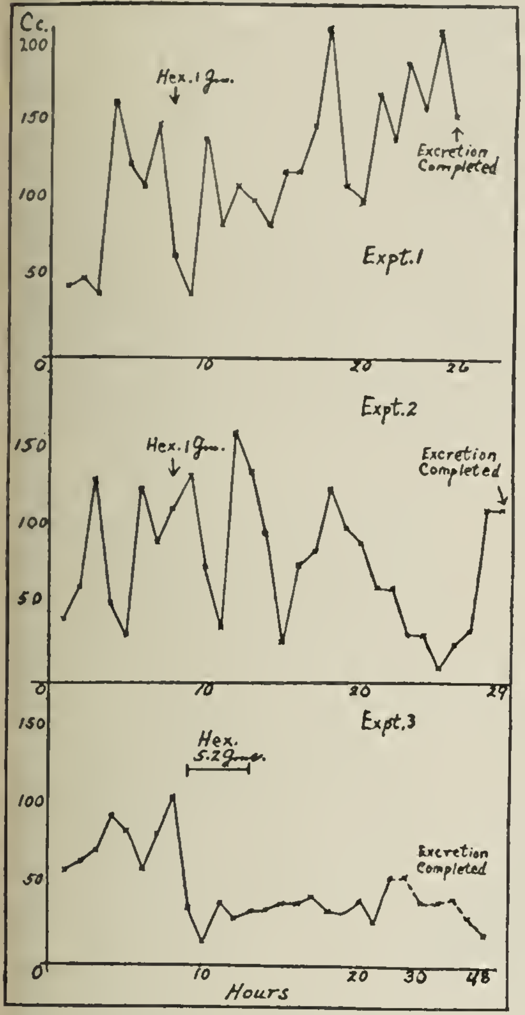

Chart 1.—Effect of hexamethylenamin on hourly urine output during constant fluid intake (hourly). *Hex.*, hexamethylenamin administered; *excretion completed*, excretion of hexamethylenamin completed.

The hexamethylenamin was administered by mouth in the form of a 10 per cent. solution. Subjects 1 and 2 received 1 gm. each, and Subject 3 received 5.2 gm. in the first set of experiments. Subjects 4 and 5 received the same dosage, namely, 1 and 5.2 gm., respectively, in the second set of experiments.

RESULTS

The results that were obtained are presented in the form of curves in the accompanying charts. The results of the three experiments with the constant and hourly fluid intake are presented in Chart 1; those on the inconstant, though known, fluid intake in Chart 2. The accompanying table contains various other data pertaining to the experiments.

It is seen that the output of urine was uninfluenced by doses of hexamethylenamin ranging from 1 to 5.2 gm., whether the hourly fluid intake was small and constant (Experiments 1, 2 and 3) or greater and inconstant (Experiments 4 and 5). If anything, there was some diminution in the output of urine immediately following the administration of hexamethylenamin in Experiments 1 and 3. Later the output in Experiment 1 increased. On the other hand, the output in Experiment 2, which belongs to the same group of experiments, was practically unchanged until the end of the experiment, that is, when the excretion of the drug was nearly completed. In other words, the variations in the urine output in these experiments are due to something other than the hexamethylenamin, despite the constant and hourly fluid intake that was maintained. The individual fluid intake maintained in these experiments was probably less than the natural fluid intake by the patients, and, therefore, the temporary diminutions in urine output in Experiments 1 and 3 indicate a somewhat greater avidity of the tissues for the fluid that was ingested, rather than a specific depression by the drug. In Experiments 4 and 5, the urine output followed the fluid intake very closely, leaving no doubt that the variations occurred quite independently of the hexamethylenamin that was administered.

EFFECT OF HEXAMETHYLENAMIN ON URINE OUTPUT

Experiment	Body Weight, Kg.	Diagnosis	Dosage of Hexamethylenamin Administered, Gm.	Fluid Intake per Kilogram per Hour, C.c.	Total Excretion of Hexamethylenamin, per Cent.	Duration of Excretion, Hours	Total Volume of Urine, C.c.
1	21.9	Convalescent (varicella)	1.0	3.4	32.0	20	2,470
2	22.4	Convalescent (measles)	1.0	3.3	66.0	21	1,638
3	26.4	Convalescent (acute suppurative parotitis)	5.2	2.0	82.3	39	1,757
4	21.9	Convalescent (varicella)	1.0	Inconstant (Chart 2)	65.0	20	1,044
5	28.7	Convalescent (acute suppurative parotitis)	5.2	Inconstant (Chart 2)	40.0	41	3,485

Although the number of subjects used in this study is small, the results were obtained under controlled conditions, and entirely outweigh the crude and imperfect observations and speculations on the subject to date. They show conclusively that hexamethylenamin per se in small and larger doses (from 1 to 5.2 gm.) does not beneficially influence the urinary output. In other words, it does not act as a diuretic independently of other factors that may influence diuresis.

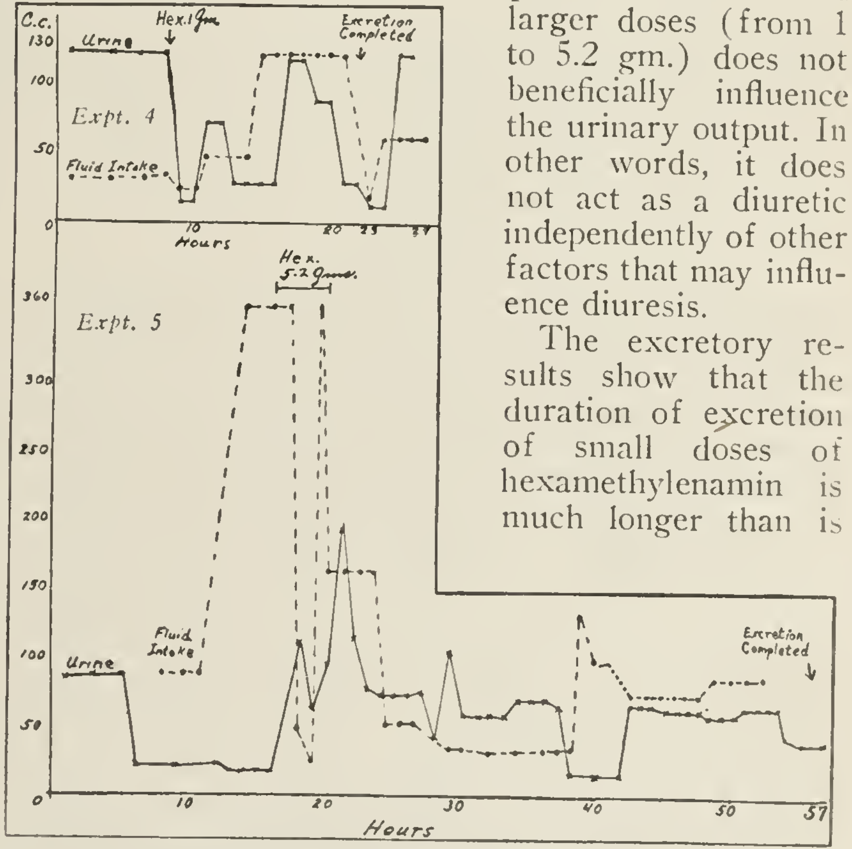

Chart 2.—Effect of hexamethylenamin on urine output during inconstant, though known, fluid intake. The abbreviations and wording have the same meaning as in Chart 1.

The excretory results show that the duration of excretion of small doses of hexamethylenamin is much longer than is generally supposed, despite the ready solubility and easy absorption of the drug. In Experiments 1 and 2 (constant and hourly fluid intake) the duration was twenty and twenty-one hours with 1 gm. doses, and in Experiment 3, thirty-nine hours with a dosage of 5.2 gm. In Experiments 4 and 5 (greater and inconstant fluid intake) the duration of excretion was twenty hours (1 gm. dosage) and forty-one hours (5.2 gm. dosage). Apparently, variations in fluid intake and diuresis (as presented in the accompanying table) do not markedly influence the duration of excretion. The sojourn was longer with larger dosage, as would be expected. Practically, the results are of interest in connection with the maintenance of antisepsis in urine, indicating that single small doses (1 gm.) are adequate for the continued sojourn of the drug in the bladder, the acidity of urine, of course, being quite as essential as, if not more essential than, dosage of the drug for antiseptic efficiency.

The total excretion of hexamethylenamin was rather variable in these experiments. It ranged from 32 to 82 per cent. independently of the dosage, fluid intake and diuresis. As the excretory results belong to another study, a discussion of them is reserved for another time.

SUMMARY

1. The influence of hexamethylenamin in small (1 gm.) and larger (5.2 gm.) doses on urine output was studied in three subjects (convalescent boys) under controlled conditions.
2. The results of the five experiments that were made show conclusively that hexamethylenamin is not a diuretic.
3. The duration of excretion of hexamethylenamin in urine ranged from twenty to forty-one hours, being somewhat longer with the larger doses used, but independent of fluid intake and diuresis. This is contrary to current conceptions.
4. The total excretion of hexamethylenamin was variable, and ranged from 32 to 82 per cent., also independently of dosage, fluid intake and diuresis.

THE CLINICAL IMPORTANCE OF OSSIFICATION OF THE STYLOHYOID LIGAMENT *

BENJAMIN LIPSHUTZ, M.D.
PHILADELPHIA

Although the occurrence of complete ossification of the second branchial bar (Reichert's cartilage) represented by the styloid process, the stylohyoid ligament and the lesser cornua of the hyoid is not rare, yet the number of well described cases is very small. The specimen of stylohyoid ossification here reported is very remarkable in the extensiveness of its ossification and in the complete absence of mobility in any part of the osseous chain.

It is not an uncommon thing to find segmental ossification of the stylohyoid chain with jointed styloid processes. The condition of the joints between the different pieces, including the lesser cornua, is very uncertain. Dwight states that in many cases it would appear that the joints once present had degenerated, and of seventeen compiled cases there is no single instance in which the hyoid is firmly attached to the chain so that no motion is possible between them. The jointed stylohyoid processes are usually purely ligamentous unions, or when containing small cavities they have been syndesmoses which permitttted the apposed ends of the bones to play upon each other more or less.

The presence of true diarthroses between the segments of the stylohyoid chain has been reported by Retterer, but he does not describe them; in all of the reported and observed cases available, except Retterer's,[1] there is no evidence of true diarthroses. The latter may, however, be present early in life, and with advancing development and growth become degenerated into the usual ligamentous type of union observed in the adult specimens. The fact remains, however, that in the specimens observed true diarthroses are not present, but this does not negative the possibility of their occurrence. In all of the available reported cases of stylohyoid ossification there is usually, as noted above, more or less play between the different parts of the chain and almost always near the hyoid, sometimes by a joint near the hyoid, sometimes by a joint between the lesser horns and sometimes by a joint more or less of a ligamentous connection above.

The stylohyoid chain (Fig. 1) here reported is 9.2 cm. long, and is present on the left side of the body of a man past middle life. The styloid on the opposite side is only 1.5 cm. long. It seems probable that the fixation of the hyoid bone must have hindered and limited its movements somewhat during deglutition, and in addition caused some fixation of the head. The dissection, however, had progressed so far before the presence of the unilateral ossification was discovered that no observations could be made regarding its effects. The stylohyoid chain is completely ossified throughout its entire length and the resulting bone irregularly cylindric. The stylohyoid chain consists of one continuous osseous structure, the division between its three pieces being marked by grooves encircling the rigid bony cylinder. The distal segment is firmly ossified to the hyoid bone, permitting no motion between the osseous cylinder and the hyoid bone.

The first piece of the chain, measuring 3.1 cm., has a broad base of osseous attachment to the temporal bone and is enlarged at its distal end, which is ossified to the second piece. The second or intermediate segment measures 3 cm., and is the widest portion of the bony union. The third piece measures 3 cm., and is considerably less in diameter than the upper segments. It is, however, completely ossified to the hyoid bone.

One of the striking features of this specimen is its unusual thickness. The largest diameter is at the point of fusion of the first segment to the base of the temporal bone, and measures 2.5 cm. The first and second segments measure 2.5 and 2 cm. in diameter, respectively; the distal segment narrows to 1 cm. in diameter.

There is no motion possible between the different pieces because of the extensiveness of the ossification throughout the entire chain. In all of the previously reported specimens or cases of stylohyoid ossification some motion was present between the different segments and particularly at the point at which the distal segment joins the hyoid bone.

EMBRYOLOGY

Each visceral cleft arch contains (*a*) a skeletal basis of cartilage; (*b*) an aortic or vascular arch; (*c*) a large nerve on its anterior border and a smaller nerve along its posterior border, and (*d*) a muscle element.

The cartilage of the second visceral or hyoid arch (the one under discussion) extends, in early embryonic life, downward and forward from the skull to meet its fellow of the opposite side, to which it was connected by a cross piece, the basihyoid, which becomes the body of the hyoid bone and probably represents the fused ventral portions (copulae) of the second and third cartilages. The chain of pieces with which we have to deal does not include the basihyoid.

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* From the Daniel Baugh Institute of Anatomy of the Jefferson Medical College.

[1] Retterer: J. de l'anat. et de la phys. **47**, 1911.

The cartilage of the second arch is the basis for: (*a*) The tympanohyale, which is embedded in the petromastoid and extends from the perotic capsule to the lower surface of the temporal bone or a little beyond. (*b*) The stylohyale, which usually forms the greater portion of the styloid process. This ossifies after birth, and is usually united to the tympanohyale by cartilage until middle age, when it becomes united to the latter by bone. (*c*) The ceratohyale (epihyale, ceratohyale), which is derived from the proximal portion of Reichert's cartilage. It becomes ligamentous, and gives rise to the stylohyoid ligament. The latter may occasionally become ossified. The normal ligament may be absent altogether, the original cartilage having disappeared, leaving no trace. (*d*) The hypohyale, which becomes the lesser cornua of the hyoid bone. The lesser cornua rarely are united by bone to the body of the hyoid; usually a cartilaginous union remains throughout life.

Gruber,[2] in 1869, stated that the first to report a complete ossification was Marchetti, in an anatomy published in Padua in 1652 (page 170).

As noted above, in all of the reported cases of stylohyoid ossification there has been no single instance in which some motion was not present between the segments of the chain, particularly at its point of attachment to the hyoid bone.

Glazebrook, in 1908, reported a most rare specimen of complete ossification which he had accidentally discovered and removed from the body of a young man who had committed suicide by cutting his throat. The specimen, however, was misplaced and has become lost.

Extensive ossification of the stylohyoid chain definitely limits the movements of the hyoid, causing interference with deglutition. Stylohyoid ossification is usually bilateral. In Dwight's[3] collected series of nineteen cases, it is so in ten of these cases; in five it is on the right, and in six it is on the left. There is no statement concerning three instances. Age, according to Dwight, is not a factor. It appears to occur with far greater frequency in men. The sex is given in twelve of Dwight's cases, nine in men and three in women.

The styloid process is of varying length; normally, it measures about 1¼ to 2 inches (from 3 to 5 cm.). Gruber, in an examination of more than 2,000 skulls, found one specimen with a styloid 3 inches (7.5 cm.) long; eleven were 2 inches (5 cm.), and the remainder were near the normal.

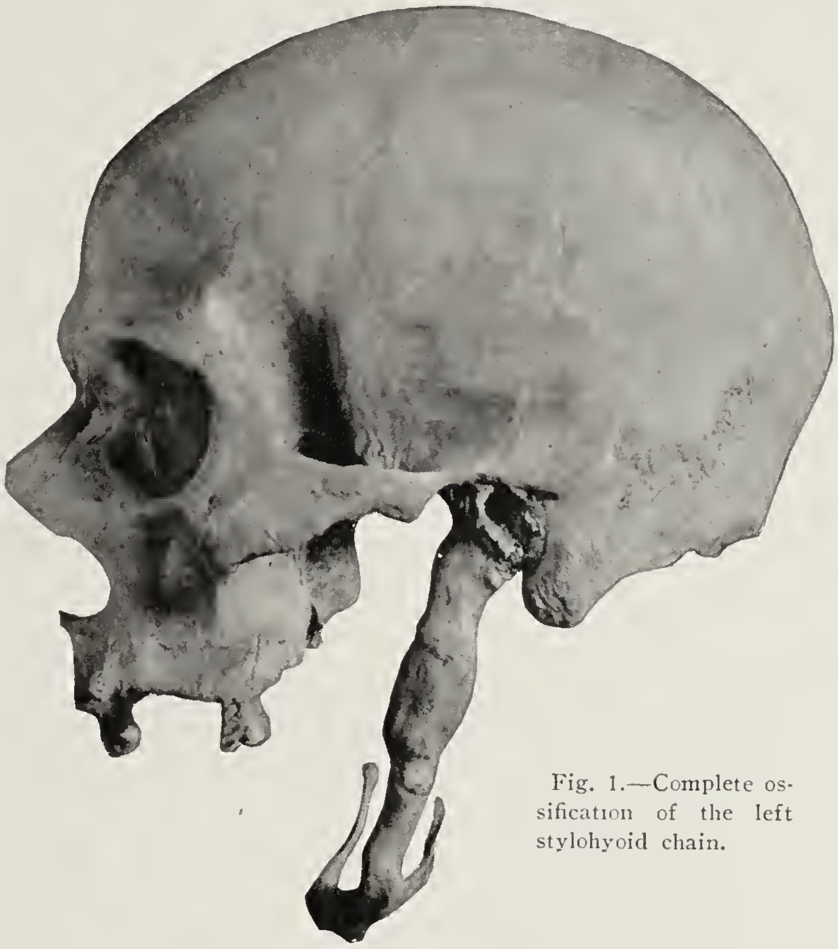

Fig. 1.—Complete ossification of the left stylohyoid chain.

CLINICAL COMMENT

Because the articulation of the styloid process with the temporal bone may be fibrous or bony, deflection of the styloid process may occur apart from trauma. In cases of deflection of the styloid process, particularly if the latter is longer than normal and is sharp and pointed, it may take an obliquely, medially directed course, and lie in intimate relation to the tonsil. Clinically, this condition is observed only during the removal of the tonsils. A number of laryngologists (Richardson,[4] Kyle,[5] LaMott, and others) have reported long, sharp, bony, projecting styloids encountered during or after the removal of the tonsils. Particles of bone have at times been removed from the tonsillar area at the time of operation without associating the bony structures with the styloid process.

The existence of the subpharyngeal cartilage of Luschka should also be borne in mind. The latter is by no means rare, and may be mistaken for a dislocated styloid process. The cartilage occurs not only in the lateral wall of the oropharynx, somewhat below and behind the faucial tonsil, but also in the tonsil itself. It consists of hyaline cartilage embedded in a capsule of white fibrous tissue, and is believed to be a vestige of the third postoral arch.

The following case report represents clinically and anatomically the usual type of stylohyoid ossification:

A. L., a woman, aged 45, married, had been complaining for a number of years of a sensation of dragging and cutting in her throat, which was increased on swallowing. She had been seen by a number of physicians, including several laryngologists, and had been tagged with a multiplicity of diagnoses. The general examination was negative. Palpation of the lateral pharyngeal wall and tonsil disclosed the presence of a hard, somewhat movable mass that appeared fixed to the hyoid bone. A tentative diagnosis of stylohyoid ossification was accordingly made, and later confirmed by the roentgen ray (Fig. 2).

Because of the intimate relation of these osseous or cartilaginous structures to the tonsil, particularly in cases in which there are long, pointed styloid processes which may have eroded the pharyngeal muscle, the operation of tonsillectomy may result in considerable mutilation of the pharyngeal musculature. In the latter cases it is, therefore, well not to blame the operator for the resulting mutilation, which is dependent on osseous or cartilaginous anatomic variations and not on a poorly performed operation.

Since conditions of this character may occur, it is wise to palpate the tonsils before attempting their removal, not alone for abnormal pulsations of aberrant vessels, but also for the detection of a long, sharp styloid process or ossified stylohyoid ligament in the tonsil and pharynx.

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[2] Gruber: Virchows Arch. f. path. Anat. **50**, 1869.

[3] Dwight, T.: Ann. Surg. **46**: 721-735, 1907.

[4] Richardson, C. W.: Laryngoscope **19**: 771, 1909.

[5] Kyle, J. J.: Otol., Rhinol. & Laryngol. **18**: 128-135, 1909.

As long ago as 1870, Lucke reported two cases, one in a woman of 30 and the other in a girl of 20, both of whom suffered from difficulty in swallowing because of long, slender styloid processes.

It is well to remember that a bony rod may extend from the styloid process to the hydroid bone. It may be slender or thick. In the former case it is, at least in early life, more or less elastic. In the latter it presents enlargements which at first, as a rule, mark the position of joints. This rod passes between the carotid arteries, and may interfere with the operation for tying them, and of those with the parotid gland which it indents on the inner side. Passing by the internal pterygoid muscle, to which it is attached by the fibrous envelop of that muscle, it lies against the outer side of the tonsil, which it may displace or indent. The displacement of the tonsil may be sufficient seriously to reduce the approach to the larynx, and may even encroach on the region back of the posterior nares so as to narrow the latter, as in the case reported by Lucke.

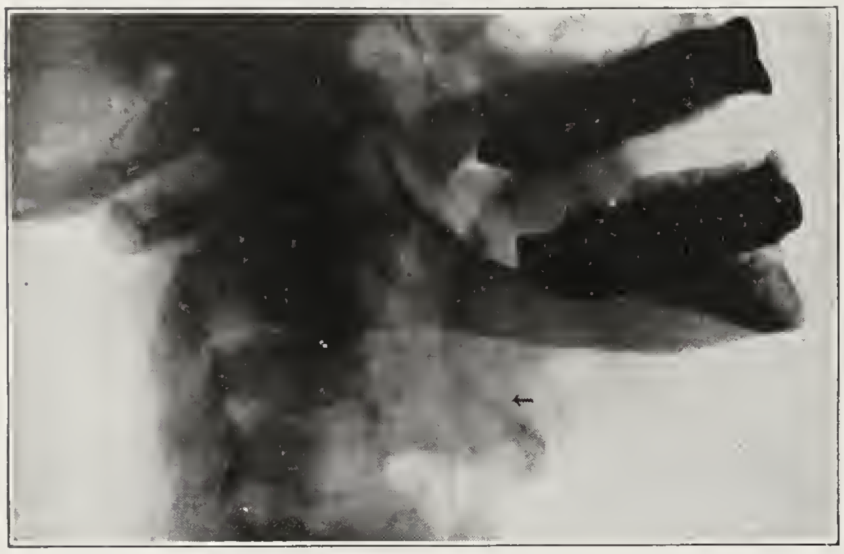

Fig. 2.—The arrow indicates the usual type of ossified stylohyoid ligament.

The length of the styloid process varies in individuals; and as long as the process is directed downward and parallel to the carotid artery, probably no other trouble than disease of the bones may be expected. Should the process be directed medially as the result of development or trauma, more or less irritation of the pharynx may occur.

In the cases reported by a number of laryngologists, the symptoms were those of difficulty and distress in swallowing, a dragging sensation in the throat, worse on swallowing, a sensation of cutting in the throat, etc. It is particularly to be remembered that in cases of painful or difficult deglutition, the styloid process may be the offending cause. Palpation and the roentgen ray readily determine the presence or absence of variations in the stylohyoid chain.

TREATMENT

Frequently mere fracture of the offending styloid process causes complete subsidence of all the clinical symptoms. At times it may be necessary to remove the distal portion of the styloid process by means of bone forceps. Only rarely is its complete surgical removal necessary.

1007 Spruce Street.

A CASE OF AURICULAR FLUTTER WITH PAROXYSMAL ATTACKS OF 1:1 CONDUCTION *

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The appearance of a 1:1 mechanism, i. e., the ventricle beating at the same rate as the auricle, is uncommon in patients with auricular flutter. Usually there is some degree of block at the junctional tissues which determines the rate of the ventricular response. However, under some circumstances not at present clearly understood, conduction through the auriculoventricular bundle is raised, and every auricular contraction spreads to the ventricle, causing it to beat at a rate seldom seen in any other condition in man. For example, in the case here recorded the rate during attacks was 272 a minute, as determined from electrocardiographic records. Similar elevations in ventricular rate have been recorded in children by Lewis [1] and by Koplik,[2] and in adults by Mackenzie,[3] by White and Stevens,[4] and by Blackford and Willius.[5]

REPORT OF CASE

V. R., a man, aged 25, a mechanical engineer, first came under observation in November, 1920. There was no history of rheumatic infection. He had always enjoyed good health, and was fairly active in college athletics. While in military service, in 1918, he contracted influenzal pneumonia, but recovered without complications, and was discharged in September, 1919, apparently well. He resumed his occupation in civil life, and worked steadily until August, 1920, when he developed attacks of "palpitation of the heart." At first the attacks appeared about once a week; a little later they were induced by any slight exercise, such as ascending stairs or even walking rapidly. During the periods of rapid heart action, the patient experienced vertigo and other symptoms of cerebral anemia, but he never lost consciousness. The attacks began abruptly, accompanied by a sensation of "flut-

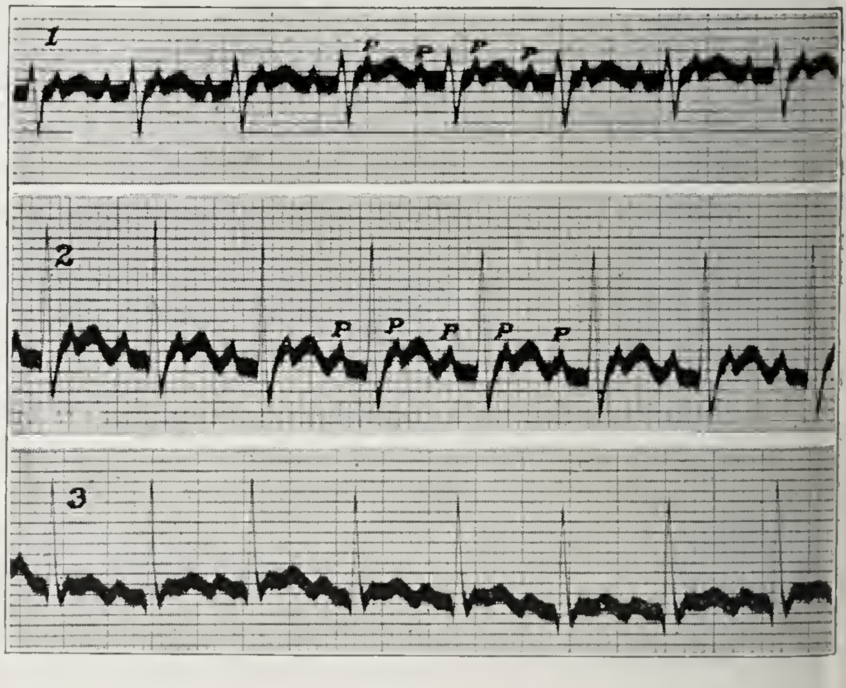

Fig. 1.—Three leads showing auricular flutter with 2:1 block; auricular rate, 272 a minute; ventricular rate, 136.

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* From the Medical Clinic of Western Reserve University at City Hospital.

[1] Lewis, Thomas: The Mechanism and Graphic Registration of the Heart Beat, New York, Paul B. Hoeber, 1920.

[2] Koplik, H.: Am. J. M. Sc. **154**: 834 (Dec.) 1917.

[3] Mackenzie: Diseases of the Heart, London, 1913.

[4] White, P. D., and Stevens, H. W.: Ventricular Response to Auricular Premature Beats and to Auricular Flutter, Arch. Int. Med. **18**: 712 (Nov.) 1916.

[5] Blackford, J. M., and Willius, F. A.: Auricular Flutter, Arch. Int. Med. **21**: 147 (Jan.) 1918.

tering in the chest." Lying prone for a few minutes relieved the cerebral symptoms and caused the rapid rate to subside gradually—that is, a certain transition period of several minutes was noted during which the heart beat irregularly.

When I saw the patient, he had what he believed to be his normal heart rate, and he was not aware of any circulatory disturbance. He appeared to be in good health, and the general physical examination was negative except for the circulatory disorder. The heart boundaries were normal to percussion, and no adventitious sounds were audible. The precordial activity appeared somewhat exaggerated, and although the patient had been at rest for several minutes,

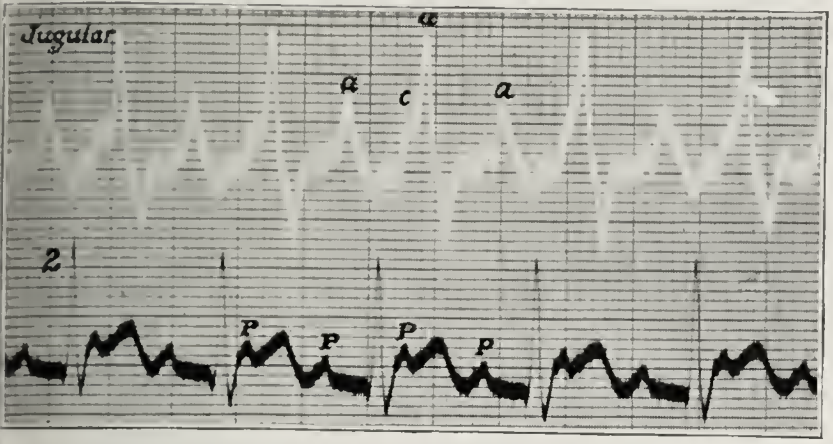

Fig. 2.—A simultaneous record of the electrocardiogram (Lead 2) and ıe jugular pulse registered optically: Alternate a waves of the jugular ulse are conspicuous, and correspond to those auricular beats which ccur while the ventricle is in a state of contraction.

ıe rate was 136 a minute, but quite regular. It was not ıfluenced in the least by forced breathing or change of osition, although compression of either vagus caused a rompt slowing, accompanied by a definite irregularity. ıspection of the jugular bulb revealed an unusually forcible enous pulse, which appeared systolic in time and suggested ıe venous phenomenon seen in tricuspid insufficiency.

The absence of a respiratory cardiac arrhythmia even with ɔrced breathing, and the prompt but transient irregularity ıduced by vagal pressure, suggested the possibility of ıricular flutter. This was demonstrated later by the elecocardiogram, the three leads of which are shown in Figure

The auricular rate is 272 a minute, and a 2:1 block is en; i. e., each alternate auricular beat spreads to the venicle, causing it to beat at 136 a minute.

In order to analyze further the pulsations noted over the gular bulb, a simultaneous record was made of the electrordiogram (Lead 2) and the right jugular pulse registered ɔtically by Wigger's modification of the Frank capsule. ıis record is shown in Figure 2. Comparing these two rves, one notes that the alternate and more conspicuous waves correspond to those P deflections of auricular systole ıich occur while the ventricle is still in a state of contracɔn. The auriculoventricular orifice is closed so that the rce of the auricular beat is spent on the column of blood the veins, producing the conspicuous venous pulse.

After the foregoing observations were made, the patient ggested that he might induce an attack of rapid rate by lking briskly about the laboratory for a few minutes. is was done, and presently the extreme tachycardia peared. The pulse in the accessible arteries was barely pable, while the heart beat was uncountable with the thoscope. A record was made immediately, and is reproced in Figure 3. This shows that the ventricle had now umed the auricular rate of the previous record (Fig. 1); t is, a 1:1 mechanism was established. After the paroxn had continued for several minutes, compression of the ht vagus trunk restored the original 2:1 block, and the ıtricular rate returned to 136. The transition from the 1 to the 2:1 block, however, did not occur abruptly, but uired approximately a minute during which time both chanisms were seen.

he well known influence of the vagus on auriculoventricr conduction was well illustrated in this case. While ter with 2:1 conduction maintained, slight pressure over ıer vagus trunks caused the prompt appearance of varying grades of block (Fig. 4 *a*). An attempt was made to determine on which side the mechanism was more sensitive, but no appreciable difference was found. As correctly as one could judge, blocks of similar grade appeared just as promptly when like pressures were applied to either nerve trunk. After observing the facility with which his attacks were stopped by vagal pressure, the patient, on his own accord, resorted to this procedure to obtain relief on several occasions before finally coming to the hospital for further study.

After admission the patient was carefully studied in an attempt to find a satisfactory explanation for the cardiac disorder, but nothing definite was obtained. So long as he remained in bed, flutter with 2:1 block prevailed; but any slight exercise, such as ascending stairs, appeared to facilitate conduction, and the 1:1 mechanism with the rapid ventricular rate promptly appeared. This was accompanied by a fall in systolic blood pressure from 120 to 80 mm. of mercury, with the subjective symptoms attributable to cerebral anemia.

A course of digitalis was begun, and after receiving 18 c.c. of the tincture over a period of four days, the patient developed a slight diarrhea, and the drug was discontinued. Records taken at this time (Nov. 11, 1920) showed auricular flutter with 3:1 and 4:1 block (Fig. 4 *b*). The following day (November 12) the heart rate was found to be slower and more irregular than usual, while the electrocardiogram demonstrated auricular fibrillation (Fig. 4 *c*). Some time during the night a normal rhythm was established, so that it is not known just how long the auricles fibrillated; but a record taken the morning of November 13 showed a normal mechanism with the usual digitalis effect on the T wave (Fig. 5). The exercise which formerly induced attacks now had no more than the physiologic effect on the heart rate.

Having no information as to why auricular flutter should have appeared originally in an otherwise normal young adult, it was decided simply to observe the patient for the possible return of the abnormal mechanism. This occurred sixteen days later (November 29) with the usual attacks of rapid ventricular rate from slight exertion. Records showed that the auricular rate was exactly the same as before (272 a minute), but between attacks alternate 2:1 and 3:1 block was present. Another course of digitalis was given, and again attempts were made to record the anticipated transformation through fibrillation to normal, but without success. In a thirty minute period between records during the day, fibrillation occurred, and some time during the following night the normal mechanism was restored.

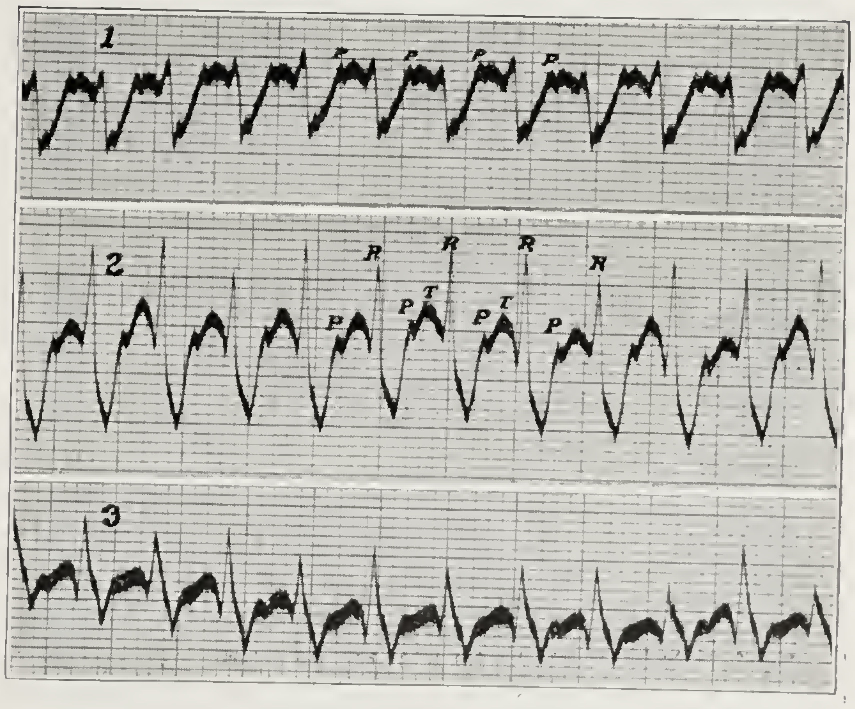

Fig. 3.—Three leads showing the mechanism during an attack: Each auricular contraction is followed by a ventricular response; rate, 272 a minute.

The patient was then discharged and remained at home for a month. The first two weeks he was given digitalis, 1 dram (4 c.c.) of the tincture on alternate days, and then every third day. The dose was gradually diminished, and at the end of three months the drug was discontinued altogether. The patient resumed his regular occupation in January, 1921, and has continued uninterruptedly to the present time. Records taken at intervals show a normal cardiac mechanism, and the patient reports that he plays tennis and golf without any untoward effects.

COMMENT

The foregoing case presents several interesting features which merit consideration. Among these may be mentioned the etiologic factors underlying the establishment of auricular flutter, in a heart showing no other signs of disease. The disappearance of the disorder under digitalis, and the persistence of the normal mechanism for more than a year, suggest that the underlying cause, admittedly obscure, is eradicated. It appears, then, that flutter may supervene in an otherwise normal heart, continue for a period, and then disappear. Had our patient not been subject to attacks of 1:1 ventricular response, it is probable that the disorder would have gone unnoticed.

The regularity with which the auricular rhythm was maintained during the periods of flutter was remarkable. Records taken during the second period of flutter showed that the auricles were beating at the same rate as in the first attack. Comparator measurements were made with the assistance of Dr. Feil, from the ventricular deflection in the curves of Figures 1 and 3, and it was found that the maximum variation in length of interauricular cycles was 0.0026 second in Figure 1, and 0.0042 in the curves of Figure 3.

It is noted that the ventricular rate is 136 (in Figure 1), or exactly half of that of the auricle. Owing to the block at the auriculoventricular node, only alternate impulses were conducted to the ventricle. This conclusion is based on facts recently elicited by Lewis and his co-workers, who found that as the auricular rate approaches 270 a minute, there is a tendency for block to appear at the nodal tissues, causing the phenomenon of 2:1 ventricular response. There is obviously n question as to the ability of the ventricle to respond, fo if the stimulus is conducted, it may follow the rate o the auricle, as illustrated in the record of Figure 3 The block therefore occurs at the auriculoventricula node, and is attributed by Lewis [6] to the duration o the refractory state of the node. If we accept thi explanation, it appears that this state of nodal refractoriness may be profoundly influenced by slight bodil exertion. For example, simply walking briskly abou the laboratory for a few minutes sufficed to convert th 2:1 into a 1:1 mechanism.

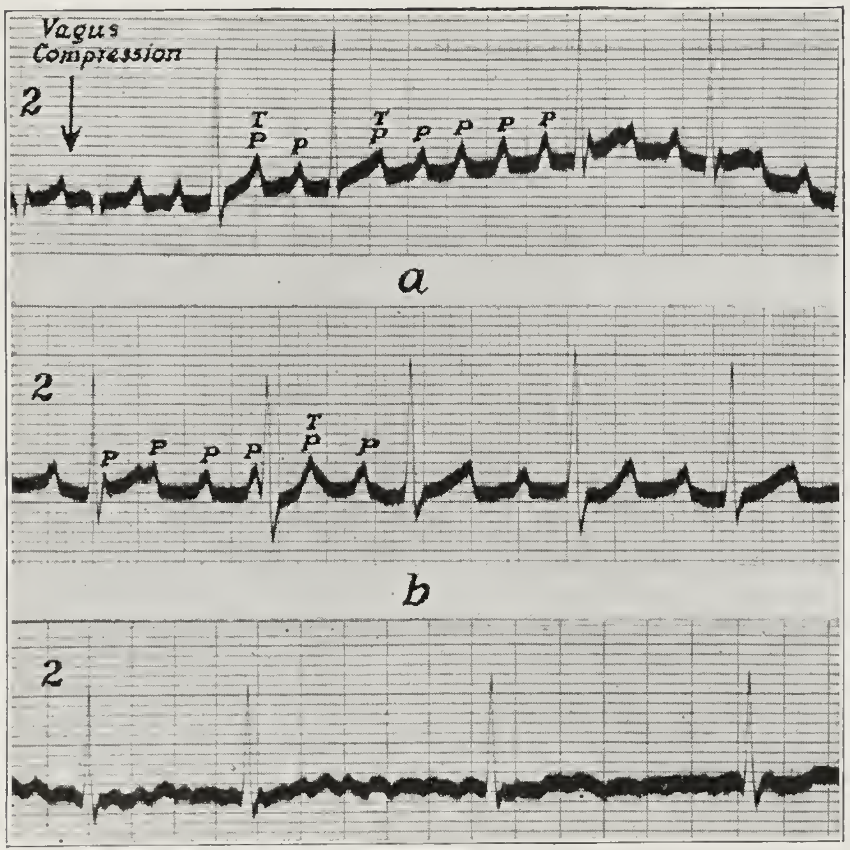

Fig. 4.—*a*, effect of vagal pressure applied at the point indicated; the existing 2:1 block was increased to 3:1, and in one place to 5:1: *b*, influence of digitalis in increasing the block at the junctional tissues; to be compared with Curve *a*; *c*, fibrillation which developed after the administration of digitalis.

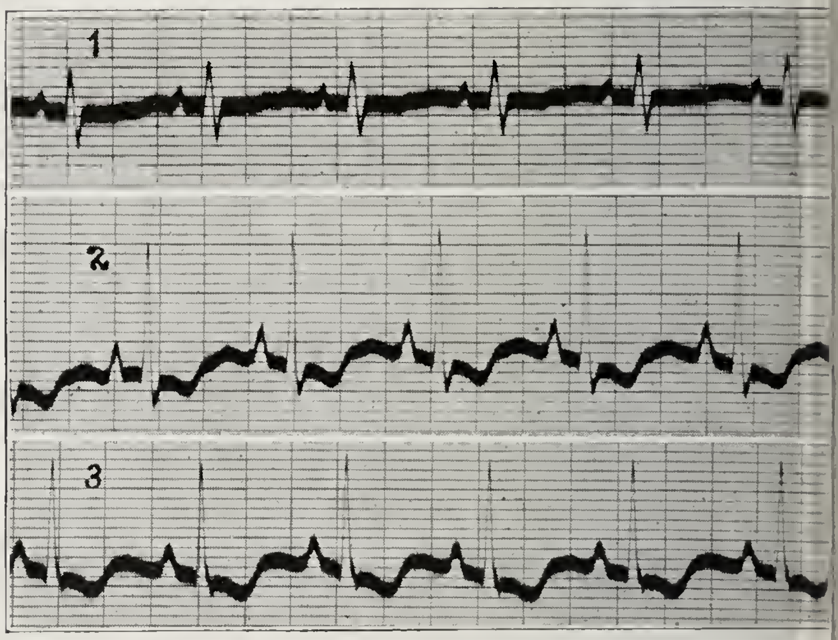

Fig. 5.—Three leads showing the normal mechanism after digitalis.

A similar phenomenon was recently observed i another patient, aged 45, who was suffering fro cardiac failure and hypertension without any clinica signs of kidney insufficiency. On admission the cardia mechanism was normal, and the rate was 110 a minute. After he recovered sufficiently to walk about wit comfort, it was noted that while up the heart rate wa 171 and quite regular; when he lay down for a fe minutes, an irregularity appeared with the heart slowing gradually until it became regular at 114 a minut This rate then continued so long as the patient remaine in bed, but was promptly elevated to 171 when he too any slight amount of exercise. Records taken whil the patient was quiet showed that he had auricula flutter with the auricles beating at the rate of 342 minute; every third impulse spread to the ventricl causing it to beat at 114. With the electrodes stil applied, the patient simply got up and walked abou in a circle for two or three minutes, when 2:1 conduction appeared with the ventricle beating at 171 a minute. When he lay down again this gradually reverte to a 3:1 mechanism, and the ventricle dropped back t 114. Compression of either vagus had the usual effe of increasing the existing block. It seems probabl that the refractory state of the junctional tissue ma be altered through some mechanism set into play b exercise, the result being to speed up the rate of recovery in the node. This renders the node more excitable and impulses formerly falling during its refractor state are now transmitted, and excite the ventricle t contraction. Acting in the opposite direction, i. e., t delay the rate of recovery, are the effects of digitali and vagal stimulation (Fig. 4 *a* and *b*).

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[6] Lewis, Thomas: Quart. J. Med. **14**: 339 (July) 1921.

SUMMARY

In a case of auricular flutter with paroxysmal attacks of 1 : 1 conduction, any slight exertion induced attacks during which the ventricles beat in response to each auricular contraction at the rate of 272 a minute. Digitalis converted the flutter through fibrillation to normal, which continued for sixteen days, when flutter reappeared. The sinus rhythm was again restored by digitalis, which was administered in decreasing doses for three months and then discontinued. The heart's mechanism has remained normal for one and a half years.

NEUROPATHIC ARTHRITIS

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SAULT STE. MARIE, ONT.

For the performance of normal function, it is essential that every organ in the body not only receive an adequate supply of blood but also maintain constant communication with the central nervous system. This it does by means of afferent and efferent nerves, the former conveying information from the organ to the center and the latter carrying commands from headquarters to direct the activities of the peripheral structure. Through the afferent nerves the organism receives all impressions of the surrounding environment, and with the help of the efferent nerves suitable response is made by muscle, gland or other tissue.

The simplest reflex might be conceived of as involving the sensory end-organ, its fiber and cell in the spinal ganglion with a central branch arborizing around an anterior horn cell from which arises the motor nerve conveying an efferent impulse to distant muscle. However, the vast majority of reflexes are much more complicated, one relay after another of nerve cell and fibers being employed, some peripheral, some spinal and some cerebral. No nervous structure can be njured without its happening that some reflex arcs are listurbed, and the evil effects are found in the organ upplied. The source of the injury may be trauma, nfection or toxin. The result may be temporary, as n some cases of peripheral neuritis, or permanent, as requently happens after trauma. The necessity for sensitive nerve supply is often questioned by the sufferer from toothache, and grateful feelings extended to the conservative dentist who saves the tooth, by devitalizing it and replacing the sensitive pulp with unfeeling gold or silver. For a time all goes well, but the blessing is not unmixed. These insensitive teeth are in the same position as any other part of the body deprived of nerve supply; and, as we shall see later in connection with other nerve lesions, one of the most important changes that occur is a perversion of metabolic processes. Sometimes there is increased anabolism and sometimes increased catabolism. This is illustrated in Figure 1 *A, B* and *C*. The only blood supply left to these teeth is what comes from the dental periosteum.

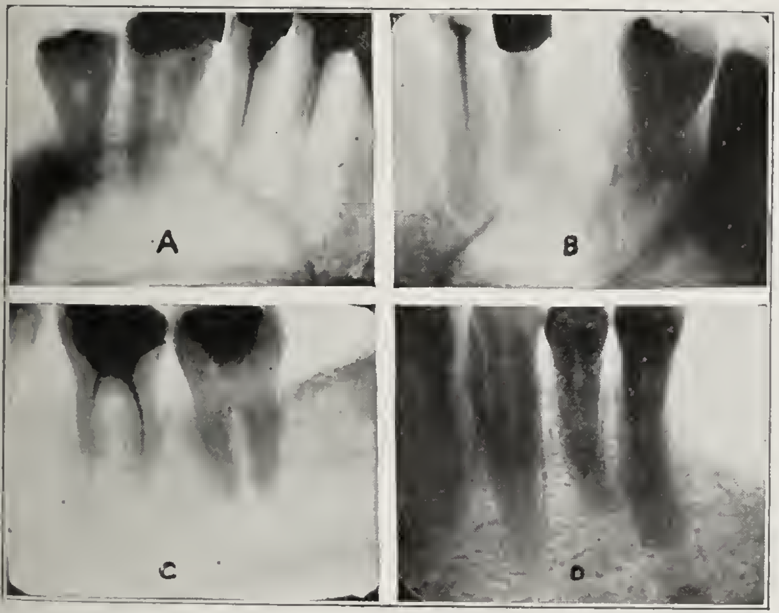

Fig. 1.—*A*, absorption of roots of devitalized teeth, especially the icuspid; *B*, hypertrophy of root of devitalized cuspid; *C*, clubbing of oots of devitalized lower molar; *D*, hypertrophic process affecting the oots of teeth of patient in whom the gasserian ganglion has been emoved.

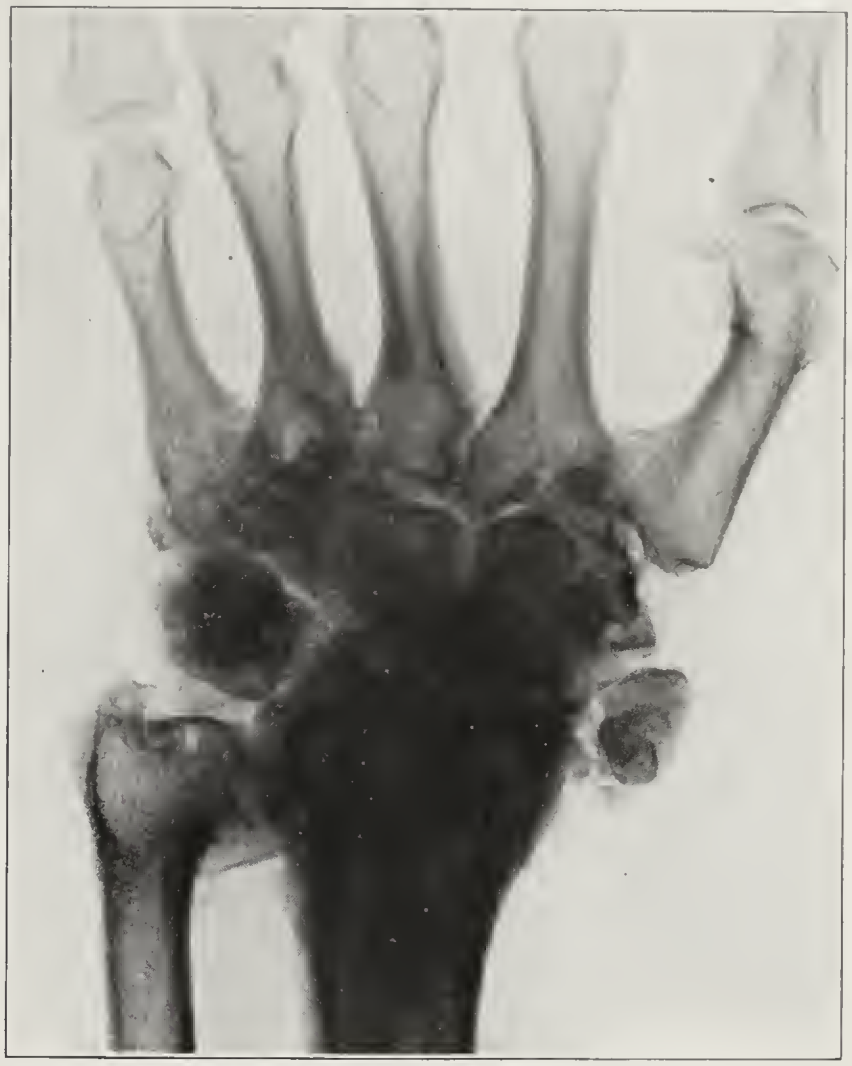

Fig. 2.—Appearance of right wrist of patient.

To show that this vascular deficiency is not altogether responsible for the changes noted, I will call attention to what has happened to the teeth of a patient who underwent a removal of the right gasserian ganglion for tic douloureux. The periosteal bone production is as marked as is ever seen in any devitalized tooth (Fig. 1 *D*).

In the roentgenographic study of the teeth, much has been made of apical abscesses and clubbed roots, as representing microbic infection. The results of extraction in many cases seem to verify this assumption. In the cases characterized by neuralgic symptoms of the face, it would seem well to keep in mind the possibility of the dental condition being secondary to a nerve lesion instead of the other more usual conclusion. According to Stewart[1] there is no unequivocal proof for the presence of specific trophic nerves, but all efferent nerves exert an influence on the nutrition of the tissues supplied by them. The influence exerted by the afferent nerves is not less important. In fact, most disturbances of so-called trophic function are related to lesions of the afferent nerves. When the efferent nerves are destroyed, the characteristic result is atrophy; but when the afferent nerves are destroyed, the result may be either atrophy or hypertrophy. In the cases cited above in connection with devitalized teeth, both sides of the arc have been removed, and as a result we find sometimes atrophy and sometimes increased bone production. It appears as if the receipt of information from the peripheral tissue were essential to spinal nerve centers to enable them to direct metabolic processes in the tissues supplied by the efferent nerves, so far as these processes are under nervous influence. The case reported below represents what happens to a joint when afferent nerves are destroyed.

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[1] Stewart, G. N.: Manual of Physiology, 1910, p. 699.

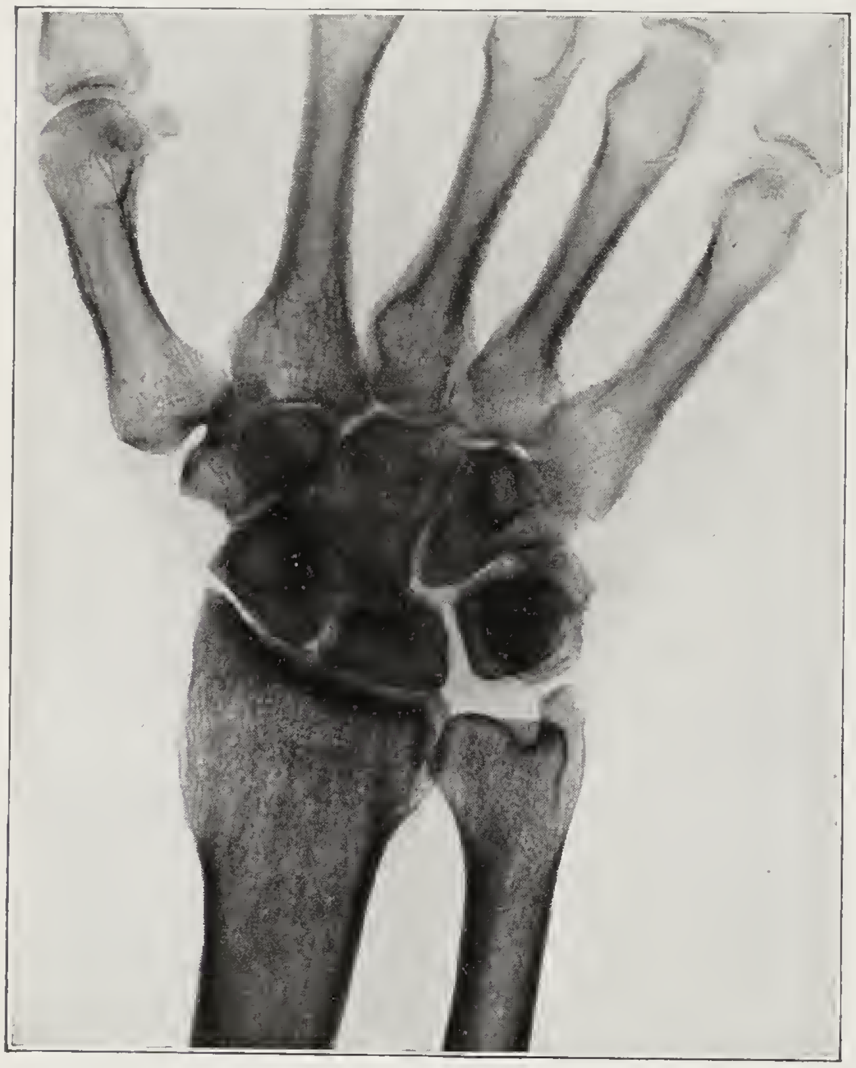

Fig. 3.—Appearance of left wrist.

In July, last year, there was admitted to the general hospital at Sault Ste. Marie a Russian, aged about 42, complaining of "rheumatism" in his right arm. He stated that in 1917 a log had fallen on his right shoulder while he was at work in the lumber woods. From his imperfect English and with the help of an interpreter, I learned that after recovering from the injury he had been able to work, but that at intervals he was forced to lay off with this so-called rheumatism. The arm was swollen from the hand to the shoulder, markedly so over the wrist, in front of the shoulder and over the lower part of the scapula. The appearance of the wrist suggested the dinner-fork deformity of Colles' fracture. He was seen by several members of the staff on admission, and our first surprise came when we found that we could move this swollen wrist and all the other joints without his making the least complaint, and that he could do the same thing actively without any apparent discomfort. The swelling anterior to the shoulder joint was fluctuant, and suggested a hydrarthrosis. Glands were enlarged and easily palpable in the axilla. The next thing which aroused our interest was the discovery of complete anesthesia in the skin of the right arm from the fingers to the shoulder and over an area which may be called right pectoral and right scapular on the trunk. Several roentgenograms were taken. That of the right shoulder showed only a separation of the articular surfaces, and it was concluded that this was due to fluid in the joint. One of the right elbow revealed almost a normal condition, with a slight exostosis from the head of the radius. As was expected, the findings were most interesting in the wrist (Fig. 2). Here we find a complete disorganization of the carpus, which may be compared with its fellow on the left (Fig. 3). It is impossible to recognize all the carpal bones. The two rows seem crowded together, as if compressed between the bones of the forearm and the metacarpals, and part of the scaphoid seems to be squeezed out of its normal relations and is found lying external to the radius. Numerous accessory abnormal shadows, apparently cast by small bones of the size and density of sesamoids, lie around and among the carpal bones. The distal ends of the radius and ulna are hypertrophied, and the periosteum of each shows bone formation. The base of the fifth metacarpal has a worm-eaten appearance.

Considering the clinical and roentgenographic appearance of this joint, the increased density with the absence of pain, the associated area of anesthesia and the history of injury, we could reach no other conclusion than that we were dealing with a neuropathic arthritis. It is likely that, at the time of injury, the posterior roots of the lower cervical and upper thoracic were divided or torn out. The anterior motor roots were unaffected, and the patient was able to use the arm in laboring work.

A Wassermann test of the blood was negative.

Choyce[2] describes, under the heading neuropathic arthritides, hysterical joints in which there is no organic lesion, tabetic joints, the arthritis of syringomyelia and arthropathies associated with other nervous lesions. Tabetic arthropathies are commonly called after Charcot, but as he described the changes occurring in syringomyelia as well, properly speaking "Charcot's joints" should include both forms. The latter occur principally in the upper extremity, and the former in the lower weight-bearing limbs.

The case just presented is a striking example of this fourth class of arthropathy. The exact nature of the pathologic process will remain concealed until some one has had the good fortune to perform a necropsy.

There are other forms of arthritis which closely resemble the foregoing, and they are sometimes classed among the arthritis deformans or rheumatoid arthritis group. Some put them in a separate group as ostearthritis. They are characterized by hypertrophic changes in articular cartilages and bones of elderly persons. They differ from the neuropathic arthropathies in being painful—sometimes extremely so—and in the absence of the other characteristic signs of nerve lesion. Their etiology is unknown. Commonly thought to be due to some toxin in the circulation absorbed from the alimentary tract, the genitalia or even from some ductless gland, they still continue to defy all attempts to understand their origin or their cure. Some have thought that they are of microbic nature, and at present it is the common practice to search for and eliminate any supposed infective foci. Many startling cures have followed the removal of infected tonsils or teeth, or the drainage of a gallbladder, nasal sinus or other harborer of chronic inflammation. In spite of this, it is apparent to those who see many of these unfortunate people that the number relieved is small in comparison to the vast majority who go on to chronic invalidism. Probably, as knowledge grows, other foci will be brought to light. At any rate, it behooves all to be cautious before recommending the extraction of teeth or the enucleation of tonsils, and to carry the search to the limit before condemning a possibly harmless and useful member.

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[2] Choyce, C. C.: System of Surgery 3: 756, 1914.

In view of what we have been considering as happening to joints which have been deprived of their sensory nerves, it is natural to reflect on the possibility that in these arthritides also there may be a pathologic change in the nerve supply antecedent to the joint inflammation. Whether or not the pain then was due to a neuritis, and the joint changes the result of the impaired nerve supply, and what relation foci of infection have to the process, or toxins from some distant part of the body, are speculations which will not be solved till some future time. Nor does this conception offer any hope for therapeutic relief, beyond what is known and practiced at the present time, which all admit is distressingly inefficient.

BRONCHIECTATIC LUNG ABSCESS

OPERATION; RECOVERY

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The nonspecific, subacute and chronic lung suppuration may, from the standpoint of the clinician, be conveniently classified as (1) typical bronchiectasis; (2) bronchiectatic lung abscess, and (3) ordinary lung abscess.

According to Virchow, Biermer and others, typical bronchiectasis is, on the whole, a rare condition (4 per cent. of all postmortems). In his clinic, Sokolowski found bronchiectasis, with distinctly marked symptoms, relatively seldom; in his hospital station, with from 400 to 500 patients yearly, he saw it only a few times. In the practice of one of us, which is restricted to pulmonary tuberculosis, it occurs not more frequently than once or twice a year. Some years, one or two cases will come under observation; the next year, perhaps no case. It is thus seen that the condition is infrequent.

Typical acquired bronchiectasis rarely occurs in children. However, it is not infrequently congenital. It is found more often in young persons, as well as in those of more mature age, and in the aged. Many authors believe that bronchiectasis occurs most frequently in old age. Sokolowski and Biermer are of the opinion that this view is incorrect. The majority of Sokolowski's patients were either young or middle aged. This is also our experience. Sex has no distinct influence, although many authors have observed bronchiectasis more frequently in men.

One of the principal causes of acquired typical bronchiectasis appears to be the aspiration of a solid or semisolid foreign body into the bronchial tree. A benign intrabronchial tumor, as well as a malignant neoplasm of the lung proper, may also be the direct cause of a bronchiectatic affection of the lung.

The bronchiectatic lung abscess is usually caused by the aspiration of blood or mucus, and infectious material from the crypts of the tonsils, during tonsillectomy or other nasopharyngeal operations, and by the aspiration of stomach contents during general anesthesia or gastric lavage. The ordinary lung abscess usually follows pneumonia and influenza.

Toward the end of the last century, Lenhartz, Quincke, Garrè, Koerte, Tuffier, Brauer, and, within the last two decades, Sauerbruch, Meyer, Robinson, Lilienthal, Davies, Hedblom and others, as well as several prominent roentgenologists and bronchoscopists, have made important contributions to a better understanding of the disease and its treatment.

In the treatment of bronchiectasis proper and the bronchiectatic lung abscess, purely medical therapy can be but palliative. It cannot be successful so far as real improvement or cure is concerned. With the exception of insignificant dilatations in children, or in otherwise very sound persons, which may heal or cause no serious disturbances, the process always progresses toward deterioration of the affected lobe (or lobes) of the lung in the majority of persons.

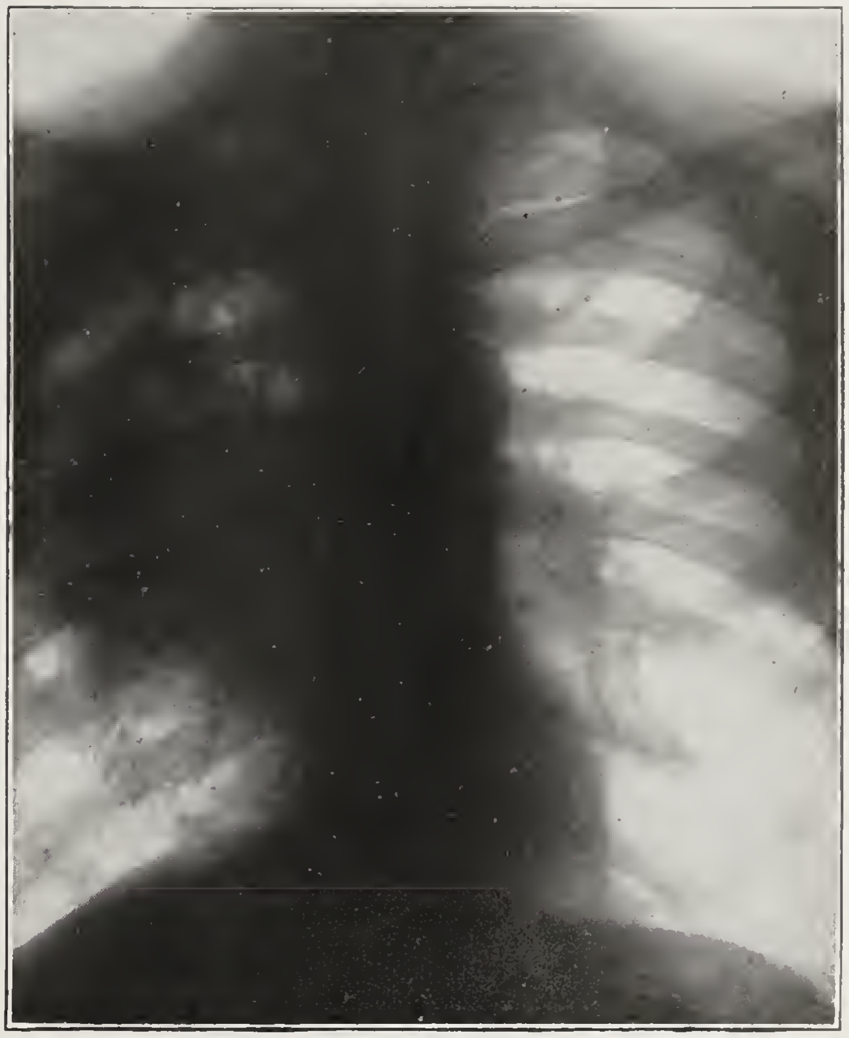

Fig. 1.—Appearance of right lung before operation.

Since the disease much more frequently slowly progresses from bad to worse, the physician should always consider his patient with a view to possible surgical interference. He should take it for granted that, with far advanced, wide dilatations, particularly with symptoms pointing to ulcerations and strictures at the entrance into the cavities, the disease will in time terminate fatally. He should, therefore, carefully consider whether it is not possible by other means, particularly by surgery, to obtain better results than by internal medication. The surgeon obtains successful results in other deep affections of the lungs and of the pleura: why should he not obtain successful results by operation on bronchiectatic pulmonary abscess and in typical bronchiectasis? We, therefore, wish to emphasize that every case of bronchiectasis should be carefully considered with a possible view to operation.

The surgeon may attack the disease, on more conservative lines, by various procedures, or radically, by the extirpation (resection) of the affected lobe or lobes. With the perfected technic of today, much better results have been obtained than older statistics show. They depend on the type of procedure, as well as on the extent of the disease and the patient's condition.

Typical bronchiectasis, for example, the honeycomb-like multiple abscess formation within one or more lobes, requires the extirpation of the affected portion of the lung for a cure of the trouble.

If it appears impossible to carry this out, then ligation of the respective branch (or branches) of the pulmonary artery, with and without subsequent multiple rib resection over the affected lung portion (extrapleural thoracoplasty), has produced good results in a number of instances, and represents, therefore, a recommendable operative method in certain cases on conservative lines.

Patients in the incipient stage of bronchiectatic lung abscess may improve a great deal, if treated by means of regular bronchoscopic aspiration, with and without gentle antiseptic irrigation, or with direct intrabronchial chemical applications. Under fortunate circumstances, they can be cured by this means.

More advanced cases of "circumscribed bronchiectasis," the so-called bronchiectatic lung abscess, usually require incision (pneumotomy) and prolonged drainage. If this is done, the patients have a good chance to recover, not only from the operation, but from the trouble itself—though in a more roundabout way, and they may hope to be able to return after a while to active life, even if not entirely cured.

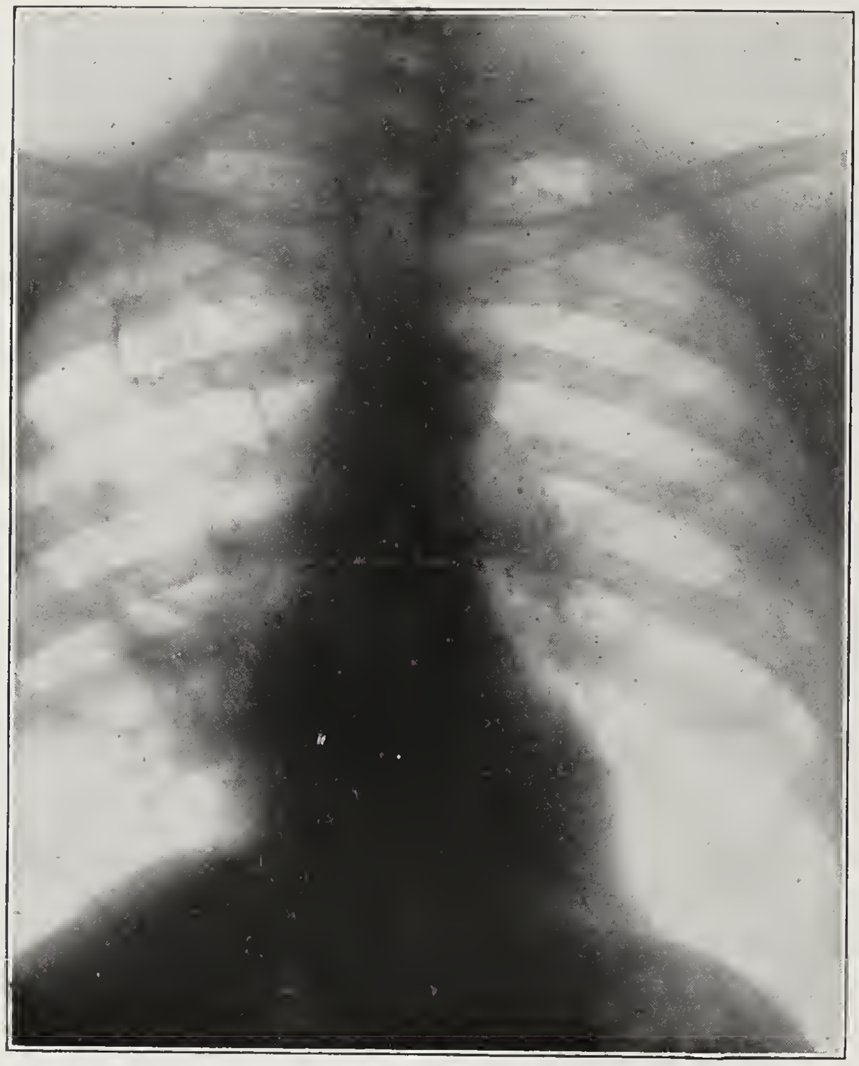
Fig. 2.—Appearance of right lung after operation.

Resection of the affected lobe or lobes of the lung, is, of course, the ideal operation also in these patients. But even in carefully selected cases, and in the hands of the most experienced, it still has almost 50 per cent. mortality. However, if successfully operated on, such a patient will be completely cured.

In some cases of accurately circumscribed single, or multiple (two or three), cavity formation, we may obtain, as just mentioned, really great improvement, and, exceptionally, even a complete cure of the disease, by incision and prolonged drainage, carried out with the intention of producing a temporary or permanent lung fistula. The case herewith reported illustrates, satisfactorily, the method which has been gradually and methodically worked out by one of us.

The fact that it is this circumscribed bronchiectasis (bronchiectatic lung abscess) which is the most suitable for operation, and that descriptions of successful results of these operations are not very numerous in medical literature as yet, has urged us to publish the report of this case.

REPORT OF CASE

History.—A white man, aged 40, an engraver, became ill in June, 1916, immediately after a circumcision operation. Ether was used for general anesthesia. High fever, rising to 104 F., set in soon after the operation and lasted for four weeks. One week after the operation, he began to cough. At that time he felt a sharp pain in the right axilla for the first time. The pain lasted one week. In June, 1916, he had night sweats and a dry pleurisy on the right side. He went to the Adirondack Mountains in August, 1916, where he gained in weight and did some light work. He was well until September, 1917. A rise in temperature then began to be noticed, as well as a foul odor to the sputum. The temperature would be normal for some days, and then would rise to 101 or 102 F. for several days.

His past history showed nothing of importance. He had had measles in childhood and whooping cough at 35 years of age. He also had had malaria. He had been subject to colds in the head. Dyspepsia had been present since the onset of his trouble. He used tobacco rather too freely, but he did not use alcohol. His health had always been good, although he had been subject to tonsillitis and quinsy.

His wife had died of pulmonary tuberculosis fourteen years previously. His family history was negative for tuberculosis otherwise.

Examination.—He was fairly well nourished, 5 feet, 11 inches (180 cm.) tall, and weighed 139½ pounds (63.4 kg.), his normal weight being 160 pounds (72.7 kg.). The appetite was good; bowels, regular; there was no evidence of indigestion, and no sweats. The nose, pharynx and larynx were normal. The heart and abdomen were normal. The posterior cervical and axillary glands were slightly enlarged. There was marked clubbing of the finger nails. The pulse ranged from 60 to 80. The temperature was usually normal, except occasionally it rose to 101 F. for one or two days. The urine was acid, and showed a faint trace of albumin. There was no sugar. The sediment showed calcium oxalate crystals, and a few pus and red blood cells, but no casts.

The patient coughed and expectorated almost constantly. The cough was always accompanied by expectoration. The expectoration had a very offensive, rather sweetish odor, and looked like pure pus. It varied in amount from 16 to 24 ounces (473 to 720 c.c.) in twenty-four hours. It did not contain any elastic fibers, and repeated examinations failed to reveal tubercle bacilli. Cultures made from the sputum showed only pneumococci—no other organism. (The type of the pneumococcus was not determined.) The sputum was inoculated into guinea-pigs. At the end of eleven weeks the pigs were killed, but no evidence of tuberculosis was found in them. Before the pigs were killed they were tested intracutaneously with tuberculin, and they failed to react.

He raised sputum very profusely when the head and body were held downward, and, on one occasion, within fifteen minutes, he raised almost a pint of pus and some blood tinged sputum. Although he coughed and expectorated almost constantly, the expectoration would be expelled very profusely within a short time in the morning, and again later in the day.

Right Lung: The clavicle was prominent; there were depression and deficient expansion of the right side of the chest. Some fine râles were elicited to the third rib; at the back, there were some indefinite, fine râles over the lower part of the chest.

Left Lung: It was normal, front and back.

Roentgen-Ray Examination: There was marked cloudiness of a patchy character throughout the upper three fourths of the right lung. These changes were more marked in the middle third, mainly inside the midsternal line. Some string-like shadows were seen throughout this cloudiness. The diaphragm was peaked (Fig. 1).

The left lung showed two or three dense nodular shadows in the lower third.

The interpretation of the roentgen-ray findings given to the physician were: right lung, infiltration involving the upper three fourths. These changes are atypical of tuberculosis, as there is no real definite tubercle formation to be seen. The condition causing these shadows is probably one of the following, in the order named: lung abscess, gangrene, bronchiectasis. There is probably some pleurisy present on this side, with diaphragmatic adhesions. Another point in confirmation of this being a nontuberculous condition is the freedom from any changes in the left lung.

Left lung, probably one or two calcified tubercles at the base.

The roentgen-ray examination of the cranial sinuses revealed a fairly marked clouding of the right antrum.

On two separate occasions, attempts were made to compress the right lung by nitrogen gas, but no gas could be introduced.

Operation.—Early in January, 1918, under regional and local anesthesia, an operation was performed without causing the patient any appreciable pain. The upper lobe of the lung was found attached to the costal pleura, and the abscess was encountered, 2½ inches (6.3 cm.) below the surface, within the upper lobe, without causing any severe hemorrhage. The patient stood the operation nicely.

TECHNIC OF OPERATION

A slightly convex downward incision was made in the second intercostal space. The major and minor pectoral muscles were divided, bluntly, in the direction of their fibers, crossing blood vessels being divided and doubly ligated. The muscles were retracted with blunt hooks. (This act seemed to be slightly painful.) The muscles obstructed the field; therefore, the pectoralis major was divided downward and the pectoralis minor was divided upward at a right angle to the direction of the fibers for some distance, making access easier. The second rib was resected for 4 inches (10 cm.). Careful division of the adjacent intercostal muscles proved that the lung was not moving, the pleural leaves evidently being adherent. Aspiration was accomplished with a long needle of large caliber, introduced in the bed of the resected second rib, the needle being pushed on in a straight direction backward, giving a clear sensation of penetrating infiltrated tissue, and then suddenly entering a cavity. On aspiration, some arterial blood was withdrawn, with distinct pus flakes in greater quantity. The lung was incised with the cautery, the needle being carefully followed as a guide. On reaching the tip of the needle, the cavity was entered and opened widely. It contained coagulated masses of fibrin of various sizes and shapes, and of the same foul odor as that of the sputum. The palpating finger, introduced into the cavity, demonstrated it to be irregular, with a perpendicularly forward rising and resistant arch, evidently the posterior wall of a distended larger bronchus. Above, the flexed tip of the finger entered a smaller pocket "around the corner." The cavity lay fully 2½ inches (6.3 cm.) below the lung surface. Drainage was established with a split rubber tube, and iodoform and sterile gauze tampons. A loose dressing was applied.

Course.—The patient was in splendid condition after the operation. One week later, the first change of dressing was made. The lung wound was a large cylindric hole, in the depth of which one large and several smaller open bronchi were visible. Retamponade was made. In the course of further after-treatment, care was taken to establish a lung lip fistula; after its definite formation, requiring several months, the rubber drain was removed.

In January, 1919, the patient reported that he was in fine trim; he coughed only a few times in twenty-four hours, expectorated hardly any, and was able to work.

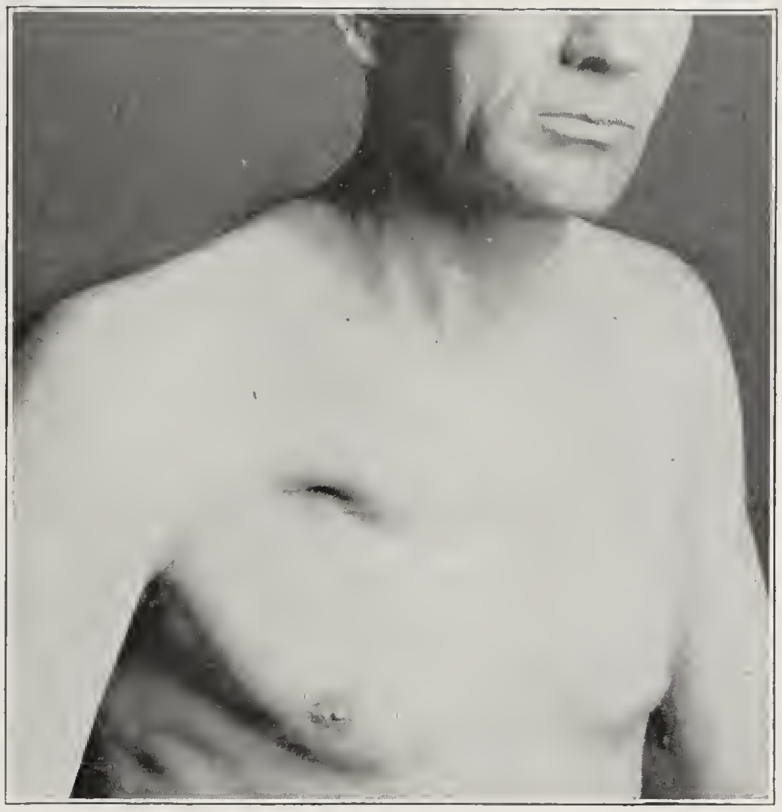

Fig. 3.—Appearance of patient, four years after operation.

In July, 1919, that is, nineteen months after operation, he reported for examination at Saranac Lake. His pulse was 60 to the minute and weight 157 pounds (71.4 kg.). He had been at work for one year, and had been a chauffeur for the last three months. He had slight morning cough and expectoration. He felt in perfect health. There were no tubercle bacilli in the sputum. There was a scar from 6 to 7 inches (15 to 17.7 cm.) long, extending downward and forward over the front of the right chest. The examination of the chest revealed:

Right Lung: There were intense blowing breath sounds over a fistulous opening situated in the front of the chest. Air escaped from the opening. In the back moderately fine, faint râles extending to the eighth dorsal spine were heard.

Left Lung: There was impaired resonance of the second rib; no râles. In the back, moderately fine, faint râles were heard over the base.

Roentgen-ray examination, July 22, 1919, nineteen months after operation, revealed:

Right Lung: The anterior portion of the second rib had been resected. As regards the intrapulmonary changes, there were many fibrous strings and striations scattered throughout the lung (upper half or two thirds). The previous homogeneous cloudiness seen in this region had disappeared almost completely; but there was some cloudiness, localized in places, in the descending trunk region. It was difficult to say positively just what was causing this haziness. There was still slight evidence of diaphragmatic pleurisy (Fig. 2).

Left Lung: There were no definite changes to be made out on this side. However, there was a little more cloudiness around the root region and extending into the lower half. This, however, was not definite enough to be interpreted.

Four years after operation, the artificial pulmonary fistula was still present. Its skin entrance was collapsed. When its lumen was separated, with the patient's lips closed and nostrils compressed, the required quantity of air for ordinary respiration could be easily drawn through the fistula. There was no cough, no expectoration, and no fetor from the mouth. The patient was working, and in splendid physical condition (Fig. 3). He was opposed to having the fistula closed at present.

DISLOCATION OF THE SEMILUNAR CARPAL BONE

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Dislocation of the semilunar carpal bone is not likely to occur often enough to be of much moment to physicians generally, but the fact that it may occur in almost any severe wrist injury makes recognition of this lesion imperative. The American literature in the last few years contains comparatively few reports of cases of semilunar carpal bone dislocation. The European literature, especially the German, is replete with references to semilunar carpal bone dislocations, but no great number of cases have been studied. I am unwilling to believe, however, that this lesion is as infrequent as these reports would seem to indicate.

That this particular injury does occur more often than formerly may be due to the great number of accidents caused by the backfire of gas engines, which is a common factor in producing wrist injuries. The present universal use of the roentgen ray in the diagnosis of wrist conditions also undoubtedly brings to light a considerable number of cases which formerly may have been overlooked. In the wrist injuries reported previous to the discovery of the roentgen ray, differential diagnosis was more or less uncertain, and, although diagnosis can be made without the roentgenogram, the complications which are impossible to detect without the roentgen ray make its use of utmost value.

ANATOMY

The semilunar carpal bone (os lunatum) received its name from its outline when viewed laterally. The concave distal surface is divided by a ridge into a large part for the os magnum, and a smaller part for the edge of the unciform. The proximal surface is convex and articulates chiefly with the radius. An outer surface articulates with the scaphoid, and an inner surface with the cuneiform. Altogether, it articulates with five bones—the radius, scaphoid, cuneiform, os magnum and unciform. Both the concave and convex surfaces are practically wholly articular, there being but a slight roughness for the attachment of ligaments at the proximal end near the dorsum. The disarticulation of this dorsal carpal ligament makes possible the evulsion of the semilunar from its resting place. The scaphoid, semilunar and cuneiform, according to Piersol,[1] have been properly compared to an intra-articular fibrocartilage, or meniscus, subdividing a joint. No muscle of the forearm is attached to this row of carpal bones; hence they are never moved except as they change position under pressure from the distal row, which is pulled against them by the muscles moving it. Binding the wrist structures is the capsular ligament, passing from the forearm to the metacarpus and attached to the intervening carpal bones. It is strong on the sides and weak in front and behind. The flexor and extensor tendons, however, reinforce it. A continuous layer passes from the radius and ulna to the proximal row, then to the distal row, and then to the metacarpals.

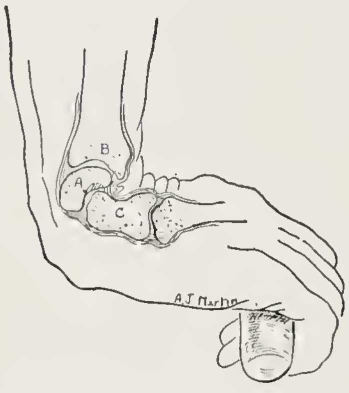

Fig. 1.—Relation of wrist structures in hyperextension.

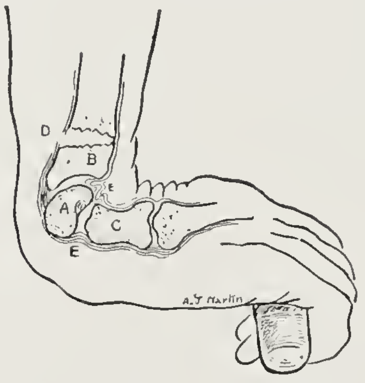

Fig. 2.—If the radiocarpal ligament at *E* holds, then fracture at *D* is the common result.

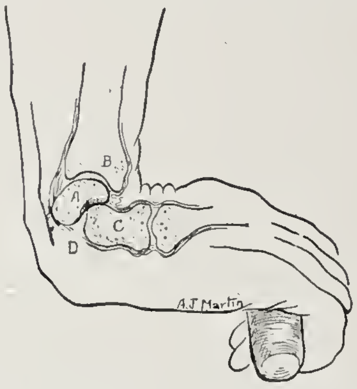

Fig. 3.—If the radiocarpal ligament gives way at *D*, there is no fracture at *B*, but there is dislocation of the semilunar *A*.

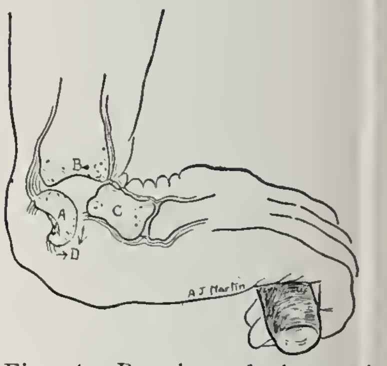

Fig. 4.—Rotation of the semilunar from its bed after ligaments have parted.

The anterior annular ligament bridges the hollow of the wrist, which encloses a canal through which pass the flexor group of tendons of the thumb and fingers and the median nerve.

The movements of the wrist take place in the joints, above and below the proximal row of wrist bones. Taking 180 degrees as the complete range of normal wrist movement, about 90 degrees of this is below and 90 degrees is above this proximal row of carpal bones. These bones act as pads between the lower end of the radius and the distal row of carpal structures. They do not furnish attachment for muscles, and their meager blood supply enters by way of the ligamentous structures attached to their anterior and posterior external and internal surfaces.

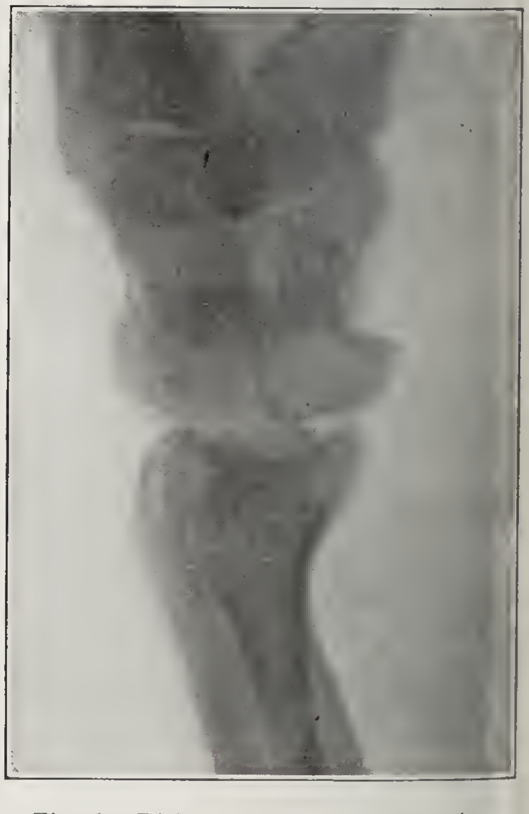

Fig. 5.—Dislocated semilunar carpal bone, Jan. 31, 1922.

MECHANISM

While many of the carpal bones are susceptible of being moved from their normal relations, the semilunar is more prone to complete dislocation because of the uneven compression of this bone between the lower end of the radius and the os magnum with the wrist in forcible hyperextension. Coincidentally, the same kind of mechanism which produces this dislocation produces also the common Colles' fracture. Obviously, this mechanism is the sudden forcible hyperextension of the wrist, and may result from a fall on the outstretched hand, a blow on the back of the wrist or a kick from the handle of a crank suddenly set in reverse motion (Fig. 1). Just why forcible hyperextension should produce fracture of the head of the radius in one case and a dislocated semilunar carpal bone in another is, in all probability, explained by the tensile strength of the anterior radiocarpal ligament. The mechanism of both Colles' fracture and a dislocated semilunar carpal bone is explained in Figures 2, 3 and 4.

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[1] Piersol: Human Anatomy, Philadelphia, J. B. Lippincott Company **1**: 310, 1907.

Forcible hyperextension of the wrist produces stripping of the dorsal ligament from the posterior pole of the semilunar. This results from the rather sharp dorsal edge of the distal end of the radius, which, in hyperextension, shaves off the ligament from the posterior pole of the semilunar bone as it impinges on the os magnum, while at the same time the semilunar is crowded forward out of its resting place (Fig. 4). The anterior pole of the semilunar is fixed by the anterior radiocarpal ligament, with the result that, as this bone rotates on its transverse axis, with the anterior pole as its pivot, it is invariably luxated forward. As it rotates, it is tilted out of its bed between the scaphoid and the cuneiform and is more or less completely luxated on the anterior aspect of the wrist, lying beneath the flexor tendons and on the median nerve; it may lie subcutaneously and even break through the skin, depending on the degree of trauma.

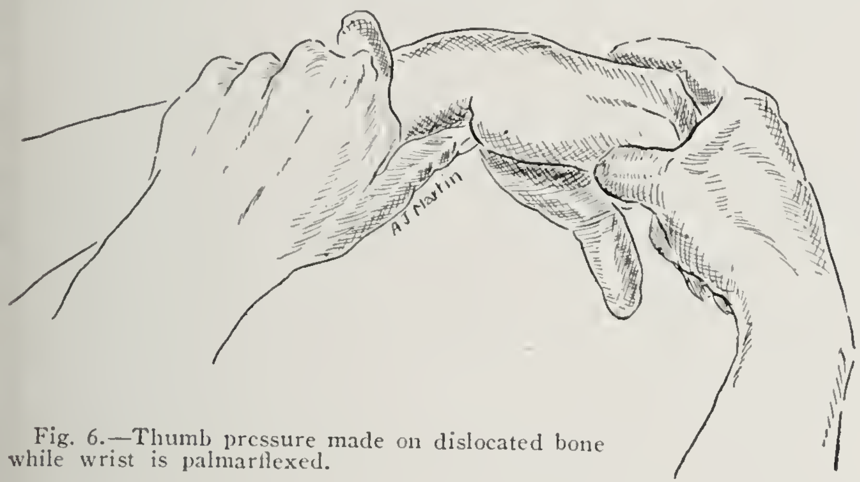

Fig. 6.—Thumb pressure made on dislocated bone while wrist is palmarflexed.

FREQUENCY

The most frequent injury of the wrist bones is fracture of the scaphoid, and next in frequency is dislocation of the semilunar. These two injuries occur together in many cases. Codman and Chase [2] give the order of injury of all of the wrist structures as follows: scaphoid, semilunar, pisiform, os magnum, trapezium, trapezoid, unciform and cuneiform.

SYMPTOMS

The symptoms are fairly characteristic. The fingers are flexed and held rigid, owing to the pressure of the displaced semilunar beneath the flexor tendons and also on the median nerve. Disability and pain are more severe and persistent than in any other wrist injury. The pain and swelling are localized somewhat anteriorly. There may be numbness or tingling if the bone presses on the median nerve.

DIAGNOSIS

The importance of definite diagnosis of wrist injuries is apparent when we realize that the carpal bones if fractured have little power of repair, and if dislocated, prolonged disability results. This is particularly true of the proximal row, which includes the scaphoid, semilunar and cuneiform. Roentgenograms taken with the palm next to the plate will show the semilunar bone, if dislocated, in a position much closer to the plate than the other carpal bones. In the lateral position, the roentgenogram shows the moon-shaped bone more or less completely rotated forward, boldly jutting out of its place in the general alinement of the wrist structures (Fig. 5).

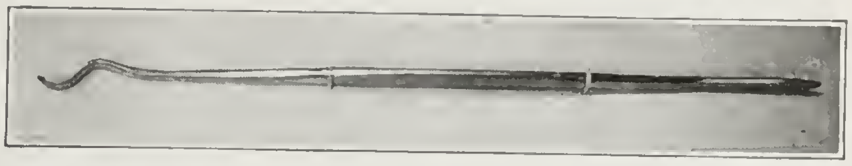

Fig. 7.—Lateral view of the Davis skid for reduction of the semilunar carpal bone.

Fig. 8.—The Davis skid for reduction of the semilunar carpal bone, viewed from above and the side.

There is, of course, swelling of the wrist, with complete disability; but the silver fork deformity is not typical unless it is complicated by fracture of the radius. The relative position of the styloids remains unchanged. The length of the hand appears shortened owing to the settling of the os magnum into the space left by the semilunar. The anteroposterior diameter of the wrist is increased by the shifting of the semilunar bone anteriorly. The semilunar bone may be felt as a hard, perhaps movable, prominence beneath the flexor tendons in the anterior wrist region.

TREATMENT

If seen early, immediate reduction is usually possible by the bloodless method. This should be given a thorough trial before incision or excision is considered. Before reduction is attempted, the wrist, forearm and hand should be treated for from three to twenty-four hours with continuous hot applications, either fomentations, a hot bath or radiant heat. The relaxing effect of the heat facilitates reduction.

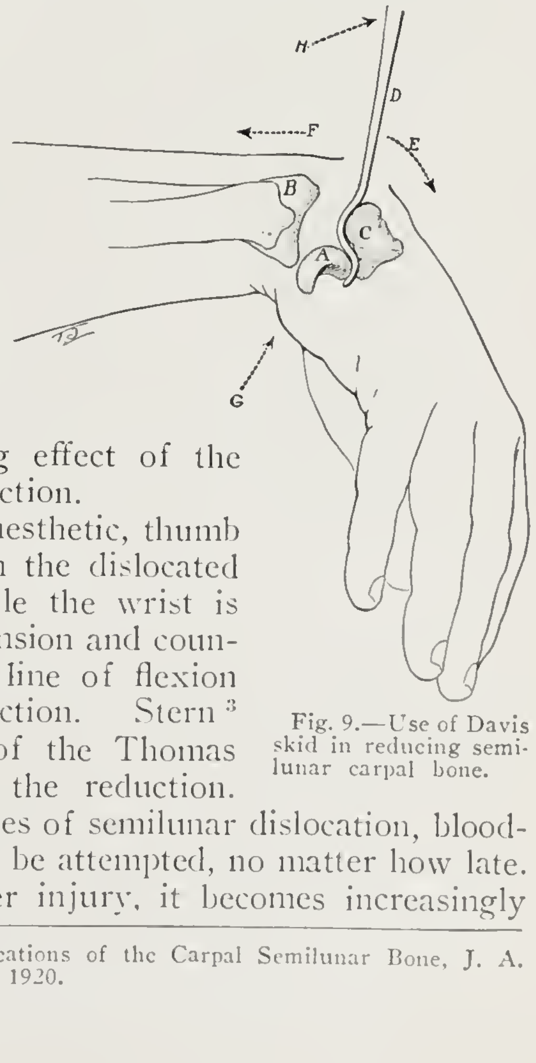

Fig. 9.—Use of Davis skid in reducing semilunar carpal bone.

With a general anesthetic, thumb pressure is made on the dislocated bone (Fig. 6), while the wrist is palmarflexed. Extension and counterextension in the line of flexion facilitate the reduction. Stern [3] advocates the use of the Thomas wrench in making the reduction. In uncomplicated cases of semilunar dislocation, bloodless reduction should be attempted, no matter how late. About ten days after injury, it becomes increasingly difficult to secure reduction manually; but cases are on record which have been bloodlessly reduced several weeks after displacement.

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[2] Codman and Chase: Ann. Surg. **41**: 863, 1905.

[3] Stern, W. G.: Dislocations of the Carpal Semilunar Bone, J. A. M. A. **75**: 1389 (Nov. 20) 1920.

If manual reduction fails, an open reduction is indicated. Davis[4] devised a skid (Figs. 7 and 8) to overcome the difficulty experienced in open reduction of the semilunar bone, especially if it has been out of place for some time. This skid is double curved on the flat surface and it is thin enough to slide in between the os magnum and the end of the radius, through a dorsal incision. With the palmarflexed wrist and traction on the hand and counter traction on the arm, this instrument is slipped over the lower pole of the semilunar, hooking and prying its edge under the os magnum and slipping it into place (Fig. 9).

While it is easier to perform an excision of this superficially displaced bone than to reduce it to its normal position, it is better surgery to reduce it by either the closed or the open method.

If semilunar dislocation is complicated with scaphoid fracture, excision of the semilunar, together with the proximal fragment or all of the scaphoid, gives best functional result. Fractured carpal bones have little power of repair, owing to poor blood supply, and attempts at bony union merely result in synosteosis with poor function.

SUMMARY

1. Isolated dislocation of the semilunar carpal bone is relatively rare, but in severe hyperextension injuries of the wrist, care should be taken lest it be overlooked.

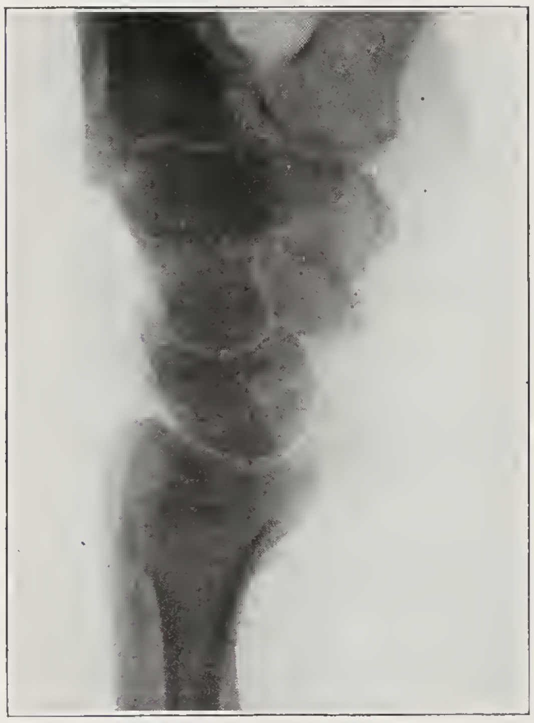

Fig. 10.—Wrist immediately after reduction.

2. Prolonged hot applications relax the wrist structures and favor bloodless reduction, which generally accomplishes a cure.

3. Open reduction is generally successful, even in late cases, by the use of the Davis skid.

4. Excision of the semilunar carpal bone is a last resort method and is practically obsolete.

5. Systematic study of the carpal structures is necessary with roentgen-ray confirmation in all wrist injuries. Many obstinate "sprained" wrists are doubtless the result of fracture or dislocation of the carpal bones, and, owing to the great functional importance of the wrist, definite diagnosis is essential to proper treatment.

REPORT OF CASE

History.—H. S., aged 30, referred by Dr. W. H. Haughey, had sustained an injury of the right wrist while he was cranking a gas engine. He was seen six days after injury. The wrist was swollen, painful, and exquisitely tender. The slightest movement of the fingers caused pain, localized chiefly in the volar surface of the wrist. The swelling was also more pronounced in this region. Roentgenograms disclosed displacement of the semilunar carpal bone with no other injury (Fig. 5).

Treatment.—Under gas anesthesia an effort was made to reduce this displaced bone manually; but it was not thought successful. An open reduction operation was performed in which the Davis skid was employed. A longitudinal incision, 1½ inches (3.8 cm.) long, was made over the dorsum of the wrist, exposing the carpal bones. Great care was taken not to open the extensor tendon sheaths, or to traumatize the tendons. The skid was slipped in behind the os magnum, with the curved point of the instrument hooking over the lower pole of the semilunar, sliding it into place (Fig. 10). At the same time, traction and counter traction were made on the hand and arm. The wound was closed and the hand was put in slight flexion in a plaster-of-Paris cast, extending from the metacarpal phalangeal junction to the elbow. Two weeks later, this was removed and physiotherapy, consisting of alternate hot and cold applications, diathermy and gentle massage, as well as manual movements, was begun. Figures 11 and 12, show the results after eight weeks of treatment.

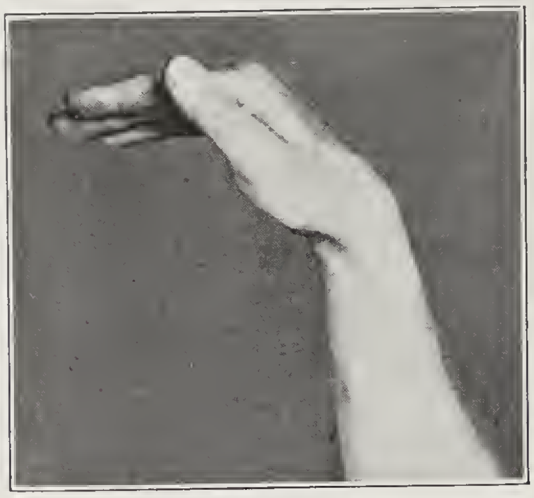

Fig. 11.—Wrist two months after dislocation of semilunar carpal bone had been corrected.

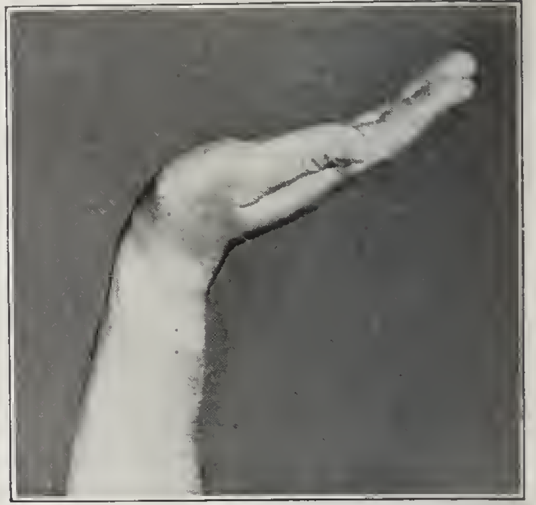

Fig. 12.—Wrist two months after dislocation of semilunar carpal bone had been corrected.

LIPOMA OF THE PERINEUM

REPORT OF A CASE

FRED W. RANKIN, M.D.
AND
ALBERT J. SCHOLL, M.D.
First Assistant in Surgery and Fellow in Urology, Respectively, Mayo Foundation
ROCHESTER, MINN.

Lipomas may occur in almost any part of the body in which there are deposits of normal fat. They generally develop where these deposits are greatest, and it is only rarely that they are found in parts where little fat naturally exists.

Practically all fatty tumors have a fibrous capsule and are divided into lobules by septums. In most cases, the capsule and its branches are quite delicate, but they may be thick and strong, particularly following inflammatory changes. They then acquire density and toughness similar to that of fibrous tumors. Grossly, histologically and chemically, lipomas resemble normal fatty tissue. They are more compact on the cut surface than fat and the lobules are smaller. There is undoubtedly some physiologic difference between lipoma fat and normal fat, as the body is not able to utilize lipoma fat, even in emergencies when all the normal fat has disappeared.

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[4] Davis, G. G.: Internat. Clinics 3: 226, 1921.

Lipomas are found in the gastro-intestinal tract, in the lungs, brain, kidney and uterus. They usually form slowly and without pain, and may attain a very large size. The largest occur in the retroperitoneal tissues, though the subcutaneous tissue is the most common location. In most cases, they are freely movable under the skin, and, if not irritated by trauma or infection, they are generally not attached to the surrounding tissues. They have a tendency to grow where the tissues are soft and lax, as in the axilla or shoulder. Pressure or tension of the overlying structures seems to inhibit their growth.

The case reported herewith is of interest not only because of the large size of the growth, but also because of its location in the center of a number of vital structures without noticeably disturbing their function.

History.—W. S. S., a man, aged 42, came to the Mayo Clinic, Dec. 6, 1921, because of a large tumor of the perineum. Twenty years before, the tumor appeared as a small nodule in the perineal region. It gradually increased in size and extended anteriorly and posteriorly until it measured 30 by 20 by 12 cm. The growth was not painful or tender, but the patient was markedly uncomfortable because of the weight of the tumor and the mechanical obstruction to defecation. Six years before, the tumor had been treated several times by hot water injections without relief or diminution in size. For the last eight months, the patient had had hemorrhoids which sometimes bled freely.

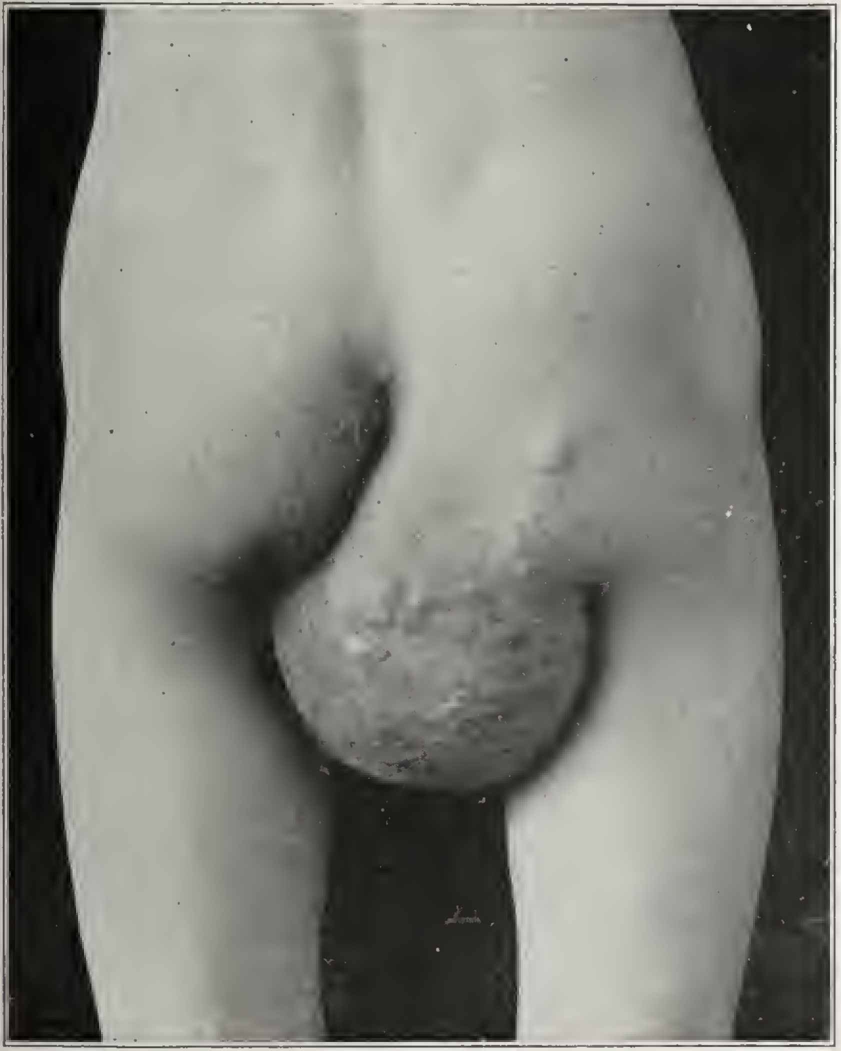

Fig. 1.—Large lipoma of the right buttock covered by dilated tortuous veins.

Examination.—This revealed a soft, round tumor, covered with dilated tortuous veins (Fig. 1). The overlying skin shifted freely. The growth projected about 12 cm. below the right buttock, and extended along the perineal tissues about 30 cm., filling out the perineoscrotal angle. On rectal examination, it could be felt high, adhering closely to the rectal wall. The anal canal was markedly distorted, but the scrotum, urethra and prostate were not involved.

Operation.—Dr. Judd found the growth to be attached to the urethra and to the right side of the rectum. It bulged from the perineum. It was attached under the pubic ramus on the right side and was covered with many large dilated veins which bled freely. A catheter was passed into the urethra and the growth enucleated, care being taken not to injure the urethra or rectum. The wound was drained by a split rubber tube and closed with several deep sutures of plain catgut. Four silkworm gut tension sutures were placed and the skin edges approximated with a continuous horsehair suture.

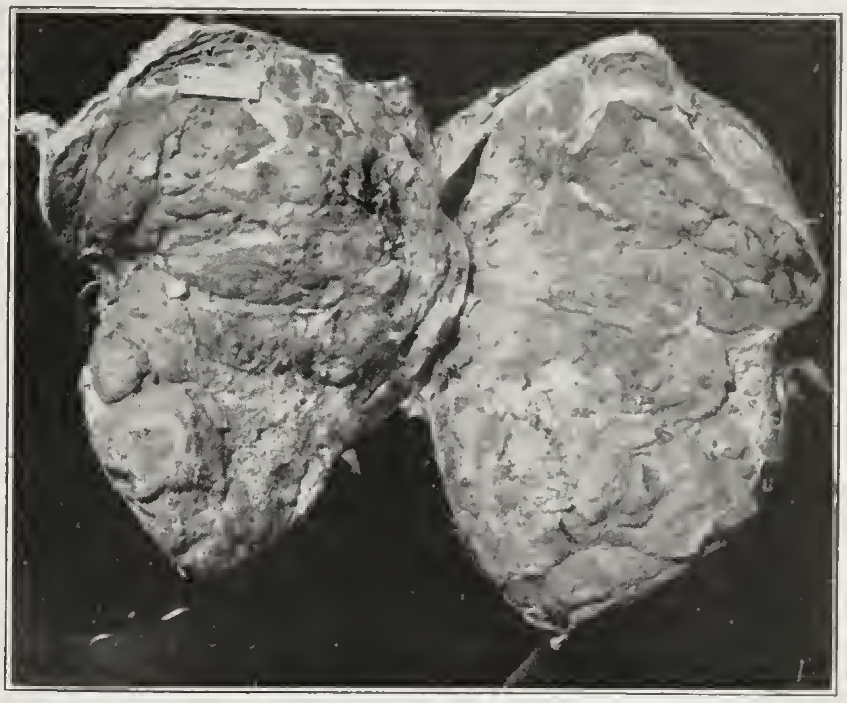

Fig. 2.—Lipoma, 30 cm. long, with a circumscribed area of calcareous degeneration in the lower segment.

The growth proved to be a degenerated calcifying lipoma, weighing 3,200 gm. (Fig. 2). Evidence of malignant change was not found.

Course.—The night following operation, the patient had a severe hemorrhage from the wound. The incision was opened and a freely bleeding artery ligated. The wound was then packed with iodoform gauze and closed with silkworm sutures. Five hundred cubic centimeters of physiologic sodium chlorid solution was given intravenously while the patient was still on the operating table, and several hours later he was transfused with 500 c.c. of citrated blood.

The iodoform pack was removed the third day. The patient convalesced uneventfully, save for moderate bleeding from the hemorrhoids on several occasions. The wound drained quite freely for several days. After the eighth day, the patient was given a daily hot bath which rapidly reduced the discharge and swelling of the resected area. The patient left the hospital twenty-one days after the operation with the wound well healed and the perineal tissues restored to their normal contour (Fig. 3).

COMMENT

In fatty tumors, the blood supply is generally carried by one main artery at the base of the tumor. This artery, with many small branches coming from adjacent tissues, ramifies in the fibrous capsule and passes into the growth with the projecting septums. In large growths, the vessels in the periphery are tortuous and dilated, sending correspondingly large branches into the substance of the tumor. The patient in the case reported above was operated on in the lithotomy position, and all bleeding vessels were carefully ligated. Evidently, the tension and compression on the tissues produced by flexion of the thighs prevented bleeding and consequent ligation of an important vessel. Later, extension of the thighs resulted in free bleeding from this vessel.

The calcification in this case was well localized and comprised only a small portion of the tumor. Calcification is rather often seen in large tumors and generally forms in the portion subjected to trauma or irritation. Virchow[1] says that calcification results from the action of fatty acids on sodium and calcium salts. He observed a lipoma on the lesser curvature of the stomach, in which there was almost complete calcification. Bland-Sutton[2] mentions a completely calcified lipoma of fifty years' duration. In most cases, calcification is only slight, and generally in the periphery or along the fibrous supporting elements of the tumor. In the presence of calcification, there is generally shrinkage. Actual ossification is rare, and occurs generally only in large tumors. Kaufman reported the case of a patient with a lipoma of the supraclavicular region in which there was an area of ossification about 4 by 6 cm. Beck[3] noted a case in which there was ossification in a 55 pound (25 kg.) fibrolipoma of the thigh.

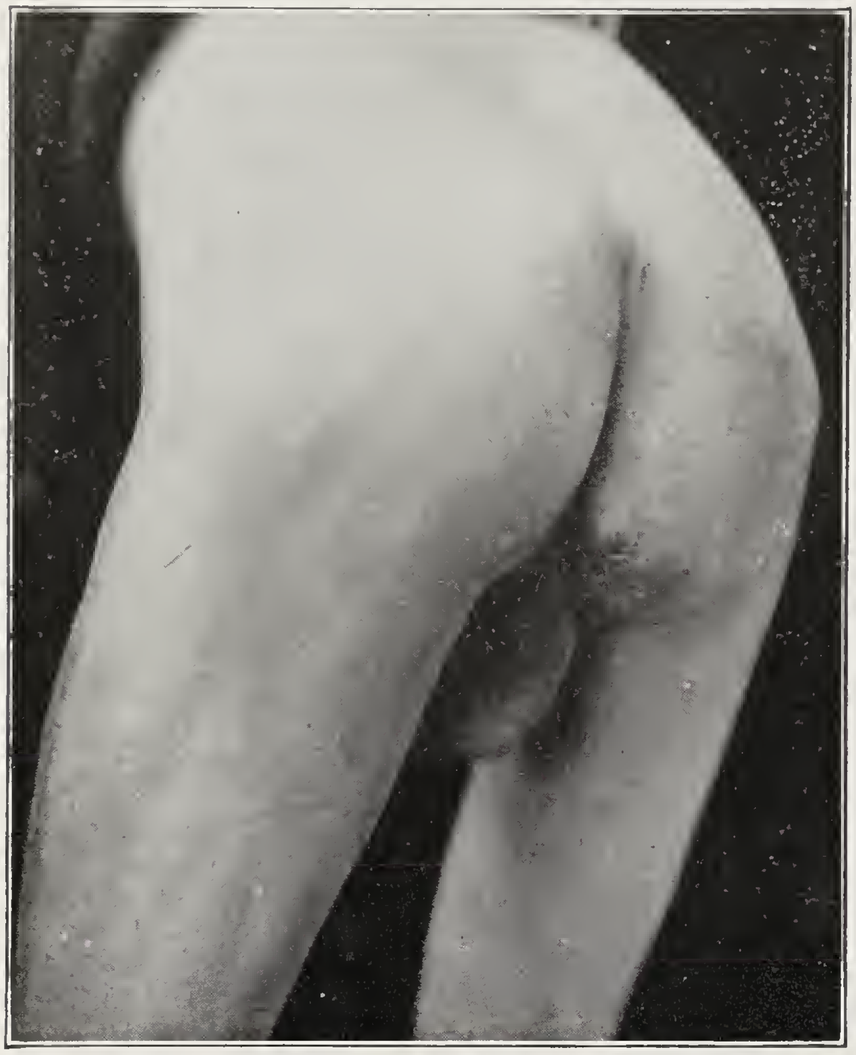

Fig. 3.—Restoration of the normal contour of the buttocks and anal outlet following removal of lipoma.

Fatty tumors forming in areas where their weight may exert traction, around the groin or perineum particularly, have a tendency to gravitate to the lowest possible point and not infrequently become pedunculated. The tumor reported here had remained in its original location; the weight was disposed so that the mass hung from the most dependent portion of the perineal tissues. Paget[4] reports two cases of shifting lipomas, one in which a large growth gravitated from the pubic region to the inner side of the thigh; in the second case a pedunculated lipoma, which had originated in the inguinal region ten years before, had gradually shifted to the perineum.

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[1] 1. Virchow, R.: Die krankhaften Geschwülste, Berlin, Hirschwald **1**, 1863-1865.

[2] 2. Bland-Sutton, J.: Tumors, Innocent and Malignant, Their Clinical Characters and Appropriate Treatment, New York, Cassell & Co., 1917.

[3] 3. Beck, B.: Ein Fall von ungewohnlicher Knochen-Neubildung, in einer 55 Pfunde schweren Faser-Fettgeschwulst, Virchows Arch. f. path. Anat. **15**: 153-158, 1858.

[4] 4. Paget, J.: Lectures on Surgical Pathology, Philadelphia, Lindsay and Blakiston, 1871.

Clinical Notes, Suggestions, and New Instruments

ACUTE SUFFOCATIVE EDEMA OF THE LUNGS IN RELATION TO DISEASES OF THE HEART

Louis Faugeres Bishop, M.D., New York
Consultant in Heart and Circulatory Diseases, Lincoln Hospital

No one can practice medicine more than a short time without encountering people suffering from attacks characterized by edema of the lungs and great shortness of breath, followed in a short time by cough and expectoration. During the course of the attack, the lungs are filled with moist râles, which persist for several days, and then gradually disappear. There is generally a rise in temperature to about 100 F. and great prostration, the day after the attack.

However, the recovery from this condition is complete, and no traces of it are left. This trouble has been described as acute suffocative edema, and it is recognized as a condition apart from other diseases. It is, as a rule, considered part of a complicating kidney or heart condition.

If, during the attack, the heart happens to be overacting, the patient is often said to be suffering from dilatation of the heart. These attacks are, as a rule, self-limited, and recovery takes place without treatment. Prompt relief is often secured by the administration of glyceryl trinitrate, or, if this fails, by a hypodermic injection of morphin. The frantic use of heart stimulants that is often resorted to probably does not influence the outcome of the case.

A little study leads us to abandon the purely mechanical theory of this disease. The heart ordinarily acts fairly well considering the natural reaction to the pulmonary condition, which always throws the burden on the heart, particularly the right side. It seems that the picture, perhaps one of chemical irritation of the lungs, is related to anaphylaxis.

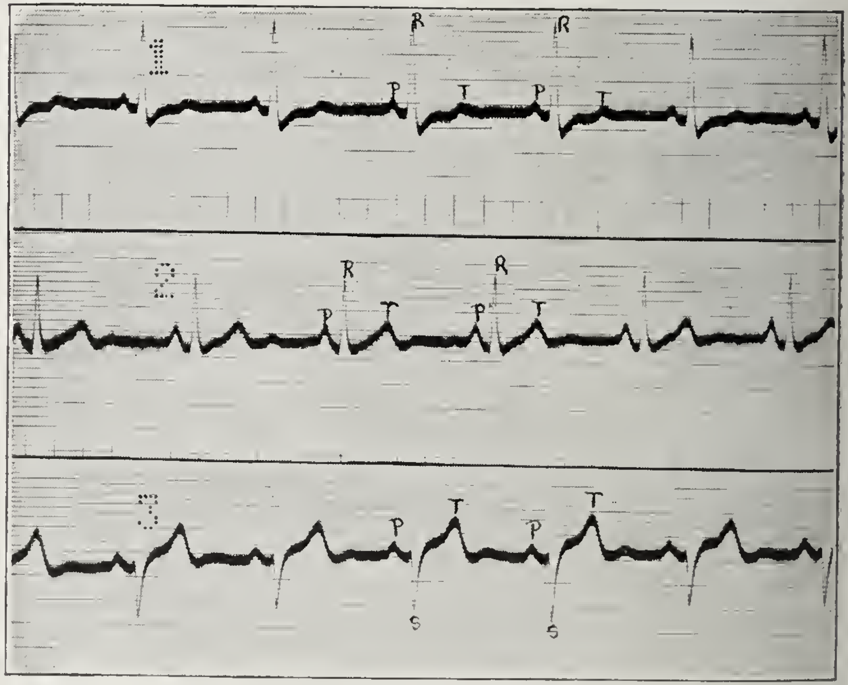

Fig. 1.—Electrocardiogram of patient (Mrs. F. B. S. D.), showing hypertrophy of the heart corresponding to a high blood pressure, but no sign of cardiac irregularity.

Following are the details of a case illustrating the course of this disease.

REPORT OF CASE

Mrs. F. B. S. D., aged 62, had been under treatment for some time on account of high blood pressure. She complained of throbbing in the head at times and some headache. The urine showed a moderate amount of albumin and some ranular and hyaline casts. She continued under treatment or some time, her condition gradually improving, until, in eptember, 1921, she suddenly developed severe pain over the recordium. This lasted for about a week, and during this ime she was told to take glyceryl trinitrate freely. The pain ventually left rather suddenly, and she was comfortable as ong as she remained in bed. Any exercise would bring on

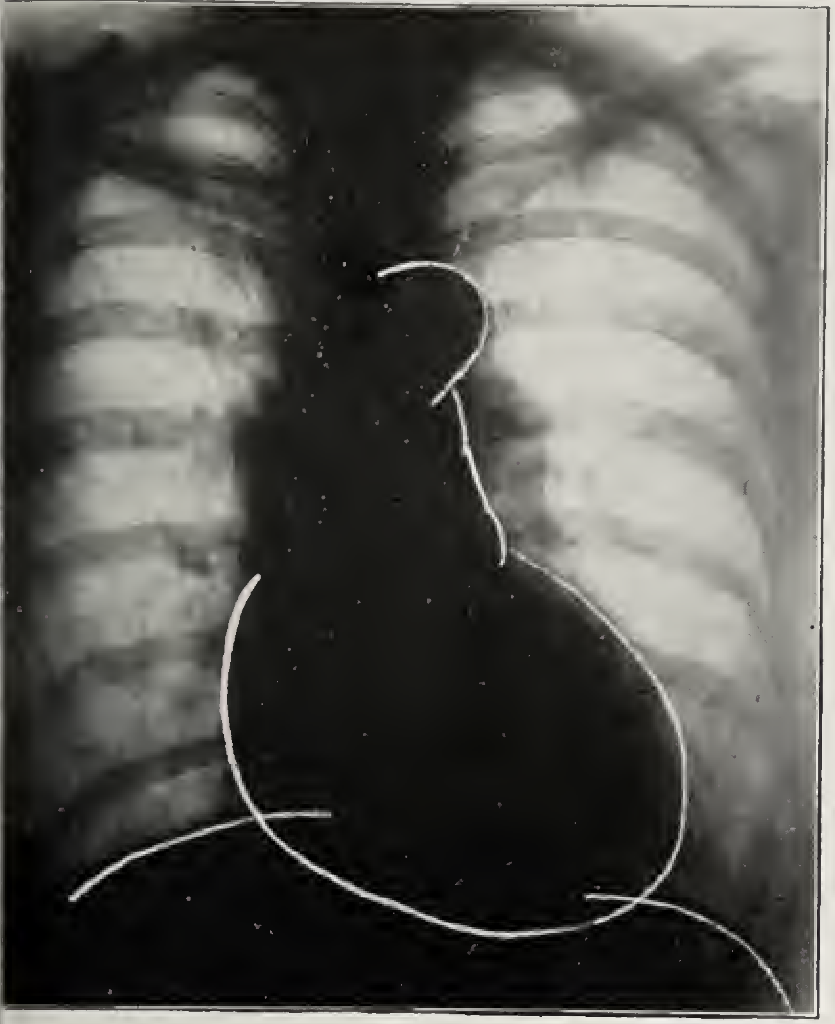

Fig. 2.—Orthodiagram of patient (Mrs. F. B. S. D.), confirming pertrophy shown by the electrodiagram.

mild attack of the pain. Her blood pressure at this time ad fallen from its former level, about 200, to about 170.

She recovered from this attack and remained pretty well ntil February, 1922, when she suddenly had a severe attack coughing; she felt very short of breath, and raised a eat deal of pinkish froth and sputum. She had a very vere pain in the chest over the precordium, which did not diate. Her pulse became very rapid and weak, and the ood pressure fell to 140. Her lungs showed many moist les. She was extremely sick at this time, and there was nsiderable doubt whether she would survive. She was ven a hypodermic injection of one-fourth of a grain of orphin sulphate, which proved of some benefit; but it was cessary to repeat it after half an hour. This helped her ll more, so that by the time an hour had passed she had idently improved. The next day she still had some râles the lungs, and felt very weak and prostrated. Her pulse as fairly strong and its rate about 100 a minute, but the ood pressure was still low. She was now given digitalis d strychnin; and, in the course of two or three weeks, her ndition improved, so that she was able again to be up d about, though having some pain over the heart when e exerted herself more than a very little.

COMMENT

The question rises as to whether these attacks in people th heart trouble are of a specific nature, anaphylactic, xic, "asthmatic," or something else. They are not cardio- chanical; and they are not attacks of acute dilatation.

Treatment for suffocative edema of the lungs consists of) the treatment during the individual attacks, and (2) the atment of the person so that the attacks shall not recur. r the immediate attacks, glyceryl trinitrate is the primary nedy. This, of course, the patient can take without the presence of a physician; and next to glyceryl trinitrate in effectiveness is morphin, which in mild attacks, or early in the attacks, is always specific. The effective plan consists in fortifying the whole system so that the attacks, if they recur, can be well borne. Of course, it is important to get these people out as soon as possible, because if they become invalids and do not have sufficient exercise, they are less able to withstand recurring attacks. However, no matter how excellent the general physical condition is, the attacks are not prevented thereby.

In the treatment to prevent the attacks, difficulty arises because the active agent which brings on the attacks is unknown. However, it is a good guess that the substance is a nitrogenous one which has some relation to metabolism, particularly of the proteins. At any rate, experience seems to have shown us that when the diet is limited to as few proteins as convenient, with outdoor exercise insisted on, and the intestinal tract kept in good condition, these attacks have nearly disappeared, or the intervals have become very long indeed. The continuous use of powdered digitalis, from ½ grain to 1½ grains (0.03 to 0.09 gm.) daily, over long periods of time, has apparently stopped the attacks in several older people. In the presence of evident disturbances of metabolism, when the general condition of the patient has deteriorated, the attacks have been more frequent. In other words, if the person can be promptly restored to a normal mode of life, the attacks are less liable to occur than if he is confined and his health is allowed to deteriorate.

A QUICK ACTING IRRIGATION CONNECTION FOR THE CYSTOSCOPE *

Beverly Douglas, M.D., New Haven, Conn.

The commonly used cystoscope, of which the Brown-Buerger is a type, has an irrigation inlet with the end beaded to receive the rubber connection tube from the irrigation can.

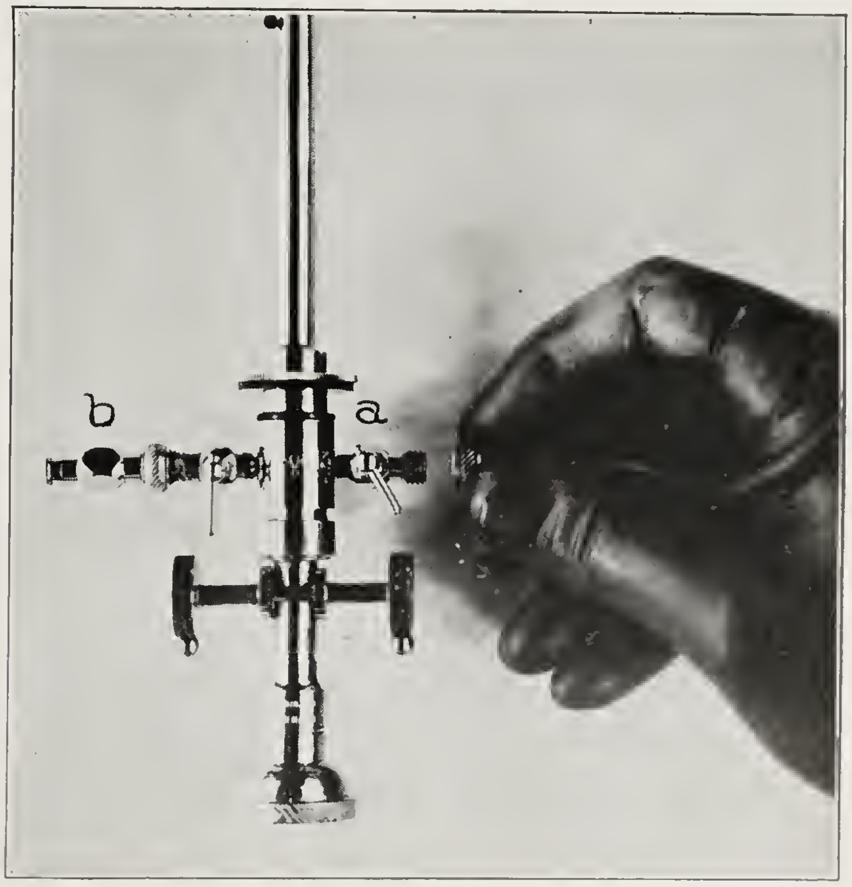

Fig. 1.—Irrigation connection for the cystoscope: *a*, attachment about to be made; *b*, connection made (rubber tube not shown).

This is applied and removed after the introduction of the cystoscope, and often several times during cystoscopy. If the tube is sufficiently tight to prevent leakage, it is difficult to apply without causing the patient pain from the manipulation, and, if it is loose, it slips off of itself or leaks.

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* From the Department of Surgery Yale University School of Medicine.

The connection here described is the outgrowth of an effort to eliminate these disadvantages. It consists essentially of a male portion, beaded at one end to receive the irrigation tube, and, at the other end, a beveled tip which fits exactly into the female tip on the cystoscope. Attached to the male tip is a floating threaded ring which screws over a similar thread on the female tip, thus, by a half turn, locking the connection firmly into place. Figure 1 *a* shows the attachment about to be connected; Figure 1 *b* shows the connection made, the rubber tube having been removed.

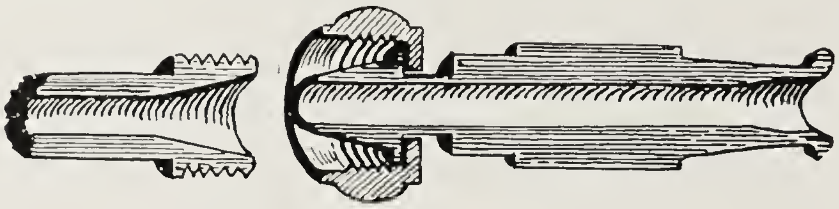


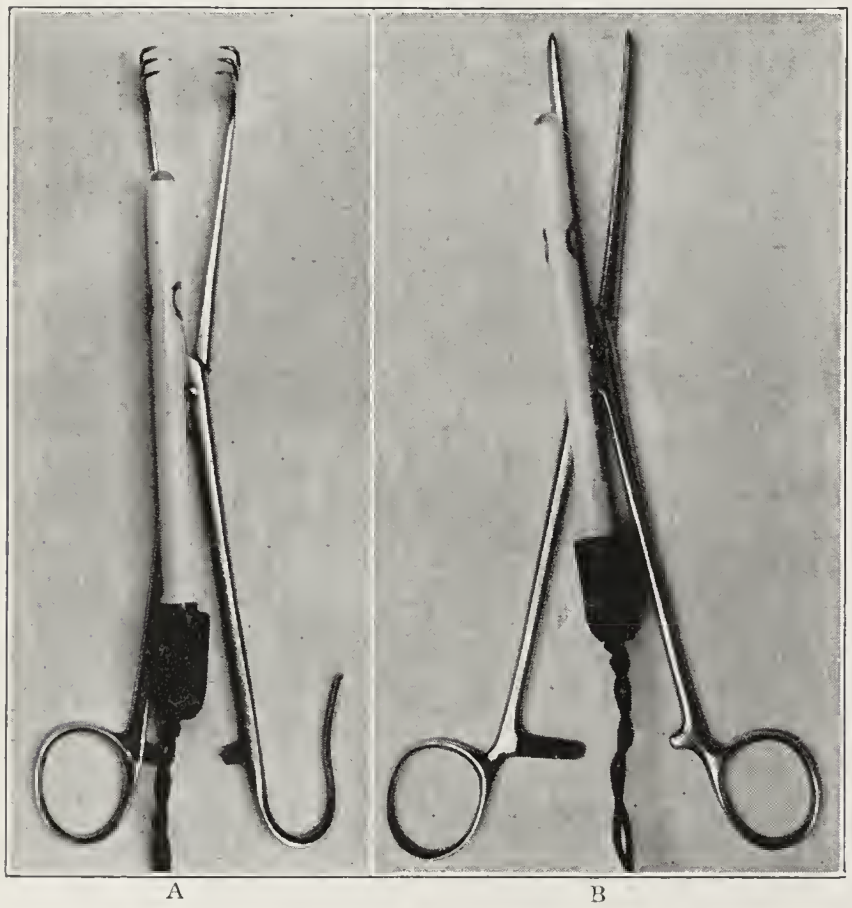
Fig. 2.—Cross-section of connection.

Adjustment of the connection has proved to be rapid and certain, and its application, easy and painless. It has been in constant use in the urologic clinic of Dr. Deming at the New Haven Hospital for the last year. It is manufactured by S. E. Dibble & Sons, 639 Grand Avenue, New Haven, Conn.

ILLUMINATED FORCEPS AND TENACULUM FOR TONSILLECTOMY AND CONTROL OF HEMORRHAGE

George R. Marshall, M.D., Seattle

In tonsillectomy there is inconvenience and danger of tonsil hemorrhage. The experienced operator measures full well its gravity. Hemorrhage is comparatively frequent and may be dangerous, so this fact impressed me sufficiently to devise these instruments. They consist of an ordinary tonsil tenaculum and artery forceps, with Cameron lamp attached. Any standard lamp may be used.


A B

A, illuminated tenaculum; *B*, illuminated forceps.

These instruments have the following advantages:

1. The tonsil fossa, after removal of the tonsil, is sufficiently illuminated to identify the bleeding point.
2. The bleeding point can be grasped accurately with forceps.
3. This instrument facilitates suturing or ligation of the bleeding vessel.
4. It may be used in emergency hemorrhage in the home.
5. It is simple.

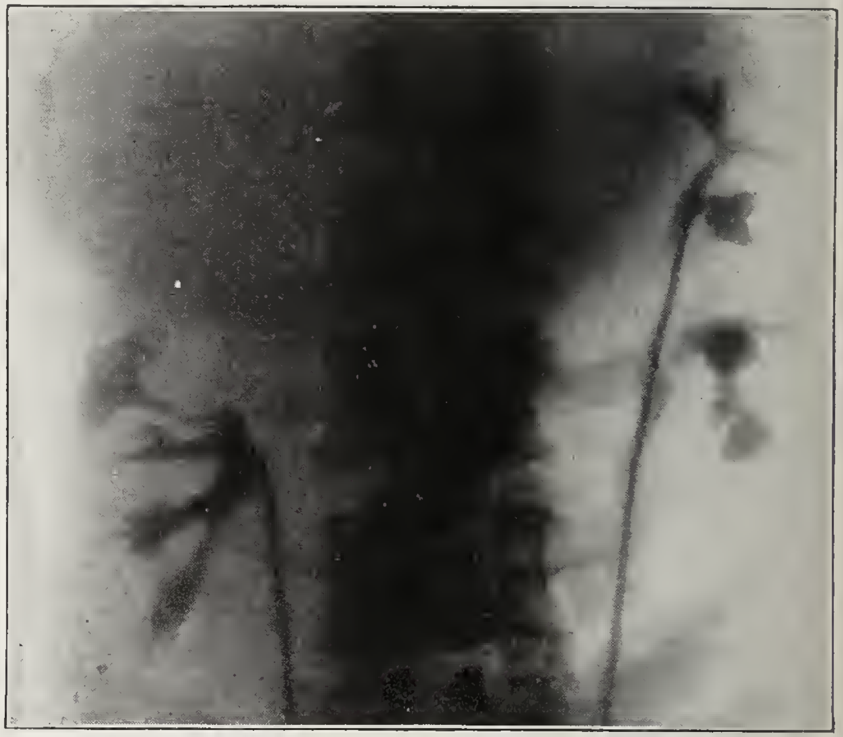
Joshua Green Building.

REPORT OF A CASE OF BIFURCATION OF THE RENAL PELVIS

Leonard A. West, M.D., Waverly, Iowa

A blacksmith, aged 48, entered the hospital, July 13, 1922, complaining of pain in the abdomen. Several days before admission, he developed a sharp pain, intermittent in character, over the entire abdomen at first, and later localizing in the right iliac region. There was no nausea or vomiting. The pain was not affected by, nor had it any relation to, the taking of food. Since the onset, the patient had had a gradual increase in frequency of urination, until, at the time of admission, he had a marked daily frequency and urinated five or six times at night. His temperature and pulse were normal on admission, and the leukocyte count was 6,300.

The previous history was negative. The patient had not missed a day from his work on account of sickness in the past thirty years. The physical examination was negative except that there were many abscessed teeth and marked pyorrhea; and the abdomen showed definite rigidity of the right rectus muscle, with tenderness over McBurney's point, and a palpable mass in the upper right iliac region. The mass was tender, smooth and firm. There was definite tenderness over the right lumbar region, and the right kidney was palpable. There was no tenderness over the left lumbar region, but the left kidney was also palpable. The urine showed pus cells on examination.


Pyelogram showing bifurcation of both right and left renal pelvis; catheter tips in right lower and left upper pelvis.

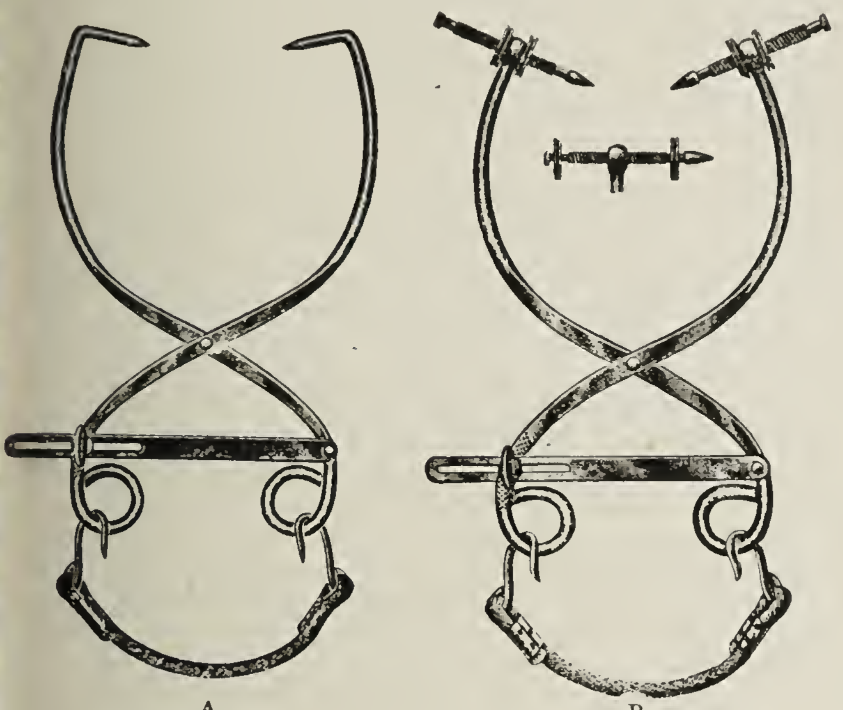
Because of the urinary findings, the frequency and the palpable kidneys, a cystoscopic examination was made. This did not reveal any pathologic condition of the bladder or the ureters, nor of either kidney, as there was no enlargement of either renal pelvis, and the renal functional test, carried out with phenolsulphonephthalein, was normal. Routine pyelography was carried out, and it was found that there was a bifurcation of the renal pelvis on both the right and the left side. On each side, both pelves entered into a common ureter, which appeared normal in its course toward the bladder. The shadow of the kidney substance on the left side was large, and completely enclosed the two pelves. On the right side, the shadow of the kidney substance was not so large, and the lower pelvis was partly extrarenal. Pus cells and staphylococci were found in the urine from both the right lower pelvis and the left upper pelvis, as the pyelography revealed that the catheter tips were in these pelves. As the cystoscopic findings were not considered diagnostic of sufficient involvement to account for the patient's symptoms, a right rectus incision was made at operation, and a subcolonic appendical abscess was found, completely walled off.

The case is of interest from a diagnostic standpoint and as an anomaly of the renal pelvis in the form of a bifurcation of the renal pelvis on both the right and the left side.

ADJUSTABLE FIXATION CALIPERS WITH IMMOBILIZED AND ADJUSTABLE PRONGS FOR SKELETON TRACTION *

Irwin E. Siris, M.D., Brooklyn

The adjustable fixation calipers with immobilized prongs, illustrated at *A*, are made of hand forged steel. The lower arms possess a full curve, being readily adjustable to complete closure. The points are very sharp and taper for 1 inch (2.5 cm.) from the shoulder. A thumb set screw is attached to the center of one handle and passes through an opening in a horizontal cross-bar. The grasping portion of the thumb set screw is 1 inch wide and one-half inch (1.3 cm.) long, and is peened on its under surface to prevent its becoming detached and lost. The cross-bar, one-half inch wide, is riveted to the center of the opposite handle and is fenestrated two fifths of its length for the opening and closing of the calipers. For one-half inch on each side of the thumb set screw, the handle is serrated, to facilitate closure. In the application of the calipers, the tapering points are forced into the bone to the desired depth, with firm pressure or by gentle tapping with a mallet. The thumb set screw is locked against the horizontal bar and is insured against the slightest range of motion. The rings on the handles have been made large enough for the insertion of a finger during the manipulation of the calipers.



Adjustable fixation calipers: *A*, with immobilized prongs; *B*, with adjustable prongs.

The adjustable fixation calipers with immobilized prongs, illustrated at *B*, differ from the calipers with immobilized prongs only in the presence of the adjustable prongs. The prong is 4 inches (10 cm.) long from the head to the tapering point. The point is three-quarters inch (1.8 cm.) long, tapering from the shoulder, which is three-sixteenths inch 5 mm.) wide; it is very sharp and penetrates readily. The head is three-sixteenths inch wide to prevent the milled revolving set screw from slipping off the prongs. The revolving set screw is threaded and moves snugly over the threads f the shank, which is threaded for three-eighths inch (1 cm.) rom the head to three-eighths inch from the shoulder. The nthreaded portions of the shank are smaller in diameter, ermitting the revolving set screw to rest free from firm ontact with the prong, thus allowing absolute sterilization. The revolving set screws are seven-eighths inch (2.2 cm.) wide, placed one on each side of the arms, threading readily o both sides. Turning the revolving set screws against the rms firmly locks the prongs and arms together. The prongs re of sufficient length to permit their insertion into a bone which is not directly under the skin. This applies particularly to the insertion into the femur above the adductor tubercle in a stout person, preventing pressure of the arms against the skin. The prongs are accessible for examination and dressing and may rest on the lateral bars of a Thomas splint. In the application of the adjustable prongs, the outer revolving screw is placed in its unthreaded shank; the arms are spread and the inner screw adjusted as desired; the points are forced into the bone, and the revolving set screws are closed against the arms of the calipers. The thumb set screw is secured against the horizontal bar and the instrument is rigidly fixed in position.

346 New York Avenue.

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* From the fourth surgical division, Bellevue Hospital, Children's ervice.

* Read before the Surgical Section of the New York Academy of Medicine, Oct. 6, 1922.

A COLLAPSIBLE HAMMER COMBINING AN ALGESIMETER AND MEASURES TO DETERMINE TACTILE SENSATION, TWO POINT TEST AND SUPERFICIAL REFLEXES

Byron Stookey, M.D., New York

A reflex hammer, combined in one instrument with appliances for the more usual neurologic examination and yet sufficiently compact so as not to be bulky, has been found so useful that a description of it is offered.

The hammer is collapsible and can be carried in one's waistcoat pocket. It is well balanced so as to permit delicate gradations essential to proper determination of the reflexes, and includes measures for testing tactile sensation, pain, the two point test and the superficial reflexes, such as the abdominal, cremasteric and Babinski. The principle of the algesimeter of Casamajor and Strong, namely, a piece of flexible spring steel mounted with a pin, is adopted, permitting stimuli of any desired strength to be used. Only by the use of stimuli of like strength can accurate comparative examinations be made. Unscrewing *A* at 2 and lowering *B* exposes the needle, *F* (Fig. 3). When pressure is exerted on the needle, the spring steel, *E*, rises. Sliding the finger along the spring steel makes possible the employment of stimuli of various intensities. If a desired threshold is obtained, it may be held by collapsing the hammer and fixing it by turning the lock screw, 1, at the level selected.

Similarly, collapsing the hammer to whatever degree desired so as to approximate the needles *a* and *a′* permits

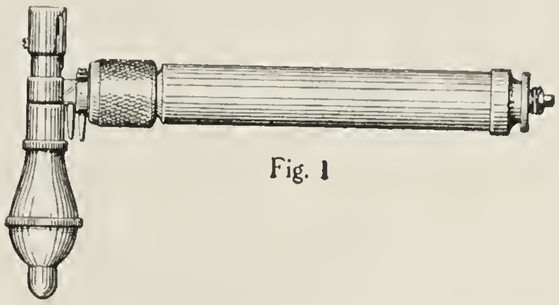


Fig. 1

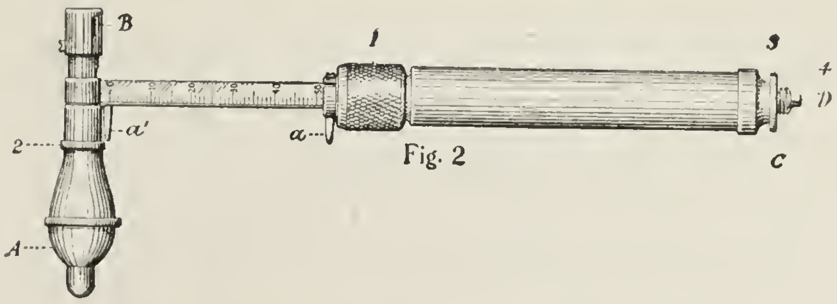


Fig. 2

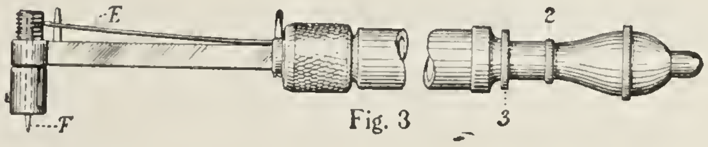


Fig. 3

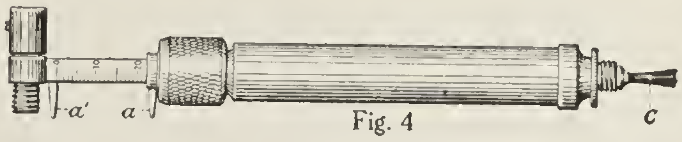


Fig. 4

Collapsible hammer.

the two point test to be made (Fig. 4). The distance between the two points may be read on the millimeter scale. A camel's hair brush, *C*, to test tactile sensation is available by unscrewing and reversing the screw, 3, as shown in Figures 2 and 4. The threads (4) in Figure 2 are made to hold the head of the hammer, *A*, when this part is unscrewed when testing pain sensation or the two point test. Figure 3 shows the hammer in place. It was thought that by having a definite place to put this part when not in use there would be less likelihood of losing it and less need to hunt for it among the bedclothes or in one's pockets. The point *D* in Figure 2 will be found sufficiently rough and sharp to use in testing for the abdominal, cremasteric and Babinski and allied reflexes. The rubber tip and the camel's hair brush are parts which wear, and these are therefore made so as to be replaceable. The hammer is made by the Klett Manufacturing Company, 202 East Forty-Sixth Street, New York City.

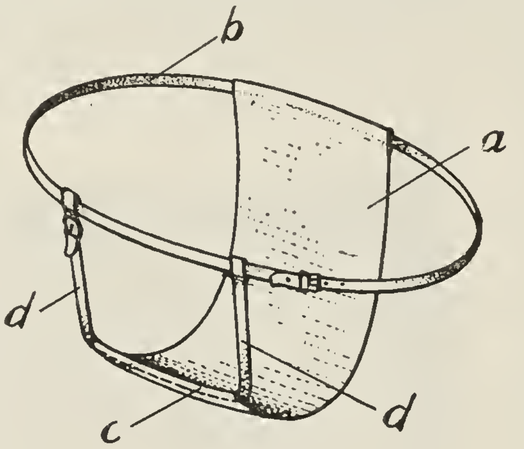
515 Park Avenue.

RECTAL BINDER

A. J. Chisholm, M.D., Denver

Having had difficulty in finding a suitable binder for use in cases following rectal operations, especially fistula, when the patient is required to wear a gauze pad for a few weeks, I designed the binder shown in the accompanying illustration, which, I believe, is superior to any so far used. The cost is nominal.

The binder, which is adjustable, is supported by an arrangement of tapes fastened to a waistband. In detail, it is a cloth band (*a*) permanently fastened by one end, the back, to an elastic belt (*b*), which is provided with a buckle for "waist" adjustment. The other end of the cloth band is hemmed (*c*), so that this end of the band can slide on an elastic tape (*d*). The elastic tape is made in two parts having a buckle connection for adjustment, and its extreme ends slide on the elastic waistband (*b*). The plain end of the elastic tape (*d*) is passed through the hem of the cloth band (*a*), and is then adjusted to the right tension by means of the buckle on the end of the other part of this tape.



Rectal binder.

The features of this binder are thought to be new and useful in that the binder retains rectal dressings and at the same time provides ample adjustment for the convenience of the patient. Binders can be obtained from the Butterfield Surgical Company, Denver.

830 Metropolitan Building.

GUMMA OF THE FOREHEAD WITH RINGWORM: REPORT OF A CASE

Herman Goodman, M.D., New York

The recent report of penile chancre with ringworm[1] recalls the following case:

M. S., aged 32, married, presented himself at the New York Skin and Cancer Hospital (in the service of Dr. C. M. Williams, absent on military duty), June 11, 1917, with an eruption on the forehead, over the right eyebrow but not involving the hair there. The lesion was about the area of a half dollar, raised and rather firm, without evidence of vesiculation at the border or of ulceration in any part. The patient said that, except for its appearance, the lesion was not the source of any subjective symptoms, such as itching or burning. The lesion had reached the size mentioned about two weeks previously. No history of syphilis was elicited. The wife and only child were supposedly healthy.

My clinical diagnosis was gumma; but, to satisfy one of the associates that there was no evidence of ringworm, scrapings were examined. To my surprise, on microscopic examination I found spores, and the culture on Sabouraud's medium was positive. The growth presented the morphologic characteristics of small spore ringworm, but no further differentiation was made. This culture was carried on for a period, and it was utilized in some experiments to determine the lethal qualities of drugs commonly employed in the treatment of ringworm of the glabrous skin, as well as in the repetition of the experiment to show that the roentgen ray does not deter the growth (the latter performed with Dr. W. J. Young).

The Wassermann reaction was reported three plus on blood withdrawn on the day of admission and a month later. A test of the wife's blood was also reported strongly positive. The patient received antisyphilitic treatment (arsphenamin), and the lesion entirely cleared. I examined the child, but could find no tinea. How the ringworm infection was acquired was not determined. The patient was a chauffeur; and there were no pets at home. It seems that the primary lesion of the skin, the gumma, allowed any chance contamination a better field for growth than the unaffected skin. In this manner, other skin affections may prove to have tinea or yeast thriving on the surface, or even deeper in the lesion; yet these organisms are not causative or primary in nature, but purely secondary and contaminating associations. Indeed, scrapings from apparently normal skin have been known to give growth on culture, either for the dermatophytes or the yeasts.

15 Central Park West.

EXCESSIVE GOLF FOLLOWED BY MUSCULOSPIRAL PALSY

Cornelius C. Wholey, M.D., Pittsburgh

A man, aged 35, consulted me because of severe pain which would come on as soon as he lay down, and which disturbed his sleep. The pain was located to the left of the spine over the lower part of the neck. The peculiarity of the pain was that it would largely disappear when the patient was up and about his work, but, no matter what position he lay in, it would continue. Examination revealed a pronounced weakness involving all of the extensor muscles of the left upper extremity. The ability to extend the wrist against resistance was very weak. In fact, the wrist was held in a partially wrist-drop position. Extension of the fingers, and at the elbow, and at the shoulder were proportionately weak. The hand grip was also very much reduced in strength. There was a similar weakness in the power of supinating the forearm. Testing for sensation revealed that there was numbness over the radial surface of the thumb, and the patient complained of having noticed prickling and numbness in the tip of this and the index finger. The patient had noticed an area, of about 4 inches in length and 2 inches in width, of numbness along the middle dorsal surface of the forearm, which I was able to demonstrate by testing for touch and pain.

It was evident that there was an involvement of the entire musculature supplied by the musculospiral nerve. All of the deep reflexes of the extremity were exaggerated. There was some tenderness on pressure over the nerve trunks. There was a small area of marked tenderness on pressure between the inner, upper angle of the scapula and the lower cervical spine. The sharp pain of which the patient complained and which became so pronounced on lying down was mainly over this area.

The peculiar circumstance of the pain being so noticeably aggravated by the patient's lying down, together with the existence of the tender area along the lower neck behind, made me regard the nerve involvement as being largely of root origin. It seemed likely that a slight pull on the nerve roots was in some way brought about by the change of position, this accounting for the severe pain when the patient was recumbent.

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[1] Eichenlaub, F. J.: Penile Chancre with Ringworm, J. A. M. A. **79**: 1518 (Oct. 28) 1922.

This man gave a history of leading a very active life, and of being an enthusiastic golf player. He had occasionally noticed slight symptoms of pain in the left thumb and shoulder, and slight weakness in the left arm as far back as a month, but for the two weeks preceding his visit the symptoms had been severe. I learned on further inquiry that all his life he had been unusually active, and, regardless of this, he rarely experienced any sense of fatigue. Roentgen-ray examination revealed no pathologic changes in the cervical spine covering the origin of the brachial plexus, and urinary and blood tests were negative for syphilitic and kidney involvement.

The paralysis in this case can be explained in this way: The patient was constitutionally of the hyperactive type. Such persons are often in a more or less exhausted nervous condition without being aware of the fact. This patient was in such a state of fatigue when his palsy was precipitated. He had been crowding in his daily golf, in spite of excessively long and arduous business hours. And there was superadded to his general nerve fatigue a focalized nerve strain sufficient to induce a neuritis.

When one considers the grip of the golfer on his club, together with the nature of the swing given the club, it becomes evident that it is the musculature supplied by the musculospiral nerve that is very noticeably called into action, namely, that of extension of the upper extremity throughout its entire length. When this man finally took a general rest, the symptoms disappeared after several weeks, and he was able to resume golf without any difficulty. The numbness over the thumb and forearm remained to some extent two months after the onset of the trouble.

The musculospiral is one of the most frequently involved of all the nerves of the extremities. Fortunately, however, in paralysis of this nerve the outlook is most favorable. In the majority of cases, paralysis occurs in persons from toxic causes; and even when there has been a specific strain on the nerve, as in our case, one often finds a history of alcohol, exhaustion or some chronic toxic condition. Sudden violent contraction of the extensor muscles sometimes precipitates this palsy, and in the light of this fact, it is worthy of note that in the "follow-through" swing of the golfer's club we have conditions somewhat comparable; to which is added the repeated full stretch and tug on the nerve trunks, and the latter possibly on the roots of the brachial plexus as well.

818 Westinghouse Building.

FETAL TERATOMA IN A CHILD

William H. German, M.D., Chicago

D. S., a girl, aged 6 years and 10 months, gave no history of illness, except that she had scarlet fever in 1921. She is said to have complained of occasional pain in the abdomen, but it was not thought serious, and she appeared normal.

July 9, 1922, she accidentally fell over a small rocking chair, and soon developed severe pain in the umbilical and left abdominal regions. July 30, examination revealed general abdominal rigidity and tension, tenderness over the appendix and a distinct tumor in the left abdomen. The temperature was 101. The bowels were obstinately constipated. July 31, the general condition was worse; pain had increased and vomiting had occurred. The patient was removed to a hospital for further observation and probable operation. The blood count revealed 23,350 leukocytes. The patient was prepared for operation, which was performed, July 31.

A medial incision was made, and a tumor the size of a large orange, blackened and with a twice-twisted pedicle, involving the left ovary, was removed. The appendix was inflamed and enlarged, and was also removed. The tumor, a dermoid cyst, contained portions of fetus, including hairy scalp, a part of the upper jaw, and six teeth such as those of a 3 year old child. The age of the patient is the chief point of interest. The condition seems to have been reported in only one younger patient, who was 3½ years of age. The patient next in age was 11 years old.

10924 Prospect Avenue.

New and Nonofficial Remedies

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application. W. A. Puckner, Secretary.

CALCIUM CACODYLATE-IPCO (See New and Nonofficial Remedies, 1922, p. 55).

The following dosage forms have been accepted:

Ven Calcium Cacodylate Ampules, ¾ grain.—1 Cc. contains calcium cacodylate-Ipco, 0.05 Gm. (¾ grain).

Ven Calcium Cacodylate Ampules, 1½ grains.—1 Cc. contains calcium cacodylate-Ipco, 0.097 Gm. (1½ grains).

Ven Calcium Cacodylate Ampules, 3 grains.—1 Cc. contains calcium cacodylate-Ipco, 0.195 Gm. (3 grains).

Ven Calcium Cacodylate Ampules, 5 grains.—1 Cc. contains calcium cacodylate-Ipco, 0.324 Gm. (5 grains).

Ven Calcium Cacodylate Ampules, 7 grains.—1 Cc. contains calcium cacodylate-Ipco, 0.453 Gm. (7 grains).

MERCURIALIZED SERUM-LEDERLE (See New and Nonofficial Remedies, 1922, p. 189).

The following dosage form has been accepted:

Mercurialized Serum-Lederle for Intravenous Injection.—Each package contains the equivalent of ⅓ grain (0.022 Gm.) of mercuric chloride in 8 Cc. normal horse serum. The initial dose is 1/12 grain (0.0055 Gm.) of the mercuric chloride. This may be gradually increased to ⅓ grain (0.022 Gm.). The injections may be given at intervals of about one week.

PROTARGIN MILD (See New and Nonofficial Remedies, 1922, p. 326).

Silvol.—A brand of protargin mild-N. N. R. Silvol is a compound of colloidal silver with an alkaline proteid and contains about 20 per cent. of silver.

Actions, Uses and Dosage.—See general article, Silver Preparations, New and Nonofficial Remedies, 1922, p. 321.

Manufactured by Parke, Davis and Company, Detroit. No U. S. patent or trademark.

Psychoses in Factories and Offices.—Recently repeated instances of mass psychoses have been reported from factories and offices, in Vienna, according to a correspondent, mostly among girls; but, in several instances, men have fallen victims. The first observations were made in a government central telephone station. An operator fainted and had convulsions. Within a few minutes, more than a dozen of the girls were on the floor in convulsions, and the disturbance spread so rapidly that the station had to be closed for a while owing to lack of operators. The imitative coercion was so strong that even some men had convulsions. A similar occurrence took place shortly afterward in another office, the postal savings bank. Here, lessened resistance to psychic infection, due to underfeeding and overwork, was considered responsible for the occurrence, as the operators are none too well paid, being in state employment. But quite recently similar incidents took place in an electric factory, where the wages paid are sufficient to insure proper feeding and little worry. The next day, the same thing occurred in another factory, but was soon checked by the energetic action of the foreman, who at once applied hydrotherapeutic measures. Undoubtedly, the high tension in which the population of this town is living, together with frequent abuse of alcohol, distractions and perhaps the restricted moral control of family life, is responsible for the spread of these psychic disturbances.

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SATURDAY, DECEMBER 9, 1922

MASS TREATMENT OF HOOKWORM INFECTION

Although the mode of infection is fairly well established, particularly with respect to the entrance of the larvae present in polluted soil through the skin of various parts, such as the feet, and although effective drugs which bring about elimination of the worms from the bowel are well known, the task of stamping out hookworm disease has proved to be unexpectedly formidable. That there are parts of the world in which almost the entire population is infected with hookworm has been widely heralded; but it may come as a surprise to many that out of a total of more than half a million men examined for hookworm in the U. S. Army during the World War, 56,740, or 11.3 per cent., were found to be infected with this intestinal parasite.[1] In the recruits from the so-called hookworm area the incidence averaged 17 per cent., rising as high as 32 per cent. for certain Southern states. If one bears in mind the acknowledged deteriorating influence of hookworm infection on the health, education, industrial progress and efficiency of those who are involved, the national import of the situation becomes impressive, and the imperative need of exhaustive investigations is made obvious.

The mere study of the incidence of hookworm infestation falls short of disclosing the real extent of the threatened damage. The Uncinariasis Commission to the Orient found, according to Darling,[2] that of two groups of people who had nearly 100 per cent. of their number infected with hookworm, one group had an average of only thirty-five hookworms to each man, while the other had 273. The anemia and severity of the symptoms in general correspond with the number of parasites harbored. Consequently, Darling has proposed the advisability of ascertaining the average number of hookworms harbored by a sample of the population. This factor, which he terms the "hookworm index," is a more accurate expression of the amount of hookworm infection in a community than is a statement of the proportion of people giving positive evidence of hookworm ova by the more usual methods of examination. The infective index has an added value because it appears to give important information as to the soil infestation of any given district and the consequent opportunities for acquiring infection there.

The extensive experience of Darling and his co-workers has lately led them to advocate a method of so-called mass treatment in hookworm control. According to this hygienist, it would seem to be strategic to treat by vermicide all the people in a community within as short a period of time as possible, so that soil pollution and soil infestation will not continue but will be abruptly terminated, and so that there will be no reinfection of those already treated. Mass treatment of entire communities is recommended wherever it is practicable. It is believed that when an entire community is purified of most of its worms by mass treatment within a few days, very few hookworm embryos will be passed to infest the soil, and the latter, instead of remaining highly infested, as before treatment, rapidly becomes lightly infested, and only light and relatively very harmless infections can result. According to the investigations of Cort and others of the Johns Hopkins School of Hygiene and Public Health, the life of the infective hookworm larvae in the soil is limited, under tropical conditions at least, to a few weeks. Consequently, a period of reduced soil infestation following mass treatment as described, with elimination of ova producers, ought to make control work more effective.

The average duration of life of the hookworm is about eight years. Infection is only slowly acquired. This needs special emphasis, in the words of Darling, because the knowledge is of strategic value whenever it is desired rapidly to reduce infection and soil infestation by mass treatment. However, unless driven out, hookworms are slowly lost as well as slowly acquired. It is interesting to note that with the elaboration of methods of attacking the hookworm, new vermicides are being brought into prominence. Carbon tetrachlorid, which Hall[3] of the Bureau of Animal Industry demonstrated to be effective for removal of hookworms in animals and has since described[4] as an anthelmintic before the American Society of Tropical Medicine, has been tested with favorable results on man by Hampton in Ceylon. Whether it will prove to be safer and better than the more familiar thymol, betanaphthol and other agents heretofore recommended remains to be ascertained. The need of further studies in many directions is becoming apparent. As Cort, a recognized worker in this field, has frankly admitted, during the last few years the feeling has been developing that control measures in hookworm disease have been built up on an insufficient scientific foundation.

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[1] Kofoid, C. A.: The Geographical Distribution of Hookworm Infection in the United States, Detected in Army Recruits, Am. J. Trop. Dis. **2**: 389 (Sept.) 1922.

[2] Darling, S. T.: The Hookworm Index and Mass Treatment, Am. J. Trop. Dis. **2**: 397 (Sept.) 1922.

[3] Hall, M. C.: The Use of Carbon Tetrachlorid for the Removal of Hookworms, J. A. M. A. **77**: 1641 (Nov. 19) 1921.

[4] Hall, M. C.: Carbon Tetrachloride as an Anthelmintic, Am. J. Trop. Dis. **2**: 373 (Sept.) 1922.

DEFECTIVE TEETH AND NUTRITION

The development and maintenance of good teeth are not the professional concern of the dentist alone; they are of equal moment to the physician. For the lack of more adequate or sympathetic consideration of dental problems on our part, the current points of view of our dental colleagues may be, in some measure, responsible. They have mainly, of late, regarded dental decay as a purely local affair, and have placed emphasis on the environment of the teeth far more than on their structure and nutrition. Hence the widespread emphasis on oral hygiene. In essence, it is taught that films forming on the tooth surfaces enclose bacteria and particles of carbohydrate food, which undergo fermentation, resulting in the formation of lactic acid. The latter, it is alleged, may then dissolve the lime salts on the surface of the teeth, leaving the organic matter to be attacked by putrefactive bacteria. Presently a cavity is formed which becomes a pocket full of menacing contents. The bacteriologic interpretation is thus placed foremost; and the consequent propaganda alleges that "a clean tooth never decays."

There are indications of a reaction against this preeminently environmental consideration of the subject of defective teeth. It was conspicuous in the meetings of the Section on Stomatology at the St. Louis session of the American Medical Association.[1] The failure of experiment to support the hypothesis of damage from fermenting carbohydrates was pointed out by Howe. Animals fed on a diet to which were added large amounts of sugars—glucose, fructose, lactose and sucrose—dextrin and white flour, showed no dental effects at the end of a year. The sugars and starches adhered to the teeth constantly, and bacterial examination disclosed a fermentative flora; but no dental defects could be detected. The vigorous disputes as to the relative scientific merits of mouth washes and dentifrices of widely varying reaction and composition also attest the great uncertainty that still prevails.

As there is an unquestionable resemblance between the teeth and the bones in structure and chemical composition, and since the processes of calcification are analogous in them, it seems logical to apply the growing knowledge of bone pathology to the care of the teeth. The recent intensive study of rickets, especially in this country, by the method of dietary experiments on animals, may point the way to progress in dental pathology. No consideration of the physiology of bone can leave out of consideration the rôle of calcium and phosphorus in nutrition; but, in addition to these, there is reason to assume that other factors comparable to the vitamins are operative in determining the proper deposition of the inorganic components in their organic matrix. Even with somewhat unfavorable proportions of calcium and phosphorus in the diet, the undetermined "something" in cod liver oil facilitates proper bone growth and function, as happens when it averts or cures rickets. Furthermore, as Shipley pointed out, in harmony with numerous reports in The Journal, animals, and human beings as well, are enabled to compensate for faulty calcium-phosphorus ratios in the diet if they are exposed to the rays of the sun or the iron-chromium or cadmium arcs, or to the light of the mercury vapor quartz lamp. The fact that the beneficial rays from these sources may be screened off by ordinary window glass would seem to indicate that the active rays are in the ultraviolet spectrum. Again, since healing is more rapid under the influence of the cadmium arc than under a chromium-iron or copper arc of equal intensity, the shorter ultraviolet rays (about 2,100 Angström units) probably have the greatest antirachitic effect.

Through intentional variations in their rations, the internal structure of the skeletons of animals can now be altered experimentally. Depending on the factors affected, the resultant pathologic picture may be variable. Sometimes the result is identical with human rickets; again, there may be osteoporosis, or still again a so-called osteosclerosis. Pseudorachitic conditions due to an overproduction of osteoid material arise when diets are deficient in calcium alone.[2] By the use of suitable diets, animals can be reared through generations without caries-like lesions, pulp exposure, or maxillary defects. On the other hand, according to the reports of Baltimore investigators,[3] it is possible to produce oral defects in the same species by dietary alterations. The percentage of such defects is greatest, in the case of rats, in those fed diets deficient in protein, calcium and vitamin A. It is believed that a deficiency of the antiscorbutic substance from the diet of man would no doubt be a factor in the production of oral disease. McCollum and his co-workers [3] also suspect that severe oral disease may result from diets which are only relatively defective, in which the disturbance appears to be out of all proportion to the cause. They are careful to admit that it is not possible at this time to name any one deficiency which specifically causes dental or oral disease. The promise that lies in the further study of dental defects from the standpoint of dietary factors is evident. The results are almost certain to afford important contributions to the subject. A danger lies in one-sided points of view.

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[1] Shipley, P. G.: Faulty Diet and Its Relation to the Structure of Bone, J. A. M. A. **79**: 1563 (Nov. 4) 1922. Howe, P. R.: Decalcification of Teeth and Bones, and Regeneration of Bone Through Diet, p. 1565. Grieves, C. J.: The Effect of Defective Diets on Teeth, p. 1567. Abstract of Discussion, p. 1573.

[2] Shipley, P. G.; Park, E. A.; McCollum, E. V., and Simmonds, Nina: Studies on Experimental Rickets, VI, Am. J. Hyg. **1**: 512 (July) 1921.

[3] McCollum, E. V.; Simmonds, Nina; Kinney, E. M., and Grieves, C. J.: The Relation of Nutrition to Tooth Development and Tooth Preservation, I, A Preliminary Study of Gross Maxillary and Dental Defects in Two Hundred and Twenty Rats on Defective and Deficient Diets, Bull. Johns Hopkins Hosp. **33**: 216 (June) 1922.

It must be remembered that malfunction of the endocrine glands has been enthusiastically advocated as the etiologic factor in dental caries; these assertions are based on clinical observations of hypoplastic and dystrophic teeth in cretins and in patients with acromegaly. Hammett [4] has reported apparently specific dental defects following parathyroidectomy, and associates them with consequent disturbances of calcium metabolism. These are days of ignorance as well as knowledge, when extremes of statement should still be avoided; hence, despite our enthusiasm for the newer findings, we cannot yet accept the statements of those who aver that the American diet of the present time is "perilously near the danger mark" or "dangerously approaches the level of dietary deficiency." Some day, perhaps soon, we shall have a better knowledge.

THE BLOOD DURING EXERCISE

Whenever conditions arise under which unusual demands are made within the tissues for a supply of oxygen, the organism responds in ways that make for better arterialization of the blood. Under ordinary circumstances we breathe more rapidly in order to increase the pulmonary ventilation, and the circulation speeds up so as to carry the respiratory gases back and forth more promptly between the lungs and the tissues. When a more chronic stage of oxygen deprivation occurs, such as is the case at higher altitudes where the atmosphere is rarefied, an additional interesting adjustment takes place in the form of an increase in the erythrocytes and hemoglobin in the blood. In other words, as oxygen becomes scarcer in the environment, the physiologic carriers of the indispensable gas in the body become more abundant.

The mechanism by which such beneficent compensatory adjustments are brought about has been the subject of considerable dispute. Some writers have ascribed it to an increased concentration of the blood—a mere withdrawal of plasma from within the circulation. Others have assumed an increased hematopoietic activity of the bone marrow. Another theory has suggested that there may be reserve or dormant supplies of erythrocytes stored away somewhere in the body; and evidence has also been presented to show an unequal distribution of the red corpuscles at various times in different parts of the circulation. The opportunity for this must certainly be at hand if it is true, as Krogh has asserted, that the adult body is supplied with sixty thousand miles of capillary tubing.

From observations on the effects of abdominal massage and muscular exertion, Schneider and Havens [5] concluded that a part of the first increase in red corpuscles and hemoglobin occurring with residence at a high altitude was brought about by the passage into the general circulation of a large number of red corpuscles that are ordinarily stored away. Their reasons were that at low altitudes abdominal massage and physical exertion increase the number of erythrocytes and percentage of hemoglobin in the peripheral capillaries; at high altitudes, before the blood changes of acclimatization have appeared, these still raise the content of hemoglobin and red corpuscles; but after men are partially or wholly acclimatized, abdominal massage and exercise lower instead of increase their content.

Whether or not one accepts the hypothesis of altered distribution of the red corpuscles in times of prolonged respiratory stress, the facts cited are of striking moment.[6] Exercise is one of the conditions making larger demands on the oxygen supply to the tissues. A recent study of the blood changes effected thereby has been reported by Brown [7] from the Rockefeller Institute for Medical Research. It shows that an increase in the percentage of both cells and hemoglobin in the blood of the jugular vein occurs early in the course of exercise. This initial increase of total cell volume cannot be attributable to a mere swelling of the erythrocytes, because the hemoglobin content of the blood is also increased. The rapidity with which the reaction ensues precludes a production of new corpuscles; hence it seems logical to conclude that early in the course of muscular activity there is a redistribution of red corpuscles in the body, with an increase in their proportion in the peripheral blood. According to Brown, there are also evidences that after prolonged exercise some blood destruction occurs. The chapters on the physiology of exercise are thus being gradually rewritten on the basis of experimental fact.

THE ACID EXCRETING FUNCTION OF THE KIDNEY

Considerations of the functions of the kidney have so long been centered preeminently on the elimination of water and of nitrogenous waste, and in lesser degree on inorganic constituents, that activities of the renal structures in other rôles have until recently had little interest directed to them. This tendency to minimize the importance of less familiar phenomena because others more often obtrude themselves on our attention is not unusual in science. The common features of every-day experience often engross us because of their frequent repetition and widespread occurrence, so that only the more discriminating and critical persons give heed to the lesser incidents in which, nevertheless, items of large significance may be hidden. Thus it has happened that the part played by the kidneys in regulating the neutrality of the body fluids has been little appreciated.

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[4] Hammett, F. S.: Studies of the Thyroid Apparatus, VII, A Differential Effect of Thyro-Parathyroidectomy and Parathyroidectomy on the Incisor Teeth of the Albino Rat, Am. J. Physiol. **62**: 197 (Oct.) 1922.

[5] Schneider, E. C., and Havens, L. C.: Am. J. Physiol. **36**: 380, 1915.

[6] A critical review of the subject is given by Schneider, E. C.: Physiological Effects of Altitude, Physiol. Rev. **1**: 631 (Oct.) 1921.

[7] Brown, G. O.: Blood Destruction During Exercise, I, Blood Changes Occurring in the Course of a Single Day of Exercise, J. Exper Med. **36**: 481 (Nov.) 1922.

The outcome of the metabolism of the nutrients that serve as sources of energy to the organism is as a rule to give rise to end-products that are preponderatingly acid in character. Aside from the carbonic acid arising from the oxidation of all carbon-containing compounds disintegrated in the exchange of materials in the body, sulphuric and phosphoric acids are formed by the oxidation of the sulphur and phosphorus of the proteins as well as incidentally in other ways. Few of our common foods are potentially alkaline, so that the sum total of the combustion of the food of man tends to be represented by an excess of acids. Nevertheless, in health an excess of acids—an acidosis—is continually averted by regulations of a physicochemical nature. An immediate adjustment is made possible in times of sudden stress by the so-called buffer action of the blood, whereby large increments or decrements of acid or base can be made without altering its reaction.

Obviously, some provision must exist whereby the acid or basic substances taking part in this adjustment are supplied and those produced by the reactions are removed as occasion requires. The removal is effected through the lungs, which remove carbon dioxid; through the bowel, whereby some of the phosphoric acid may be eliminated; and by the kidneys, which excrete fixed acids. The last mentioned function is often undervalued; and yet if it fails or is seriously impaired, the organism must inevitably suffer. There are consequently many reasons for assuming a direct connection between renal impairment and acid excretion; and not a little effort has been directed of late to the detection of the earliest evidence of deterioration in excretory activity. Rieger and Freund [1] have argued that if the kidney is the first line of defense against an accumulation in the body fluids of acid or alkaline substances beyond the physiologic optimum, the first indication of its functional lag should, it seems, be found in the acid or alkali binding power of the blood. This acid binding function they have termed "oxydesis," and they have attempted to measure it by estimating the greatest amount of acid that may be added to a unit volume of whole blood without agglutinating its erythrocytes.

According to these investigators, this oxydesis in health and in the postabsorptive state is for practical purposes a constant. Their observations indicate that in the diffuse nephropathies the acid binding power of the blood is definitely increased before there is retention of water, chlorids or phenolsulphonephthalein, and long before there is nitrogen retention; on the other hand, in the degenerative vascular nephropathies, there is retention of nitrogen before there is retention of chlorids, water or phenolsulphonephthalein, and oxydesis is not definitely decreased until the late stages. The study of the alkali reserve of the plasma and of the blood bicarbonate has attained considerable prominence in recent years in this connection. The data secured thereby are by no means always dependable as indexes of abnormalities in the acid-base regulation so far as renal function is concerned. Consequently, if the newer method proves to furnish earlier dependable signs of renal insufficiency it will be welcomed as a useful addition to the already numerous tests for functional capacity.

Current Comment

THE QUACK WE HAVE ALWAYS WITH US

With quackery rampant, with the flourishing of cults and medical mountebanks, we are likely to feel that quackery never thrived as it does today. Then we read:

> "As matters stand at present, it is easier to cheat a man out of his life than of a shilling, and almost impossible either to detect or punish the offender. Notwithstanding this, people still shut their eyes, and take everything upon trust that is administered by any Pretender to Medicine, without daring to ask him a reason for any part of his conduct. Implicit faith, everywhere else the object of ridicule, is still sacred here. . . . It would certainly be for the safety, as well as the honour of mankind, to have some check upon the conduct of those to whom they intrust so valuable a treasure as health."

This was written nearly one hundred and forty years ago (1783) by William Buchan, Fellow of the Royal College of Physicians, Edinburgh, a few years after the vogue of Bishop Berkeley's "Tar-Water" and "Spot" Ward's "Drops," and a little before the time of Elisha Perkins' "Metallic Tractors."

ANTIBODY PRODUCTION BY THE BACTERIOPHAGE

In a recent issue,[1] different opinions of the nature of the solvent agent in bacteriophagy were cited. D'Herelle, who contends that the substance is a filtrable virus, and Bordet and Ciuca, who are just as firm in their belief that it is enzymatic in nature, report the production of antiserums that neutralize its solvent action. Bordet and Ciuca,[2] inoculating rabbits with Berkefeld filtrates of dissolved cultures of *Bacillus coli*, obtained a serum which, on being mixed with active bacteriophages, prevented the solution of cultures of *B. coli*, which now developed in the normal way. The antiserum neutralized the inhibitory and dissolving properties of the bacteriophage. An antiserum with similar action was produced also by inoculating rabbits with suspensions of so-called sensitive or deformed colonies. Bordet and Ciuca believe that these results strengthen their opinion that the active substance is a product of the bacteria themselves. D'Herelle and Eliava [3] made experiments with *B. dysenteriae* (Shiga) and obtained a serum which inhibited lysis of the bacilli only temporarily, and they report the return of lysant power after the effect of the antiserum had passed away, which they hold supports their view that the lytic agent is a living parasite. Now Gratia and Jaumain[4] also report the production of antiserum which, greatly diluted, inhibited the action of the bacteriophage temporarily; when more concentrated, however, its action was permanent. This may explain the results of d'Herelle and Eliava, who worked with high dilutions, 1 : 1,000,000, of their serum. The antiserums obtained by Gratia and Jaumain against the bacteriophage active only for staphylococcus and another active only for *B. coli* were strictly specific in their neutralizing actions, while Maisin,[5] in similar experiments, found the neutralizing effect to be nonspecific. The conflicting results, which are characteristic of much of the work on bacteriophagy, should stimulate further experiments to determine more decisively the nature of the phenomenon.

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[1] Rieger, J. B., and Freund, H. A.: The Alkalimetry of Whole Blood: The Acid Fixing Power of the Blood in Renal Disease, Arch. Int. Med. **30**: 517 (Oct.) 1922.

[1] The Nature of Bacteriophagy, editorial, J. A. M. A. **79**: 1690 (Nov. 11) 1922.

[2] Bordet, J., and Ciuca, M.: Autolyse microbienne et sérum antilytique, Compt. rend. Soc. de biol. **84**: 280, 1921.

[3] D'Herelle, F., and Eliava, G.: Sur le sérum antibactériophage, Compt. rend. Soc. de biol. **84**: 719, 1921.

THE SLAUGHTER OF THE INNOCENTS!

Two more children have been offered up as sacrifices to the theological views of undoubtedly sincere but certainly misguided parents. It is none of the public's business! One of the parents says it isn't! In Cincinnati a 15-year-old high school girl was taken sick on October 24. Her mother had faith in divine healing and therefore did not call a physician. Nine days later events had shaken her faith enough to make her willing that a physician be called, but not enough to make her willing that the physician should administer antitoxin. The girl died the next day. In Spokane, Wash., under "Christian science treatment," John Earl Halverson, 6 years and 11 months old, died, November 19, from diphtheria after a week's illness. The father stated to the press his views as follows: "We are Christian scientists and do not believe in doctors or antitoxins, so no doctor was called. I see no reason for making any fuss over this case any more than over any other death. The public is not interested in what the child died of, and I wish you would not make mention of the case."

THE ABSORPTION OF PARTICLES FROM SEROUS CAVITIES

There are times when matter in particulate form finds its way into the serous cavities of the body. The material thus present may be extremely minute in form, like bacteria; it may be larger and structural like red blood cells, or merely bits of inert foreign matter of variable size. How particles of any of these sorts can find a way out of the confining spaces has long been a problem. In the case of the peritoneal cavity, the assertions of von Recklinghausen, more than half a century ago, that the lymphatic vessels "draining" this tissue space are provided with stomata or openings through which the particles could be transported on their way along the lymph streams to a lymphatic gland, long remained unchallenged. The scheme of absorption proposed was easily described, if not easily demonstrated. With the overthrow of the doctrine of the stomata involving preformed openings between the peritoneal cavity and the diaphragmatic lymphatics, the problem of the pathway has reasserted itself. It seems clear now that the lining cells of the peritoneal membranes form a physically complete layer, and that there are no preformed openings into the lymphatics: the so-called stigmata and stomata. Cunningham,[1] of the department of anatomy at the Johns Hopkins University, has followed the migrations of granules of different sizes through the walls of the lymphatics in the diaphragm, and has reached the conclusion that the cells of the peritoneal lining actively phagocytize particles of matter and transfer them to adjacent lymphatics. This unique capacity does not, of course, exclude the additional long known power of leukocytes to engulf particles and perchance transport them. Krogh of Copenhagen, and his school, have lately shown the unexpected reaction of the walls of capillaries in permitting certain types of substance to pass between their cells more readily. The phagocytic function of the lymphatics gives additional evidence of the wide capacity of both blood vascular and lymphatic endothelium to adapt itself to unusual needs of absorption.

THE RATE OF INTESTINAL EVACUATION IN INFANTS

The time during which food sojourns in the gastro-intestinal canal cannot fail to be of importance in the processes of alimentation. Thus, it is readily conceivable that if the passage to the rectum is unduly rapid, there may not be adequate opportunity for the proper digestion and complete absorption of the nutritive contents. Again, if there is considerably longer delay than usual, the possibility of exaggerated microbial changes in the contents of the bowel and various untoward consequences which this is alleged to entail must be reckoned with. It seems somewhat strange, therefore, that the textbooks have so little to report regarding the period of passage of contents through the alimentary tract. For adult man, the conventional statement suggests that the transit of the food occurs within approximately twenty-four hours. Not long ago, Kahn[2] of Dortmund reported data showing that the duration of the passage of contents in nurslings is comparatively short; he concluded that it varies between four and twenty hours, with a usual duration of about fifteen hours. The duration, as a rule, is briefer in breast-fed infants than in those artificially nourished; and the speed tends to be greater in the morning hours. Ordinarily, the figures for the large and the small intestine are about the same. In extension of these studies, Kahn[3] has since observed that the time of passage in prematurely born infants averages twelve hours. In dyspeptic babies, the excretion occurs still earlier, from six to ten hours after ingestion of the food. The differences are in general attributable to more rapid emptying of the small intestine when the shorter periods are noted, although the sojourn of food residues in the large intestine also is somewhat shortened.

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[4] Gratia, A., and Jaumain D.: Dualité du principe lytique du colibacille et du staphylocoque, Compt. rend. Soc. d. biol. **85**: 882, 1921.

[5] Maisin, J.: Au sujet du principe bacteriophage et des anticorps, Compt. rend. Soc. de biol. **84**: 468, 1921.

[1] Cunningham, R. S.: Studies in Absorption from Serous Cavities. IV, On the Passage of Blood Cells and Granules of Different Sizes Through the Walls of the Lymphatics in the Diaphragm, Am. J. Physiol. **62**: 248 (Oct.) 1922.

[2] Kahn, W.: Ueber die Dauer der Darmpassage im Säuglingsalter, Ztschr. f. Kinderh. **29**: 321, 1921.

[3] Kahn, W.: Weitere Mitteilungen über die Dauer der Darmpassage im Säuglingsalter, Ztschr. f. Kinderh. **33**: 48, 1922.

PSYCHOLOGIC EFFECTS OF TOBACCO SMOKING

Few subjects have aroused such unsatisfactory discussion as has been given to the effects of tobacco smoking. Whereas the "antis" of various sorts place the responsibility for everything from stunted growth to mental deficiency on this habit, its users praise the "delicious weed" as the most soothing of habits, and even assign it a place in medicine as a harmless sedative. Recently the department of psychology of Johns Hopkins University undertook a study of the immediate psychologic effects of tobacco smoking. Eight established psychologic tests were used to determine whether or not the smoking of cigars or cigarets would influence the judgment and response of a number of persons to various stimuli. The results seem to indicate strongly that the immediate effect of smoking, both on smokers and on nonsmokers, is a lowering of the accuracy of finely coordinated reactions (including associative thought processes). However, against this must be set, according to D. J. Carver,[1] who conducted the experiments, the possible decreased accuracy of the habitual smoker when he has for some hours been deprived of his customary tobacco-combustion products. There is no indication that the speed of complicated reactions is affected by smoking, nor is there indication that thoroughly mechanized reactions requiring no fine motor adjustments are affected. It is proposed to continue to experiment extensively with more refined methods and technic. Investigations by these observers and, in fact, all experiments thus far reported on this question indicate that we have no really scientific evidence on which to base a valuable opinion as to the psychologic effects of the tobacco habit.

PUBLIC HEALTH ASPECTS OF MALTA FEVER

It has been known since 1911 that Malta fever occurs occasionally in the southwestern part of the United States; but it remained for Lake[2] to report recently an epidemic of considerable proportions. Thirty-five cases in a population of about 30,000 were found to be due to the use of milk from goats as a part of a city milk supply, the herd supplying the community with milk being heavily infected with *B. melitensis.* In spite of the occurrence of the cases in a community which might have been expected to be on its guard and in which medical talent of a high order was available, nearly two months elapsed before the nature of the illness was suspected. It is certain that in localities where the disease has never been recognized, or where only occasional scattering cases occur, the nature of the infection might go unrecognized for a long time. City and other health authorities may well scrutinize their milk supply with special reference as to whether or not any goat's milk enters into it; and if goat's milk is being consumed, the herd should be given special attention with a view to the prevention of Malta fever. Apparently, serologic tests serve to indicate the presence of infection in the herd.

HYGEIA: A JOURNAL OF INDIVIDUAL AND COMMUNITY HEALTH

The response to the announcement in the editorial and advertising pages of The Journal last week, both in the way of subscriptions and of letters accompanying the subscriptions, indicates that the medical profession will support this publication in a practical manner. Next week another announcement will be made, which we sincerely hope will be read and favorably acted on by Journal readers.

Association News

SAN FRANCISCO SESSION

Organization of Local Committee of Arrangements

Dr. W. E. Musgrave, chairman of the Local Committee of Arrangements for the San Francisco Session of the American Medical Association, announces the organization of the executive committee with the following personnel: chairman, Dr. W. E. Musgrave; secretary, Dr. Ina M. Richter; treasurer, Dr. John Gallwey. The names of the chairmen of subcommittees will be printed in The Journal at a later date.

The 1923 Session of the American Medical Association, San Francisco, June 25 to 29

The California Medical Association, with all of its constituent county members, the League for the Conservation of Public Health, and the San Francisco Convention and Tourist League, with all of its affiliated organizations, are combining to make the 1923 session of the American Medical Association a memorable one.

Permanent headquarters for all committees and for all matters pertaining to the 1923 session have already been established in a suite of offices at 806 Balboa Building, San Francisco. Any persons or organizations desiring any information on any point within the jurisdiction of the Local Committee of Arrangements, or any assistance or other service connected with the annual session, are requested to address their communications to these offices. It will not be necessary to remember the name of any committee or committee officer, because all mail, both incoming and outgoing, connected in any way with the California end of this work, will go through the headquarters office.

In addition to all matters medical, inquiries regarding transportation, sightseeing, California resorts, hotels, shopping, or any other matters of business or pleasure, will be referred promptly from these central offices to persons competent to handle the situation.

Through the cooperation of the San Francisco Convention and Tourist League, the San Francisco Chamber of Commerce, the Northern Californians, Inc., and other social, commercial and industrial organizations, it is hoped that every service and every convenience possible will be made available to every person coming to California under the auspices of the American Medical Association. San Francisco already is a great national convention city. One hundred and fifty-eight national conventions will have convened in that city during 1922, and a larger number are scheduled for 1923.

There are ample splendid hotel facilities for all. Details of the scheduled prices of thirty or forty of these hotels will be furnished shortly by the Northern California Hotel Men's Association, acting through our committee on hotels. Reservations may be made at any time by addressing our headquarters offices, San Francisco.

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[1] Carver, D. J.: Psychological Effects of Tobacco Smoking, J. Comp. Psychol. 2:279 (Aug.) 1922.

[2] Lake: Pub. Health Rep., Nov. 24, 1922.

All of the work of the session will be held in one building, the Civic Auditorium, which has more rooms of ample size than will be needed, with plenty of committee rooms and offices for all officers and sections, in addition to a practically unlimited amount of space for both scientific and commercial exhibits. This building is within the zone of the great business, shopping and hotel center of the city.

W. E. Musgrave,
806 Balboa Building, San Francisco.
Chairman, Local Committee of Arrangements.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

CALIFORNIA

New University President.—It is announced that Prof. William W. Campbell, Sc.D., head of the Lick Observatory, has been recommended for the presidency of the University of California, San Francisco, as successor to President D. P. Barrows, who has resigned.

COLORADO

Banquet for Drs. Thompson and Work.—The Pueblo County Medical Society gave a dinner at the Vail Hotel, Pueblo, November 21, in honor of Dr. Henry M. Thompson and Dr. Philip Work, both of Pueblo. Dr. Thompson will locate in Los Angeles, and Dr. Philip Work, who is the son of Postmaster-General Work, will locate in Denver.

National Methodist Sanatorium.—The Methodist Episcopal Church will establish a national sanatorium for tuberculosis at Colorado Springs. The site, valued at $250,000, was donated by the citizens of Colorado Springs, and several thousand dollars will be contributed annually for the current expenses, it is announced. The first unit of the proposed sanatorium will have 250 beds. Dr. Charles S. Woods, president of the National Protestant Hospital Association, and formerly professor of preventive medicine and hygiene at the University of Iowa and health officer of Indianapolis, has been appointed executive secretary of the board of directors. For several years, the Woman's Home Missionary Society of the Methodist Episcopal Church has conducted a tuberculosis sanatorium at Albuquerque, N. M., and the society recently gave the Beth-El Hospital, conducted by them at Colorado Springs, to the Board of Hospitals and Homes of the Methodist Episcopal Church.

DELAWARE

Monthly Health Bulletins.—It is announced by Dr. Robert S. McBirney, secretary of the state board of health, that monthly bulletins will be issued by the board, containing all information and statistics relative to public health and organizations under the jurisdiction of the board. The first issue of the bulletin will appear, Jan. 1, 1923. Copies will be mailed to all physicians, clergymen, officials and any person requesting that his name be placed on the mailing list.

DISTRICT OF COLUMBIA

Tri-State Medical Meeting.—The fall meeting of the Medical Society of Virginia, Maryland and the District of Columbia convened in Washington, November 22, with Dr. William L. Lewis, Kensington, Md., president of the organization, in the chair. The annual dinner was held at the Hotel Raleigh following the meeting. Among the speakers were Drs. W. J. Mallory, William T. Davis, R. S. Lamb, M. D'Arcy McGee, Charles F. Russell and Thomas M. Foley.

American Society for the Control of Cancer.—The local cancer week at Washington was opened with an address by Sir Auckland Geddes, the British ambassador, who declared that cancer control carried a threefold lesson: Don't be afraid; don't be ashamed; don't permit any person to dissuade you from seeking early medical advice. The moving picture film "The Reward of Courage" was shown. It was announced that Albert D. Lasker, chairman of the U. S. Shipping Board, had donated $25,000 to the American Society for the Control of Cancer, in recognition of the excellent work that has been done by the Washington committee.

Testing of Policemen's and Firemen's Blood for Transfusion.—In order to provide against delay and to protect injured firemen or policemen in the event of immediate blood transfusion being necessary, all the members of the fire and police force in the District will have their blood typed, and a record of it will be kept. This also provides a list of donors who may be called on at any time. Following examination of 300 men, about 98 per cent. have expressed their willingness to act as donors in the event of an emergency. Women in the police department will also be examined. Wassermann tests are made in the case of all policemen before they are admitted to the service. Dr. Oscar B. Hunter, pathologist of the George Washington University, Washington, is carrying out the work of grouping the blood of the 1,723 members of both departments.

FLORIDA

Antituberculosis Association Formed.—The Hillsborough County Antituberculosis Association was organized in Tampa, November 10. Dr. Allen F. Higgins, Tampa, was elected president and W. F. Barnwell, secretary. It is proposed to affiliate the association with the Florida Public Health Association.

Health Conference.—Dairy and health inspectors from practically every large city and county health department in the state held a health convention in Tampa, November 9-11, under the presidency of George W. Simons, chief sanitary engineer for the state board of health. A legislative committee was appointed to advance desirable legislative features in connection with enforcement of state health laws, with the following members: Hotel Commissioner Carter; Dr. J. G. Fish, U. S. Department of Agriculture; A. W. Zeibald, Miami, city food inspector; Capt. R. E. Rose, state chemist, and Dr. J. R. Harris, city health officer of Tampa. Standardization of rules governing food, food products, food handling, the pasteurization of milk, dairy inspection and eradication of tuberculosis among dairy heads, will be sought in the next Florida legislature.

GEORGIA

Fine for Physician.—Dr. George Otis Castellaw, Banks County, was fined $200 in the federal court at Athens, November 7, it is reported, for violation of the Harrison Narcotic Law.

Medical Society Buys Home.—The Fulton Medical Society has bought a house in Atlanta, the first floor of which contains an auditorium seating 350 people, with four rooms which will be used as a library. The other floors will be rented out to physicians as living quarters. The building will be known as the Academy of Medicine.

IDAHO

Personal.—Dr. George F. Ashley, Montpelier, has been elected president of the medical examining board.——Dr. Charles O. Moore, Paris, has been appointed county physician to succeed Dr. Richard G. Sutton, who resigned recently.

Hospital News.—The Rexburg General City Hospital has been opened for the reception of patients. The new wing of St. Joseph's Hospital, Lewiston, was recently opened providing seventeen additional hospital beds. A tuberculosis ward will be established on the roof of the old building.

ILLINOIS

Plan Collection Agency.—The Moline Physicians' Club is planning to establish a bill collecting agency for the purpose of rating patients and collecting from those able to pay, it was recently announced.

Personal.—Dr. James F. Percy, Galesburg, has been appointed attending surgeon to the Los Angeles County Hospital; he will move to California.——Dr. Thomas D. Doan, Scottville, secretary of the Macoupin County Medical Society, was recently appointed a member of the Illinois Board of Public Health Advisors.——Dr. William D. Madison, Eureka, entertained the members of the Woodford County Medical Association at dinner, November 16.

District Health Superintendents Examine Schoolchildren.—With the exception of time given to emergency and special assignments pertaining to outbreaks of communicable diseases and educational public health programs, the district health superintendents of the state department of public health spent October and November in making physical examinations of rural schoolchildren. It is estimated that more than 50,000 children were examined during the month, and it is hoped that every rural schoolchild in the state will have been examined by the health superintendents at least once before the close of the scholastic year. Immunization against smallpox and diphtheria are two subjects that have been and will continue to be particularly emphasized in connection with the school examinations. Results of this work have thus far been very gratifying.

Medical Meetings.—At the forty-eighth annual meeting of the Southern Illinois Medical Association, held in Benton, November 2-4, the following officers were elected: president, Dr. Harry C. Moss, Carbondale; vice presidents, Drs. Cyrus H. Anderson, Anna, and James M. McManus, Cairo, and secretary-treasurer, Dr. Alonzo B. Capel, Shawneetown. Benton was chosen as the next meeting place.——A cancer program was given at the November meeting of the Galesburg Medical Society, recently. Dr. Winter read a paper on "Recent Experimental Work in Cancer," and Dr. O'Hara, Springfield, spoke on "The Results of the Treatment of Cancer with Roentgen Ray as Followed in Europe."——The thirty-second annual banquet of the Sangamon County Medical Society was held, November 13, at Springfield. Drs. William W. Duke and Dar D. Stofer, professor and assistant professor of experimental medicine, respectively, at the University of Kansas, gave addresses.——The DuPage County Medical Society was reorganized at a meeting held in Wheaton, November 23, with a membership of forty. Drs. E. H. Ochsner, F. O. Fredrickson and Charles E. Humiston, all of Chicago, gave addresses.

Campaign for Authentic Birth Records.—The state department of health is conducting a campaign to have Illinois admitted to the United States birth registration area. Illinois is the only northern state east of the Mississippi River that is not included in the area; a situation due to the inaccuracy of the births registered. A letter has been sent to each physician and registrar, explaining the importance of birth registration and warning both groups that prosecutions will be resorted to if necessary. Members of the field force of the department have personally called on the majority of the 1,400 registrars in the state in an endeavor to register all the unreported births. A postal card was sent on the 1st of each month to each registrar, reminding and urging him to send in birth and death reports by the 10th of the month. Cooperation in the work has been assured by securing the help of the various women's clubs, parent-teachers' associations and insurance companies. School teachers have been requested to send in a list of the new babies which pupils report in their respective families within the year. Churches, schools and other organizations are asked to devote one day at the annual health promotion week to the subject of birth registration, and extensive and continuous publicity has been carried out in the public press. The result of this campaign was that the births registered in Illinois increased from 120,360 in 1920, to 131,299 in 1921, an increase of more than 9 per cent. over those of 1920, and it is stated that reports for 1922 will show a decided gain over 1921.

Stringent Venereal Disease Regulations.—The state health department, Springfield, issued, December 3, what is stated to be the most drastic set of regulations regarding the control and suppression of venereal disease existant in any state. Governor Small was requested to permit the use of the $25,000 health department contingent fund to print and distribute these rules. Violators are liable to a fine of $200 and a jail sentence of six months. Persons who have exposed themselves to disease but who are found not to be infected, may be held as "suspected contacts" for the period of incubation of the suspected disease—ten days in the case of gonorrhea and thirty days when syphilis is suspected. Refusal of a suspected person to submit to examination by the health authorities "shall be prima facie proof that such person is infected and shall authorize and justify quarantine and isolation of such person." Under penalty of revocation of their licenses to practice medicine, no physician shall issue health certificates to any person known to be or suspected of practicing prostitution. Any person known to be a prostitute or any man consorting with a common prostitute or inmate of a house of ill fame shall be suspected of having venereal disease or of being an infective carrier. Druggists who sell preparations for the cure of venereal disease are required, under Rule 8, to report the name and address of purchasers of such preparations, unless the purchaser has a physician's prescription. Local health authorities may define the limits of the area in which diseased persons are to be isolated; and another rule specifies that such persons may not handle food stuffs, work in a barber shop, or practice medicine or dentistry. Full authority is given for the placarding of the residences of those having either suspected or known cases of venereal disease and of premises used for immoral purposes. Under the new regulations, names, addresses, sex, age, color, marital condition and occupation, and name and address of the infected person's employer, must be given. Health Commissioner Bundesen of Chicago stated that these rules will go into effect at once in Chicago.

Chicago

Health Tests at Marriage License Bureau.—Applicants for marriage licenses, both men and women, beginning November 27, have been asked whether they would consent to an examination by Dr. Andrew M. Roman, who is stationed at the bureau, under the direction of Dr. H. N. Bundesen, city health commissioner. This health inspection system was commenced without public announcement, and it is stated by Dr. Roman that 300 have agreed to the test. He also states that women approved the examinations, but the men as a rule, unless accompanied by their future wives, demurred. No one is obliged to submit to the test, which is being conducted with a view of obtaining statistics on which to appeal to the legislature for compulsory examinations. Some cases of disease have been discovered since the inauguration of this system.

A Celebration in Commemoration of Pasteur's Centenary.—December 27, the hundredth anniversary of Pasteur's birth, will be celebrated by Chicago physicians, chemists, and bacteriologists at a dinner and meeting under the auspices of the Chicago Medical Society and the Chicago section of the American Chemical Society, at 7 p. m. in the Gold Room of the Congress Hotel. The affair is in charge of a committee, of which Dr. Arthur Dean Bevan is chairman, and Dr. William Allen Pusey, secretary, and which includes the president and president-elect and secretary of the Chicago Medical Society, and the president and the secretary of the Chicago section of the American Chemical Society. Dr. Ludvig Hektoen will preside. The address on Pasteur will be delivered by Prof. Victor C. Vaughan, and the response in behalf of France will be made by Mr. Antonin Barthelemy, consul for France.

New Medical School Opened.—October 1, the General Medical Foundation took over the plant, the students and the good will of Hahnemann Medical College. The school year had already opened, September 25, with 130 students in attendance. The new school will be known as the General Medical College of Chicago. The transition involved many profound changes. A new faculty was created and new hospital affiliations made. The scientific faculty includes, among others, Prof. R. W. Watkins, Ph.D., from the faculty of the University of Chicago, as head of the department of anatomy; Prof. E. Avery Richmond, Ph.D., as head of the department of physiology; C. A. Dragstedt, M.D., Ph.D., physiology; Arthur Cohen, S.B., chemistry; F. J. Warner, A.B., M.D., anatomy; G. R. Love, S.B., M.D., pharmacology; J. B. Bennett, M.S., librarian. Among the hospitals giving clinics for the students through positions held by the faculty are: Cook County Hospital, Illinois Charitable Eye and Ear Infirmary, South Shore Hospital, Chicago General Hospital, Illinois Masonic Hospital, West Side Hospital, South Chicago Hospital and St. Luke's Hospital. Other affiliations will be made. A campaign for a $1,000,000 endowment is being planned.

INDIANA

Dr. Hurty Elected.—Dr. John N. Hurty, Indianapolis, who recently resigned as state health commissioner of Indiana, was elected to the state legislature on the Republican ticket at the November election.

MARYLAND

Baltimore City Medical Society.—At a meeting of the Baltimore City Medical Society held, December 1, at the Medical and Chirurgical Faculty Building, Baltimore, Dr. Alexius W. McGlannan was elected president of the society, to succeed Dr. Thomas B. Futcher. Other officers chosen were: Dr.

Gordon Wilson, vice president; Dr. Frank S. Lynn, secretary, and Dr. Charles Emil Brack, Jr., treasurer. A smoker followed the regular business session.

Medical Alumni Club Formed.—Physicians and surgeons of the Johns Hopkins Hospital have recently formed and chartered a new organization for past and present members of the hospital staff, known as the Johns Hopkins Medical Alumni Club. The Hampton House on North Broadway has been leased and redecorated by the members for the use of the new club. To furnish a combined club and home for visiting doctors and resident physicians of the hospital is the purpose of the organization. Accommodations have been made for thirty transient or permanent residents, and the dining room is furnished to serve fifty persons. Dr. William S. Bear is president of the club; Dr. George A. Stewart, secretary, and Dr. William A. Fisher, Jr., treasurer.

MASSACHUSETTS

Animal Experimentation Meeting.—At a district meeting of the Massachusetts Medical Society in Boston, November 19, the topics of discussion were "What Animal Experimentation Has Done for Scientific Medicine" and "What Scientific Medicine Has Done for Animals." Dr. Charles W. Eliot, president emeritus of Harvard University, presided. The public were admitted free of charge. Among the speakers were Drs. Walter B. Cannon, Edwin H. Place, Richard P. Strong, Lester H. Howard and Arthur W. Gilbert.

Hospital News.—The sixtieth anniversary of the founding of the New England Hospital for Women and Children and the fiftieth anniversary of the founding of their training school for nurses were celebrated, October 31, at Boston. Miss Linda Richard, the first woman to be graduated from the school, and the first trained nurse in the United States, was the guest of honor.——The recreation hall of the Northampton State Hospital was destroyed by fire, November 10, at a loss of $7,000.——Dedication services were held, November 28, for the new South Boston ambulance station in the rear of the Carney Hospital. This station formerly operated by the hospital has been taken over by the city, completely remodeled and reequipped at a cost of $35,000. Nine physicians and nine nurses, with three ambulance drivers, constitute the staff.——A new recreation building was formally opened and dedicated at the West Roxbury Hospital for World War Veterans (U. S. Veterans' Hospital No. 44), November 27. The hall will seat 400 persons. The second floor of the new building will contain dental clinics. The new structure was erected at a cost of $25,000. Governor Cox, Mayor Curley, General Edwards and Admiral Wiley gave brief addresses.

MICHIGAN

Donation by Physician.—Dr. W. E. Blodgett, Detroit, has contributed $5,000 to the lecture fund of the Wayne County Medical Society. The earnings of this contribution are to be used to defray the expense of an annual lecture on orthopedics.

University of Michigan.—The county societies comprising the state medical society have gone on record as opposed to a separate training school at the University of Michigan, Ann Arbor, and have petitioned the regents not to institute such a plan for the training of nurses. Expression was also given favoring the return of the University Hospital to the control of the medical faculty.

Campaign for the Butterworth Hospital.—In a recent campaign conducted for the Butterworth Hospital, Grand Rapids, a fund of $500,000, needed to secure a gift of an equal amount subscribed by Mr. and Mrs. Lowe, was oversubscribed by $174,495. The physicians of Grand Rapids contributed $42,000. The completed institution will have 220 beds. It was planned under the personal supervision of Dr. S. S. Goldwater, New York, and will be a complete general hospital.

MINNESOTA

State Sanitary Conference.—At the annual Minnesota State Sanitary Conference held in St. Paul in October, Dr. George S. Wattam, Warren, was elected president; Dr. Owen W. Parker, Ely, vice president, and Dr. Albert J. Chesley, St. Paul, secretary.

Medical Society's Charter Rescinded.—At the request of the members, the charter of the Carlton County Medical Society was annulled by the council at the annual meeting of the state medical association in October. Former members of the Carlton County Medical Society will become affiliated with the St. Louis County Medical Society.

Personal.—Dr. Louis B. Wilson, member of the National Medical Examining Board, and director of the Mayo Foundation for Medical Education and Research, University of Minnesota, Minneapolis, gave an address before the Medical Society of the State of California, November 4, in Los Angeles.——Dr. Walter H. Sahr, Minneapolis, has returned from a year's special study in Vienna.——Drs. Archibald Howe, Virgil J. Schwartz and Thomas F. McCormick of the Twin Cities, sailed from New York, November 4, for Europe.——Citizens of Montrose honored Dr. Edward P. Hawkins of that city, recently, on the anniversary of the twenty-fifth year of his practice in Montrose.——Dr. Thomas F. Rodwell, Mahnomen, has been appointed government physician for the White Earth Indian Reservation.——Dr. Robert Emmett Farr, Minneapolis, read a paper before the Manitoba Medical Association at Winnipeg, Canada, November 16.

MISSISSIPPI

Hospital News.—A hospital building will be erected at the Beauvoir Soldiers' Home, at a cost of $50,000. Funds for the work have been raised by subscriptions and donations, $40,000 already having been collected. It is estimated that there will be a need for the Confederate home at Beauvoir for from twelve to seventeen years longer. While fewer soldiers of the Confederacy will be alive ten years hence, many will be survived by widows several years their juniors, for which the home provides.——Ground has been broken for the new infirmary to be erected in connection with the Mississippi Woman's College at Hattiesburg. It will be known as the Martha Ross Hospital. It is expected that the institution will be completed within a few months.——New fully equipped pathologic and roentgen-ray laboratories have been added to the Natchez Hospital, Natchez.

MISSOURI

Visiting Nurse Association.—A drive to obtain $53,000 has been asked to cover the increased work of the visiting nurse association of Kansas City, which made nearly 80,000 visits during the year. The thirty-nine nurses will be increased to forty-eight. Various national insurance companies and smaller concerns annually allow appropriations for its services. In cooperation with the Jackson County Medical Society, a survey of chronically ill and crippled poor children of the city was made during the year. Free clinics were opened in hospitals and by charity organizations, and the visiting nurses investigated the cases at home.

MONTANA

Hospital Reopened.—The Billings Surgical and Obstetrical Hospital will be reopened under the management of Mrs. Julia O'Conner, it was recently announced. The institution has a capacity for fourteen patients.

NEW JERSEY

Hudson County Medical Society.—At a meeting of the society, November 8, a committee was appointed to make an inspection tour of all clinical laboratories in the county to determine whether or not they are up to standard. Drs. J. C. McCoy, Paterson, and Samuel A. Cosgrove, Jersey City, were appointed referees in compensation cases regarding fees. Dr. Herman A. Haubold, clinical professor of surgery, Bellevue Hospital Medical College, New York, gave an address on "The Rôle of the Pancreas in Obstructive Jaundice."

NEW YORK

Home for Anemic Children.—Surprise Lake Camp, Cold Springs-on-Hudson, maintained by the Federation of Jewish Philanthropic Societies of New York City, has been opened as a home for anemic children.

Health News.—Reports of epidemic jaundice have been received from Hamlet, Chautauqua County; Savannah, Wayne County, and Denmark, Lewis County. The first of these was of interest in that the health officer and attending physician reported that two cases had occurred in the same family and that a third was probably developing at the time of writing. The following day, a card reporting the last case as one of scarlet fever was received.

Speech Defect in Sixty Thousand New York City Pupils.—Miss Elizabeth McNally, director of the speech clinic at the College of the City of New York, declares that 60,000 New York City public school pupils suffer from speech defects. This clinic was organized in 1915. There are now clinics at City, Fordham and Hunter colleges. In June, 1922, the College of the City of New York will graduate 180 teachers of speech improvement.

Chiropractor Sentenced to Elmira Reformatory.—William P. Sim, aged 25, a chiropractor of 39 East Tenth Street, New York, was sentenced, November 25, by Judge Ernest I. Edgcomb in general sessions to serve from thirteen months to five years in Elmira Reformatory. Judge Edgcomb denounced him as "a maker of anarchists and bolshevists." He is alleged to have represented himself as being identified with Bellevue and Roosevelt hospitals, and to have charged Mrs. Anna Waschenko of 435 East Seventieth Street, $60 a visit for the treatment of her child.

Resolutions in Honor of Dr. Albert H. Buck.—At a recent session the New York Otological Society adopted resolutions relative to the death of the first president of the society, Dr. Albert H. Buck. The resolutions commemorated his achievements in the field of otology, including his services in various institutions in New York, his professorship in the medical department of Columbia University, and his presidency of the American Otological Society. In addition to numerous contributions in the field of otology, Dr. Buck edited the American edition of Ziemssen's "Cyclopedia on the Practice of Medicine," 1874; "Reference Hand Book of Medical Science," 1887 and 1900; the "American Practice of Surgery," 1908, and other important works. In 1917, he published the historical work entitled "Growth of Medicine from Earliest Times to About 1800," and in 1920, at the age of 78, "The Dawn of Modern Medicine."

Death Rate of New-Born in New York.—The state department of health has just published a pamphlet showing the distribution of deaths in this state from maternal causes and stillbirths. This study is based on a review of 1,242,374 births that occurred in a recent five-year period, in which 50,552 babies, or 4 per cent., were born dead. Of the mothers of these children, it was found that 6,821 died of causes connected with childbirth, representing a rate of 55 in every 10,000 births. Each year in New York State, more than 1,800 mothers die from maternal causes, and of these more than 400 die from septicemia. For New York City, the rate of deaths from all maternal causes was 47 per 10,000, and in the rest of the state, 66. The rural part of the state showed a rate of 59, and up-state cities combined, 69. Each year since 1910, the maternal death rate of New York City was considerably lower than that of the rest of the state, and likewise the death rate from septicemia has been lower in New York City. The report points out, however, that the death rate from maternal causes in New York State is much higher than in such a city as Birmingham, England, the death rate of which is much lower than that of New York City. The death rate from puerperal septicemia for the period January to August of this year has dropped 20 per cent. This reduction has taken place in advance of the actual organization of the field campaign of education made possible by the additional appropriations to the state health department under the Davenport-Moore act. The decreased death rate has been accompanied by a marked increase in the number of reported cases of the disease, and this, it is believed, is due to the better diagnosis and reporting of the condition and not to its increased prevalence.

New York City

Vaccination Lawsuit.—Alexander Karedy is suing the Cunard Steamship Company for $50,000 because he was vaccinated by a company surgeon before he boarded the steamship at Cherbourg, December 17, 1920. He claims that the vaccination wound became infected and that he has lost the normal use of his arm. The steamship company denies liability, stating that Karedy was vaccinated before he purchased a ticket and boarded the ship.

Personal.—The distinguished service cross for extraordinary heroism in action during the World War has been awarded to Lieut.-Col. Samuel McCullagh, M. C., U. S. Army, New York City.——Mr. Louis I. Dublin, statistician of the Metropolitan Life Insurance Company, will deliver the third Harvey Society lecture at the New York Academy of Medicine, December 16. His subject will be "The Possibilities of Human Life."

Medical Society Elects.—At the annual meeting of the Medical Society of the County of New York, held in New York, November 27, under the presidency of Dr. Orin S. Wightman, the following officers were elected for the ensuing year: president, Dr. Arthur F. Chace; vice presidents, Drs. Eugene F. Pool and Samuel J. Kopetsky; secretary, Dr. Daniel S. Dougherty, and treasurer, Dr. James Pederson. A resolution approved by the meeting calls on the 3,000 members to send their patients only to drug stores owned by long established pharmacists or reputable drug firms and to boycott all drug stores owned by laymen. This resolution was adopted owing to the fact that since prohibition has been in effect a great number of lay-owned drug stores have sprung up all over New York City, many of them owned by former saloon keepers, for the purpose of turning ostensible drug store counters into bars. It is alleged that they are doctoring the liquor they sell and that to prescribe liquor for medicinal purposes from such a drug store is a menace to the patient.

NORTH CAROLINA

A Warning.—For the last several weeks, a man claiming to be an eye specialist sent out by the state board of health, has been operating in and around Wilson. He gives the name of Martin; is about 30 years of age and travels in a Chevrolet coupé. He makes a free examination, then prescribes cheap glasses or medicine for the eyes and charges as much as he can obtain. In one case reported, the charge was $25.

Large Fund to Fight Tuberculosis.—Under the will of the late Dr. Carl von Ruck, Asheville, approximately $700,000 has been bequeathed for scientific research work on the prevention and cure of tuberculosis. The von Ruck Research Laboratory will have charge of the fund, and the earnings are to be expended by the corporation for "scientific research, study and experiment in tuberculosis and for the aid of tuberculous patients who are unable to procure adequate and satisfactory treatment."

OHIO

Hospital News.—A two-story hospital building will be erected at Oberlin College, Oberlin.——The Beck Memorial Hospital building has been opened at the Stillwater Sanatorium at Dayton. It is a county institution.——Members of the Rotary clubs of the eighth district of Ohio have completed plans for the erection of a hospital for crippled children to be erected at Zanesville. The institution will be known as the Rufus C. Burton Children's Hospital.

PENNSYLVANIA

Instruction Course for Medical Men.—The Northampton County Medical Society, in pursuance with plans laid down by the Medical Association of the State of Pennsylvania, will inaugurate a two-year course of instruction for its members, it was announced at a meeting in Easton, November 17. Meetings will be held weekly, and members will be addressed by the foremost leaders in the medical world.

Cornerstone for New Hospital Laid.—The cornerstone of the new Presbyterian Hospital buildings was laid, December 1, with appropriate exercises. Henry Paul, president of the board of trustees, and Dr. John H. Girvin, head of the medical staff of the Presbyterian Hospital, laid the stone. This building will house the laboratory and the admission and record departments, special departments of modern preventive medicine and treatment, the roentgen-ray department, the hydro-electro and mechanotherapy department, the heart clinic, the children's clinic and the oral surgical clinic. Besides, there will be space for a library and study for the physicians and nurses and a room for lectures and demonstrations to the public. Other additions will be made in the near future to meet the requirements of the new hospital.

Philadelphia

Special Bulletin on Measles.—The increasing prevalence of measles here has caused Dr. C. Lincoln Furbush, director of health, to issue a bulletin to parents urging strict observance of health regulations, home quarantine with the isolation of the patient, care of dishes and care of other children of the family to prevent the spread of the disease. Records of the health department show 6,000 cases of measles in the last four weeks. Sixty-six children have died of the disease in that period.

SOUTH DAKOTA

Annual Clinic Week.—The second annual clinic week was held at Mitchell, December 5-6. Dr. Benjamin F. Lounsbury, Chicago; Dr. Arthur Steindler, Iowa City; Dr. Harry H. Bowing, Rochester, Minn.; Dr. George Douglas Head, Minneapolis, and Dr. John E. Summers, Omaha, were among those who presented papers.

TENNESSEE

Hospital News.—The Presbyterian Home Hospital, Memphis, will be abandoned as a hospital and turned over to the Southwestern Presbyterian University at Clarksville, according to recent reports.——The Mercy Hospital, Bristol, a new institution, will be opened in the near future.

Tri-State Medical Meeting.—At the annual meeting of the Tri-State Medical Association (Arkansas, Mississippi and Tennessee), at Memphis, November 23, the following officers were elected: president, Dr. Carl M. Harwell, Osceola, Ark.; vice presidents, Drs. Thomas J. Stout, Brinkley, Ark., Van Buren Philpot, Houston, Miss., and George Brinkley, Whiteville, Tenn.; secretary, Dr. Arthur F. Cooper, Memphis, and treasurer, Dr. J. A. Vaughan, Memphis (reelected).

TEXAS

State Health Officer Resigns.—Dr. John Hicks Florence, Austin, has resigned as state health officer, it was announced, December 1, the resignation to take effect, Jan. 1, 1923. Dr. Florence, who has served in this capacity since Jan. 1, 1922, is resigning because of personal business. His successor has not yet been named.

VIRGINIA

Personal.—Dr. John M. Ratliff, Richlands, suffered the loss of his right leg just above the knee, November 2, as the result of a train striking his automobile. He also suffered severe lacerations and bruises.——Dr. Hack U. Stephenson, Toana, has been appointed medical examiner for the state industrial commission.——Dr. Samuel W. Hobson, Newport News, was recently elected president of the Chesapeake and Ohio Surgeons' Association at the meeting in White Sulphur Springs, W. Va.

WISCONSIN

New Hospital Opened.—The new St. Mary's Ringling Hospital, Baraboo, the gift of Mrs. Della Ringling and her son, Richard, was formally opened, November 9. A large committee of Baraboo citizens arranged a program which included a banquet and a reception.

Personal.—Dr. Charles C. Gratiot, for more than fifty years a practicing physician in Shullsburg, is seriously ill. ——Dr. Percy E. Brown, instructor of roentgenology at Harvard Medical School, Boston, has been appointed head of the radium department at the Jackson Clinic, Madison. Dr. Brown was president of the American Roentgen Ray Society in 1911.——Dr. Chester M. Echols, Milwaukee, sailed, November 18, on the *Paris* from Havre for New York.——Dr. Henry W. Aldridge was recently elected president of the Holy Family Hospital, Manitowoc.

CANADA

Medical Society Elects.—At the annual meeting of the Middlesex Medical Association in London, Ont., the following officers were elected for the ensuing year: president, Dr. R. D. Dewar, Melbourne; vice president, Dr. George W. Racey, Park Hill, and secretary-treasurer, Dr. William H. Woods, Mount Brydges.

Public Health News.—Compared with November, 1921, the past month witnessed an increase in the number of diphtheria cases and a decrease in the number of scarlet fever cases in the city of Toronto, according to the figures recently issued by the department of health, Toronto. Chickenpox led the list with 155 cases. Throughout the province, the total number of diphtheria cases decreased, and the total number of cases of measles and whooping cough mounted higher. There were 328 deaths from communicable disease in the province during November, a decrease of 113 from the number occurring in the corresponding month in 1921.

University News.—The conference of the Association of University and College Unions was held in Toronto, recently. Representatives from the leading American universities were present.——The contract has been let for the war memorial tower to be erected by the University of Toronto at a cost of $185,000. This tower will be erected across the road between University College and Hart House and will be modeled after Magdalen College, Oxford University, England. It is to be completed by February, 1924.——St. Boniface College, Winnipeg, Manit., was completely destroyed by fire, November 27. Nine students and one member of the staff lost their lives. Theories as to the cause of the outbreak are still conflicting, but the authorities believe that the fire was started by an explosion in the basement.——A group of students in the University of Toronto has brought forward a resolution on international scholarships. This will be placed before the students' administrative councils of all the student bodies in the universities in Canada. The consensus of opinion on this resolution will be forwarded through the delegates of the first national conference of Canadian students to be held in Toronto, Dec. 28, 1922, to Jan. 2, 1923. The principal suggestion as to international scholarships is that the government of Canada set aside annually a sum of money sufficient to award scholarships to the countries interested, a total of 101 scholarships, each scholarship to be for a period of two years and to be of the value of $1,500, plus transportation from and to the country in which the student is domiciled.——Work on the new administration building at the University of Toronto will be commenced at once, the plans having been authorized and tenders accepted by the board of governors. The building is to be erected at the rear of Convocation Hall, Toronto.

GENERAL

Scientific Appliances Exhibited.—At the Boston meeting of the American Association for the Advancement of Science, December 26-30, an exhibition of scientific apparatus and products will be an important feature. Those desiring to take part by exhibiting apparatus, materials or other work should communicate at once with Prof. R. P. Bigelow, Massachusetts Institute of Technology, Cambridge, Mass.

Near East Relief.—President Harding designated Sunday, December 3, as Near East Emergency Day. The purpose of this was to direct attention to the need of substantial relief through the American organization established to that end. The need, as revealed in the latest cable reports from Grecian territory and the Near East, far exceeds all previous calculations made for the relief of this crisis, more than 1,000,000 women, children and old men being destitute.

Possible Medical Aid for Germany.—Dr. Alonzo E. Taylor of Stanford University and Dr. Richard Mills Pearce, Jr., of the Rockefeller Foundation have spent several weeks studying hospitals, clinics, medical schools and laboratories in Germany, following which they have gone to Paris. It is understood that if conditions are found as bad as they have been represented, the Rockefeller Foundation will inaugurate extensive work along medical lines in Germany.

Price of Radium Drops.—It is announced by the United States Geological Survey, Washington, D. C., that the price of radium has decreased owing to the discovery of vast quantities of radium bearing ores in Africa, which are easily worked at a much lower cost than the American mines. This caused a drop from $120,000 a gram to $70,000, which is the lowest price at any time since radium has been used. In connection with Cancer Week, the survey announced, the state of New York and the city of Philadelphia have each bought 2 grams for the use of their citizens, and the city of Quebec, Canada, 1 gram.

Death Rates for 1921.—Records compiled by the Bureau of the Census indicate that 1921 was a remarkably healthful year. Record low death rates appear for nearly all areas. The lowest state rate (8.2) was that of Montana, and the highest (14.2) for Vermont. For cities of 100,000 or more, Akron, Ohio, had the lowest rate (7.5), and Memphis, Tenn., the highest (17.4). The "adjusted" rate, adjusted simply for the difference in the sex and age distribution of the population, gave Montana the lowest adjusted rate (8.8), and Maryland the highest (13.4). Of the cities, Akron had the lowest adjusted rate (9.2), and Memphis the highest (19).

Dr. Henry F. Vaughan to Edit American Journal of Public Health.—The executive board of the American Public Health Association has chosen Dr. Henry F. Vaughan, commissioner of health of Detroit, editor of the *American Journal of Public Health.* Dr. Mazyck P. Ravenel, a former president of the association, will assume primary responsibility for the editorial section. At their own request, Drs. Vaughan and Ravenel will serve without remuneration. This announcement follows the resignation of Mr. Kenneth M. Gould, associate editor of the *American Journal of Public Health,* who has accepted a position with the Rockefeller Foundation.

Personal.—Dr. Rupert Blue, former surgeon-general of the U. S. Public Health Service, will attend the Near East Conference at Lausanne, Switzerland, as technical adviser to the American observers on the question of the control of maritime quarantine in the Near East. The U. S. Public Health Service, it is reported, is anxious that American interests be not neglected in the matter of sanitary measures which may be adopted with regard to shipping through the Suez Canal and the Straits.——Dr. Joseph C. Michael, neuropsychiatrist for District 10 of the government office concerned with the welfare and rehabilitation of ex-service men in Minnesota, North and South Dakota and Montana, resigned, November 1.

Children's Bureau Undertakes Recreation Service.—The children's bureau of the U. S. Department of Labor announces the inauguration of special service in the field of recreation, with Martha Speakman in charge. Miss Speakman was in charge of the organization of play in the schools of Porto Rico during the "Children's Year" campaign recently concluded by the children's bureau. She has also served as head of l'Esperance, a home for French war orphans, and has directed and organized recreational centers, playgrounds and summer camps in various parts of the United States since completing her training in the recreation department of the Chicago School of Civics and Philanthropy.

Safety Campaigns. — The Highway Education Board, in cooperation with a number of other organizations, will conduct a safety campaign this autumn, extending to December 16. A public safety executive committee will be formed in every community. Prizes will be awarded by the National Automobile Chamber of Commerce for essay contests.—— The fifth meeting of the Rochester (N. Y.) Safety Council's public safety course was held recently. Eyesight conservation in regard to automobile accidents was the subject of discussion at this meeting. An industrial school will be held, commencing about Jan. 15, 1923, to consist of three or four general safety meetings and six school meetings. Diplomas will be granted to those attending the majority of the present public safety course meetings.

Dengue Fever Reported by State Health Officers.—The U. S. Public Health Service is making an effort to secure complete information concerning the recent epidemic of dengue which occurred in the Southern states. Questionnaires have been sent out to city and county health officers through the state health offices. Should the completeness and character of the replies warrant, the data will be compiled and published. The figures available at present are incomplete since dengue in some states is not required by law to be reported. However, between May 21 and Nov. 25, 1922, the number of cases of dengue reported to the Public Health Service was as follows: Texas, 10,398; Louisiana, 7,451; Georgia, 5,028; Florida, 4,930; Mississippi, 1,044; Arkansas, 484; Alabama, 460; California, 1; Kansas, 1; Maryland, 1.

Medical Society to Test Prohibition Law.—The Medical Association for the Protection of Constitutional Rights, founded by 100 of the leading physicians of New York City, recently, has filed a suit to test the constitutionality of the Volstead Act, in the federal court and to annul the section of the supplementary act which limits the prescribing of alcohol for patients. Dr. Samuel W. Lambert, dean emeritus of the College of Physicians and Surgeons of Columbia University, New York, is president of the association. The suit is based on a contention that the Volstead Act was framed to regulate the sale of liquor for beverage purposes, and it asks a permanent injunction restraining the state prohibition director, the national commissioner of internal revenue and the United States district attorney from interfering with the prescription of wine and liquor. Subpoenas were issued by the clerk of the United States district court, November 18, requiring the prohibition director of New York, the Commissioner of Internal Revenue and the United States attorney to appear before the court and show cause why the provisions of laws enacted under the Eighteenth Amendment, so far as they relate to physicians in the practice of medicine, should not be judicially declared inoperative.

Mortality from Tuberculosis in 1921.—The records of the Bureau of the Census indicate that about 88,000 deaths in the death registration area in 1921 were due to tuberculosis. If the rest of the United States had as many deaths in proportion to the population, the total number of deaths from tuberculosis in 1921 was about 107,000, which is 15,000 fewer deaths than was estimated for 1920. The tuberculosis death rate in the registration area in 1921 was 99.4 per hundred thousand and 114.2 per hundred thousand in 1920. Among the thirty-four states in the registration area, all except Utah show their lowest rates for 1921. To permit better interstate comparisons, adjusted rates based on the standard million population have been calculated. The highest "adjusted" tuberculosis rate for 1921 was for Colorado (173.8), and the lowest for Nebraska (36.7). For states with a large colored population, adjusted rates for the white and colored races were calculated separately. In this group of states, the highest rate for white people was in Kentucky (115.7); the highest rate for colored people (326.1) was also in Kentucky. The lowest adjusted rate in this group for white people was in Mississippi (55.7), and the lowest for the colored people (159.7) in Florida. The trend of the tuberculosis death rate has been downward for a number of years. The recent downward trend seems unusually sharp, but considering the unusual mortality of 1917-1918, it is less below the normal downward trend than is commonly supposed. In fact, there is some evidence to indicate that we are now in the trough of a "wave," and that a higher mortality from this disease may be expected.

LATIN AMERICA

Postponement of South American Otorhinolaryngologic Congress.—This gathering had been planned for October of this year, as one of the medical congresses scheduled for the centennial festivities at Rio de Janeiro. Our South American exchanges announce that it has been postponed to June or July of 1923.

The Monument to Nuñez.—The recent unveiling of the bronze bust of Dr. Emiliano Nuñez, opposite the Mercedes Hospital at Havana, was attended by the president of the republic and several members of the cabinet, and was an impressive ceremony in honor of this hygienist and clinician, who died last spring. He founded this hospital in 1881.

Pure Food Law in Uruguay.—The *Boletin* of the national public health service of Uruguay publishes the text of the law regulating the manufacture, sale and importation of articles of food, which has been under consideration since 1915. It was officially endorsed by the Consejo Nacional de Administracion last October. The various sections and specifications of the law fill forty-eight pages in the *Boletin*. The law was drawn up originally by the public health service.

Mexican Venereologic Congress.—In accordance with a resolution adopted at the Seventh Mexican Medical Congress, held recently at Saltillo, the First Mexican Congress on Venereology has been convened to meet in Mexico City, November, 1923. The president is Dr. F. Castillo Nájera, and the secretary-general, Dr. E. Pons Cházaro. The congress will have six sections; namely, syphilis, gonorrhea, education of the public, legislation and enforcement, prostitution and social problems.

The "Anatomic-Surgical Review."—The first issue of the *Revista Anátomo-Quirúrgica* of Buenos Aires has been received. It is a handsome journal, profusely illustrated, founded by Dr. A. Gutiérrez, as he says, for the purpose of stimulating study and research in anatomy in Argentina, mainly from the surgical standpoint but also from the standpoints of physiology and clinical medicine. It aims to aid the student in his research, and the first leading article is an exhaustive study of the operative field of the supraclavicular region, with four fine plates. Other articles are "Anatomy of the Heart," seven plates, and "Location of the Branches of the Superior Mesenteric Artery"—so important for the study and treatment of arteriomesenteric chronic occlusion of the bowel.

Meeting of the Mexican Medical Association.—A general meeting of the Mexican Medical Association will be held in Mexico City, Dec. 27-30, 1922. The purposes of the meeting are threefold: (1) indorsing the principles of medical ethics approved by the association; (2) presentation of scientific papers; (3) mutual acquaintance of members. The enrolment fee is ten pesos ($5). Applications should be addressed to the secretariat, Puente de Alvarado. The first day of the meeting, December 27, the anniversary of Pasteur's hundredth birthday, will be devoted to a celebration in his honor. One of the features will be a public parade. In the evening, appropriate ceremonies will be held at a special session. This part of the program is in charge of the National Department of Public Health and will be presided over by President Obregón.

FOREIGN

Street Named for Physician.—The name of the boulevard du Pharo at Marseilles has been recently changed to "boulevard Charles Livon" in memory of Professor Livon, deceased not long ago. Dr. Flassières, senator, and mayor of Marseilles, proposed the change of name to perpetuate the memory of the director of the medical school, for so many years and founder of the local antirabies institute, and the suggestion met with unanimous approval.

Aid for Vienna Hospitals.—The *Ugeskrift for Læger* of Copenhagen in its issue for November 9 states that a freight car with supplies for the hospitals and children's asylums at Vienna is to leave for Vienna in a few days. The donations include 100 tons of coal which have been bought for 37 Danish crowns per ton, delivered at the Austrian frontier. The coal is from England and was bought at Hamburg, this being the best bargain at present.

International Morals Conference.—An international conference on the Reaffirmation of the World's Moral Ideal was held in London, October 17-19, under the presidency of Dr. Mary Scharlieb. Parenthood and marriage were discussed the first day of the session, and on the second day modification of the divorce laws, in order to make relief possible for all classes where conditions had rendered a marriage intolerable, was the topic of discussion. Two chief causes of sex immorality were stated to be bad housing and lack of sex education of adolescents.

Lead Poisoning in Beer.—Ninety-three cases of lead poisoning were reported from Isleworth, a suburb of London, recently, and were traced to new beer containers, which have been introduced by a local brewery into saloons under its control. These tanks were of cast iron, with a vitrified enamel lining. Unfortunately, the enamel used contained lead, with the result that the beer absorbed the poison. The president of the Institute of Chemists visited the brewery, and by rubbing a solution of a sulphid on the enamel of the tanks obtained a "lead reaction." No deaths occurred, but some of the affected persons lost as much as 30 pounds in weight. In practically all the severe cases, the men were heavy drinkers.

The International Congress of Physiotherapy and Physical Training.—The date for this congress has been appointed for the first ten days of April, 1923. It is to convene at Madrid, and is the sixth congress of the kind. The fifth met at Brussels in 1920. The president of the Spanish committee of organization is Dr. Calatayud, professor of physiotherapy at Madrid, and extensive preparations are being made for the success of the meeting. The *Revista Ibera* publishes a long list of the notables on the various committees, and the *Medicina Ibera* gives the details of the sections, etc. There is to be an exposition in connection with the meeting, covering various fields of physical diagnosis and treatment, diet, sanatoriums, literature on physical training, etc.

The Next International Otology Congress.—The eleventh international congress of otology is to convene at Copenhagen in 1927, with Professor Schmiegelow presiding. The congress just held at Paris had about 500 members inscribed, and Moure, who presided at the international congress in 1904, asked to have the congress transformed into a congress of otorhinolaryngology, which was unanimously voted. Dr. Dench of New York and Dr. Pritchard of London spoke as the representatives of the preceding congress at the opening meeting. At the ninth congress, held at Boston in 1912, Halle had been designated as the place for the next congress, with Professor Denker to preside. But the war interfered, and Paris was selected instead. In his opening address, the president, Professor Sebileau, paid tribute to Politzer of Vienna, who died in 1920, as the greatest figure of contemporaneous otology. He had attended all these congresses since their foundation.

Foreign Society News.—The eighteenth annual meeting of the South African Medical Association was held in Johannesburg, September 18-23, with Dr. Watkins-Pitchford in the chair. Officers of the association are: president, Dr. Charles Porter; vice presidents, Drs. W. T. F. Davies, R. P. Mackenzie, G. A. E. Murray, G. Ritchie Thomson, John van Niekerk, and W. Watkins-Pitchford; treasurer, Dr. W. Welchman, and secretary, Dr. J. J. Levin.——The annual meeting of the British Orthopedic Association was held in London, October 20-21, under the presidency of Sir Robert Jones.——The annual meeting of the Caledonian Medical Society was recently held in London. Qualification for membership consists of Highland birth or descent and a university degree. Addresses of members range from Harley Street to Krugersdorp, Sierra Leone, Nigeria, Nova Scotia and Australia.——The University of London Union Society now has its own building on the university campus. The new premises were officially opened by Lord Haldane, November 7.

Medical Education for Women in India.—It is proposed to rent suitable premises opposite the Gosha Hospital, Madras, for the establishment of a women's medical school in that city. The necessity for the establishment of a separate institution for the training of women medical practitioners is very apparent. The minister of education, September 15, asked the government to grant an additional sum of 58,500 rupees for this purpose, stating that, according to the medical register for 1920, the total number of qualified women medical practitioners was only 135 for a female population of more than twenty-one millions. It is planned to have the school ready for occupancy by July 1, 1923.——The first medical students have graduated recently from the Medical School for Women, Vellore, India, which was opened about four years ago by the American Mission there. The school is at present being accommodated in a number of bungalows adapted temporarily for teaching purposes, and clinical material is obtained in the American Mission Hospital, which has been carried on for generations by the Scudder family. Dr. Ida Scudder is at present in the United States, lecturing, in an endeavor to raise $2,000,000 to secure the offer of $1,000,000 from the Rockefeller Foundation for the Seven Union Christian Colleges for Women in the Orient.

Personal.—Dr. Jan Spánek has been appointed minister of health of Czechoslovakia, to succeed Dr. Bohumil Vrbensky.——Dr. Holburt J. Waring has been elected dean of the faculty of medicine of the University of London.——The Schorstein memorial lecture at the London Hospital Medical College was delivered by Dr. Percy Kidd, November 8. His subject was "Forty Years in the History of Tuberculosis."——The Hanbury Medal of the Pharmaceutical Society of London has been awarded to M. Emile Perrot, professor of materia medica at the University of Paris. This medal is awarded every two years for the promotion of research in the chemistry and natural history of drugs.——Dr. Alfred Piaut, Germany, has been appointed director of the pathologic laboratory of the Barnert Memorial Hospital, and will reside at Paterson, N. J.——Dr. Louis Cantor, chief sanitary officer to the British administration in Palestine, is visiting the United States, studying sanitation methods in the larger cities for use in Palestine. He states that modern sanitary systems are rapidly eliminating malaria and trachoma in that country.——Dr. Creighton McDowell, a physician of Liverpool, England, has bought the practice of the late Dr. Anthony Schmit of Beloit, Wis.——Dr. John Spence, Edinburgh, who, as the result of roentgen-ray burns, sustained injuries necessitating amputation of his right forearm, has been awarded a medallion and an annuity of £130 (approximately $500) by the Carnegie Hero Fund.——Dr. K. F. Wenckebach, former professor of surgery at the medical clinic of the University of Strasbourg, will deliver the twelfth Herter lecture in pathology at the Johns Hopkins University Medical School, Baltimore, it is announced. Dr. Wenckebach will arrive in this country in April.——A series of eight lectures on "Secretion and Internal Secretion" was given by Dr. Swale Vincent, professor of physiology, University of London, at the Middlesex Hospital Medical School, London, during November.——Prof. Arthur Weil, Berlin, delivered an address on "Sexuality and the Endocrines," at a special meeting of the New York Endocrinological Society at the Brooklyn Diagnostic Institute, November 24.——Professor Pappenheimer of Columbia University recently delivered two lectures at the Bordeaux medical faculty, "Experimental Medicine Applied to the Study of Rickets."——The twenty-fifth anniversary of Haberda's professorship at the University of Vienna was recently celebrated by his friends and pupils, and a *festschrift* was presented to him. It forms a double number of the German *Zeitschrift für die gesamte gerichtliche Medizin*. Representatives of the legal as well as the medical profession brought congratulations, as also the workers in the Institute for Legal Medicine of which he is director.——The Italian Society for Medical and Natural History has elected Prof. M. Neuburger of Vienna to honorary membership.——Professor Ehlers of Copenhagen was tendered a banquet at Paris, after he had been awarded an honorary degree by the University of Paris.——Professor Weiss retires this year from the chair of surgery at the University of Nancy, and a subscription list has been opened to present him with a medallion. A bronze replica will be given to all subscribing 50 francs. Prof. G. Michel is in charge of the celebration, rue de Rigny, Nancy.

Deaths in Other Countries

Dr. **Alexander Lewers,** examiner in clinical medicine at the University of Melbourne, Australia; for eleven years editor of the *Australian Medical Journal;* September 16, at Victoria.——Lieut.-Col. **George N. Biggs,** London; consulting aurist to the Royal Air Force; November 10, following an appendectomy.——Capt. **Norman E. Packer** of Sydney, Australia; R. A. M. C.; at Cologne, Germany, October 26, as the result of an accident.——Dr. **Robert Milne,** for forty years medical director of Dr. Barnardo's Homes, England; November 8, aged 72.

Government Services

Vacancies in Narcotic Bureau

Vacancies existing in the narcotic enforcement bureau will be filled by examinations held by the Civil Service Commission, it was announced by the commission. An inspector and an agent at salaries ranging from $1,800 to $2,250, with subsistence allowances and traveling expenses, are the employees needed.

Promotion for Naval Officers

Nominations of 749 officers of the Navy for promotion have been presented by President Harding to the Senate. The list represented an accumulation of those due for advancement and found qualified since adjournment of the Senate in September. Of the total number, seventeen were members of the Medical Corps of the Navy, all of whom were promoted from their present to the next succeeding grade. A large number of nominations for promotions in the regular Army were also submitted to the Senate by the President, but the list did not include any officers of the Medical Department.

Resolution Concerning Calcium Arsenate

A resolution directing the Federal Trade Commission to conduct an investigation and report to Congress the cost of manufacturing and producing calcium arsenate was introduced in the House of Representatives this week by Representative Wise. The resolution also directs the Federal Trade Commission to ascertain whether the production and prices of calcium arsenate are controlled by any unlawful combination.

Bill for Ex-Service Men's Pensions

World War veterans who suffer permanent physical disability not a result of military service would receive a pension of from $12 to $30 a month under the terms of a bill introduced in the House of Representative by Representative McPherson.

Hospital Controversy

Charges by Representative Dallinger of Massachusetts that shell shocked war veterans confined in St. Elizabeth's Hospital, Washington, D. C., are given unsatisfactory treatment were investigated in congressional circles this week. The U. S. Veterans' Bureau, after a hasty investigation, declared that conditions in this hospital, while not entirely satisfactory, are better than in many other institutions where shell shock patients are kept. According to the figures given out by the bureau, there are 853 former service men under government care now confined at St. Elizabeth's Hospital for the Insane. Plans are under way by the U. S. Veterans' Bureau to furnish a bed capacity of 22,000 for psychiatric cases, all of which will be under the direct control of the federal government and will be treated exclusively by government physicians through the new program of hospitalization. All of the new hospitals, it was said by the director of the U. S. Veterans' Bureau, would be completed by the end of 1923.

Vocational Trainees

According to an announcement made by Col. Charles R. Forbes, director of the U. S. Veterans' Bureau, 22,505 veterans of the World War have completed vocational training courses. Overcoming handicaps imposed by the worst sort of disabilities, these men have been rehabilitated and are satisfactorily employed in gainful occupations. Conditions at the present time are said to have been improved materially in the last year. In October, 96,941 veterans were receiving training, a considerable decline from the 109,805 in government vocational schools in March. A high percentage of those entering schools have completed the course with good records.

Dismissal of Government Employees

Thirty-two hundred employees of the U. S. Veterans' Bureau, comprising approximately one tenth of the entire working personnel, will be eliminated from government service within the next three months, it was announced from the office of Director Forbes last week in Washington. Of this number, it is estimated that 125 members of the medical corps of the bureau will be let out of the service. In the entire service throughout the country, there are about 1,500 medical officers engaged in the care and treatment of ex-service men. The reduction will begin immediately and will continue during the new year. Of the total medical and civilian personnel, 1,600 will be dropped from the rolls between now and January 1, 1923. A similar reduction will take place after the first of the year, when a thorough survey of the activities of the bureau will have been made by efficiency experts. Official estimates fix the amount to be saved the taxpayers of the country by this radical reduction in the personnel at $5,184,000 annually, without reducing the number of branch offices maintained throughout the country.

It is claimed also that there will be no impairment in efficiency of the bureau. Dr. T. H. Scott, executive officer, has announced that the orders for the elimination of surplus employees have already been prepared and ready for execution in the near future. He stated that the Veterans' Bureau had been operated under high pressure during the past two years and that as a result of this concentrated work disabled war veterans have received every care and treatment in both hospitalization and medical treatment. The result has been a decrease in the number of claimants with a corresponding reduction in the amount of work necessary for the bureau to perform.

Foreign Letters

PARIS

(From Our Regular Correspondent)

Nov. 10, 1922.

The Possible Suppression of the Ministry of Public Health

Although the ministry of public health was established only a little more than a year ago, its abolishment is already being considered for reasons of economy. Speaking before the Academy of Medicine, Prof. G. Hayem entered a protest against the proposed measure. A commission composed of the section on hygiene of the academy, cooperating with Professor Hayem, has been appointed to look into the question. The syndicate of physicians of the department of the Seine petitioned the finance committees of the chamber of deputies and of the senate, respectively, not only to maintain the ministry of public health but to combine with it all the services pertaining to public welfare and public health.

The Campaign Against Tuberculosis

The public bureau of social hygiene of the department of the Seine for the suppression of transmissible diseases, more particularly tuberculosis, controls at present thirty-three dispensaries, twenty-one of which are in Paris proper and twelve in the suburbs. Ten temporary stations serve suburban communities that do not have access to dispensaries. A connection has also been established with ten private dispensaries which function in certain localities that are not yet served by the chief bureau. Up to September, 1922, there were 24,179 persons registered and followed up (which includes persons exposed to infection through cohabitation); 13,378 diagnosed as tuberculous, and 2,716 tuberculous persons in a contagious state, to which should be added patients with infectious diseases under treatment in the therapeutic stations; from 9,000 to 10,000 consultations a month were given, and from 12,000 to 13,000 domiciliary visits by visiting nurses were made each month.

For the Protection of Public Health

The minister of public health, in a letter addressed to the prefects of departments, emphasizes the close connection that should exist between the personnel of the service of the marine sanitary police and that of the municipal public health services, in order that the officers of the two services may be in a position to render each other mutual aid in carrying out measures of defense. The letter emphasizes the necessity of discovering whether the hospitals of various naval centers possess the necessary facilities to provide for the isolation of patients with contagious disease; if not, action should be taken to furnish the facilities that are lacking and to assure sufficient automobile transports. The letter stipulates also that a similar investigation should be made of the hospitals located in the region of the eastern frontier. The need of departmental inspection of public health work is also pointed out. A laboratory, a vaccination service, and facilities for disinfection and isolation should be established in the regions that are particularly exposed.

The Centenary of Pasteur and the Academy of Medicine

At the ceremonies to be held, December 26, under the auspices of the Academy of Medicine to commemorate the centenary of Pasteur, papers dealing with the development of Pasteur's work in the various branches of medical science will be read by Delezenne, for general biology; Widal, for medicine; Delbet, for surgery; Wallich, for obstetrics; Barrier, for veterinary medicine, and Calmette, for hygiene.

Personal

At the last meeting of the Academy of Medicine, Dr. Paul Carnot, professor of therapeutics of the Faculté de médecine of Paris, was chosen a member of the section on therapeutics and medical natural history.

Compulsory Medical Examination for Chauffeurs

Dr. C. Fiessinger, chief editor of the *Journal des praticiens,* has urged the Academy of Medicine to recommend a compulsory medical examination for chauffeurs. He calls attention to the fact that automobiles are sometimes driven by persons with only one eye, by the myopic, the deaf, one-armed persons, epileptics, persons with mutilated legs, psychopaths, and men suffering from severe heart affections. It is no wonder that accidents are increasing. The academy has accordingly given its approval to these three propositions formulated by Fiessinger:

1. An applicant for a license to drive an automobile must be 21 years old; for sound judgment and power of reflection are just as much needed in driving an automobile as in depositing one's vote for a given candidate.
2. Persons with defective vision or hearing should be examined annually by the proper specialists. Persons with but one arm or otherwise seriously mutilated—epileptics, alcoholics and persons habitually intoxicated—should be refused a license, or if they have already secured one, it should be revoked.
3. All persons who are granted licenses should be reexamined by a medical commission at regular intervals (every three years as a rule). At each examination, the heart should be auscultated, the arterial tension taken and the nervous system examined, and the commission should extend the license only for such a period as it deems safe under the existing circumstances.

The Red Cross Emblem

Although, according to law, the right to use the Red Cross emblem is reserved exclusively to organizations that render aid to the wounded and injured, a number of pharmacists, druggists and ambulance companies had gradually developed the practice of using the red cross emblem on their products, their delivery vehicles or ambulances. A few months ago, the Société française de secours aux blessés militaires brought these infractions of the law to the attention of the attorney general, who promptly ordered that the emblem of the Red Cross be removed from all commercial enterprises. Nearly all the offenders against the law bowed to this decision and had the emblem removed from their products and vehicles. One, however, was recalcitrant; namely, the director of an ambulance company, who declared that he was not aware that the law forbade the practice and that he would not comply with the demand that the emblem be removed unless it could be shown that the law would tolerate no exceptions. On complaint of the Société française de secours aux blessés militaires, the director of the ambulance company was sentenced to six days in prison and to pay a fine of 100 francs. He was also compelled to remove the emblem.

Death of Dr. Alfred Martinet

Dr. Alfred Martinet, formerly a collaborator of the *Presse médicale,* has died suddenly at the age of 54. He was the author of several works on practical medicine, which have been well received; more particularly, "Clinical Diagnosis," an English translation of which appeared recently in the United States, and "Clinical Therapeutics."

Death of Professor Jolyet

Dr. Jolyet, formerly professor of physiology of the Faculté de médecine of Bordeaux, has died at the age of 82. He was at one time preparator for Paul Bert and bore an excellent reputation among physiologists for his skill in mounting specimens. He is the author of numerous works, more particularly on the physiology of respiration and of the nervous system. In collaboration with Viault he published "A Treatise on Human Physiology," which passed through four editions. Jolyet was an associate member of the Academy of Medicine and of the Société de biologie. Since 1882 he had been the director of the laboratories of the biologic center which the Société scientifique d'Arcachon places at the disposal of scientific investigators.

BELGIUM

(From Our Regular Correspondent)

Nov. 16, 1922.

Spinal Anesthesia in Relation to Childbirth

Dr. Cheval effects spinal anesthesia by means of 0.1 gm. of procain. Labor pains cease immediately; uterine contractions no longer occur, but postpartum hemorrhage was not noted. Involution proceeded normally after the operative evacuation of the uterus. The indications for spinal anesthesia in obstetrics are: (1) when general anesthesia is contraindicated; (2) when the pregnant uterus is spasmodically contracted, or when uterine rupture is feared, and (3) in cesarean operations. Cheval regards spinal anesthesia as a method to be used only under exceptional conditions, especially in view of the fact that chloroform narcosis is particularly well borne by the pregnant woman.

Clash of Languages

Parliament is considering a bill which provides for the transformation of the University of Ghent into a Flemish university. The Royal Academy of Medicine of Belgium has again expressed the desire that the French language continue to be used at the university.

Incontinence of Urine

The Société belge d'urologie discussed the report by Dr. Lemoine on the recent discoveries in regard to the normal mechanism and the pathology of micturition. Lemoine brought out the significance of certain pathologic difficulties of micturition such as occur in tabetic patients and sufferers from prostatic disease. To avoid a complex classification, he distinguishes only two kinds of incontinence. Under the term "incontinence of mechanical origin" he groups troubles of urinary continence resulting from an anatomic lesion of the neck of the bladder or of the urethral sphincter, whereas under the term "nervous incontinence," he groups the cases of reflex origin. Whether they result from phimosis or renal tuberculosis, or whether they occur after an epileptic crisis or a fracture of the pelvis, or as the result of a brain tumor or a traumatism of the cauda equina, it will always be due to some trouble in the conduction of sensory or motor impulses or to some alteration of the cerebral, medullary or ganglionic centers. The observations of Pawlow on "conditional reflexes" have apprised us of the effect of the will and of ideation on the appearance or inhibition of certain reflexes. Hence, psychopathic troubles will likewise react on the control of urination. Vesico-urethral hypertonia or hypotonia, which constitute the two types of psychic reactions on the lower centers of micturition, find their expression in the incontinence of the urine termed "essential," to which a special chapter is devoted. Endoscopic explorations, manometric examination of the bladder and exploration of the nervous system will usually make it possible to refer to the true cause of deficiencies of micturition. After having discussed the prognosis of incontinence, Lemoine reviewed the different forms of treatment required, emphasizing the main points in the development and the reeducation of the function which, along with the treatment directed to removal of the cause, lies at the basis of therapeutics in general and particularly of incontinence.

Disappearing Prostates

Dr. Beyer of Ghent called attention to a special type of prostatic disease, so-called "disappearing prostate," and reported three cases. In these cases the prerectal tumefaction not only completely disappears, but the palpating finger within the bladder does not encounter the slightest pericervical adenoma. Beyer believes that these are cases of "vascular prostatism." The diagnosis rests on finding (1) a prerectal swelling before any intervention takes place; (2) disappearance of this swelling under the influence of drainage, and (3) the absence, after drainage is sufficiently prolonged, of any deformation of the bladder neck. Beyer recommends as the method of treatment of this particular type of prostatic disease retrocervical digital discission, which proved completely successful in the cases observed.

BERLIN

(From Our Regular Correspondent)

Nov. 11, 1922.

Effect of Undernutrition on Health Conditions

In studying the problem of undernutrition, Dr. von Tysska of Hamburg investigated, during the past year, the state of nutrition of the German working man today as compared with the prewar period. He examined three members of a working man's family in Altona and 147 families of railway employees in Hamburg. The families of the 147 railway employees are separated, on the basis of income, into eight different groups. In the sixty-seven families belonging to the middle range of income, the normal daily food requirement per person is 2,200 calories, or 68.6 gm. of albumin, 44 gm. of fat and 342.9 gm. of carbohydrates. The number of calories actually received daily by each person, on an average, was 1,940, or 52.6 gm. of albumin, 37 gm. of fat and 328.1 gm. of carbohydrates. Thus, only 88.2 per cent. of the normal caloric needs was satisfied, while there was a considerable preponderance of plant food. Similar conditions were found in the Altona workman's family. Under these circumstances, which have become much worse since this investigation was made, it will readily be understood that health conditions have gradually suffered. According to a statement issued by F. A. Schmidt, a medical examiner of schools, the general physical condition of the schoolchildren in Bonn was good in only 27.7 per cent., while in 58.15 per cent. the condition was fair and in 14.1 per cent. it was bad. Twenty per cent. of the children were anemic, 11.55 per cent. scrofulous, and 25.36 per cent. gave evidence of rickets and ts sequels—in all these categories just double the percentages of the previous year. Out of approximately 8,000 pupils of the elementary and grammar grades, 123 proved to be uberculous. There were 1,077 children who were 10 cm. below the normal height and 5 kg. below the normal weight. The medical survey of schoolchildren, which was carried out in 1920-1921 under the supervision of the child welfare association of the Quakers in America, reached similar results. The measurements that were taken in 1921 of 69,000 schoolchildren of Leipzig are especially valuable for the reason that they were all taken at the same time of year and after the same method; furthermore, the results have been tabulated and classified in a more thorough manner. Another advantage lies in the fact that, since the report covers the period from 1918 to 1920, there is an opportunity for comparison. For both sexes and for all ages between 6 and 14 the records for height improved during the 1918-1921 period. From 1918 to 1919, while the food blockade continued, the increase in height was not only often slight, but at times there was a considerable decrease in the average measurements. The increase in weight in all age groups during the period 1918-1921 was less marked than the increase in height. Gottstein has an explanation to offer for the diversity in the findings in the various age-groups. The 6 year olds of 1921, together with the children slightly older, were very young during the war and the food blockade and, as such, received milk and were otherwise favored in matters of diet, as compared with the older children. Schoolchildren, however, who, in 1921, had reached or passed the age of 10 had become of school age during the war and the blockade, and, in spite of the opposition of physicians, these were not allowed to receive, in the large cities, milk and other articles of food that came under the head of "extra diet." The older children, therefore, find greater difficulty than the younger children in recovering losses in weight and height due to the war and the food blockade.

An Epidemic of Acute Anterior Poliomyelitis

In various parts of Germany, more particularly in the vicinity of Tübingen and Marburg, during the summer and early autumn, there has been a rather severe epidemic of infantile spinal paralysis. The director of the policlinic in Marburg, Prof. E. Müller, has given in the *Deutsche medizinische Wochenschrift* a complete report of the cases observed by him. It is of especial value that Müller is in a position to make comparisons between the present epidemic and the one he witnessed in 1909 in the same region. As to the cause of the present epidemic, he is not prepared to make any definite statements—nor could he in regard to the epidemic of 1909. The virus may have been autochthonous in that section or it may have been brought in from another region. He is convinced, however, that transmission of the infection from one person to another constitutes the most important mode of origin of cases of epidemic infantile paralysis. He found no evidence for transmission through contact with inanimate objects or animals, or through the food intake. Houses which in 1909 were infected with infantile paralysis were not infected during the present epidemic, and the quarters of the city that were almost free from the disease during the earlier epidemic were the ones that presented the most cases this year. The first focus of infection was located in a group of houses in the southeast corner of a village near Marburg. From here it could be shown that the infection was carried by personal contact to a group of houses in the city of Marburg. To be sure, only a very small percentage of the many persons who came in contact with those infected contracted the disease. We must distinguish between disease transmission and virus transmission. The most essential protective measure for the body lies in the peculiar ability of the mucous membrane of the nose to neutralize the virus. It is probable that the varying resistance of the meninges of the brain is also an important factor

Two of the most important predisposing factors in the epidemiology of the disease are the season and the age of the person exposed to the infection. The summer and early fall are the favored season, and children between 1 and 3 years of age are the persons most frequently affected. It is true, however, that, during the epidemic this year, children of school age, and even adults, were attacked much more often than formerly. The average mortality was about the same as for the former epidemic (17 per cent.). It was greater for children of school age than for the younger children (about 24 per cent., as against 11 per cent.), and was greatest for adults. The incubation period averaged about one week. The most frequent premonitory symptom of the disease was an involvement of the respiratory apparatus. Rheumatoid and neuralgiform manifestations were the next most frequent precursors. Psychic changes (sleepiness during the day and restlessness at night) and hyperesthesia were valuable diagnostic signs in the preparalytic stage. Hyperesthesia in the region of the cecum frequently led to the false assumption of appendicitis. In the early stage of the disease there was often a tendency to hidrosis; involuntary jerkings and muscular hypotonia were also noted. A number of cases of infantile bulbar paralysis occurred. Abortive cases were frequently observed. The fatal cases resemble in their progression the course of Landry's paralysis, death ensuing during the first week—commonly on the third or fourth day of the illness. Müller saw little evidence of the good effects of treatment, but he recommends hexamethylenamin in the beginning of the infection.

The Value of Physical Chemistry in the Field of Surgery

At the recent meeting of German scientists in Leipzig, Schade, professor of physiology in the University of Kiel, who is an authority in the field of physical chemistry, gave an interesting discussion on the value of physical chemistry for surgery. The first contact between physical chemistry and surgery was established about twenty years ago through the introduction of cryoscopy of the urine and the blood as a means of stabilizing the indications for nephrectomy. After much sharp controversy, it has now been definitely shown that considerable renal insufficiency may be associated with a normal freezing point of the blood, owing to the fact that the surplus of osmotic material is taken care of by the connective tissue or by an increase in the amount of the circulating fluid. On the other hand, the fact that the freezing point is depressed below —0.59 C. does not constitute an absolute contraindication to nephrectomy, since in disturbances of the circulation in the region of the kidneys the freezing point may be depressed under —0.60 C. Cryoscopy must be supplemented by another method — the simultaneous determination of the albumin content by means of refractometry.

Schade discussed also the significance of colloidal chemistry in inflammatory and wound-healing processes. The fundamental physicochemical basis of inflammation lies in the local accentuation of tissue metabolism. The oxidation process is considerably increased; the number of dissolved particles in the inflammatory focus increases, which raises the osmotic pressure. In the pus of an acute inflammation a depression of the freezing point down to —1.4 C. was noted. There is a marked difference between the osmotic pressure of the center and that of the periphery. Treatment should be directed toward the elimination of these disturbances. If through an incision the central focus of increased metabolism is gotten rid of, the source of the central damage is removed and the blood will restore the osmotic equilibrium, thereby causing the acidosis to disappear. Bier's hyperemia method, which brings the needed relief by beginning with the periphery, acts in just the opposite manner. The genesis of stones in the kidney and gallbladder has been explained by physical chemistry, at least so far as the composition of the stones throws light on the conditions prevailing at the time they originated and developed. The elasticity of bones is due chiefly to their colloidal framework, whereas the inorganic substances determine only the hardness, not the elasticity. This quality of the bones is much impaired by slight inflammations, owing to colloidal disturbances. Schade's discussion of the relations between physical chemistry and disinfection, narcosis, etc., I will pas over.

Physiology of Rigor Mortis

Winterstein, professor of physiology in Rostock, spoke at the Leipzig meeting on the physiology of rigor mortis. The theories that have been proposed to explain the generalized rigidity of the muscles which sets in after the blood circulation stops but disappears again later have proved to be untenable. According to recent researches, the process seems to be identical with muscular contraction. In both cases lactic acid is formed, which causes the muscle fibers to swell through the absorption of water, whereby the tension is increased. When the structure of the muscle fibers is broken down, the rigidity also disappears.

BUENOS AIRES

(From Our Regular Correspondent)

Oct. 15, 1922.

Echinococcus Disease

At the Second National Medical Congress, the subject for discussion was hydatid cysts. Professor Wernicke stated that the transmission of eggs is direct from dog to man. In Dr. S. Parodi's opinion, the duality of alveolar and unilocular echinococci is still unproved, as their evolutionary differences in man and animal are not reliable distinctive features. Professor Llambias submitted a complete report on the pathologic aspects of the condition. Dr. Carlos Lagos García reviewed his positive experiments through inoculation with hydatid gravel and fluid. Dr. O. Copello discussed operative methods, dwelling on the great advantage of aspiration in operating. He recommended Finochietto's aspirator. Carbonell and Zwanck turned to prophylaxis, advising prevention of the infestation in dogs and treatment of those infected. The conclusion was reached that, since the disease is limited for the most part to the province of Buenos Aires, it is feasible to carry out a campaign for its complete eradication.

BIOLOGIC DIAGNOSIS

Two reports were submitted by Fernández Ithurrat on the biologic diagnosis of echinococcus disease. He thinks that four tests should be made: complement fixation (the test discovered by Imaz-Lorentz before Weinberg); complement fixation with unheated serum; determination of eosinophilia, and intradermic reaction. These tests were tried in 137 cases in which operation had been performed. The complement fixation test was positive with samples of serum from 88 per cent. of cyst carriers, and negative with serum from patients with other diseases. The unheated serum test is supplemental to the complement fixation test. The intradermic test proved to be the most sensitive and rapid diagnostic method, as it can be performed in fifteen minutes. From 0.2 to 0.6 c.c. of sterile centrifugated hydatid fluid is injected. This acts as an antigen in the presence of serum from hydatid patients. Fluid from human, ox or sheep cysts may be used. Of sixty-five cases, the test was positive in sixty-four. A few minutes after the injection, an erythema appears, which spreads for half an hour or longer; in ten or fifteen minutes, an urticaria patch about 3 cm. in diameter appears at the inoculation site. The reaction is harmless and painless. In patients having no cysts, there is no reaction, and the only sign is a slight erythema, which cannot be mistaken for the original test.

COURSE

Prof. D. J. Greenway presented a study on the prevalence and course of the disease in this country. He was able to gather only limited data. However, in eleven years, there have been 2,740 patients treated surgically in hospitals, with a death rate of 201 (8.13 per cent.). The percentage distribution by organs was: liver, 64.45; lung, 14.69; abdomen, 4.33; spleen, 2.14; kidney, 2.02; muscle, 1.29; pelvis, 0.76; pancreas, 0.40; orbit, 0.40. The percentage death rate according to organs was: abdomen, 11.2; lung, 10.37; liver, 7.26; spleen, 5.88; pelvis, 10.53; brain, 25; bones, 14.28. Fifty-two per cent. of the patients were men, 36 per cent. were women; 11 per cent. were children under 14 years of age, and 0.54 per cent. were under 4 years. The Ghedini-Imaz-Lorentz test gave an average of 65 per cent. positive results among these cases. Fifty-six per cent. of the patients were Argentine-born, 26 per cent. Spaniards, and 11 per cent. Italians. The geographic distribution of the patients was: province of Buenos Aires (without the city), 59 per cent.; city of Buenos Aires, 30 per cent.; the other provinces, a few scattered cases. This shows the concentration of the disease in a restricted area. The disease has increased markedly in both man and animals. In the large Buenos Aires slaughter houses, 5 per cent. of the cattle were found infected in 1910; now the proportion has risen to 15 per cent. Among sheep, the proportion has risen from 5 per cent., in 1910, to 30 per cent., in 1922. Greenway believes that, in order to check the disease, it will be necessary to forbid feeding sheep meat and entrails to dogs. He protested against T. Bird Magath's assertion that 26 per cent. of the cases occur among children in Argentina, as this would suggest a close and insanitary association of children and dogs. The fact itself and the conclusion drawn by Magath are incorrect.

Death of Professor Wernicke

Only a few days after rendering his assistance to the Medical Congress, Prof. Roberto Wernicke died suddenly, October 14. After graduating in Buenos Aires and then in Jena, he introduced microscopic technic in Argentina and instituted the study of parasitology, microbiology and general pathology in this country. In 1907, after many years devoted to teaching and practice, he resigned the chair of general pathology. Wernicke was a member of the Academy of Medicine, and honorary professor in the Buenos Aires Medical School.

Marriages

Jacob Faltermayer to Miss Ethel Kimnach, both of Chicago, November 24, at Crown Point, Ind.

Joseph Maurice Kerwick, Lawler, Iowa, to Miss Helen Appelman, of Clermont, November 15.

Harry E. Bank, Minneapolis, to Miss Marion Margaret Emery, of Anoka, Minn., October 14.

William Gardiner Symon to Miss Neva Klingler, both of Garrett, Ind., November 3, at Peru.

Joseph Cleveland Fulmer, Philadelphia, to Miss Alma R. Linck, of Morris, Pa., October 17.

Walter J. Jones, La Crosse, Wis., to Miss Leona A. Wiese, of Manning, Iowa, November 8.

Jean David Spaid, Columbus, Ohio, to Miss Esther Friesinger, of Dayton, November 16.

Cassius Lopez de Victoria to Miss Edna Scheu, both of New York, November 22.

Frances Kardons to Dr. Maurice Arthur Sher, both of Brooklyn, November 5.

Deaths

John Sayre Marshall ⊕ Berkeley, Calif.; Captain, M. C., U. S. Army, retired; Syracuse University College of Medicine, 1876; died, November 28, aged 75. Captain Marshall was formerly instructor of dental and oral surgery at his alma mater and later dean and professor of dental pathology at Northwestern University Medical School, Chicago. He served throughout the Civil War and was mustered out of service in 1865, but reentered the army in 1901 and organized a dental corps in which he served until his retirement in 1911. The degree of doctor of science was conferred on him in 1910 by Syracuse University. Dr. Marshall was the author of several books, among them being "Injuries and Surgical Diseases of the Face, Mouth and Jaws," "A Textbook of Operative Dentistry" and "Mouth Hygiene."

Egbert Guernsey Rankin, New York; New York University Medical College, 1879; professor of the practice of medicine, New York Homeopathic Medical College and Flower Hospital, since 1902; physician to the Metropolitan and Flower hospitals, New York State Hospital for Crippled Children and the Tuberculosis Infirmary; member of the Academy of Pathological Science; author of "Digest of External Therapeutics" and "Diseases of the Chest"; died suddenly, November 25, aged 66, from cerebral hemorrhage.

James I. Henline, Bloomington, Ill.; College of Medicine and Surgery (Physio-Medical), Chicago, 1897; Hospital College of Medicine, Medical Department, Central University of Kentucky, Louisville, 1898; member of the Illinois State Medical Society; aged 54; on the staff of the Mennonite Hospital and St. Joseph's Hospital, where he died, November 28, following an appendectomy.

Felix Marcus Tullius Tankersley, Luverne, Ala.; University of Tennessee College of Medicine, Memphis, Tenn., 1885; Tulane University of Louisiana School of Medicine, New Orleans, 1895; member of the Medical Association of the State of Alabama; aged 62; died, October 31, from cerebral hemorrhage.

Benjamin Franklin Gibson ⊕ Lufkin, Texas; Vanderbilt University, Medical Department, Nashville, Tenn., 1889; formerly president of the State Medical Association of Texas; served in the M. C., U. S. Army, during the World War; aged 57; died, October 30, at Huntsville, from dilatation of the heart.

Frank Arnold Fox, Greenville, Tenn.; University of Virginia, Department of Medicine, Charlottesville, 1921; member of the Tennessee State Medical Association; on the staff of the Greenville Hospital; aged 26; was found dead in his automobile, November 26, with a bullet wound through his heart.

Columbus Sewell Scofield ⊕ Richford, Vt.; Medical School of Harvard University, Boston, 1883; formerly connected with the Children's and the Lying-In hospitals, Boston; served as member of the state legislature in 1910; aged 62; died, October 31, from carcinoma of the submaxillary gland.

John Washburn Pratt, Dedham, Mass.; Medical School of Harvard University, Boston, 1886; member of the Massachusetts Medical Society; formerly associate medical examiner for Norfolk County and secretary of the local board of health; aged 68; died, November 17, from pneumonia.

George Prentiss Morgan ⊕ Dover, N. H.; Bowdoin Medical School (Medical Department of Bowdoin College), Portland, 1888; member of the Maine Medical Association; formerly on the staff of the Wentworth Hospital; aged 61; died, November 8.

Hartman L. Oberlander, Crow Agency, Mont.; Syracuse University College of Medicine, Syracuse, N. Y., 1887; formerly Indian agent at Prior; at one time a professional baseball player; aged 58; died, November 15.

Galette B. Gilbert, Rochester, N. Y.; University of Buffalo, Medical Department, N. Y., 1868; veteran of the Civil War; gave up the practice of medicine to engage in the real estate business; aged 78; died, November 26.

Joseph Lewis, Milwaukee; Hahnemann Medical College and Hospital of Chicago, 1875; formerly on the staff of the Johnston Emergency Hospital and St. Vincent's Orphan Asylum; aged 75; died, November 15.

Herman Charles Ross ⊕ St. Louis; St. Louis University School of Medicine, St. Louis, 1918; aged 33; was killed, November 5, when the automobile in which he was driving plunged down an embankment.

John Standish Foster Bush ⊕ Hartford, Conn.; Medical School of Harvard University, Boston, 1874; formerly on the staff of the Massachusetts General Hospital, Boston; aged 72; died, October 20.

Charles H. Holland, Memphis, Tenn.; Southern Medical College, Atlanta, Ga., 1888; also a druggist; formerly city physician of Chattanooga; aged 59; died, November 7, from carcinoma of the larynx

Charles Henry Bryant, Corning, Iowa; Northwestern University Medical School, Chicago, 1879; member of the Iowa State Medical Society; aged 65; died, November 17, from cerebral hemorrhage.

William Parke Fleming, Georgetown, Texas; College of Physicians and Surgeons, Keokuk, Iowa, 1871; Civil War veteran; formerly postmaster; aged 84; died, November 15, from senility.

James T. McDonald ⊕ Mattoon, Ill.; St. Louis College of Physicians and Surgeons, St. Louis, 1898; aged 54; died, November 16, at a hospital in West Baden, from paralysis.

Raymond Clement Shaffer, St. Louis; St. Louis College of Physicians and Surgeons, 1908; aged 37; died, November 16, from a complication of diseases caused by overwork.

Hayes Joseph Burnett, Montclair, N. J.; Howard University School of Medicine, Washington, D. C., 1904; aged 45; died, November 18, following a long illness.

Walter S. Johnson, San Diego, Calif.; Medical Department, University of Louisville, 1884; aged 60; died, September 13, from carcinoma of the tonsils and pharynx.

John S. Miller, Los Angeles; Georgetown University School of Medicine, Washington, D. C., 1865; aged 80; died, November 29, at Peoria, from pneumonia.

John B. Taylor, Yazoo City, Miss.; Medical Department University of Louisville, Louisville, Ky., 1878; aged 66; died, November 11, from cirrhosis of liver.

Warren E. Pattison, Westport, N. Y.; University of Vermont College of Medicine, Burlington, Vt., 1880; aged 74; died recently, from angina pectoris.

John Olafsson Foss ⊕ Cavalier, N. D.; School of Physicians, Reykjavik, Iceland, 1917; aged 34; died, November 5, at Gardar, N. D., from alcoholism.

John J. Terrell, Lynchburg, Va.; Jefferson Medical College, Philadelphia, 1853; member of the Medical Society of Virginia; aged 93; died, November 6.

Barton Scott Partridge, Ann Arbor, Mich.; Eclectic Medical College of the City of New York, 1883; aged 71; died, November 5, at Lansing.

Andrew J. Hale, Leavenworth, Kan. (licensed, Iowa, 1886); Civil War veteran; aged 88; died recently, at the Cushing Hospital, from senility.

Martin Lewis English, Geneva, Ill.; Chicago Homeopathic Medical College, 1889; aged 60; died suddenly, November 20, from heart disease.

Josephine H. Paine, Chicago; Hahnemann Medical College and Hospital of Chicago, 1904; aged 61; died, November 30, from pneumonia.

Ida Clarke Woolsey, Xenia, Ohio; University of Michigan Medical School, Ann Arbor, 1892; aged 69; died, October 13, from paralysis.

William H. Butler, Columbus, Ind.; Medical College of Indiana, Indianapolis, 1879; aged 76; died, November 17, at Richmond.

Upton M. Carnes, Canton, Ohio; University of Wooster, Medical Department, Cleveland, Ohio, 1888; aged 58; died, November 15.

Edward Moore Tompkins, Knowlesville, N. Y.; University of Buffalo, Department of Medicine, 1878; aged 68; died, November 11.

William B. Inman, St. Louis; Chicago College of Medicine and Surgery, 1915; aged 46; died, November 15, following a long illness.

Alfred N. Bonham, Indianapolis; Hahnemann Medical College and Hospital of Chicago, 1887; aged 59; died, November 13.

Joseph Blair Lenney, Crown Point, Ind.; Baltimore University School of Medicine, 1890; aged 59; died, September 29.

William E. Hall, Chicago; Rush Medical College, Chicago, 1878; aged 69; died, November 20, from uremia.

The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other General Material of an Informative Nature

THE PROPAGANDA FOR REFORM IN ESTHONIA

Physicians the world over have long recognized that the claims for proprietary medicines put forward by those who are financially interested in their sale are always overoptimistic, often unwarranted, and not infrequently, deliberately misleading and fraudulent. It is natural, therefore, that the widespread significance of the work of the Council on Pharmacy and Chemistry of the American Medical Association in the interest of decent pharmaceutical practice should have attracted the attention of the medical profession of all civilized countries and suggested the practicability of inaugurating similar reforms.

Recently[1] attention was called to the efforts that are again being made in Germany toward the establishment of a body similar to that of our Council. Previously[2] the establishment of a bureau for the investigation of new drugs under government auspices—*Rijks-Instituut voor Pharmaco-Therapeutisch Onderzoek*—had been announced. Reference has also been made[3] to proposals for the establishment in other countries of bodies patterned more or less closely after our Council on Pharmacy and Chemistry. Inquiries which come to The Journal and to the Council demonstrate that in many other countries the leaders of medicine are appreciating the need for reform in proprietary medicine exploitation and are studying the work that has been done in the United States with a view of applying the same methods to the conditions in their own country.

Now comes a message from Esthonia—formerly a Baltic province of Russia, but now an independent state—that the achievements of the Council on Pharmacy and Chemistry of the American Medical Association are an incentive toward the inauguration of similar work. Dr. Loewe of the department of pharmacology of the University of Dorpat, formerly of the University of Göttengen, Germany, editor of the *Therapeutische Halbmonatshefte* and a member of the Arzneimittel-Kommission which functioned before the war, writes in the Esthonian pharmaceutical journal, *Pharmacia,* March-April, 1922, about the progress made in Esthonia toward the state control of pharmaceutical specialties and secret remedies. He believes that certain phases of the Council's work are applicable to Esthonia. Having witnessed the need of a better control of proprietary medicines in Germany, Loewe wants Esthonia started right. He points out that in Germany the pharmaceutical industry has been so powerful as to influence the attitude of the state. So far, Esthonia has no fully developed pharmaceutical industry and hence, he holds, now is the time to establish firm control, for later on such industries might acquire great financial power and be able to influence any proposed legislation on the subject. Loewe thinks that Esthonia may well follow the example of the Netherlands, which before the war had scarcely a pharmaceutical industry. When during the war it became necessary to establish pharmaceutical houses of its own, this state heeded the advice of those who were well informed and created a bureau for the investigation and control of medicaments intended for the market. Loewe proposes the establishment of a bureau under state control which shall investigate new remedies and shall exercise a strict control of remedies imported into Esthonia with a view of definitely excluding worthless preparations.

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[1] The Propaganda for Reform in Germany, The Journal A. M. A., Nov. 25, 1922, p. 1848.

[2] Council on Pharmacy and Chemistry in the Netherlands, The Journal A. M. A., Nov. 6, 1920, p. 1279; March 12, 1921, p. 737.

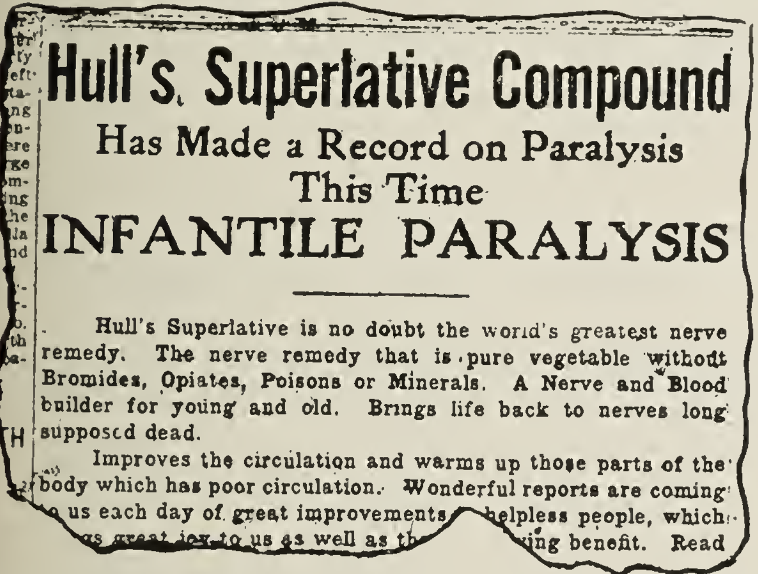
[3] Council on Pharmacy and Chemistry for Italy, The Journal A. M. A., Aug. 13, 1921, p. 565; Pharmaceutical Specialties (Belgium), ibid., Nov. 18, 1922, p. 1781.

MORE MISBRANDED NOSTRUMS

Abstracts of Recent Notices of Judgment Issued by the Bureau of Chemistry of the United States Department of Agriculture

Hebras Blood, Liver and Nerve Tonic.—The G. C. Bittner Co., Toledo, Ohio, in May, 1918, shipped a quantity of "Dr. Hebras Blood, Liver and Nerve Tonic" which was misbranded. The federal chemists found the stuff to consist essentially of Epsom salt, a small amount of plant material, a trace of salicylic acid and water. It was fraudulently represented as an effective treatment and preventive of blood disorders, stomach trouble, liver and kidney complaints, dyspepsia, etc. In October, 1919, the company was fined $10. —[*Notice of Judgment No. 10116; issued May 10, 1922.*]

Hull's Superlative Compound and Hull's Superlative Liniment.—The A. J. Hull Medicine Co., Findlay, Ohio, shipped in July and October, 1917, a quantity "Hull's Superlative Compound" and "Hull's Superlative Liniment" both of which were misbranded. The "Superlative Compound" according to the federal chemists, consisted essentially of extracts of plant drugs, including cinchona, a volatile oil, alcohol and water. It was falsely and fraudulently represented as an effective remedy and cure for liver and kidney diseases, epileptic fits, paralysis, impure blood, consumption, diabetes, painful menstruation, and various other conditions. It was also labeled as containing 15 per cent. of alcohol, when, in fact, it contained 26 per cent. The "Superlative Liniment," according to the federal chemists, consisted of oils of cedar, thyme and probably wormwood, camphor and alcohol. It was falsely and fraudulently represented as an effective cure for congestion of the lungs, rheumatism, neuralgia, inflammation of the bowels and kidneys, pimples and blackheads, eczema, burns, bunions, etc. Furthermore, it was mislabeled relative to the amount of alcohol it contained, the label declaring 70 per cent. of alcohol when in fact it contained 82.8 per cent. of alcohol. In December, 1920, the company was fined $40, including the costs.—[*Notice of Judgment No. 10120; issued May 10, 1922.*]



Hull's Superlative Compound
Has Made a Record on Paralysis
This Time
INFANTILE PARALYSIS

Hull's Superlative is no doubt the world's greatest nerve remedy. The nerve remedy that is pure vegetable without Bromides, Opiates, Poisons or Minerals. A Nerve and Blood builder for young and old. Brings life back to nerves long supposed dead.

Improves the circulation and warms up those parts of the body which has poor circulation. Wonderful reports are coming us each day of great improvements helpless people, which us as well as th ing benefit. Read

Bristol's Sarsaparilla Compound and Kemp's Anacahuita Pectoral Compound.—Lanman & Kemp, Inc., New York City, were said to have shipped from New York to California in April, 1920, and May, 1921, quantities of "Bristol's Sarsaparilla Compound" and of "Kemp's Anacahuita Pectoral Compound" which were misbranded.

Bristol's Sarsaparilla Compound.—This was reported, by the federal chemists to consist essentially of 11 per cent. of alcohol, 15 per cent. of sugar, ⅓ of 1 per cent. of potassium iodid and small amounts of extractives of vegetable drugs, including a laxative and traces of volatile oils. It was falsely and fraudulently recommended for the treatment of syphilis, skin eruptions, nervous and general debility of the system, inactive liver, etc.

Kemp's Anacahuita Pectoral Compound.—This preparation, according to the federal chemists, consisted essentially of 25 per cent. alcohol, 25 per cent. sugar, and small amounts of vegetable extractives, magnesium and ammonium salts. It was falsely and fraudulently recommended as a treatment for consumption, catarrh, influenza, whooping cough, asthma, croup and various other conditions. In August and September, 1921, judgments of condemnation and forfeiture were entered and the products were released to Lanman & Kemp, Inc., on payment of costs and the execution of a bond conditioned in part that the articles be relabeled in a manner satisfactory to the Department of Agriculture.—[*Notice of Judgment No. 10225; issued May 16, 1922.*]

Correspondence

"THE 'ALKALINE TIDE' IN URINE"

To the Editor:—Referring to your editorial comment on the alkaline tide in urine (The Journal, October 7, p. 1248), from studies that involved the saving and titration of urine for a month, from quite a number of fractional examinations covering periods of a day or more in patients, and from a few thousand single tests of urines: "there ain't no such thing."

This crude and possibly rude contradiction should be qualified. It is quite possible that cryoscopic methods and definitions may show the alkaline and acid tides commonly taught for a century or more, and it may even be that the assumption of such a tide by so many of the early clinicians may not have been merely an induction from physiologic theory but that differences in diet may account for discrepant observations. Quite frequently, I have observed, not an alkaline tide but a diminution in gross acidity, following a meal. Usually, this has been explained by the increased dilution of the urine following a meal as ordinarily taken. That is to say, the product of volume and acidity in degrees (taking 1 degree × 1 c.c. as 1 acid unit) showed that there was no real diminution of acidity after a meal. Occasionally, results have suggested that, in a transcendental sense, not only was there an alkaline tide after a meal, but the secretion of an excess of hydrochloric acid diminished the acidity of the urine decidedly.

The trouble with the alkaline tide theory and the corollary that the stomach in secreting hydrochloric acid would remove acid radicals from the blood, and introduce an excess of bases, is that we have not gotten entirely out of our minds the old conception of an acid, gastric digestion, lasting two or three hours, followed by a discharge of contents into the intestine and by an equally definite alkaline digestion. Now, if we bear in mind the real process of digestion, with fractional discharge of stomach contents through the pylorus, duration of the alkaline period so as to cover more than one acid period, possibly three, or, very likely in many individuals an almost constant alkaline digestion more or less counterbalanced by acid digestion in the stomach intermittently; if we remember that the tendency to increased blood alkalinity due to hydrochloric acid secretion is not only counterbalanced after a comparatively short delay by the withdrawal of alkaline carbonates in the infrapyloric secretions, but that an actual neutralization of acid and alkaline secretions takes place in the alimentary canal with the production of carbon dioxid gas, it is easy to see why the old theory of an alkaline and an acid tide of urine is not borne out in practice.

Quite early in my studies of urinary acidity, I eliminated litmus entirely and substituted phenolphthalein as an indicator. This is not ideal; indeed, it is questionable whether any substance corresponds exactly to the balance between acidity and alkalinity physiologically. From certain phenomena connected with phosphates and carbonates, and the general dependence of a color reading on passing a limit, it seems probable that the physiologic neutral point occurs at about 10 degrees of acidity as ordinarily read.

However, the great majority of samples of urine at any time of the day are distinctly acid. Alkaline urine, i. e., urine showing a color with phenolphthalein before the addition of alkali solution, occurs in my own experience perhaps once in a hundred times, and then almost entirely after the patient has taken sodium bicarbonate or some similar alkaline drug. Of course, I eliminate decomposed urine, and only by accident encounter cases in which decomposition has occurred in the urinary passages. A vegetarian diet does not often account for the few instances of alkaline urine encountered. Sometimes, the vegetables eaten contain benzoic acid or oxalates; sometimes they should theoretically be devoid of acid factors; but, somehow, the system still excretes acid urine.

The urinary reaction differs quantitatively after meals, not so much in accordance with an assumed digestive tide as with the materials introduced. Usually, I find the acidity moderate (from 20 to 30 degrees) in the morning, perhaps a little higher in the afternoon; but, after a hearty evening dinner with coffee, meat and perhaps articles that are especially rich in acid factors, quite high acidities may be encountered, even up to 100 degrees in terms of tenth-normal solutions. As stated, the actual acidity in degrees may be fairly low in the first hour or two after a meal; but if allowance is made as suggested for dilution, by making comparisons in terms of acid units, it is very rare that even a hint at an alkaline tide is encountered.

In approximate terms, we may say that the average elimination of urine is 50 c.c. an hour, and that the entire twenty-four-hour urine has an acidity of 25 or 30 degrees with phenolphthalein, as compared with tenth-normal alkali at 100 degrees. In the first two hours after a heavy meal, with an abundance of soup, coffee or tea and water, the bulk eliminated is double or quadrupled. Yet it frequently happens that the full average acidity in degrees is maintained and, as stated, it is rarely that actual alkalinity is encountered. Indeed, it is seldom that the acidity is reduced correspondingly to the increase in hourly elimination. Under high living conditions, it is common to find, instead of an acidity corresponding to 50 c.c. × 24 hours × 25 to 30 degrees = 30,000 to 36,000 acid units; great fluctuations in hourly elimination and total bulk of urine, acidities rarely below 20 degrees for an hourly elimination of from 150 to 200 c.c. and rising to 100 degrees for the scanty hourly elimination of the night, so that for the twenty-four-hour urine, whether its volume is 1,000 or 2,000 c.c., there is a total of 50,000 or more acid units. And, all this without any obvious evidence of actual abnormality, except to those who are always looking for the prealbuminuric stage of nephritis, or a relative excess in blood pressure, or a tendency to interstitial degeneration or whatever the accepted term may be for the particular year and locality.

A. L. Benedict, M.D., Buffalo.

"ARE MITOCHONDRIA IDENTICAL WITH BACTERIA?"

To the Editor:—The article of Cowdry and Olitsky on "Differences Between Mitochondria and Bacteria" is wholly deserving of your editorial comment (The Journal, Nov. 26, 1922, p. 1848). It is gratifying to have grotesque conceptions in biology neatly disposed of. To those who have worked with *Rickettsia* bodies, however, the statement that their significance in typhus fever, trench fever and other conditions has been influenced by the researches of Cowdry and Olitsky seems unwarranted. In connection with trench fever, *Rickettsia* bodies have been seen only in extracellular situations in lice. Mitochondria, at least, are always intracellular. The association of *Rickettsia* with typhus fever is most strongly supported by their occurrence in experimentally fed lice, and under such conditions *Rickettsia* occur in such numbers as to distend and disrupt the epithelial cells of the louse's stomach, a phenomenon not even suspected to occur from the multiplication of mitochondria, least of all suggested by anything that is known about mitochondria. In connection with Rocky Mountain spotted fever, the *Rickettsia*-like micro-organisms in the tick occur also extracellularly in certain situations and also within nuclei, and certainly no one has ever demonstrated mitochondria within nuclei. The uncertainty, emphasized in your editorial comment, and of course suggested by Cowdry's and Alitsky's paper, in regard to *Rickettsia* and mitochondria, seems very much like a straw man set up to be ostentatiously annihilated.

I regret to make these observations because I realize how necessary the publication of control work is, and how usually unproductive of esteem. The sentence "Amid this uncertainty, reassurance comes from the new studies of Cowdry and Olitsky at the Rockefeller Institute for Medical Research" gives momentum to the insinuation that workers with *Rickettsia,* including several eminent European and English investigators, have failed to apply the rather simple criteria necessary for the exclusion of mitochondria. Permit me to suggest that the emphasis of your editorial may convey a wrong impression to the reader in regard to the status of the heterogeneous group of micro-organisms conveniently included under the term *Rickettsia.*

S. B. Wolbach, M.D., Boston.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

DETECTION OF ARSENIC AND MERCURY IN THE BODY

To the Editor:—1. In cases of chronic poisoning from arsenic or mercuric chlorid, how long after death can these poisons be detected in the tissues of the body? 2. How long after death can they be detected in the bones, if at all? Please do not publish my name.

S. S. G.

Answer.—1. In cases of chronic poisoning from arsenic or from mercuric chlorid, the possibility of detection of these poisons in the tissues of the body is dependent on several factors, such as the time of administration of the last dose of the poison relative to the time of death, the nature of the symptoms, especially as regards vomiting and purging, and the amounts of the poison given. The elimination of arsenic and mercury from the system in cases of chronic poisoning is relatively slow, so that these drugs may be found in the tissues from two to three weeks, possibly for six weeks, after the administration. If the death of the victim did not occur until such a lapse of time after the last administration of the poison, it is extremely doubtful whether detection of these toxic agents would be possible. However, if doses of such drugs were given at intervals, the last one being relatively near to the time of death, then the poison would be detectable in the tissues of the body for an indefinite time depending on the extent of decomposition of the tissues. Reports are common of the detection of such inorganic poisons many years after death, and, certainly, such detection is possible as long as any material is left on which to make the examinations. These poisons, being inorganic, resist decomposition, and may readily be found years after death. On the other hand, if vomiting and purging have been excessive after the administration of these poisons, most of them may be eliminated before absorption, and only a little left in the tissues of the body. However, even here, if death occurs, as mentioned above, in a short time after the last administration of the poison, a certain amount would unquestionably be found in the tissues for years after death. If the amounts of the poison administered are small and are continued over long periods, the detection of the poison after death would depend on the same points mentioned above; that is, the search might have to be extended to include many of the organs in order to determine the point of death from the poison and not from other causes.

2. These poisons, especially arsenic, may often be detected in the bones in appreciable quantities, when little or none is found elsewhere. The bones offer special advantages in the detection of arsenic, detection being possible just as long as any of the bone ashes may be obtained for examination.

MEDICAL PRACTICE IN SOUTH AMERICA

To the Editor:—Please give data as to the openings and desirability of spending a few years in South America or Central America, preferably Argentina.

B. M. H., Atlanta, Ga.

Answer. — South America in general, and Argentina in particular, are not very propitious fields for American physicians at present. Economic conditions are rather unfavorable; there is a marked tendency to set up bars against a possible rush of foreign physicians, especially from Europe since the war.

License to practice is granted only after a thorough examination, usually in Spanish. In Argentina, foreign physicians must prove their competence at a full set of examinations in Spanish spread through a period of two years. Examination dues are about $1,500 ($540). An exception is made in the cases of physicians willing to practice in remote places, where no licensed physician is established, but even then the stranger must move on when a "regular" arrives. At Colombia, where there has been of late somewhat of an influx of American physicians, medical societies are now petitioning the government to strengthen the law. In Mexico, where foreign degrees had been recognized, the licensing board, to check abuses, ordered recently that all candidates must pass an examination.

It would be rather venturesome to start on such an enterprise, unless information as to local conditions is secured in advance from the nearest American consul. There is one at each large town. Altogether, the best opportunities for an American physician wishing to migrate to Latin America—knowledge of Spanish or Portuguese, as the case may be, is assumed—would be with the Rockefeller Foundation in public health work, American concerns such as the Guggenheims, the United Fruit Company and others, and in hospitals, missionary or otherwise, run by or for English-speaking people, of which there are several.

HEREDITARY DEFECT IN DEVELOPMENT OF HAIR AND NAILS

To the Editor:—"Zulu bare without any hair" is the local appellation for the following condition: All the hair is sparse, very fine and colorless, exhibiting almost no growth. The nails in childhood rarely have to be cut, are concave at the tip like Hutchinson's teeth, convex from side to side and thin, but the convexity is filled with indurated epithelium. About puberty the nails become inflamed and painful, and incapacitate the patient for several months until the nails fall off. They are never replaced.

Traditional treatment for the nails is to have them pulled off; for the hair, a coarse wig, preferably red. There are thirty or forty persons affected, French Canadians, in three generations, descendants of one sufferer. Only some members of the family are affected.

Please tell me what this condition is and where I can get some information on it.

H. R. Clouston, M.D., Huntingdon, Que.

Answer.—This group of cases is almost certainly one of hereditary congenital defect in the development of the hair and nails. It is an hereditary developmental defect and usually occurs in family groups. In Pusey's "Principles and Practice of Dermatology," on page 1191, there is an illustration of an extreme case of it from the collection of Dr. C. J. White, and Pusey discusses the condition on pages 1167 and 1192 of his third edition.

THE CADUCEUS AS A MEDICAL EMBLEM

To the Editor:—1. Please inform me as to the circumstances under which the caduceus was adopted as the insignia of the medical profession. 2. How did the present emblem of the American Medical Association come to be adopted? Please omit my name.

B. J., Colorado

Answer.—1. The first use of the caduceus in medical heraldry probably was in the crest of Henry VIII's physician, the learned Sir William Butts. Later, a London medical publisher used it on title pages. Who first recommended using the caduceus as a medical emblem in this country is not known; however, the medical department of our army used it on the chevron of the hospital steward's uniform as early as 1856, and later (1902) on the uniform of medical officers.

2. Recognizing the right of the International Red Cross organization to the exclusive use of the red cross, a resolution was introduced in the House of Delegates of the American Medical Association at the Atlantic City Session, 1909, to abandon the use of the Geneva red cross as insignia, and if agreeable to adopt some other device. A special committee of five was appointed to propose an appropriate emblem. At the next annual session at St. Louis, 1910, the report of the Committee on Insignia was referred to the Reference Committee on Miscellaneous Business, and the two committees unanimously recommended the present emblem. The report of the committee was adopted in 1910 by the House of Delegates. The official emblem of the American Medical Association is "the knotty rod and serpent of Aesculapius." The emblem, in gold, is mounted on a circular button, one-half inch in diameter, the central portion of which is scarlet enamel. The button is encircled by a gold band in which appear in scarlet enamel the letters "A. M. A."

When the Father of Medicine was enshrined in the beautiful temple of Aesculapius, he carried the knotty rod, symbol of support for the weak and of the difficult problems in medicine, and the entwined serpent, the ancient symbol of health. Thus the present one is the original symbol of the healing art.

NEUTRAL ACRIFLAVINE IN SEPTICEMIA

To the Editor:—Can you give me any information concerning the dangers, if any, and the value of neutral acriflavine given intravenously in septicemia and similar acute infections?

— — M.D.

Answer.—Neutral acriflavine has been used intravenously in septicemia and similar conditions. The available evidence is insufficient to judge whether the use of the drug intravenously has dangers other than those generally inherent in intravenous medication (The Journal, Aug. 5, 1922, p. 421). This evidence does not demonstrate the value of the drug in these conditions.

Social Medicine and Medical Economics

RURAL PRACTICE

ROBERT WILLIAM LANGLEY, M.D.
Riddle, Ore.

Much attention has been drawn recently to the subject of adequate medical service for rural communities. Medical educators and general practitioners have published articles as to how the problem of rural medicine could be solved. The subject has assumed such importance that even the newspapers have taken up the problem in their editorial columns, and have attempted to suggest a remedy. Commissioner Biggs of New York says that in some parts of the state there are no physicians within a radius of 25 or 30 miles. One logging community in the mountains recently lost its only physician, and within three weeks 250 of its 300 inhabitants were reported ill from influenza and other diseases, with only such medical attention as could be obtained from a busy physician in another village 20 miles away.

The medical student about to graduate is considering carefully every factor relative to his future, and naturally is interested in all such comment. He seeks the advice of medical instructors who have gained his admiration and are examples of success. Their statements and opinions may carry much weight. After giving the matter a great deal of thought, however, the recent graduate may still be undecided as to what is the best thing for him to do. From what he sees, he feels that something must be wrong with the rural communities, or they would be more easily supplied with medical service. The opinions and advice he receives from his preceptors are at variance, and when the time comes to act he may take the first opportunity offered as an assistant to some specialist, or with a group in a large city at a small salary, and gradually fall into the usual line of routine found in these positions.

With the foregoing conditions presenting themselves, I have thought it would be of interest to many to know some of the facts as they appeal to a recent graduate who was induced to practice in a rural community.

CHOOSING AN OPENING

Having graduated from a well known medical college and then having taken a year rotation service as intern in a large general hospital, I faced the situation outlined above. Specialization in some branch of medicine or surgery is the goal of many students. This situation no doubt prevails because many of the instructors themselves are specialists. Very few take the time to impress the student with the fact that general practice has been the foundation of their ability as diagnosticians, and is largely responsible for their present success.

In my case the desire to specialize at once was not changed without more convincing arguments than had been offered while a student. After some hesitation the decision was made, and an opening was discovered in a locality serving about 1,500 people and covering many miles in territory. A town of about 250 inhabitants served as a headquarters, where an office was established in the rear of the local drugstore. Entrance into the field was made in the late summer and at a time when the general run of sickness was at a minimum.

FAVORABLE INCOME

During the first month I had 130 calls; or, rather, a charge for service was made 130 times. In mentioning the financial side of the situation I will merely say that I do not believe there are many rural communities large enough to need a physician that will not yield an income larger than any specialist or group can afford to pay a young man who begins as an assistant.

The number of cases seen in a country practice for a given income is no doubt a great deal larger than for the same income in a city practice. Large fees are not collected. My predecessor would frequently charge his office patients 50 cents, 75 cents or a dollar. I have made a rule never to charge a patient less than a dollar, and very seldom charge less than a dollar and a half for work done in the office. No trouble has been experienced in collecting these amounts.

DEVELOPMENT OF POWERS OF OBSERVATION

The variety of cases seen in a country practice is larger, I believe, than is generally experienced in a city practice. Most of the country people consult the local practitioner first, no matter what the condition may be or how serious, and then go to a specialist if their own physician cannot take care of them.

During the first few months many disagreeable features of a country practice seem of paramount importance to one of laboratory and hospital training. There are many patients who expect to state in a few words what is the matter with them and to receive in return a prescription that will cure them. It requires a great deal of care to draw out a history, and even more care and tact to get them to submit to anything near a satisfactory physical examination. The lack of instruments of precision and a full laboratory equipment seems a tragedy indeed, but it forces one to develop a diagnosis relying chiefly on the history and physical examination, and thereby necessitating close observation of the patient and all that he says. Many conditions have to be met in the country that the physician does not anticipate. There are no clinics to refer patients to, and no consultants. Many visions of the way in which medicine is practiced are changed. Some country people have quite a fear of medicines given any other way than by mouth. Even the use of the hypodermic frightens many patients unless accompanied by a thorough explanation, and they feel that the condition must be quite serious to require its use. The old fashioned country doctor in the past relied on highly colored pills and tablets carried in his grip to cure most of the human ills, and the introduction of modern therapeutic measures is a process of education. Intravenous medication can be carried out only with the full confidence of the patient.

When the physician has been called a great distance, people often expect him to stay for hours and, in fact, give nursing care. Many times if he will stay and do a little nursing he will be rewarded by seeing the reaction of the patient to his efforts, and incidentally find out how little he knows about nursing technic. One or two visits are expected to be enough to cure a patient and, again, the proper treatment and after-treatment is a question of education in the manner in which disease acts, what may happen and why, and the reason medicines often have to be changed in the course of the disease.

The carrying out of sterile technic will many times tax every resource. Probably the real safeguard against infection through contamination lies in the fact that, unlike the situation at a hospital or a clinic, the country practitioner is not working in an environment of different strains of high grade bacteria.

GROWTH OF SELF RELIANCE

The rural practitioner is forced to rely almost entirely on his own judgment; thus, a younger man develops a judgment and independence not to be obtained in any other way. No instruction in the real art of practicing medicine can ever rival that obtained by coming in close contact with the patient, not only in sickness but also in health and in the civic affairs of the community. One is able to see the patient as a human being and not as a case for diagnosis and treatment.

OPPORTUNITIES FOR COMMUNITY SERVICE

As success becomes established, the physician is looked to for his opinion on many community problems, and a responsibility for the whole community welfare is soon realized.

One more thought: The medical profession is being confronted today by the growth of various pathies, isms and cults. These quacks are attacking the medical profession at every vulnerable point. Wherever the medical profession fails in its duty to the public, these irregular schools will make a stronghold. If we neglect our duty in serving the rural communities, it will mean that these communities will become the fertile fields of these quacks, and this in turn will react on the medical profession, not only in the small towns that have been neglected, but also in the larger cities where patients are referred for diagnosis and treatment for the more difficult conditions. The cases coming to the chiropractor, for instance, that he cannot handle will be sent to men in the cities in his own cult—not to the medical profession.

FOUNDATION FOR LATER SPECIALIZATION

If the young graduate can be brought to see that rural practice is greatly to his advantage, even as a temporary move if he holds to the idea of specialization, it will become a great benefit to the medical profession as a whole. Give the people a chance to benefit by contact with an ethical physician who will tell them honestly about the seriousness of a given disease in terms that they can understand, of what is being done and why, instead of trying to keep them in ignorance, and the time will soon come when they will become educated to the point of realizing the necessity for the best that scientific medicine has to offer.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALABAMA: Montgomery, Jan. 9. Chairman, Dr. Samuel W. Welch, Montgomery.

ARIZONA: Phoenix, Jan. 2. Sec., Dr. Ancil Martin, 207 Goodrich Bldg., Phoenix.

COLORADO: Denver, Jan. 2. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

DELAWARE: Wilmington, Dec. 12-14. Sec., Dr. P. S. Downs, Dover.

DISTRICT OF COLUMBIA: Washington, Jan. 9. Sec., Dr. Edgar P. Copeland, Stoneleigh Court, Washington.

HAWAII: Honolulu, Jan. 8. Sec., Dr. G. C. Milnor, 401 Beretania St., Honolulu.

ILLINOIS: Chicago, Jan. 9-11. Supt. of Registration, Mr. V. C. Michels, Springfield.

INDIANA: Indianapolis, Jan. 9. Sec., Dr. W. T. Gott, Crawfordsville.

MARYLAND: Baltimore, Dec. 12. Sec., Dr. J. McP. Scott, 141 W. Washington St., Hagerstown.

MINNESOTA: Minneapolis, Jan. 2-4. Sec., Dr. Thomas S. McDavitt, 539 Lowry Bldg., St. Paul.

NEW MEXICO: Santa Fe, Jan. 8-9. Sec., Dr. R. E. McBride, Las Cruces.

NORTH CAROLINA: Durham, Dec. 12. Sec., Dr. Kemp P. B. Bonner, Raleigh.

NORTH DAKOTA: Grand Forks, Jan. 1. Sec., Dr. G. M. Williamson, 860 Belmont Ave., Grand Forks.

OKLAHOMA: Oklahoma City, Jan. 9-10. Sec., Dr. J. M. Byrum, Shawnee.

RHODE ISLAND: Providence, Jan. 4-5. Sec., Dr. Byron U. Richards, State House, Providence.

SOUTH DAKOTA: Pierre, Jan. 6. Director, Dr. H. R. Kenaston, Bonesteel.

WEST VIRGINIA: Charleston, Jan. 9. State Health Commissioner, Dr. W. S. Henshaw, Charleston.

WISCONSIN: Madison, Jan. 9-11. Sec., Dr. John M. Dodd, 220 E. Second St., Ashland.

Indiana July Examination

Dr. W. T. Gott, secretary, Indiana State Board of Medical Registration and Examination, reports the written examination held at Indianapolis, July 11-13, 1922. The examination covered 16 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 36 candidates examined, 35 passed and 1 failed. Two candidates received osteopathic licenses by examination. Of the 3 candidates who took the examination to practice midwifery, 1 passed and 2 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Rush Medical College	(1922)*	94.1
University of Illinois	(1922)	89.1
Indiana University	(1917) 85.5, (1922)	84.8, 84.9, 84.9, 84.9, 85.4, 85.5, 85.7, 86.1, 86.4, 86.5, 86.6, 86.8, 86.8, 87, 87.4, 87.6, 87.8, 88.1, 88.2, 88.3, 88.4, 88.9, 89.1, 89.3, 89.4, 89.5, 90.3, 90.6, 91.6, 95.1
University of Pennsylvania	(1917)	87.4
University of Tübingen	(1908)†	85.4
Osteopaths		85.4, 91.2
FAILED		
Bohemian University of Prague	(1921)†	85.6

Dr. Gott also reports that from Sept. 30, 1921, to Aug. 15, 1922, fifty-four candidates were licensed by reciprocity, and one candidate, an osteopath, received a license by reciprocity. The following colleges were represented:

College	Year Grad.	Reciprocity with
LICENSED BY RECIPROCITY		
Columbian University	(1893)	Dist. Colum.
Georgia College of Eclectic Medicine and Surgery	(1895)	Ohio
American Medical Missionary College	(1899)	Washington
Chicago College of Medicine and Surgery	(1914), (1916)	Illinois
Hahnemann Med. Coll. and Hosp. of Chicago	(1914), (1918)	Illinois
Northwestern University	(1911), (1918), (1920, 3)	Illinois
Rush Medical College	(1883), (1891), (1920), (1921, 3)	Illinois
University of Illinois	(1916)	Illinois
Medical College of Indiana	(1899)	Illinois
College of Physicians and Surgeons, Keokuk	(1898)	Illinois
Hospital College of Medicine, Louisville	(1897), (1900)	Kentucky
Louisville Medical College	(1901)	Illinois
University of Louisville Medical Department	(1894)	Kentucky
	(1907)	Illinois
	(1917), (1919), (1920), (1921, 2)	Kentucky
Johns Hopkins University	(1915)	Minnesota, New York
University of Maryland	(1908)	N. Carolina
Harvard University	(1919)	Illinois
Tufts College Medical School	(1919)	Maine
University of Michigan Med. School	(1908), (1913), (1920)	Michigan
University of Minnesota	(1906)	Minnesota
St. Louis University School of Medicine	(1918)	Maryland
Albany Medical College	(1905)	New York
Medical College of Ohio	(1904)	Ohio
University of Cincinnati	(1919)	Kentucky
	(1920)	Ohio
Jefferson Medical College	(1918)	California
Meharry Medical College	(1902)	Georgia
	(1903)	Arkansas
	(1911), (1919)	Tennessee
University of Nashville	(1910)	Tennessee
Medical College of Virginia	(1912)	Virginia
University of Virginia	(1892)	Virginia
University of Zurich	(1911)†	Ohio
Osteopath		Missouri

* This candidate has finished the medical course, and will obtain the M. D. degree after he has completed a year's internship in a hospital.

† Graduation not verified.

Miscellany

UNITED STATES SUPREME COURT AGAIN SUSTAINS COMPULSORY VACCINATION

The United States Supreme Court, November 13, again upheld the right of a state to make vaccination a condition precedent to attendance at public schools or other places of education, the right of the state to delegate jurisdiction with respect to the matter to a municipal corporation, and the right of such a corporation to vest in its board of health broad discretion concerning it. Ordinances of the city of San Antonio, Texas, provided that no child should attend a public school or other place of education without having first presented a certificate of vaccination. Rosalyn Zucht was excluded from a public school because she did not have the required certificate and refused to submit to vaccination, and public officials caused her to be excluded also from a private school. A bill was then filed on her behalf, praying for an injunction against the enforcement of the ordinances, for a writ of mandamus to compel her admission to the public school, and for damages. The plaintiff charged that there was no occasion for requiring vaccination, and that the ordinances deprived the child of her liberty without due process of law, by making vaccination substantially compulsory, and that the ordinances were void because they left to the board of health discretion to determine when and under what circumstances the vaccination requirement should be enforced, without providing any rule to guide the board in its action or any safeguards against partiality and oppression. The bill was dismissed by the state court, and in due course was brought before the United States Supreme Court on writ of error.

In dismissing the writ of error, the United States Supreme Court said:

"Long before this suit was instituted, *Jacobson* v. *Massachusetts*, 197 U. S. 11, had settled that it is within the police power of a state to provide for compulsory vaccination. That case and others had also settled that a state may, consistently with the federal constitution, delegate to a municipality authority to determine under what conditions health regulations shall become operative." The court went on to say that the municipality may vest in its officials broad discretion in matters affecting the application and enforcement of a health law; that a long line of decisions by that court had also settled that in the exercise of the police power reasonable classification may be freely applied, and that regulation is not violative of the equal protection clause merely because it is not all-embracing. In view of these decisions, there was found in the record no question as to the validity of the ordinance sufficiently substantial to support the writ of error.

STRENGTHENING THE CASE FOR "VIVISECTION"

Dr. Walter R. Hadwen, an English physician, a member of the Royal College of Surgeons, and president of the British Union for the Abolition of Vivisection, who spoke in Boston, last night, would abolish along with animal experimentation in medicine many things that have been established in medical practice as the result of the discoveries of the past century and more. Dr. Hadwen is opposed to vivisection, as he calls it. He is also opposed to vaccination. He asserts that the antitoxin treatment for diphtheria kills the children instead of saving them. He does not regard typhoid fever as an infectious disease. He has yet to be convinced that there is such a thing as rabies. As he views it, the modern idea of the cause of many diseases, the germ theory, as it is popularly called, is already in the melting pot, and soon to be boiled away and abandoned.

But an intelligent public is not likely to accept Dr. Hadwen's judgment that the great majority of the medical profession and the students of contributory sciences are wrong, while he and the few who stand with him are in the right. Among other things, he spoke of the antitoxin treatment for diphtheria, but middle-aged folk who remember the deaths of little children from this dread disease in former times, and who know that in the homes of their own cities, in the homes on their own streets, it has ceased to be a terror, are not at all likely to believe that the treatment which has accompanied so beneficent a change is an evil instead of a blessing. There are some things which are self-evident, and which do not have to be demonstrated with statistics, convincing as the figures may be.

So with much else that Dr. Hadwen holds in opposition to the consensus of opinion among the great majority of the medical profession. That the span of human life is lengthening and the misery and suffering due to disease are decreasing are demonstrable facts. It runs counter to prevalent ideas of what is probable and reasonable to assert that while this progress has been made, the doctors have been basing their treatment of human ills on a series of colossal blunders, made both by the medical profession and by other scientific investigators in subjects related to human health and well-being. These men tell us that animal experimentation is of value, and that it is mercifully conducted. Dr. Hadwen disagrees with them in that, but in doing so he disagrees with them in so many other things that if his advice and guidance were followed modern medicine in large measure would go into the discard. In trying to prove too much, Dr. Hadwen, in all probability, has strengthened the case for animal experimentation rather than increased opposition to it.—Boston *Transcript,* Nov. 22, 1922.

THE TREND OF PULMONARY TUBERCULOSIS

The extraordinary decline in the death rate of pulmonary tuberculosis during the last four years cannot be considered as a fact of significance, say Britten and Sydenstricker (*Pub. Health Rep.* **37**:2843 [Nov. 17] 1922), unless it is viewed against the background of previous experience, and in relation to possible conditions of a temporary character. A distinct wave of unusual magnitude of mortality from pulmonary tuberculosis has occurred in this country during the last seven or eight years. The fact that such a wave occurred suggests that a part at least of the rapid decline since 1918 was simply the return to a normal level or to the level determined by the experience of previous years. Using the pulmonary tuberculosis death rates for Massachusetts, which are available for a longer period than those of any other state, the writers found that previous to 1882 periodic variations of considerable length and magnitude occurred about a general downward trend. Since 1882 and until 1914, these periodic variations have been much smaller, and the downward trend has been much more accelerated. If we fit a straight line to this period of thirty years, it is clear that the same rate of decline, except for slight variations, was maintained throughout this period. Continuing this line on through the last seven years, the change in the rate becomes striking. It is evident that the recent variation in the death rate is of greater magnitude than any other occurring in the sixty-four years in which Massachusetts has kept records. It is further evident that if we extend the straight line which was fitted to the rates for 1883-1914 on through 1921, the rate for 1920 was virtually on this line, and the rate for 1921 not far under it. Similar records for other states over nearly as long a period are not available, but it is possible to use the records for the period 1900-1921 for the ten original registration states. When this is done, and the ten states are considered as a single population group, not only is there shown a marked decline in the tuberculosis death rate in 1919 and 1920, but the 1920 rate is definitely under a "trend" line that has been fitted to the 1900-1914 rates. The 1921 rate for seven of these states is well below the trend line. While the rate for the combined states is heavily influenced by New York with its remarkable decline since 1918, there does not seem to be any reason to doubt, continue the writers, the occurrence of an unusually rapid drop in the pulmonary tuberculosis death rate in the United States during the last two years. However, experience has taught that a marked acceleration of decline will probably be followed by a period of arrested decline or of even increased mortality. It is reasonable to consider some of the recent decrease in the tuberculosis death rate as the descending limb of a curve which had its peak in 1917, and that we are reaching the minimal rate of a cycle—the trough of a wave. There are already evidences of a definite slowing up of the rapid decline in the tuberculosis death rate, and in some localities, at least, of an increase over the 1921 rate. The April rate in New York State exclusive of New York City declined from 90.5 in 1920 to 76.4 in 1921, or 20 per cent.; while the April, 1922, rate was 85.4, an increase of more than 10 per cent. It would be hazardous to prophesy, conclude the writers, simply on the basis of figures. One can only point out a slowing up of the recent rapid decline of the pulmonary tuberculosis death rate; or even the beginning of another upward variation is to be expected. Whether or not a new trend has set in since 1917 cannot be answered until a sufficient number of years have elapsed to allow for the periodic variations that characterize the course of the disease.

Book Notices

Nouveau Traité de Médecine. Publié sous la direction de MM. les Professeurs G.-H. Roger, Fernand Widal, P.-J. Teissier. Fascicules I-VI. Cloth. Paris: Masson et Cie, 1921-1922.

The contributors to this work from other countries than France are so few that it may be regarded as distinctly French in all essential particulars. The volumes before us reflect adequately, from the French point of view, the present knowledge of infectious and parasitic diseases. All thoroughgoing students of clinical medicine will welcome the opportunity now given to study accounts of diseases by French masters. It goes without saying that in a work by so many writers the articles are far from equal in merit, that the standard of scholarship is variable, and that many glaring omissions of pertinent American contributions occur, perhaps more frequently than might be expected; nevertheless, these are volumes of exceptional value because of the general thoroughness of presentation, even in the case of the more unusual diseases. The illustrations are good. The inclusion of the chapter on cancer, which covers about 400 pages and is illustrated profusely, is commendable. There is no alphabetical index in each volume; and until an adequate general index is provided, considerable annoyance will be encountered in finding particular items.

Nerves and Personal Power. Some Principles of Psychology as Applied to Conduct and Health. By D. Macdougall King, M.B. With Introduction by Rt. Hon. W. L. Mackenzie King. Cloth. Price, $2 net. Pp. 311. New York: Fleming H. Revell Company, 1922.

That there is something the matter with medicine "as she is spoke," the success of Christian science, to use only one instance, amply testifies. The patients whom Weir Mitchell wrote about in "Fat and Blood" forty-five years ago only represented with peculiar shrillness the dissonance that is disturbing the harmony of life in many of us today. Emile Coué and his kind have exploited one way, the most mechanical and ephemeral, by which morbid mental and nervous activities may be suppressed. But King goes to the root of the matter and shows how the character-defects on which functional nervous aberrations depend may be remedied. The fundamental attribute of efficient character is self control, and "self control is not volition, is not effort." It is not by suppression that undesirable impulses are to be neutralized; thus treated they are only put to sleep. "But how kill the impulse? *By giving up the desire.*" Thus renunciation becomes the cornerstone of character, and character the habitation of happiness. Happiness is not composed of a sum of pleasures, but can come in no other way than through successful striving of the moral self to adapt the body and the mind to their physical and mental environment. The goal of self discipline is wisdom, which is truth in action. The emphasis usually laid on "goodness" has confused the issues which determine character. "Goodness lies not in believing but in doing. . . . There is no virtue in any belief by itself. . . . Let us lay the whole stress on wisdom and drop . . . the word goodness." Wisdom is the product of research and application. Self discipline is equal to any emergency of life. Let any one who thinks himself a hopeless invalid read page 285 of this book: it is a description of King's own situation and depicts the joyful victory over physical disaster. He writes of the hopeless invalid: "His suffering is no worse than his inability to direct his thoughts. . . . It [invalidism] gives a man singular opportunity of deriving from the commonplace more than an ordinary amount of self respect." The book is written for the layman and is in the plain terms that the layman understands; it is also a book that practicing physicians may read with profit. We are accustomed to hear preachments to the sick and weary from the pulpits of the well and strong, and to discount their value as at best but precious platitudes. But here we have a message that is one long war cry of triumph sounded through two years of physical torture up to within two weeks of his end, by a medical hero not only dauntless in the face of death but with a personality growing progressively finer and better and happier until life failed.

Psychoanalysis and the Drama. By Smith Ely Jelliffe, M.D., and Louise Brink, A.B. Paper. Price, $3. Pp. 162. New York: Nervous and Mental Disease Publishing Company, 1922.

Our literary critics have just begun to realize that it is enough to read Shakespeare for his glorious song without being agitated over his plots, his philosophy or his inner meaning. Perhaps they are beginning to be a little weary of the psychanalysts. Sometimes a dramatist writes a play just to be entertaining; sometimes he makes a small idea into a three act play. What is to become of us if we must attend the play for its inner philosophy? Don't the psychanalysts ever enjoy a play? For example, the "Eyes of Youth" was a pleasant conceit in which a somewhat vague minded leading lady in a soiled dress was enabled, through crystal gazing, to see three possible futures. Now to Dr. Jelliffe and Miss Brink the play showed that:

> One who has been submerged in the power of the baser unconscious wishes and the conflict with them, as in a long neurosis, comes after a more decisive and clearer wrestle with these through analysis of them to a new form of wish. The way out into a new adaptation to reality comes at last through an understanding of what the more primitive wishes are and where their ancient value and their still present power lies. A pathway is found to bring that power and value out into a higher cultural life, which is the sublimation of them. To this the dream itself finally points the way.

Then take gentle old Sir James M. Barrie with his delightful poetic fantasies. The ordinary book on psychanalysis would keep him blushing for a week. Here is what they do to him:

> In Dear Brutus the genius of James M. Barrie has spoken very directly and clearly of the service which the dream may render for the understanding not only of one's inner life, but for its readjustment and rehabilitation. Whether from conscious intention or from the deeper truth of artistic intuition, he has portrayed its actual service in the redemption of life from saddening waste and bitterest dissatisfaction. Barrie, in his wisdom and humor, stands between the scoffing multitude who see only the foolishness of dreams and their apparent freakish triviality, and the serious psychopathologist who considers them in their functional import, worthy of earnest investigation.

We refuse to believe that Barrie stands in any such place; we imagine, rather, that these complicated psychanalysts would make the old gentleman very tired.

Dr. Jelliffe and Miss Brink analyze nine serious or fantastic plays. The studies are filled with the usual patter of "wish fulfilment," "repression," "sublimation," "unconscious libido," "auto-erotism" and similar expressions. One almost wishes they had tried their hand on the current "Follies," "Winter Garden Revue" or "Scandals."

Medicolegal

New Trial Approved for Plaintiff in Obstetric Case

(Singer v. Bossingham (Minn.), 188 N. W. R. 155)

The Supreme Court of Minnesota, in affirming an order granting the plaintiff's motion for a new trial after a verdict had been rendered for the defendant, says that the defendant attended the plaintiff when she was delivered of a child on the 23d of the month; and he attended her until the evening of the 28th, when he accompanied another patient to St. Paul, leaving the plaintiff under the care of a nurse. He returned on the 30th, but did not again see the plaintiff, as another physician had been called and was in attendance on her. The second physician testified that he first saw the plaintiff as a patient between 5 and 6 a. m. of the 30th; that she had a temperature of 105.6 F., her abdomen was distended, and her elbow, wrist, fingers, and right leg were red and inflamed; that there was a very distinct odor; that he removed a portion of the placenta about 2 inches long, 1½ inches wide, and from ½ to ¾ inch thick; and that he diagnosed the case as one of septic poisoning. The negligence charged in the complaint was that the defendant failed to sterilize the forceps, and thereby introduced sepsis into the uterus, with resultant blood poisoning; also, that he was negligent in that he failed to remove portions of the placenta, and that he failed in his professional duties in leaving the plaintiff in the condition she was in on the 28th. There was testimony that the plaintiff had bowel trouble, elevated temperature and chills, accompanied by a headache, during the time the defendant was treating her, which indicated a septic condition. The defendant testified that the patient had some fever and a slight headache during the week, but that he attributed it to the bowel trouble, and that when he left her on the 28th her temperature was normal. Four physicians testified on each side.

One of the instructions given the jury was that the testimony was insufficient to support a verdict in favor of the plaintiff on the charge that the defendant quit his professional service for the plaintiff, and went to St. Paul, thereby neglecting the care and attention of the plaintiff, and the jury were not permitted to find a verdict on that charge in the complaint. Another instruction was that the testimony was insufficient to support a verdict in favor of the plaintiff on the charge that the defendant negligently failed to make a diagnosis and treat the plaintiff. After a verdict had been returned in favor of the defendant, the trial court concluded that all the issues had not been fairly submitted to the jury for it to pass on, and the supreme court agrees with that conclusion.

The testimony of the second physician as to the condition in which he found the plaintiff within thirty-six hours after the defendant last visited her stood undisputed in the record. He testified, in effect, that when he was called he found her suffering from septicemia, that puerperal sepsis had found lodgment in the right arm, resulting in ankylosis of the ulna and radius, disability of the wrist, and impairment of the right hand and fingers, indicating an infection starting in the placenta, and that she was in a semiconscious condition, due to the infection, and so far gone that he did not dare to give her an anesthetic. Such a condition, coupled with the testimony that the patient suffered with a temperature and chills during the time the defendant was treating her, rendered the propriety of his leaving her on the night of the 28th a question for the jury. As to this matter, the defendant testified that it was not necessary for him to go to St. Paul, but that a relative of the patient he accompanied insisted that he go. Under this view of the situation, the court would have been justified in refusing to give the first instruction mentioned above.

With reference to the other instruction stated, it was conceded that during the week the defendant was attending the patient she had a temperature with a slight headache, and that he attributed that condition to bowel trouble. This, when considered in connection with the testimony that the patient had quite a fever, accompanied with headaches and chills during that time, fairly made a question for the jury as to whether the defendant was in the exercise of proper care and skill in making a diagnosis and treating his patient. It follows that the trial court was clearly within its discretion in granting a new trial.

Company Not Answerable for Physician's Malpractice

(Parsons v. Yolande Coal & Coke Co. (Ala.), 91 So. R. 493)

The Supreme Court of Alabama says that this was an action to recover damages for the death of an employee of the defendant in October, 1918, resulting from an attack of influenza. It was the company's custom to deduct a stipulated sum from the wages of each of its employees for medical and hospital services. The evidence showed that all funds so collected were devoted specifically to these purposes or added to a separate fund for the benefit of the employees, and that the defendant corporation derived no profit therefrom. It was without dispute that the physician employed was a competent and skilful one, of good standing in his profession. Malpractice was charged, but what the evidence showed with regard thereto is not stated by the court. There was a judgment for the plaintiff, which was set aside on a motion for a new trial; and the judgment granting a new trial is here affirmed. This court believes that the overwhelming weight of authority holds the employer under arrangements of this character not accountable for the malpractice of the physician employed, unless he has failed to exercise due care in the selection of the physician. The reasons given by the authorities are varied, some of them holding to the doctrine that the employer is in charge of the distribution of a trust fund devoted to charitable purposes, and for this reason could not be subjected to liability.

In *Tucker* v. *Mobile Infirmary Association,* 191 Ala. 572, 68 So. R. 4, this court reviewed the authorities touching this doctrine, repudiating it so far as it could have any application to a stranger or to one who secured the services of the hospital paying full compensation therefor. The court does not consider that the case in point bears any such analogy to the Tucker case as to require an extensive discussion thereof; nor is it necessary to call attention to the points of differentiation. While it may be conceded that the arrangement for the employment of a physician for its employees was within the broader powers of the defendant corporation, it was not created for that purpose, but for the mining of coal and its preparation for the market; and the securing of medical and hospital services was but a mere incident. There is no more distinct calling than that of a physician, and none in which the employee is more distinctly free from the control or direction of his employer. Those to whom the defendant must commit the transaction of its business are not required or expected to be able to exercise any expert knowledge as to medical or surgical matters, and are unfit to supervise the work of physicians. The law in its administration should be reasonable and practical, not merely theoretical, and this court approves the logic of the cases that hold that the doctrine of respondeat superior, or "let the master answer," is without application; and the court rests its conclusion thereon, that the action of the trial court in granting the motion for a new trial should be sustained.

Death of Insured Physician from Septic Poisoning from Patient's Coughing

(Dunwoody v. Royal Indemnity Co. (Mich.), 188 N. W. R. 498)

The Supreme Court of Michigan, in affirming a judgment in favor of the plaintiff, says that she was the beneficiary named in a policy of accident insurance issued to a physician. Attached to and made a part of the policy was a "septic poisoning rider," which stated that, in consideration of an additional premium of $1.25, it was understood and agreed that septic infection resulting from external inoculation through accidental contact with septic matter should be regarded as an accidental bodily injury within the terms of the policy. This policy, including the rider, was in force when, in October, 1918, influenza was quite prevalent, and, October 9, the insured was examining a patient in his office, using a stethoscope. The patient was standing. The insured, sitting in front of him, directed him to take a deep breath. In so doing, the patient involuntarily coughed violently, the sputum flying into the mouth of the insured, on his lips and in his face. The insured was then in robust health and active in his profession. Two days later, he was feverish, and the third day he took to his bed, and he died, October 20.

It was the theory of the plaintiff that the death of the insured was due to the fact that the septic matter which the patient by accidentally coughing threw into his mouth and on his lips inoculated the system of the insured with virulent influenza germs, septic matter, and that this brought the case within the provisions of the rider. To establish her case, the plaintiff called the patient who had coughed into the face of the insured, and, over the defendant's objection, he was permitted to testify to his physical condition on the day of the accident. The court does not discover any valid objection to this evidence, but thinks it was competent to establish (1) by the patient himself what his symptoms were, and (2) by medical evidence what disease such symptoms indicated.

One of the defendant's officers was called as a witness by the defendant, and it was sought to prove by him the meaning of certain words in the rider as understood by the "class of people it was intended to cover." An objection to his testimony was sustained, and properly so. He had not qualified himself to testify on this subject. The defendant's medical witnesses were permitted to testify fully as to the meaning given these words and how they were understood by the profession.

The court found no difficulty in following the contention of the defendant's counsel that verdicts may not rest on conjecture, guesses or speculation. But it does not follow him in his contention that the verdict in this case so rested. The plaintiff's medical testimony, if believed, made as certain as medical testimony could make certain that the insured had influenza followed by pneumonia, that it was septic in its nature, of a most virulent type, and that it was contracted from the sputum, septic matter, which the patient accidentally threw into his mouth. The defendant's medical testimony was in conflict with that produced by the plaintiff. The credit to be given the medical testimony as well as the other testimony was for the jury. By the plaintiff's medical testimony, the cause of the insured's death was not left to conjecture or speculation, unless the court is prepared to hold that the opinions of men learned in the medical profession are conjecture and speculation, a doctrine to which this court cannot subscribe. An examination of the authorities is convincing that the plaintiff made a case for the jury.

Employers Made Liable for Unskilfulness or Errors of Judgment of Physicians

(Brown v. Sinclair Refining Co. (Okla.), 206 Pac. R. 1042)

The Supreme Court of Oklahoma says that the plaintiff, after the settlement of the claim for compensation which he filed with the state industrial commission on account of injuries to his left shoulder sustained while in the employ of the defendant, instituted this action against the defendant to recover damages for alleged malpractice in the treatment of his injuries by the physician employed by the defendant. Under the workmen's compensation act of Oklahoma, it is incumbent on the employer properly to provide medical and surgical aid, and a schedule of compensation is adopted, providing specific amounts of recovery for specific results of accidents. The employer is liable, the court holds, for all legitimate consequences following the accident, including unskilfulness or error of judgment of the physician furnished as required; and the employee is entitled to recover under the schedule of compensation for the extent of his disability, based on the legitimate result of the accident, regardless of the fact that it has been aggravated and increased by the intervening negligence or carelessness of the employer's selected physician. But the original judisdiction of the state industrial commission is exclusive in such cases; wherefore, a judgment in this case for the defendant is affirmed.

Society Proceedings

COMING MEETINGS

American Physiological Society, Toronto, Canada, Dec. 28-30. Dr. Chas. W. Greene, University of Missouri, Columbia, Secretary.
Isthmian Canal Zone, Medical Association of, Ancon, Dec. 15. Dr. L. S. Chapman, Ancon, Secretary.
Philippine Islands Medical Association, Manila, Dec. 20-22, 1922. Dr. I. Concepcion, College of Medicine and Surgery, Manila, Secretary.
Porto Rico, Medical Association of, Ponce, Dec. 15-17. Dr. Augustin R. Laugier, San Juan, Secretary.
Society of American Bacteriologists, Detroit, Dec. 27-29. Dr. A. P. Hitchens, Army Medical School, Washington, D. C., Secretary.
Southern Surgical Association, Memphis, Tenn., Dec. 12-14. Dr. H. A. Royster, Raleigh, N. C., Secretary.

SOUTHERN MEDICAL ASSOCIATION

Sixteenth Annual Meeting, held at Chattanooga, Tenn., Nov. 13-16, 1922

The President, Dr. Seale Harris, Birmingham, Ala., in the Chair

A Family Group of Typhoid Simulating Meningitis

Drs. Harvey G. Beck and Ferdinand A. Ries, Baltimore: Typhoid fever, during certain epidemics, may manifest profound nervous symptoms, meningeal in type. These symptoms occur almost exclusively in young persons, often late in the febrile period; but they may occur as early as the first or second day of the fever, especially in children, and may so dominate the clinical picture that diagnosis becomes extremely difficult, and the real nature of the condition is recognized only when enlargement of the spleen, diarrhea and roseola appear. There appears to be either a selective affinity for typhoid toxins or a seat of predilection of the typhoid bacilli in certain strains of the organism. This would account for the greater incidence of meningeal complications in some epidemics than in others. The nervous symptoms in typhoid fever may be due to toxemia, to pathologic changes in the meninges, or to demonstrable lesions in the brain or cord.

Malaria in Children and the Abuse of Quinin

Dr. Eugene Rosamond, Memphis, Tenn.: The abuse of quinin in its overdosage to children is almost universal throughout the South. The giving of quinin in sugary syrups to infants and children with gastro-intestinal diseases may aggravate the existing condition. Overdoses of quinin may account for many nervous phenomena not explainable otherwise.

Septic Meningitis in a Five Year Old Child

Drs. W. A. Mulherin and V. P. Sydenstricker, Atlanta, Ga.: Septic meningitis, due to organisms resembling *Streptococcus viridans,* was observed in a 5 year old child. The primary focus of infection probably was the tonsils. The route of infection, very likely, was through the lymphatics and not through the blood vessels. There was excessively high fever, 113 F., when a bronchopneumonia became superimposed. There was localized encephalitis in the area of the red nucleus, this probably contributing to the height of the fever. The patient's blood agglutinated the offending organisms in a dilution of 1:40, showing acquired immunity.

The Influence of the Obstetrician for Breast Feeding

Dr. C. R. Hannah, Dallas, Texas: The mother's ability to nurse her baby depends largely on prenatal care. The best results in obstetrics are obtained in those cases in which there has been supervision of the patient during gestation. There should be both mental and physical preparation of the mother for labor and lactation. She should know that, in breast-fed babies, diseases and complications are less frequent, and that proper food plays an important part in the future health of the baby. The advantages of diet and exercise should be explained to her. Walking in moderation develops the abdominal muscles, causes deep breathing and assists in elimination. Adherence to rules and regulations encourages discipline and prepares her mentally and physically for labor. Diet has a direct influence on the preparation and the ability of the mother to nurse her baby. During pregnancy the proteins should be limited, carbohydrates should be reduced, and the expectant mother should partake more freely of vegetables and fruit. She should not wholly refrain from one food to partake excessively of another.

Treatment of Children in the Home and the Hospital

Dr. John Zahorsky, St. Louis: If the home is the best place for the care of the healthy child, it is also the best place for the healing of the sick child. Very slight modifications of the household routine are necessary to establish all that is required to care for the sick in the great majority of children's diseases. The educated mother is a better nurse for her sick child than the trained nurse, since the former can see and appreciate changes in her child that the latter can never perceive. The mother understands the language of the young child; the nurse does not. Even when a trained nurse has to be introduced into the household, the mother should watch her child. It is a great defect of medical education that the young physician has not learned to adjust his knowledge to the needs of home therapeutics. In fact, it has been my experience that the modern hospital-trained physician does not feel competent to treat the sick child in the home. He instinctively wants to send it to the hospital. The children's hospital is an expensive institution, and excepting for surgical cases, should serve merely as an adjunct to home practice. The more efficient the work is in the home, the less needful becomes the hospital.

Practical Points on Purgation

Dr. Lewis W. Elias, Asheville, N. C.: Merely because a person is sick is no reason for a purge. Most patients are best helped by water, food, and such hygienic measures as tend to build up his resistance. If the lower bowel needs emptying, it should be done with an enema. A cathartic should be given with the same care and thought as any other drug.

High Voltage Roentgen-Ray Therapy

Dr. Sherwood Moore, St. Louis: There is no inherent superiority in so-called high voltage roentgen-ray therapy over the older methods and over the employment of radium, save that it is far more efficient. Even in advanced cases, the relief of pain and the sometimes astonishing subjective improvement brought about would indicate its application regardless of the hopelessness of effecting a cure.

Roentgen-Ray Treatment of Chronically Infected Tonsils and Adenoids

Dr. Charles A. Waters, Baltimore: The roentgen-ray treatment of tonsils and adenoids is especially indicated in those cases in which a surgical operation is inadvisable, such as chorea, pulmonary tuberculosis, and cardiac and renal lesions. The greatest field of usefulness will be in the treatment of children. Children rarely have a chronic infection of the tonsils comparable to that of adults. Their tonsils and adenoids are very cellular, and are of the type that responds most readily to roentgenotherapy. The symptoms are largely due to hypertrophy of the lymphoid tissue in the throat and nasopharynx. It is possible that when the technic is perfected, roentgen-ray or radium treatment will entirely supplant surgical measures in children.

Roentgen Ray Versus Radium in the Treatment of Uterine Hemorrhage

Dr. Jackson W. Landham, Atlanta, Ga.: Surgical treatment of uterine fibroids and myopathic bleeding is indicated in a very limited number of cases. An accurate diagnosis is absolutely essential. Since uterine hemorrhage may be controlled without producing a premature menopause, age does not necessarily constitute a contraindication to radiotherapy. Women with undeveloped sexual functions, pelvic inflammations, cervical or uterine polypi, pedunculated or degenerating fibroids, malignancy of the body of the uterus, or large adherent fibroids producing pressure symptoms, should be treated surgically.

Bacillus Acidophilus: Results of Feeding Milk Culture

Dr. George C. Mizell, Atlanta, Ga.: Relief from chronic intestinal toxemia, putrefactive type, and stasis, even in the presence of intestinal adhesions, has been secured while feeding *Bacillus acidophilus* milk culture in conjunction with a general diet. Chronic ileocolitis and colon stasis of undetermined origin, as well as secondary to intestinal adhesions, may be relieved by feeding *Bacillus acidophilus* milk. When results are not so secured, additional measures of a nonirritating character directed to the relief of the constipation and some modification of diet may render the treatment effectual.

Tropical Sprue and Its Relationship to Disturbances

Drs. Daniel N. Silverman and Willy Denis, New Orleans: Our observations have shown that the enzymes of duodenal contents in a case of sprue were present to a considerable extent during the clinical course of the disease, and that these enzymes greatly increased in strength even up to normal amounts during clinical improvement of the patient. These facts would lead us to believe that in tropical sprue the pancreas does not undergo always extensive or permanent damage, and that this gland may assume its normal digestive function.

Digestive Hemolysis as a Test of Liver Function and the Influence on it by Hepatic Extract

Dr. A. L. Levin, New Orleans: Liver pathology can probably be detected early by the test of digestive hemoclasia of Widal. In the study of gallbladder infections, we should bear in mind that the disease often begins from the liver end. The so-called intestinal toxemias and simple cases of indigestion are probably of hemoclastic origin. Hepatic opotherapy undoubtedly influences the Widal hemoclasia test. A large percentage of cholecystitis and cholelithiasis cases give a positive hemoclasia of Widal, and the results of treatment, whether medical or surgical, should probably be checked up by the Widal liver test. Diseases arising from protein hypersensitiveness should be studied by this test. The test is not conclusive, but it invites enough interest for further observation and study. It should be adopted as a routine laboratory test.

Relation of Sleep to Bodily Nutrition

Dr. George M. Niles, Atlanta, Ga.: The elimination of carbon dioxid and the absorption of oxygen are diminished during sleep, mainly because the muscles are less active. While other secretions are diminished during sleep, this does not apply to those of the digestive apparatus. I have many times listened over the intestines of sleeping persons, and noted peristaltic activity continuing with unabated regularity. As to the movements of the stomach and intestines during sleep, those movements are to all intents and purposes as active as during the waking hours, less the stimulation of extraneous impressions produced by muscular exercise or the play of the emotions. The young infant cannot get too much sleep, and this is best attained by filling his stomach at stated intervals.

Cardiospasm Associated with Aneurysm, Aortitis and Angina

Dr. J. Russell Verbrycke, Washington, D. C.: Twenty-three cases of cardiospasm showed with the esophageal obstruction some degree of aortic dilatation or angina or both. The esophageal obstruction was noted as slight in five cases; moderate in seven, and marked with more or less dilatation above the spasm in eleven. Twenty cases showed varying degrees of aortic broadening up to actual aneurysm. Three cases with cardiospasm and typical angina gave no abnormal appearance of the aorta. Seven patients had typical angina pain; four had possible angina, but it was atypical because of its distribution or in that it was not induced by exertion. Ten had no chest pain, and two had only pain on swallowing. A few had no symptoms referable to the cardiospasm, but the majority were conscious of food or liquid sticking at the cardia, even though there was no unusual pain and, many with dilated esophagus had frequent regurgitation. Syphilis was proved in only two cases.

Ileocolon Stasis

Dr. Sidney K. Simon, New Orleans: In the treatment of chronic intestinal stasis, first in importance is the diet, and next, the carrying into execution of a well directed plan of abdominal exercises which should be insisted on as a regular routine, twice a day, and persisted in for several months. Pharmaceutical products should be made to play an insignificant rôle in the treatment of intestinal stasis. Surgical treatment should be limited to those rare cases in which a carefully instituted medical regimen has persistently failed.

Deafness in Congenital Syphilis

Drs. Albert Keidel and Jarold E. Kemp, Baltimore: Twenty-two cases of deafness due to late congenital syphilis are reported. The onset may be sudden or gradual, and is usually accompanied by tinnitus and vertigo. The syndrome is characteristic. Active manifestations of congenital syphilis other than aural lesions coexist with or antedate the malady, and are often of unusual severity. Of these, interstitial keratitis is the most common. The blood Wassermann test is positive in more than 90 per cent. of the patients; spinal fluid studies were invariably negative for abnormalities due to cerebrospinal syphilis. Cranial nerves other than the branches of the eighth are rarely involved. The prognosis is not good, and the results of treatment are poor. Adequate treatment of all patients with early congenital syphilis is advocated as a prophylaxis for late aural involvement.

Sugar Findings in Normal and Pathologic Spinal Fluids

Dr. A. G. Kelley, Atlanta, Ga.: The sugar content of cerebrospinal fluid is decreased in untreated cases of syphilis of the nervous system, in meningitis due to the meningococcus, *Staphylococcus aureus* and the pneumococcus, and in moribund cases. As cases of syphilis of the nervous system are treated, the sugar content gradually approaches the normal, and on this account repeated estimations of the sugar content of the cerebrospinal fluid in these cases may possibly be of prognostic value. There is sufficient evidence to warrant the opinion that *Spirochaeta pallida*, when present in the cerebrospinal fluid, utilizes the sugar normally present in the fluid.

Vaccines in the Treatment of the Secondary Infection in Pulmonary Tuberculosis

Dr. C. H. Cooke, Asheville, N. C.: Autogenous vaccines should never be used in pulmonary tuberculosis as a routine measure. They are of very limited value, and should be administered only in selected cases free of demonstrable foci of infection which have been sufficiently studied to warrant the attempt at specific therapy by reason of the failure of the usual routine conservative measures. They should never be used to the exclusion of these measures, and if reliance is put on them with disregard of more essential matters, a great deal of damage will result. The dose should be calculated carefully, and an attempt at a general reaction of serious nature should not be made. Persistence in their use after a fair and honest trial in the individual case without improvement on the patient's part should be sufficient grounds for discontinuance.

The Value of the Glucose Tolerance Test in the Diagnosis of Malignant Growths of the Digestive Tract

Drs. Sidney K. Simon and J. Holmes Smith, Jr., New Orleans: The glucose tolerance test was carried out in forty-five cases, in fifteen of which the diagnosis of carcinoma was definitely proved. Nine, or 60 per cent., of the patients gave a typical high sustained curve. In one case a high but atypical sustained curve was present, yielding a total of 66⅔ per cent. giving a sustained typical or atypical curve among our cancer patients. One case of pulmonary tuberculosis likewise furnished a Type I sustained curve. A new type involving a relatively low percentage of blood sugar at the forty-five minute reading, which was sustained to the end of the two hour period, was observed by us. This type we do not believe to be of significance in the diagnosis of malignancy. While not specific for carcinoma, a certain type of glucose tolerance curve is observed in a majority of patients suffering from carcinoma of the digestive organs. After excluding diabetes mellitus, tuberculosis and hyperthyroidism, the Type I or Type II curve, in conjunction with characteristic clinical evidence, would lend strong support to the diagnosis of malignancy.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Archives of Neurology and Psychiatry, Chicago

November, 1922, **8**, No. 5

- *Analysis of Fourteen Consecutive Cases of Spinal Cord Tumor. C. H. Frazier and W. G. Spiller, Philadelphia.—p. 455.
- *Mechanical Effects of Tumors of the Spinal Cord: Their Influence on Symptomatology and Diagnosis. C. A. Elsberg and B. Stookey, New York.—p. 502.
- *Shall We Decompress for Choked Disk? B. Sachs, New York.—p. 515.
- *Results of Removal of Tumors of Spinal Cord. A. W. Adson and W. O. Ott, Rochester, Minn.—p. 520.
- *Dystonia Musculorum Deformans: With Especial Reference to a Myostatic Form and Occurrence of Decerebrate Rigidity Phenomena. A Study of Six Cases. I. S. Wechsler and S. Brock, New York.—p. 538.

Diagnosis of Spinal Cord Tumor.—Given a case with pain of definite localization, persisting without variation, except in degree, in its original territory for months, and especially for longer periods, Frazier and Spiller assert one should at least have in mind the possibility of spinal tumor and be on the lookout for further confirmatory evidence, such as paresthesias, hyperesthesis, anesthesia, disturbance of reflexes and motor impairment. But pain alone, even though localized for a considerable time, may be caused by radiculitis or meningomyelitis, and the development of other symptoms must be waited for before operation is justifiable. Pain associated with atrophy in the root distribution of the upper limb should arouse the suspicion of tumor, and yet if roentgen-ray examination reveals no pathologic condition, it seems, as a general rule, advisable to defer operation until some clinical evidence of implication of the cord is obtained. Exaggeration of the tendon reflexes of the lower limb, especially if associated with the Babinski reflex, on the same side as the pain and atrophy of the upper limb, is a combination that may justify early operation. Should in addition to this a diminution of pain and temperature sensations be found in the lower limb of the opposite side, operation, under ordinary circumstances, should be performed. The incidence of paresthesias is also reviewed. Fourteen cases are reported in detail.

Classification and Symptoms of Spinal Cord Tumor.—All growths on the posterior aspect of the cord, whether in the median line or laterally, behind the posterior nerve roots, are classified by Elsberg and Stookey as posterior growths; those that lie on the lateral aspect of the cord, in front of the posterior roots but behind the dentate ligament, are termed dorsolateral growths; those that lie laterally, in front of the dentate ligament but behind the anterior roots, ventrolateral growths; finally, those that lie on the anterior aspect of the cord, in the median line or more laterally but in front of the anterior roots are termed anterior or ventral growths. Tumors on the anterior and anterolateral aspects of the spinal cord are relatively frequent and form about one third of all cases. Although many patients with spinal cord tumors have no pain at the onset, the large majority have some subjective sensory disturbance as an early symptom. In some patients, objective sensory disturbances are absent for a long period and only appear after a lumbar puncture has been performed. Tingling, coldness, burning and other paresthesias are not rare in extramedullary growths. If the tingling occurs in the contralateral limb, below the level of the growth, there is considerable probability that the tumor lies on the ventrolateral aspect of the cord. Intradural tumors adherent to the dura and extradural growths not infrequently press the cord to the opposite side of the spinal canal and cause early motor symptoms on the side of the body opposite that of the tumor. If the signs of motor and sensory disturbances become aggravated after lumbar puncture and withdrawal of fluid, it is probable that the growth is either extradural or intradural, and adherent to the inner surface of the dural membrane. Tenderness of a spinous process at the vertebral level of the lesion points to bone disease; tenderness of spines well below the vertebral level of the growth points to an intradural extramedullary tumor.

Decompression for Choked Disk Not Worth While.—Sachs' view is that the ordinary decompression operation, whether subtemporal or suboccipital, promises little for the relief of choked disk; in twenty-nine out of thirty-eight cases it was practically time and labor wasted. Instead of performing this operation, every effort should be made to attack the tumor itself and to remove the neoplasm, provided the patient's life can be spared.

Results of Removal of Spinal Cord Tumors.—In a series of 112 laminectomies reviewed by Adson and Ott, tumors were found in eighty-five (76 per cent.). Forty-three of the tumors (51 per cent.) were removed completely, twenty-six (30 per cent.) were removed partially, and sixteen were not removed. In twenty-seven cases no tumor could be found at operation; in four of these, tumors were demonstrated later. Seventy-nine patients are living; twenty-two are perfectly well and at work. Seven are improved and doing a little work; twenty-one are improved but not at work, and fourteen are helpless. Fifteen were not traced. Seventeen died in the hospital, and seventeen died subsequently at home, with an average time of two years between operation and death.

Dystonia Musculorum Deformans.—The six cases reported by Wechsler and Brock show a number of features which hitherto have not been associated with dystonia musculorum deformans. It is quite difficult to explain the nystagmus in three of the cases unless it is assumed that the ocular movements are part of the dystonia. So, too, it is difficult to interpret the presence of the Babinski sign in one case without other signs of involvement of the pyramidal tract. Further, the fanning of the lesser toes and the dorsal extension of the big toe is occasionally observed in the same patient during the spontaneous movements. Another patient also exhibits this spontaneous dorsal extension and fanning. The speech disturbances in two of the cases were also unusual. The speech was explosive; there was poverty of words and sometimes echolalia. The speech disturbance in one case was somewhat reminiscent of Wilson's syndrome. Other features are pointed out.

American Journal of Public Health, Chicago

November, 1922, **12**, No. 11

- Ideal Health Department for City of 100,000 Population.—p. 891.
- Statistical Evaluation of Public Health Activities. R. Pearl, Baltimore.—p. 915.
- Coordination of Public and Private Agencies in Conduct of Completely Generalized Public Health Nursing Service. E. W. Holt, Dayton, Ohio.—p. 922.
- Mortality Statistics of South American Republics. F. L. Hoffman, Newark, N. J.—p. 924.
- Coordination of Voluntary Health Agencies. D. B. Armstrong.—p. 929.
- Should Social Service Departments in Children's Hospitals Be Developed into Departments for Prevention of Disease? H. C. Carpenter, Philadelphia.—p. 932.

Arkansas Medical Society Journal, Little Rock

November, 1922, **19**, No. 6

- Fighting Faddists. W. T. Wootton, Hot Springs.—p. 103.
- Pneumaturia, Complicating Diabetes Mellitus and Diverticulum of Bladder. F. B. Young, Gering, Neb.—p. 107.
- Diagnosis of Syphilitic Aortitis. W. H. Deaderick, Hot Springs.—p. 109.

Boston Medical and Surgical Journal

Nov. 16, 1922, **187**, No. 20

- Subphrenic Abscess. H. M. Clute, Boston.—p. 681.
- *Diagnosis and Treatment of Gallbladder Disease. F. H. Lahey, Boston.—p. 687.
- *Tubercular Infection in Childhood. A. R. Cunningham and A. R. Ratcliffe, Boston.—p. 691.
- Painless, Little Lump Only as Big as Tip of Her Little Finger and Yet, If Neglected, It Would Surely Have Killed Her, After Months of Terrible Suffering. W. W. Keen, Philadelphia.—p. 695.

Results of Gallbladder Operations.—Of sixty-four cases of cholecystectomy traced by Lahey, fifty-one patients, or 80 per cent., reported themselves as cured; six, or 9.3 per cent., reported themselves improved; three, or 4.5 per cent., reported themselves as no better; four, or 6.2 per cent., had died. Of twenty-eight cases of cholecystostomy traced, sixteen patients, or 61 per cent., reported themselves cured; seven, or 27 per cent., reported themselves improved, but with symptoms; two, or 7.7 per cent., were operated on again; three, or 11.5

per cent., had died. Of eleven cases of choledochostomy for common or hepatic duct stone traced, eight patients, or 72 per cent., were cured; two, or 18 per cent., were improved, but with symptoms; one, or 9.9 per cent., died.

Efficacy of Tuberculins.—By combined methods more than 1,200 children have been tested in the Boston Dispensary with tuberculins, both human and bovine, since July, 1921. Tuberculin was applied both by the Pirquet method and by the intracutaneous method of Mantoux, both methods being employed on each patient. The product of six manufacturers was used. Only one of these, tuberculin from the Saranac Laboratory, was found suitable for use in determining the presence of the tuberculous infection by any method whatever, Cunningham and Ratcliffe suggest that the use of these five tuberculins in previous investigations may be a cause of the lack of uniformity which appears in the results.

California State Journal of Medicine, San Francisco

October, 1922, **20**, No. 10

*Myocardial Insufficiency. R. K. Barry, San Diego.—p. 326.
Great Second Type of Chronic Arthritis. L. W. Ely, San Francisco.—p. 329.
Measurements Based on Roentgen-Ray Examination of One Hundred Normal Children. E. Schulze.—p. 332.
Clinical Mistakes in Gynecologic Diagnosis. R. E. Skeel, Los Angeles.—p. 334.
Modern Treatment of Weak or Flat-Foot. G. J. McChesney, San Francisco.—p. 337.
What General Practitioner Can Do to Improve Maternity Conditions in California. R. K. Smith.—p. 340.
Obscure Reflex Symptoms of Teeth, Tonsils and Sinuses, Especially Sinuses. R. B. Sweet, Long Beach.—p. 342.
*Phlorizin Glycosuria in Diagnosis of Pregnancy. M. W. Hollingsworth, Anaheim.—p. 344.
Surgical Study of Arterial Decortication. C. L. Callander, San Francisco.—p. 346.
Iron Citrate Reactions. F. F. Gundrum, Sacramento.—p. 349.
Physical Basis of Deep Roentgen-Ray Therapy. F. Rieber, San Francisco.—p. 350.
Over Fifty Years in Medicine. R. F. Rooney, Auburn.—p. 354.
Industrial Medicine and General Practitioner. G. G. Moseley, San Francisco.—p. 356.
Physiotherapy in Treatment of Child with Rheumatic Fever. E. Bronson, San Francisco.—p. 357.

Myocardial Insufficiency.—In fourteen cases cited by Barry the true nature of the malady had not been suspected either by the patients or their physicians until the disease had progressed well toward a fatal termination. Nine of these patients have died and the other five are still under observation. In eight cases the abdominal symptoms were accompanied at times with severe pain. Five had a blood pressure much below normal and in three the blood pressure was slightly elevated. Six of these patients are dead; all died very suddenly. In none of these cases was there any valvular lesion of importance. Of the second group of six patients who had no attacks of pain, three had a low blood pressure and in three the blood pressure was slightly elevated. Three of this group are dead; all died rather suddenly according to reports. Two of those that died had a low blood pressure and in one case it was elevated. Two patients of this group had pulsus alternans; in one case the alternation followed a premature auricular beat, and in the other the alternation was continuous. The patient with continuous alternation is still alive, while the one with the short periods of alternation following the premature auricular beats is dead. Of the whole series of fourteen cases only four patients showed a constant regular sequence of events in the cardiac cycle. Of the nine patients who died, all except two had some disturbance of the cardiac rhythm or pulsus alternans. None of the cases was traced to a definite infectious origin. The abdominal symptoms were the first signs of the myocardial insufficiency and none of the patients attributed any of their symptoms to their heart. In the mind of the patient all the symptoms were due to the stomach, otherwise why did the expulsion of gas give relief. Some of the patients complained of fullness in the abdomen, having to loosen their clothing after eating and the escape of quantities of gas per rectum. The first evidence that there is a cardiac factor as well as an abdominal one, Barry says, may be a sudden drop of the systolic blood pressure to a point around 100.

Phlorizin Glycosuria in Diagnosis of Pregnancy.—The Kamnitzer and Joseph method of diagnosing pregnancy has been applied by Hollingsworth in fifty-four cases, twenty-eight nonpregnant women, nineteen pregnant women, and seven men. The decisive results of the originators have not been obtained. The apparent wide variations in the susceptibility to phlorizin, as judged by the depth of the black precipitate in the bismuth reduction, was striking. In this series some of the most positive tests were in men and nonpregnant women; 21 per cent. of the nonpregnant women and 28 per cent. of the men gave positive tests. Besides, negative tests were obtained in two of nineteen pregnant women, leaving positive results in 90 per cent. in pregnancy. The conclusion concerning the phlorizin method of diagnosing pregnancy in this series was, therefore, that it is simple and easily applied, but greatly lacking in dependability.

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Freud and Freudians. E. C. Reid, San Francisco.—p. 373.
Diagnostic and Prognostic Value of Breath Holding Test. F. H. McMechan, Avon Lake, Ohio.—p. 377.
*Infection of Placenta. J. M. Slemons, Los Angeles.—p. 381.
*Torula Infection: Report of Two Cases. N. Evans, Loma Linda.—p. 383.
Relation of Surgeon to Anesthetist. S. Pope, San Francisco.—p. 385.
*Postinfectious or Epidemic Encephalitis. R. Moore, Los Angeles.—p. 387.
Traumatic Dislocation of Both Testicles; Report of Case. C. L. Gaulden, Los Angeles.—p. 390.
Foreign Bodies in Upper Air and Food Passages. H. B. Graham, San Francisco.—p. 390.
Ethyl Chlorid Anesthesia in Minor Operations. L. A. Oldenbourg, Berkeley.—p. 394.
*Indications for Administration of Quinidin in Auricular Fibrillation. A. W. Hewlett, San Francisco.—p. 395.
Underlying Principles of Plastic Surgery. J. A. Pettit, Portland, Ore.—p. 398.
Treatment of Active Syphilis. H. E. Alderson and G. H. Becker, San Francisco.—p. 402.
*Differential Pupilloscope. O. Barkan, San Francisco.—p. 403.
Intravitam Bone Marrow Puncture in Pernicious Anemia. E. H. Falconer and L. M. Morris, San Francisco.—p. 404.

Infection of Placenta.—In Slemons' series of fifty-two infected placentas among 3,000 cases there were thirty-nine infant deaths, a mortality of 1.3 per cent. Not all of these deaths may be ascribed to placental infection, for the series included cases of eclampsia, placenta praevia and dystocia, in which operative measures were employed to effect delivery. Maternal infection was proved during the puerperium in fifteen cases. Fortunately the infection was never a severe one. Generally, the slight degree of fever during labor disappeared after delivery. In two cases, however, fever reappeared on the second and third day postpartum, respectively, and subsequently the course followed was that characteristic of a mild puerperal infection. The measures required to prevent the infection of the placenta are no other than those most effective for the prevention of puerperal infection.

Torula in Cerebrospinal Fluid.—The most notable feature in the examination of these patients, Evans says, was the finding of immense numbers of the torula in the cerebrospinal fluid by direct microscopic examination and the securing of a pure culture of the characteristic organisms on artificial mediums. It seems from an examination of the reports of the seven previously reported cases that in none of these were successful cultures secured from the fluid obtained by spinal puncture, although in one case organisms having the characteristic morphology were seen. Attention is called to the danger of failing to reorganize the presence of these organisms in the direct microscopic examination of specimens of spinal fluid on account of their superficial resemblance in size and shape to lymphocytes.

Intraspinal Injection of Autogenous Serum in Epidemic Encephalitis.—A report is made by Moore of the treatment of eight cases of epidemic encephalitis by the intraspinal injection of the patient's own blood serum. Thirty-nine treatments were given in all. The highest number of injections in a single case was eleven. A sufficient amount of blood was taken from the patient to give 30 c.c. of serum. This was treated in the usual laboratory way to prepare it for injection. In some instances the serum was inactivated and in others not. It was then injected intraspinally after an equal amount of cerebrospinal fluid had been removed. These injections were repeated at intervals of from four to twenty days. Their repetition depended on the clinical symptomatology developing after each injection. In three cases a definite variability of symptoms appeared. The other five cases had unchanging or gradually progressing symptomatology. In five cases certain changes noted following treatment seemed to be due to the treatment. No patients were cured. In one case there was little room to doubt that the remarkable improvement manifest after each of the first four injections was directly due to the treatment. In a second case, a Parkinsonian syndrome that showed variability in symptoms, definite improvement manifested itself gradually throughout the whole course of injections. So far as these particular patients are concerned no certain permanent benefit has resulted from this treatment. However, the results in this series of cases, and especially in the case of Parkinson's disease, Moore says, suggest that symptoms in chronic central nervous disease usually regarded as being permanent may not be so. They may be due to the overwhelming and consequent paralysis of nerve tissue by toxic substances. Early relief of such irritation may result in recovery.

Indications for Use of Quinidin in Auricular Fibrillation.—When auricular fibrillation occurs in a heart that has previously been in good compensation, Hewlett asserts quinidin should always be given; provided several days' treatment with rest and sedatives has failed to restore a normal rhythm. When auricular fibrillation occurs in a heart already decompensated, quinidin should be given a trial, provided the decompensation is not very serious. The results in this group of patients are not very satisfactory; not so much because the drug fails to restore the regular rhythm, but because relapses are common and the general condition may not be altered materially by the change in rhythm. When fibrillation has persisted for over a year, the results of quinidin treatment are not particularly encouraging. The number of patients who recover a normal rhythm is not great, and many of these relapse after a short time. Furthermore, the dangers from the drug are probably greater in these patients. Nevertheless, occasional patients with long standing auricular fibrillation have shown a remarkable improvement after receiving quinidin, even when other forms of treatment have been relatively ineffective. At present, it is not possible to predict what cases will thus be affected favorably.

Differential Pupilloscope.—About ten years ago C. Hess devised an instrument which gave a quantitative measure of the sensibility of pupillary reaction. From his own experience Barkan does not doubt that in the course of the next few years it will become a necessary adjunct to every well equipped institution and also, even if to a more limited extent, in the darkroom of the specialist. The reactivity of the pupil is measured by determining quantitatively the least difference of light intensity which is necessary to produce a reaction. The nature and localization of fundus lesions which may affect the reaction have been worked out.

Colorado Medicine, Denver

October, 1922, **19**, No. 10

Practice by Association. J. C. Epler, Pueblo.—p. 198.

Our Lessening Morbidity from Chronic Digestive Diseases. J. N. Hall, Denver.—p. 202.

Dangers and Limitations of Roentgen Rays and Radium. C. F. Hegner, Denver.—p. 206.

Schick Test; Experience in Its Application. E. Friedman, Denver.—p. 208.

Journal of Experimental Medicine, Baltimore

November, 1922, **36**, No. 5

*Blood Destruction During Exercise. I. Blood Changes Occurring in Course of Single Day of Exercise. G. O. Broun, New York.—p. 481.

*Experimental Studies of Nasopharyngeal Secretions from Influenza Patients. IX. Recurrence of 1922. P. K. Olitsky and F. L. Gates, New York.—p. 501.

*Differences Between Mitochondria and Bacteria. E. V. Cowdry and P. K. Olitsky, New York.—p. 521.

Action of Antigen on Fibroblasts in Vitro. II. A. Fischer, New York.—p. 535.

Surface Tension of Serum. IV. Action of Temperature. P. Lecomte du Nouy, New York.—p. 547.

Investigations on Oxygen Content of Cutaneous Blood (So-Called Capillary Blood). C. Lundsgaard and E. Moller, Copenhagen, Den.—p. 559.

*Studies on Biology of Streptococcus. II. Antigenic Relationships Between Strains of Streptococcus Hemolyticus Isolated from Scarlet Fever. W. P. Bliss, Baltimore.—p. 575.

Blood Changes During Exercise.—The following changes have been demonstrated by Brown to take place in the blood of dogs during exercise. An increase in the per cent. of cells and hemoglobin in the blood of the jugular vein occurs early in the course of exercise. It probably results from a redistribution of red corpuscles, with an increase in their proportion in their peripheral blood. As exercise is continued, there is a definite increase in plasma volume. A coincident decrease both in the total cell volume and the pigment volume during prolonged exercise suggests that blood destruction then occurs.

Experimental Studies of Influenza.—From the nasopharyngeal secretions of patients in the early hours of uncomplicated epidemic influenza during the recurrence in New York in January and February, 1922, Olitsky and Gates have again obtained an active agent, pathogenic for rabbits, and have identified this active agent as *Bacterium pneumosintes*. Four new strains of this micro-organism have been isolated in pure culture and identified with the 1918-1919-1920 strains on morphologic, cultural and serologic grounds. All of the significant characteristics of the old strains, including their effect on the resistance of the lungs of rabbits to secondary invasion with other bacteria, have been noted in the new strains.

Differences Between Mitochondria and Bacteria.—A direct comparison of mitochondria and bacteria in the living condition, as well as in permanent preparations, subjected to the same influences, and viewed side by side, Cowdry and Olitsky state, revealed microchemical and tinctorial differences which can only be attributed to a fundamental dissimilarity in their chemical constitution.

Biology of Streptococcus. — Hemolytic streptococci were found by Bliss in 100 per cent. of the throats of patients with scarlet fever during the first week of the disease. The average length of time that these organisms were present varied from ten to twenty days. No morphologic or cultural characteristics peculiar to the hemolytic streptococcus from scarlet fever could be demonstrated. Ten immune serums prepared from different strains of scarlet fever streptococci each agglutinated more than 80 per cent. of the strains isolated from scarlatinal throats. On the other hand, scarlatinal streptococci were not agglutinated by immune serum prepared from hemolytic streptococci isolated from other pathologic sources. The specificity of the agglutination reaction of scarlatinal streptococci was confirmed by absorption experiments. In a small epidemic of scarlet fever a healthy carrier of hemolytic streptococcus was detected; the organism carried was identical in its serologic reactions with strains of hemolytic streptococci isolated from active cases of scarlet fever. In a study of a number of contacts with a case of scarlet fever, in only one instance was a scarlatinal type of hemolytic streptococcus recovered from the throat.

Journal of Industrial Hygiene, Boston

November, 1922, **4**, No. 7

Discussion of Method of A. D. Waller for Computing Energy Output, and Results of Experiments Determining Energy Expenditure During Some Household Tasks. S. Gairns and M. K. O'Brien, Toronto.—p. 283.

Use of Spot Map in Industrial Dispensary. W. H. Bunn.—p. 293.

Clinical Study of Fur Cutters and Felt Hat Workers. W. Wright.—p. 296.

Silica Content of Some Factory Dusts. T. A. Webster, Hamstead, London.—p. 305.

Study of Mortality of Coal Miners, England and Wales. E. L. Collis.—p. 307.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

November, 1922, **20**, No. 4

*Cumulative Action of Cobra Venom. A. R. Cushny, Edinburgh.—p. 233.

*Studies on Action of Barium. W. Salant and N. Kleitman, Augusta, Ga.—p. 247.

*Comparative Concentrations of Alcohol in Human Blood and Urine at Intervals After Ingestion. W. R. Miles, Boston.—p. 265.

Cumulative Action of Cobra Venom.—Cushny finds that cobra venom injected intravenously is cumulative in action in rabbits inasmuch as small doses, even one fifth of the minimal lethal dose, given repeatedly prove fatal. This appears to be due to the slow inactivation or elimination of the poison which seems to vary somewhat in different subjects. Evidence of the persistence of the poison in the tissues could be obtained in some cases for a month after the injection. This gives rise to no symptoms, but the animal succumbs to a subminimal additional dose of the venom or of curarine, which acts at the same point. This seems to indicate that the venom is held in the nerve ends or receptors, and transfusion experiments showed that it is not contained in the blood. A small part of the venom injected is eliminated or inactivated and this seems to occur soon after the injection, while later the quantity in the tissues is reduced only gradually. This may, perhaps, arise from the combination with the tissues occurring only slowly, and thus a certain amount of venom escaping before it is anchored.

Action of Barium.—The evidence obtained by Salant and Kleitman in their experiments, they believe, warrants the conclusion that the action of barium varies with the condition of the organs with which it comes in contact. This was suggested by the results obtained in experiments on the fresh and untreated heart, for if barium was used when heart action was slow or altogether absent, stimulation was readily obtained; on the other hand, no change could be observed when heart action was normal before perfusion with barium chlorid. On the whole, the data presented showed that barium may cause stimulation as well as depression.

Concentration of Alcohol in Blood and Urine.—Miles states that the alcohol concentration in venous blood and in urine after taking 27.5 gm. absolute ethyl alcohol diluted in 1,000 c.c. or 100 c.c. of fluid is not identical and does not run parallel in the first two hours after ingestion. Taken as 2.75 per cent., the concentrations in the venous blood at 20, 40, 70 and 120 minutes after ingestion are 18, 24, 30 and 30 mg. of alcohol per hundred cubic centimeters. The corresponding urine values are 15, 37, 47 and 43 mg. per hundred cubic centimeters. The urine concentration is from 40 to 50 per cent. higher than the blood at from forty minutes to two hours after ingestion and it is also higher than that of the plasma by from 20 to 25 per cent. The alcohol taken as 27.5 per cent. solution gave at the above specified intervals, 28, 42, 43 and 36 mg. per hundred cubic centimeters in the blood, and in the urine 24, 51, 65 and 49 mg. per hundred cubic centimeters. The same weight of alcohol taken in a concentrated solution produces a definitely higher alcohol concentration in both blood and urine than when taken in a much more dilute solution. During the first twenty or thirty minutes after ingestion the urine alcohol is about the same or a little higher than in the blood; then for one hour or more it is from 35 to 50 per cent. higher.

Kentucky Medical Journal, Bowling Green

October, 1922, **20**, No. 10

Downward Dislocation of Patella Reduced by Manipulation. G. Aud, Louisville.—p. 690.
Accidental Eye Injuries; Case Reports. S. G. Dabney, Louisville.—p. 691.
Spinal Cord Disease; Report of Cases. J. J. Moren, Louisville.—p. 693.
*Tabetic Gastric Crisis Cured by Spinal Nerve Section; Case Report. L. W. Frank, Louisville.—p. 703.
Testicular Transplantation from Apes to Man with Histologic Findings. M. Thorek, Chicago.—p. 705.
Improvised Technic for Direct or External Tracheal Insufflation. W. H. Long, Louisville.—p. 707.
Splanchnoptosis. J. O. Jenkins, Newport.—p. 708.
Interpretation and Management of Certain Types of Uterine Hemorrhage. J. B. Lukins, Louisville.—p. 711.
Esophagoscope in Diagnosis and Treatment. M. E. Pirkey, Louisville.—p. 713.

Spinal Nerve Root Section in Tabetic Gastric Crisis.—In a case of syphilitic tabes with severe epigastric pain section of the posterior roots of the spinal nerves was done by Frank. The fourth, fifth, sixth and seventh segments of the dorsal nerve roots were divided on both sides. Only once thereafter did the patient have some return of pain which persisted about a week. He has regained much of his lost weight; he is in good physical condition and has been constantly at work for a year.

New Jersey Medical Society Journal, Orange

November, 1922, **19**, No. 11

Treatment of Fractures of Shaft of Femur. T. A. Dingman, Paterson.—p. 311.
Retardation of Senility (Steinach's Method); Its Theory and Practice. H. Benjamin, New York.—p. 315.
Preventive and Corrective Health Measures. G. J. Holmes, Newark.—p. 320.
Alkaline Crystals as Aid in Diagnosis. J. H. Dowd, Buffalo.—p. 321.
Cancer of Pancreas. H. I. Goldstein, Camden.—p. 324.

New York Medical Journal and Medical Record

Nov. 15, 1922, **116**, No. 10

Treatment of Skin Cancer by Roentgen Rays, Radium and Electrocoagulation. G. E. Pfahler, Philadelphia.—p. 553.
Reeducation in Writers' Cramp. P. Kouindjy, Paris, France.—p. 556.
Factors of Longevity in Semitropics. G. M. Randall, Daytona, Fla.—p. 559.
Conservative Treatment of Pneumonia. E. E. Cornwall, Brooklyn.—p. 563.
*Roentgenologic Contribution to Diagnosis of Spinal Carcinoma in Cases Having an Unrecognized Primary Focus. T. Scholz, New York.—p. 566.
Diagnosis of Subacute and Chronic Inflammatory Lesions of Mucosa Lining Maxillary Antrum of Highmore. W. Spielberg, New York.—p. 571.
Possibilities in Reconstruction of Human Form. M. Thorek, Chicago.—p. 572.
Some Points in Diagnosis of Typhus Fever. B. Roman, Buffalo.—p. 575.
Typhus Fever. W. A. Wovschin, New York.—p. 578.
Acute Mastoiditis Associated with Acute Nephritis. C. M. Sautter, New York.—p. 584.
Rapid Method of Blood Analysis. R. Weiss, Berlin.—p. 585.
Pathology of Inflammations. R. A. Keilty, Danville, Pa.—p. 588.

Roentgen-Ray Diagnosis of Carcinoma of Spine.—Scholz reports two cases. In one case the onset of illness was sudden, with cutting pain in the left lower extremity while lifting a heavy object. This pain subsided after a few hours. During the following six months there were intermittent pains varying greatly in intensity and duration. Intervals of perfect health alternated with such periods of more or less marked suffering. Objective findings were negative. During that period the patient was treated for sciatica, muscular rheumatism and spinal tuberculosis. During each free interval the patient was declared "cured," the successful result being ascribed each time to a different therapeutic measure. Six months after the onset of symptoms similar pains in right lower extremity also appeared gradually. The clinical diagnosis was tuberculosis of the spine. Eventually, after two years, a roentgen-ray diagnosis was made of a neoplasm involving the fourth and adjoining portions of the third and fifth lumbar vertebrae. The primary focus was probably in the prostate. The second patient experienced sudden pain first in the right ankle, later in the right knee. She was treated for rheumatism, sciatica and hysteria. Sixteen months after onset the clinical findings were in favor of spinal tuberculosis. Eighteen months after onset a radiographic examination showed almost complete destruction of the left half of the fourth lumbar vertebra, general carcinomatosis of the osseous system; primary focus not revealed. Clinical diagnosis: Metastatic carcinoma of the spine with primary focus probably in the stomach.

Northwest Medicine, Seattle

November, 1922, **21**, No. 11

*Orthostatic or Intermittent Albuminuria and Incident of Sagging Kidneys in Young Adults. A. H. Peacock, Seattle.—p. 393.
*Alkaptonuria. G. H. Anderson, Spokane.—p. 397.
Extrarenal and Ureteral Pathology Causing Renal Symptoms in Presence of Negative Urine. R. F. Hain, Seattle.—p. 399.
Diagnosis of Surgical Kidney. W. H. Budge, Logan, Utah.—p. 401.
Tuberculosis of Ileocecal Region with Especial Reference to Cecum. Report of Case. C. S. Menzies, Portland, Ore.—p. 406.

Orthostatic Albuminuria and Sagging Kidneys. — Several hundred soldiers were found by Peacock to have an orthostatic albuminuria, the cause being a sagging kidney. Many of these cases of orthostatic albuminuria occur in athletes, those who are subjected to physical strain as in lifting, or those giving a very clear history of injury. A single urinalysis is never sufficient, as many patients will not show albumin in the morning specimen but it will appear after being up and around all day. Pyelograms should be taken in the decubitus and sitting positions, as the ptosis will often be otherwise missed. Those patients submitted to nephropexy showed a marked general improvement and in many there was a disappearance of the albuminuria. This change has been noted also after wearing a binder. A definite chain of lesions can be traced from sagging kidneys, namely: kinks of the ureter, dilation of the renal pelvis, hydronephrosis, then pyelitis, stone, obstruction of the ureter and pyonephrosis. Pyelitis and sagging kidneys go hand in hand.

Familial Alkaptonuria.—Anderson has seen three cases of alkaptonuria in one family. The father died of typhoid and the mother of pernicious anemia. No reducing substance was known to have existed in the urine of either. There were nine children in the family, six girls and three boys. One girl died in infancy. Up to the present time it has only been possible to examine the urine of six of the members, three of which contained alkapton.

Pennsylvania Medical Journal, Harrisburg

November, 1922, **26**, No. 2

Economics of Practice of Medicine. A. C. Wood, Philadelphia.—p. 59.
*Importance of Fluid Intake in Treatment of Kidney Insufficiency. O. H. P. Pepper, Philadelphia.—p. 63.
Boundaries of General Practice. J. T. Ullom, Philadelphia.—p. 66.
Orbital Growth; Reports of Three Cases. W. T. Shoemaker, Philadelphia.—p. 70.
Relation of Orbital Affections Due to Nasal Conditions. S. A. Brumm, Philadelphia.—p. 74.
Maldevelopment Due to Oropharyngeal and Nasopharyngeal Obstruction. W. T. Annon, Philadelphia.—p. 77.
Concerning Certain Factors in Etiology and Treatment of Rickets. E. E. Graham, Philadelphia.—p. 79.
Nervous Manifestations of Rickets. F. E. Ross, Erie.—p. 82.
Pernicious and Secondary Anemias Treated with Germanium Dioxid. J. L. Lenker, Harrisburg.—p. 86.

Importance of Fluid Intake in Treatment of Kidney Insufficiency.—Pepper emphasizes that there are very few kidney diseases in which there is any excuse for lowering the fluid intake of the body; and, on the other hand, a free fluid intake is indicated and is beneficial in almost all instances of kidney insufficiency and kidney disease. Lowering the water intake of the body does not "rest the kidney." On the contrary, it puts additional strain on the organ's most delicate and most frequently impaired function—that of concentration of the waste products of the body's metabolism from the blood into the urine. Pepper pleads for the wider appreciation of these principles and for the free administration of fluid in almost all instances of kidney insufficiency or disease.

Southern Medical Journal, Birmingham, Ala.

November, 1922, **15**, No. 11

*Clinical Value of Protein Sensitization Tests. S. R. Miller and W. A. Baetjer, Baltimore.—p. 865.
Roentgen Rays in Diagnosis of Pulmonary Tuberculosis. J. D. MacRae, Asheville, N. C.—p. 870.
*Early Recognition of Tendencies to Mental Disease. R. McC. Chapman, Townson, Md.—p. 875.
Psychoneuroses in Their Incipiency. S. I. Schwab, St. Louis.—p. 881.
Early Manifestations of Psychoneuroses. L. E. Bisch, Asheville, N. C.—p. 885.
*Etiology and Treatment of Pellagra. W. E. Deeks, New York.—p. 891.
Infectious Theory of Pellagra. W. J. MacNeal, New York.—p. 899.
Clinical Picture of Diffuse Type of Chronic Cystic Mastitis ("Shotty" Breast). J. C. Bloodgood, Baltimore.—p. 907.
Mimicry of Ureteral Stone by Ureteral Stricture. J. N. Baker, Montgomery, Ala.—p. 912.
Severe Intra-Abdominal Trauma without Symptoms: Case Report. W. W. Harper, Selma, Ala.—p. 915.
Intestinal Obstruction in Premature Infant: Case Report. R. C. Woodard, Miami, Fla.—p. 915.
Three Cases of Gangrene of Foot. J. A. Mitchell, Tullahoma, Tenn.—p. 916.
Crawford W. Long, Discoverer of Anesthesia. F. K. Boland, Atlanta, Ga.—p. 919.
Climatic Influence in Infection of Upper Respiratory Tract. C. A. McWilliams, Gulfport, Miss.—p. 924.
Lower Half Headaches. J. J. Shea, Memphis, Tenn.—p. 926.
Correlation of Medicine and Physiology. J. T. Halsey, New Orleans.—p. 929.
Correlation of Medicine and Bacteriology. M. L. Graves, Galveston, Tex.—p. 931.

Clinical Value of Protein Sensitization Tests.—A fairly high percentage of persons manifest symptoms of natural or acquired hypersensitiveness to one or more proteins, or in some instances, as in drug idiosyncrasies, to substances of nonprotein nature. The symptoms of hypersensitiveness may be induced by inhalation, ingestion, injection or mere contact with the offending protein. The hypersensitiveness is proved in many cases through the taking of a careful detailed clinical history and the subsequent utilization of appropriate skin tests. These tests when positive often indicate methods for specific curative therapy by means of desensitization, or enable the physician to instruct the patient as to the ways by which he can consistently avoid the pernicious effects of the protein, or proteins, in question. In a diagnostic and therapeutic sense protein sensitization has been of greatest value in hay-fever and asthma, and to a much less degree in a variety of skin conditions, which are none the less, in all probability, symptomatic of the same hypersensitive mechanism. Miller and Baetjer believe that advances made thus far offer great promise for the future.

Prevention of Mental Disturbances.—Chapman calls attention to the possibilities of prevention of the more serious mental disturbances through early recognition of bad tendencies, or beginning maladjustments.

Treatment of Pellagra.—The treatment suggested by Goldberger varies very little from that advocated by Deeks. The main difference is that the latter lays more stress on the avoidance of the excess of carbohydrates, as in this lies the crux of successful treatment. He is convinced that there is no reason why we cannot get rid of pellagra in this country if an educational campaign is instituted, to teach the people how to live and what to eat. Fresh vegetables and fresh fruits are within the reach of all, the whole year around; and a diet consisting of these, with meat, fish, fresh milk, cheese and butter, with whole wheat bread and wholesome cereals, would soon eliminate the disease.

Southwestern Medicine, Phoenix, Ariz.

November, 1922, **6**, No. 11

Delayed Bowel Movement Type of Constipation. E. C. Fishbaugh, Los Angeles.—p. 383.
Basal Metabolism in Clinical Medicine. E. W. Adamson, Douglas, Ariz.—p. 386.
Henoch's Purpura; Report of Case. J. R. Moore, Clemenceau, Ariz.—p. 390.
Roentgen-Ray Findings in Common Bone Lesions. J. Thom, Jerome, Ariz.—p. 394.
Pneumothorax Treatment of Lung Abscess. M. Clyne and C. S. Kibler, Tucson, Ariz.—p. 399.
Roentgen-Ray Therapy of Tonsils and Its Limitations. W. Wilkinson, Phoenix, Ariz.—p. 402.
Radium and Its Action on Living Tissue Cells. W. W. Watkins, Phoenix, Ariz.—p. 403.

Surgery, Gynecology and Obstetrics, Chicago

October, 1922, **35**, No. 4

*Pathologic Complications with Duplication of Renal Pelvis and Ureter (Double Kidney). W. F. Braasch and A. J. Scholl, Jr., Rochester, Minn.—p. 401.
Infection of Sigmoid and Lateral Sinus: Report of Nineteen Cases. H. I. Lillie, Rochester, Minn.—p. 418.
Recurrences Following Operations for Inguinal Hernia. W. Hessert, Chicago.—p. 431.
*Acute Intestinal Obstruction in Infancy and Childhood. E. W. Peterson, New York.—p. 436.
*Periosteal Sarcoma in Association with Osteomyelitis: Report of Three Cases. R. L. Rhodes, Augusta, Ga.—p. 440.
Uterus Septus Duplex, with Full Term Twin Pregnancy. C. J. Kickham, Boston.—p. 443.
Cholecystenterostomy from an Experimental Standpoint. Gatewood, and P. H. Poppens, Princeton, Ill.—p. 445.
*Unusual Case of Sarcoma of Median Nerve. E. R. McGuire and J. F. Burden, Buffalo.—p. 453.
*Hydatid Cysts of Heart: Report of Case. H. W. Mills, San Bernardino, Calif.—p. 455.
*Abscess of Lung. A. L. Lockwood, Rochester, Minn.—p. 461.
*Malignant Papilloma of Kidney. W. E. Darnall, Atlantic City, N.. J.—p. 493.
Parabiosis and Organ Transplantation. I. Kross, New York.—p. 495.
Uterus Duplex Bicornis. Y. Wardlow and W. P. Smith, Columbus, Ohio.—p. 497.
*Straight Vessels of Terminal Ileum. R. L. Payne, Norfolk, Va.—p. 501.
*Cholecystectomy for Cholelithiasis. A. J. Brown, Omaha.—p. 503.
Combined Treatment of Fractures of Shaft of Femur. E. L. Eliason, Philadelphia.—p. 509.

Duplication of Kidney Pelvis and Ureter.—One hundred forty-four cases of duplication of the renal pelvis and ureter are analyzed by Braasch and Scholl. The duplication was unilateral in 135 (94 per cent.) and bilateral in 9 (6 per cent.). Of the 135 patients with unilateral duplication 36 (25 per cent.) had complete duplication and 99 (68.7 per cent.) had incomplete duplication. Of the 9 patients with bilateral duplication, 8 had complete and 1 had incomplete duplication. In the series of 144 cases, 19 of which are reported here, 30 patients were treated surgically, 24 had definite pathologic conditions which did not require surgical treatment, and in 27, evidence of disease was doubtful. Only 61 (42 per cent.) of the patients were without pathologic complications, and the anomaly was discovered in the examination for other conditions. Fifteen of the 30 patients operated on submitted to primary nephrectomies and 4 to heminephrectomies; 2 of these later required complete nephrectomy. Six pyelolithotomies and 3 ureterolithotomies were performed. In 1 patient hydronephrosis was relieved by the cutting of an aberrant vessel and in another symptoms were relieved by the ligation of an aberrant ureter from the upper pole of a double kidney. In the treatment of pathologic complications in a double kidney the indication for heminephrectomy is limited to but a few favorable cases. The possibility of infection extending to the remaining half of the resected kidney, which may necessitate subsequent complete nephrectomy, must be considered.

Acute Intestinal Obstruction in Infancy.—Peterson analyzed fifty-five cases of intestinal obstruction occurring in fifty-three young subjects. Intussusception occurred in forty-six cases. In two cases a Meckel's diverticulum was the causative factor in the production of the intussusception. In one case, a congenital tumor of the cecum (cystadenoma) was the cause. In another case, the last 2 inches of ileum—not involved in an ileocecal intussusception—appeared macroscopically to be the seat of a papillary angiomatous growth. More than two thirds of the patients were received into the hospital after the first twenty-four hours, and about one third of the total number required resection. There were twenty-two deaths in this series of fifty-five cases, a mortality of 40 per cent.

Periosteal Sarcoma.—Rhodes reports three cases of large round cell sarcoma, of periosteal origin, associated with infection and necrosis of bone, the left tibia in each case. There was no history of trauma or serious illness. It was a *Staphylococcus aureus* infection; in each case a midthigh amputation was done. One patient is dead. There is as yet no evidence of recurrence in the remaining two cases.

Sarcoma of Median Nerve.—McGuire and Burden report the case of a woman, aged 40, who for five years had a swelling on the anterior surface of the right forearm, midway between the wrist and elbow, which was not painful or tender, and which remained practically constant in size. Suddenly the right forearm began to swell in the region of the tumor, and this continued until after five weeks the circumference of the right forearm was half again as large as the left, and the patient suffered considerably from pain in the right forearm and hand, especially at night. A mass about 8 inches in diameter, which was apparently connected with the median nerve, was excised leaving a gap of about 9 inches of nerve. The histologic diagnosis was spindle cell sarcoma, originating in a neurofibroma. Five weeks after operation the patient returned with a similar swelling at the site from which the tumor had been removed. Amputation of the arm was advised but refused, and she was treated with roentgen ray and radium. About three months after the first operation the arm was amputated at its middle. Frozen section diagnosis at that time was mixed cell sarcoma.

Hydatid Cyst of Heart.—Mills reports what he believes was a case of primary echinococcus cyst of the heart with secondary metastatic infection of the right lung. The patient, a woman, aged 36, was found dead. The right ventricle contained a hydatid cyst 5 cm. in diameter with typical laminated cyst wall but no daughter cysts or scolices. The right lung contained four cysts each the size of a walnut.

Abscess of Lung Occurs Rarely After Pneumonia.—Contrary to the opinion of the early writers that abscess of the lung is a common sequel of lobar pneumonia, a survey of the reported cases of the last century leads Lockwood to conclude that it is a rare sequel. He analyzes fifty-four cases. He recommends that surgery should not be employed as soon as the diagnosis has been made except as indicated. Instead, thorough medical treatment, with postural rest and drainage, should be instituted. When this fails, pneumothorax should be produced in selected cases, and surgery reserved for those patients who do not respond to the other two methods. The exploratory needle should not be employed. When surgery is decided on, paravertebral and local anesthesia, if necessary, with gas and oxygen, should be used, and in the majority of cases a more deliberate, extensive, and logical operation should be planned rather than resection of the chest wall over the abscess, and cautery or blunt puncture of the abscess. If the patient's condition is such that extensive operation would carry too much risk with it, resection, blunt puncture, and exploration of the abscess with the finger, should be the limit of surgery.

Malignant Papilloma of Kidney.—Darnall adds one case to the fifty-seven cases already on record. On splitting the kidney and ureter open, the pelvis of the kidney as well as the ureter were smooth and showed no gross lesion, but at the apex of many of the pyramids of Malpighi were found little tufted cauliflower masses. In the pelvis was an organized blood clot. Histologic examination of the kidney showed the presence of a papilloma in the pelvis which had undergone malignant change.

Straight Vessels of Terminal Ileum.—Payne calls attention to the straight vessels of the terminal ileum as a hitherto undescribed, though definite, anatomic feature of this portion of the intestine which permit the surgeon to recognize at a glance this particular and important part of the intestine. These vessels are found only at this point in the whole of the intestinal canal as a definite and distinguishing feature.

Cholecystectomy for Cholelithiasis.—The functions of stomach, duodenum and pancreas are very closely connected by the sympathetic nervous system. A break in this system made by an operation, Brown asserts, will cause a lack of coordination in the interaction of these various viscera which will give rise to disturbed digestion with resulting symptoms. This disturbance can be avoided by carefully performed intraperitoneal dissection of the biliary system with as little trauma and destruction of tissue as possible. In order that after operation the bile may have a free passage from the liver to the intestine, it is important that the normal relation between the stump of the cystic duct and the hepatic ducts be maintained. This can be done by anchoring the stump of the cystic duct in the incision made in the anterior leaf of the gastrohepatic omentum. Postoperative adhesions can be minimized by forming cuffs of the peritoneum covering the gallbladder and after removal of the gallbladder, suturing the cut edges of these cuffs.

Virginia Medical Monthly, Richmond

November, 1922, **49**, No. 8

Recent Views of Some Ductless Glands. C. M. Blackford, Staunton.—p. 425.
Pneumonia in Infancy. G. S. Hartley, Clifton Forge.—p. 430.
Peptic Ulcer. J. A. Riffe, Covington.—p. 433.
Congenital Hypertrophic Pyloric Stenosis. J. M. Emmett, Clifton Forge.—p. 437.
Practice of Medicine for Forty Years. W. H. F. Miller, Clifton Forge.—p. 440.
Tetanus. L. D. Pole, Hot Springs.—p. 443.
Roentgenology in Relation to General Practitioner. W. M. Phelps, Staunton.—p. 444.
Acute Infective Osteomyelitis with Report of Cases. M. J. Payne, Staunton.—p. 446.
Speculations Concerning Genesis of Neoplastic Diseases. C. O. Miller, New Market.—p. 450.
Perineal Lacerations. W. D. Kendig, Kenbridge.—p. 454.
Compound Fracture of Elbow Joint. C. M. Hazen, Richmond.—p. 457.
Toxicity of Apinol. C. C. Haskell, W. R. Gardner and S. P. Hileman, Richmond.—p. 459.
Case of Hydatidiform Mole. J. L. Rawls, Norfolk.—p. 462.
Prophylaxis in Acute Tympanic Diseases. J. W. White, Norfolk.—p. 464.
Cooperation Between Internist and Dentist. W. T. Vaughan, Richmond.—p. 465.
Diagnosis and Roentgen-Ray Treatment of Toxic Goiter; Report of Five Cases. W. E. Killinger, Victoria.—p. 469.
Waring Suction Tonsillectomy. J. B. H. Waring, Blanchester, Ohio.—p. 472.
Wire Ring in Esophagus; Removal. E. G. Gill, Roanoke.—p. 474.
Prostatectomy: Report of Cases; Preoperative and Postoperative Treatment. A. I. Dodson, Richmond.—p. 475.

Correction.—In The Journal, Nov. 25, 1922, p. 1876, the title of the abstract headed "Quantitative Studies in Syphilis" should be "Posttraumatic Calcification of the Pancreas," and credit given to Dr. H. G. Wells, Chicago.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Annals of Tropical Medicine and Parasitology, Liverpool

October, 1922, **16**, No. 3

- *Susceptibility of Individual to Bites of Stegomyia Calopus. R. M. Gordon.—p. 229.
- *Tuberculosis in Sudan; Case of Breast Tuberculosis. R. G. Archibald.—p. 235.
- West African Ceratopogoninae. Part II. A. Ingram and J. W. S. Macfie.—p. 243.
- *Pathologic Effects Produced by Strongyloides in Chimpanzee. B. Blacklock and S. Adler.—p. 283.
- Pulmonary Lesions in Dogs and Cats Naturally Infected with Nematodes. B. Blacklock and S. Adler.—p. 291.
- Ancylostomes in Animals in Freetown. S. Adler.—p. 293.
- Occurrence of Ancylostomes Resembling Necator Americanus Among Domestic Pigs in Amazonas. R. M. Gordon.—p. 295.
- Parasites in Dogs and Cats in Amazonas. R. M. Gordon and C. J. Young.—p. 297.
- Prevalence of Ceratopogonine Midges on Windows of Accra Laboratory During a Completed Year. A. Ingram and J. W. S. Macfie.—p. 301.
- Australian Cestodes. VI. Schizotaenia Cacatuae, sp. nov. P. A. Maplestone.—p. 305.
- Ascaris of Cattle. J. W. S. Macfie.—p. 311.
- Mosquitoes Collected in Manaos Region of Amazon. R. M. Gordon and A. M. Evans.—p. 315.
- Trypanosoma Rhodesiense in Case of Sleeping Sickness from Sudan. R. G. Archibald.—p. 339.

Susceptibility to Mosquito Bites.—Eighty-eight male persons of various nationalities and ages were tested by Gordon with regard to their susceptibility to the bites of *Stegomyia calopus*. Neither length of residence, sweating of surfaces exposed to bites, hairiness of skin exposed to bites, coloration, age or nationality seemed to exert any marked influence on the number of bites received by the individual.

Tuberculosis in Sudan.—The predisposing causes to tuberculosis in the Sudan, Archibald asserts, that overcrowding and the filthy habit of expectoration, more especially in the cold winter months when overcrowding to the exclusion of light and air favor the possibilities of "massed infection," are the determining factors concerned in the spread of the disease. Infected milk is not a cause of tuberculosis in the Sudan. Inhalation is the common method of infection; the disease appears to be more prevalent among adult males. The children of the Sudanese appear to be affected rarely. Of the varieties of tubercular disease in the Sudan, adenitis is, perhaps, the commonest, with lung tuberculosis, and a pleurisy of tubercular origin next in frequency. General miliary tuberculosis also occurs probably more commonly than is suspected, presenting with its pyrexia, cachexia and splenomegaly, a clinical picture often difficult of diagnosis and readily confused with other diseases. Pott's disease is exceedingly rare, and tubercular meningitis more so. It is doubtful whether skin tuberculosis exists. Cases labelled as such have, on bacteriologic examination, proved to be cases of early tubercular leprosy. A few cases of joint tuberculosis have been observed by Archibald but they are uncommon. Intestinal tuberculosis, occurring as a primary affection of the intestines, is exceedingly rare, as would be expected in a country in which animal tuberculosis is nonexistent. A case of breast tuberculosis is cited in which reparative changes of a fibrotic nature were a feature.

Pathologic Effects Caused by Strongyloides.—A chimpanzee which died suddenly was found to have numerous recent hemorrhages in both lungs. The hemorrhages were found to be due to filariform *Strongyloides* larvae. Larvae were found in the lungs, trachea and bronchi, in the heart's blood, in pericardial fluid, in the liver and spleen. A heavy infection of *Strongyloides* was found in the jejunum, where a tumor, probably caused through irritation, was present. Adult *Strongyloides* were found at all levels down to the circular muscle layer.

British Journal of Experimental Pathology, London

October, 1922, **3**, No. 5

- Relative Volume of Corpuscles and Plasma, and Relation of This to Hemoglobin Percentage and Number of Red Blood Corpuscles. J. M. H. Campbell.—p. 217.
- Antitryptic Action of Blood. E. Beaton.—p. 224.
- Serologic Relationships of Paracholera Vibrios to Vibrio Cholerae, and Serologic Races of Paracholera Group. T. J. Mackie.—p. 231.
- Antibactericidal Properties of Colloidal Silica. S. L. Cummins.—p. 237.
- *Silicosis and Miners' Phthisis. W. E. Gye and E. H. Kettle.—p. 241.
- *Bacteriolytic Substance ("Lysozyme") Found in Secretions and Tissues. A. Fleming and V. D. Allison.—p. 252.
- Agglutination of Washed Red Blood-Corpuscles by Colloidal Silica. S. L. Cummins.—p. 260.

Volume of Red Blood Cells.—A method is described by Campbell for estimating accurately the volume of red blood cells in whole blood. In normals this was found to be 40 per cent. The corpuscular volume varies almost directly with the hemoglobin percentage. There is little change in the concentration of hemoglobin in the corpuscle in various pathologic conditions.

Silicosis and Miner's Phthisis.—Insoluble silica and silica sol, injected subcutaneously, according to Gye and Kettle, cause an extensive fibrosis and a lesion consisting of a central area of necrosis surrounded by a zone of leukocytes; around this again is a second annular zone of necrosis limited by macrophages and granulation tissue. Tubercle bacilli proliferate rapidly in the necrotic areas, a small dose of bacilli becoming a large dose. In this way silica aids in establishing a local infection.

Bacteriolytic Substance in Secretions and Tissues.—There exists in human secretions and tissues (with few exceptions), as well as in animal and some vegetable tissues, a powerful bacteriolytic agent, which Fleming and Allison have named lysozyme. The lytic action of this substance is especially manifested on certain nonpathogenic bacteria, and in all probability it is the cause of such bacteria being nonpathogenic, but it is exerted also on some bacteria which are pathogenic to the lower animals and some which have been isolated from the human body. A large nonpathogenic coccus has been used as an indicator microbe in the investigation made by Fleming and Allison of the distribution of lysozyme. It has been found that the lytic substance is present in secretions, especially in tears, nasal mucus, and sputum, and in tissues, especially in cartilage, while it is present in large quantity in white of egg. The properties of lysozyme are detailed. Resistant forms of the indicator coccus are readily developed, and it is found that strains made resistant to one tissue are equally resistant to all tissues, indicating the essential similarity of lysozyme from different sources. Lysozyme is not absorbed by saturation with the test microbe, but on the other hand the lytic power is increased, and the increase is dependent on the number of microbes dissolved. It has not been found possible to transmit the lytic principle in series as can be done with the "bacteriophage," and a consideration of the properties of lysozyme and the bacteriophage makes it clear that there are fundamental differences between them.

British Medical Journal, London

Nov. 11, 1922, **2**, No. 3228

- *Cardiac Failure. J. Hay.—p. 899.
- Mediterranean or Undulant Fever. P. W. Bassett-Smith.—p. 902.
- Anesthetization of Patients for Classical Cesarean Section. H. R. Spencer.—p. 905.
- Pelves of Rickety Children as Precursors of Rickety Flat Pelves of Women. H. T. Ashby.—p. 905.
- Outbreak of Diphtheria Due to Infected Milk. A. E. Porter.—p. 906.
- *Action of Carbon Tetrachlorid on Liver. J. F. Docherty and E. Burgess.—p. 907.
- Exophthalmic Goiter. G. R. Murray.—p. 908.
- Bronchopulmonary Complications Following Operations Under Anesthesia. D. Lamb.—p. 915.
- Different Effects Produced by Exposing Tisues to Various Concentrations of Anesthetic Vapor. A. L. Fleming.—p. 921.
- Complicated Case of Intussusception. N. Herbert and F. G. Norbury.—p. 922.
- Terminal Hyperpyrexia. A. Massey.—p. 923.

Value of So-Called Cardiac Tonics.—Hay fears that as a profession physicians are too credulous as to the value of the majority of the so-called "cardiac tonics." The position of digitalis and its allies is of course unassailable, but their action must be fully understood to obtain the best results; and their administration must not be half hearted—the drug must be pushed to the full legitimate limit. When cardiac failure is consequent on fibrillation of the auricle, digitalis gives its dramatic results—but the sphere of its usefulness is not entirely confined to this group. It is open to serious question whether strychnin and alcohol have any direct stimulating effect on the heart, and camphor falls into the same category. The caffein group, including theobromin and its compounds, has undoubtedly an influence on the heart and circulation which may be of service under certain conditions, especially when the failure is associated with edema. Very few drugs can be relied on to act as specific cardiac stimulants, and even those with an assured position only act satisfactorily in the absence of severe toxemia. The less reliance placed on "cardiac tonics" the more attention will be given to those features in the management of the patient by which the heart can be saved from strain. In treating cardiac failure Hay urges that the discussion of the particular cardiac tonic to be administered should come last and not first, and that certain other lines of attack should receive full consideration. It is of primary importance to diminish the number of beats. Physical rest and freedom from excitement and worry will do this. At the same time there are many patients suffering from valvular disease and other forms of cardiac disability whose reserve power can be immensely improved by exercise, and to increase the reserve power is to diminish the liability to cardiac failure. Exercise accompanied by enjoyment is of far more value than specified active or passive movements according to time table, though it is obvious that the latter can be more carefully graded. The inclinations of the patients must be considered, and the opportunities presenting themselves will in any particular case enable a pleasant and appropriate scheme of recreation to be drawn up. Anything interfering with the freedom of the respiratory movements must be remedied. Sleep is essential, and Hay thinks it is difficult to overestimate the great value of opium in the severer degrees of cardiac distress, and of the hypnotics, such as the bromids and chloral and chloralamid, in the milder manifestations. The vigor of the myocardium can only be maintained when the blood supply through the coronaries is ample and of good quality. Hence the optimum blood pressure must be maintained even if it be relatively high. The soundest treatment of all for many patients is the prolonged administration of hematinics. There is no better cardiac tonic to those suffering from valvular disease of the heart or chronic renal disease with arteriosclerosis than a liberal supply of first-class blood to the failing myocardium.

Action of Carbon Tetrachlorid on Liver.—Docherty and Burgess gave 5 c.c. of carbon tetrachlorid to each of two condemned men and 8 c.c. to another man for worms. Lesions in the liver were produced in two cases. On this account it seems inadvisable to prescribe even a 5 c.c. dose with purgation, let alone without. It is apparent also that this dose as a maximum borders on the danger line. A safe maximum seems to be 3 c.c., since it has been given to a number of patients in Ceylon without producing any feeling of discomfort, though so far no necropsy has been performed on any person so treated to ascertain whether or not the kidney or liver was injured. Docherty and Burgess agree that it seems to be practically specific for ankylostomes, fairly efficient in the removal of *Ascaris lumbricoides* and *Oxyuris vermicularis*, and of little value in the elimination of *Trichuris trichiura*.

Journal of Laryngology and Otology, Edinburgh

November, 1922, **37**, No. 11

*Zygomatic Mastoiditis. W. M. Mollison.—p. 545.
Results Obtained by Tonsillectomy in Certain Systemic Diseases. N. Whitton.—p. 552.
*Congenital Bilateral Occlusion of Choanae. A. J. M. Wright.—p. 556.
Case of Bifid Nose. G. Wilkinson.—p. 560.

Zygomatic Mastoiditis.—Under this appellation, Mollison describes a type of mastoiditis which spreads forward and tends to form a temporal abscess.

Congenital Bilateral Occlusion of Choanae.—Two cases of this condition, occurring in sisters, aged 14 and 15 years, respectively, are recorded by Wright. Both choanae were closed by a smooth, hard plate with a slight dimple in the middle. The plate, which was found to be entirely bony, was removed with a mallet and chisel, and, in addition, about half an inch of the posterior end of the nasal septum. Two years later, both patients had a free airway on each side and were apparently breathing constantly through the nose. Points of interest in these two cases are: the occurrence of the condition in two members of one family; the absence of asphyxia at birth; the absence of any sense of smell, and its partial recovery after operation in one of the cases; the return to, at any rate, a considerable degree of nose breathing after the removal of the obstruction.

Medical Journal of Australia, Sydney

Sept. 23, 1922, **2**, No. 13

*Quinidin Sulphate in Auricular Fibrillation. M. D. Silberberg.—p. 345.
Twelve Months' Experience with Potter-Bucky Diaphragm. V. McDowall.—p. 350.
*Delayed Testis. A. B. McCutcheon.—p. 353.
Pemphigus of Conjunctiva: Four Cases. G. H. Hogg.—p. 356.

Quinidin Sulphate in Auricular Fibrillation.—Silberberg reports a case of auricular fibrillation of long standing with angina pectoris and recurrent bronchitis, the result of myocardial degeneration. The heart recovered its normal rhythm with quinidin sulphate. The patient was greatly benefited. He had a cerebral seizure (? small embolus) when the rhythm had been regular for eight days, but he made a good recovery. In a case of rheumatic mitral disease and auricular fibrillation, the heart's action was rapidly restored to normal rhythm with much subjective improvement. Another case of auricular fibrillation was associated with cardiosclerosis. The rhythm became regular with quinidin sulphate, but relapsed. Further treatment was refused. A second case of auricular fibrillation due to cardiosclerosis responded very well to quinidin sulphate; normal rhythm was regained. A case of auricular fibrillation due to arteriocardiosclerosis, readily responded to quinidin sulphate, but tended to relapse. It responded each time and finally regular rhythm was obtained, but the patient had pulsus alternans and extrasystoles ventricular in type. A patient with rheumatic mitral disease and auricular fibrillation failed to respond to quinidin. A case of mitral disease and auricular fibrillation responded rapidly to quinidin sulphate. A case of thyreotoxic auricular fibrillation responded well to digitalis and other therapy, but the auricular fibrillation persisted. Normal rhythm was restored by quinidin sulphate at rather a faster rate when the patient was taking digitalis and the fibrillation was present.

Delayed Testis and Hernia.—Out of 124 cases of delayed testis, in four boys only was hernia found to coexist and in none of the whole series was there evidence of hernia developing during adolescence. McCutcheon says that delayed testis is a common condition in boys under the age of puberty, being relatively nearly three times as common as inguinal hernia. After the age of puberty, the condition is relatively rare. The normal hurrying up of developmental processes associated with the onset of puberty plays a part in hastening the completion of descent of the delayed testis. The sequential relationship between delayed testis and inguinal hernia is not proven and the weight of evidence is against it. The condition displays a definite and constant tendency to spontaneous cure; therefore routine surgical intervention at any stage before puberty is contraindicated.

Sept. 30, 1922, **2**, No. 14

Breast Feeding. M. Harper.—p. 373.
Nutritional Diseases of Infants and Their Treatment. L. R. Parker.—p. 377.
Mode of Development of Brood Capsules and Scolices in Encysted Stage of Tenia Echinococcus. H. R. Dew.—p. 381.
Causal Organism of Blastomycotic Meningitis in Australia. C. Badham.—p. 385.
Malignant Pustule of Face. R. J. Millard.—p. 386.

Oct. 7, 1922, **2**, No. 15

Prostatectomy. S. H. Harris.—p. 401.
Prostatectomy. G. Craig.—p. 408.
*Some Surgical Cases. J. L. McKelvey.—p. 411.

Oct. 14, 1922, **2**, No. 16

Urinary Infection. A. S. Roe.—p. 433.
Urinary Infections. S. F. McDonald.—p. 435.
Urinary Infection in Children. D. G. Croll.—p. 436.
Etiology of Urinary Infections. J. V. Duhig.—p. 437.
Organization and Working of Genito-Urinary Clinic in Connection with a Teaching Hospital (University of California). R. K. Lee-Brown.—p. 439.

Possibility of Schistosomiasis Becoming Established in Australia. F. Milton.—p. 441.
Henoch's Purpura. R. J. Millard.—p. 446.

Rupture of Spleen; Arteriovenous Aneurysm.—McKelvey reports cases of traumatic cerebral hemorrhage, arteriovenous aneurysm, rupture of the spleen, perforated gastrojejunal ulcer, perforation of an enteric ulcer and gangrene of the intestine.

South Africa Medical Record, Cape Town

Oct. 14, 1922, **20**, No. 19

Chronic Rheumatism, Including Rheumatoid Arthritis. H. Smith.—p. 362.

Archives Franco-Belges de Chirurgie, Brussels

June, 1922, **25**, No. 9

Myomectomy for Myomata of the Uterus. W. J. Mayo.—p. 769.
*Myomectomy During Pregnancy. G. Cotte and J. Creyssel.—p. 777.
Transcervical Drainage in Subtotal Hysterectomy. C. Daniel.—p. 792.
*Catheterization of Ureter at Hysterectomy. Chauvin and Tabet.—p. 799.
*Congenital Non-Existence of Vagina. A. Dhalluin.—p. 808.
*Repeated Cesarean Section. L. Lapeyre.—p. 817.
Case of Uterus Didelphys. Favreul.—p. 824.
Drainage of Peritoneum. J. Ducuing.—p. 826.
Shot Wounds of Diaphragm. M. Ferron.—p. 837.
Botryomycosis in Man: Six Cases. L. Verdelet.—p. 861.
Interpretation of Urea Laws. F. Cathelin.—p. 864.

Myomectomy During Pregnancy.—Cotte and Creyssel state that the cases they were able to collect seem to show a better prognosis of myomectomy during pregnancy in the last twenty years. Among these cases there were 83 abdominal myomectomies and 2 vaginal myomectomies. They are all briefly described in a table; in the total 85 cases there was only one death. This was due to pneumonia three days after the intervention. Of 82 cases in which the course of the pregnancy is mentioned, the delivery occurred at term without incident in 34. In 14, the pregnancy was interrupted, giving a fetal mortality of about 17 per cent. showing that in this respect also, myomectomy is not as grave as it formerly was, as the rate of abortions decreased nearly to half. Although a fibroma may hinder pregnancy, the latter may in turn cure the fibroma, and they query whether an intervention which is often harmful to the fetus and useless for the mother should be resorted to. Intervention is justified only when serious troubles for the mother or the fetus exist: acute disturbances from torsion or infection, pain, compression, hindrance in the development of the uterus, hemorrhage or a disposition to abortion. Some of these disturbances require quick decision or emergency treatment, while others require a minute examination and involve a decision taken only after most careful consideration.

Preliminary Catheterization of Ureters at Hysterectomies.—Chauvin and Tabet extol the preliminary catheterization of the ureters, stating that it is painless and without danger. It allows the surgeon to estimate the extent of bladder involvement in genital lesions, and often to determine the operative indications. It facilitates difficult intervention and prevents operative accidents and grave complications. Oeconomos published in 1914, 159 cases of operative lesions of the ureter. Many postoperative deaths attributed to shock or other causes should be, in reality, attributed to operative lesions of the ureter. The catheters should be introduced the last thing before the operation; an injection of morphin will render painless this preliminary phase of the intervention. As the lowest parts of the ureter are those most exposed to operative wounds, the surgeon may be tempted to catheterize only its terminal, juxtavesical and intraligamentous segment. It is preferable, however, to catheterize into the pelvis of the kidney. This may reveal hydronephrosis from compression, quite frequently found with uterine cancer. On the other hand, if the sound does not reach into the pelvis, distension might occur; it is obvious that this accident would be prevented by allowing the urine to flow freely during the operation. They advise the use of the catheter in vaginal hysterectomy also. In conclusion, they remark that this preliminary use of the ureter catheter is within the reach of all surgeons who will study its technic for a few weeks, and it can render excellent and unquestionable help in difficult interventions in the small pelvis. It shortens the operation by eliminating the fear of wounding the ureter, an accident occurring frequently although not always recorded in the literature. Its gravity does not require demonstration at this late day.

Two New Cases of Congenital Absence of the Vagina.—Dhalluin refers to Baldwin's method (1904), creating an artificial vagina with an intestinal loop. Although it presents serious dangers, this operation is not of excessive gravity in the present condition of abdominal surgery. Of twenty-nine cases published, only one case of death is reported. Operative sequelae are as a rule very simple; only in one case a fecal fistula appeared where the drain had been left in the pouch of Douglas in contact with the intestinal suture. Remote results are excellent. In most cases the new vagina was large, deep and, with very supple walls. In some cases, however, there was a slight tendency to cicatricial retraction at the mouth of the new vagina, but this disappeared under a few dilatations. The only drawback is the secretion which occurs from the excluded intestine, and is copious and annoying at the beginning. It soon decreases, however, or dries up, or is transformed into a transparent nonirritating mucous secretion.

Repeated Cesarean Section.—Lapeyre gives tables showing the mortality with repeated cesarean section in his thirty-two cases. In six second cesarean sections there was one death; in four third cesarean sections, with hysterectomy, no mortality. These ten cases show only one death or a mortality of 10 per cent. In probable infection, supplementary supravaginal hysterectomy insures almost certain recovery. With a third intervention, it should be the rule, as the risks of repeated pregnancy and delivery entail a considerable percentage of mortality. A woman having had several cesarean sections and who fears pregnancy on account of previous accidents, can be subjected to ovarian castration with roentgen rays.

Paris Médical

Sept. 23, 1922, **12**, No. 38

*Dietetic Treatment of Diabetes. G. Linossier.—p. 265.
Action and Use of Digitalis. V. Mandru.—p. 271.
*Syphilitic Splenomegaly. L. Timbal.—p. 274.
Case of Barbital Poisoning. S. Bloch and L. Deglaude.—p. 276.
*Blood Cyst in Kidney. Millous.—p. 277.

Dietetic Treatment of Diabetes.—Linossier recalls that in 1908 he was preaching the advantages of restricting the diet in diabetes to less than 20 calories per kilogram per day. "Progress in medicine is by the alternation of extremes. The pendulum now has swung to the starvation treatment of diabetes." This, he says, reminds him of the parlor magician who borrows a handkerchief and a hat, and puts the handkerchief in the hat and then announces that he will cause the handkerchief to disappear. The trick is already done; he has already spirited away the handkerchief when he makes the announcement. The physician giving the Allen starvation treatment does the same thing. He puts the patient to bed; analyzes the blood and urine, and imposes a treatment that impresses the imagination. Then in a few days he announces the disappearance of the glycosuria and tells the patient he is cured. But in order to stay cured, he must follow a restricted diet. This restricted diet long kept up is the secret of the improvement, not the starvation. The handkerchief disappears when the attention of the public is diverted, and it is in the intervals between the courses of treatment that the diabetes really improves. The fasting treatment may be useful to hasten results when haste is indicated; it may render valuable service in grave cases with acidosis. Its principal indication is the cases in which theoretically it seems contraindicated, as fasting induces acidosis in the healthy. Extreme caution is necessary; mishaps are rare, and yet they have been observed (Rathery). In any event, he advises to give as a beverage, instead of whisky, as Allen advises, infusions sweetened with levulose. Kulz' research has demonstrated that diabetics are able to make glycogen out of levulose, and we know that the lack of glycogen in the liver is one of the least disputed causes of acidosis.

Syphilitic Disease of the Spleen.—Timbal was consulted by a patient on account of enlargement of the spleen. The origin of the splenomegaly was a mystery for four years. Then the liver became enlarged and stomach disturbances developed—a typical example of plurivisceral syphilitic manifestations. Under mercurial treatment the whole clinical picture promptly retrogressed in the man of 65. He cites nine cases of syphilitic disease of the spleen that had been published in France, all showing the prompt efficacy of mercurial treatment.

Blood Cyst in Tuberculous Kidney. — The kidney was removed on the diagnosis of a tumor, probably sarcomatous, and the young woman was restored to health. The tumor proved to be a hemorrhage into a tuberculous cavity, with hydronephrosis. The urine had been apparently normal, but for a year there had been night sweats and a trace of fever towards night. The tumor had been noted for five months.

Sept. 30, 1922, **12**, No. 39

*The Digestive Hemoclasis Test. E. N. Zehnter.—p. 281.
Indications for Osteosynthesis. R. Soupault.—p. 287.
Antituberculosis Chemotherapy. T. Lautier.—p. 290.
*Anaphylaxis to Radiant Energy. Foveau de Courmelles.—p. 292.
Local Treatment of Ozena with Strong Sugar Solution. J. Tarneaud.—p. 295.

Digestive Hemoclasis Test.—Zehnter criticizes the specificity and the value, as a sign of liver insufficiency, of Widal's digestive hemoclasis. Leukopenia seems to be the only constant and definite symptom in it. Examination of the leukocyte formula determined the special character of digestive leukopenia. In 8 cases of typical hemoclasis in which the variations of the leukocyte balance were systematically studied, Nussbicker found an increase in the percentage of polynuclears in all the cases, with eosinophilia in 7, and a constant and sometimes considerable decrease in the percentage of lymphocytes, with decrease of mononuclears in 7 of 8 cases, and lowering of the percentage of mast cells. In 4 healthy subjects the reactions were negative. Zehnter made several complete examinations of 40 patients with liver lesions. He concludes that the results obtained with the hemoclastic test as a sign of liver insufficiency are uncertain and inconstant. Positive reactions were sometimes obtained in subjects without liver trouble, while in manifest cases of liver lesions the test might show as high as 50 per cent. negative results. The drop in leukocytes is a very common symptom, and digestive leukopenia is only a special form of it, and it is even a question whether the digestion should be blamed for it. If the connection between the various phenomena can be discovered, the finding of temporary disturbances in the distribution of the white corpuscles may then constitute a very valuable means of investigation.

Anaphylaxis to Radiant Energy.—Idiosyncrasy, anaphylaxis and shock are encountered in the domain of irradiations as well as in the domains of drugs and food. Foveau de Courmelles states that from various observations published to date, radio-anaphylaxis is an absolute fact. Gaussel and Villa reported a case of radiodermatitis after a short radioscopy in a patient with pulmonary tuberculosis who had been previously treated by heliotherapy; a large erythematous patch and blister appeared and took a month to heal. Pech has reported some similar cases and some from Hirtz' experience, and said that "any irradiation of a living being sensitizes him to any ulterior irradiations." If we consider the radiopathies of manufacturers and manipulators of roentgen rays we cannot fail to see that their lesions are mostly on the face and hands where all lights sensitize them. This is a striking confirmation of radio-anaphylaxis. With radium, for instance, it is not rare to see cancers which are much improved or even apparently cured for years, reappear, and when treated anew with radium, sometimes in vain, progress very rapidly as if the radio-active salts acted, and very probably did act, as a stimulant. Although radiotherapy is old now,. radio-anaphylaxis is only beginning to be recognized. Means will be found to desensitize radiologists, and treat them with other radiations. Bergonié treats roentgen-ray injuries with radium, and this has often proved practical and effectual.

Oct. 14, 1922, **12**, No. 41

Butylethylmalonyl-Urea as Hypnotic. Carnot and Tiffeneau.—p. 329.
*Exophthalmic Goiter After the Menopause. P. Blamoutier.—p. 334.
*Ureterostomy for Diversion of Urine. E. Huc.—p. 338.
Ossification in Achilles Tendon in a Tabetic. Sainton and Péron.—p. 342.

Exophthalmic Goiter After the Menopause.—The symptoms of exophthalmic goiter were accompanied with kraurosis of the vulva and intense pruritus, general at first, but later limited to the genital region—all developing after the menopause in the woman of 52. Great improvement to a practical cure followed three roentgen exposures of the thyroid, and several applications of the high frequency current to the vulva, supplemented with pituitary and ovarian treatment. The pruritus subsided entirely, but still returns to a slight extent if the ovarian treatment is neglected for a few days.

Ureterostomy for Diversion of Urine.—Huc reports a case to show the advantages of ureterostomy in certain exceptional cases of bladder disease. The shock of even the bilateral operation at one sitting is less than from nephrostomy. He drew the ureter out in the iliac region, and relieved the intense continuous pains in the bladder of the woman with a neoplasm in the bladder. Huc advises the ureterostomy only when the exclusion of the bladder is to be permanent.

Presse Médicale, Paris

Oct. 21, 1922, **30**, No. 84

*Examination of Pleura and Lungs. E. Sergent.—p. 905.

Examination of Pleura and Lungs.—Sergent protests against the prevailing tendency to rely on the roentgen-ray examination and neglect auscultation and percussion. He analyzes what we can learn from the direct examination, and warns of the errors in interpretation. The only safe method is to use all the diagnostic means at our disposal.

Schweizerische medizinische Wochenschrift, Basel

Oct. 12, 1922, **52**, No. 41

*Traumatic Hydronephrosis. A. Sträuli.—p. 997. Conc'n No. 42, p. 1033.
*Symptoms from Uterus Displacement. E. Schwarzenbach.—p. 1002.
*Cancer in Tuberculous Organ. A. v. Albertini.—p. 1004.
First Case of Creeping Disease in Switzerland. P. M. Fol and H. Jaeger.—p. 1011.

Traumatic Hydronephrosis.—Sträuli's long article compares a case personally observed with the fifty on record in which hydronephrosis developed after a fall, injuring the kidney region. His case is particularly instructive as the young man reached the hospital in two hours after the accident. He had been standing on a log wagon and had been pushed backward, striking the sacrum region on the tongue of the wagon as he fell. Immediate exploratory exposure of the bleeding kidney and exploratory laparotomy showed no signs of hydronephrosis. There was hematuria for eight weeks, and then it reappeared in three separate periods, months later. The last one was accompanied with sudden kidney colic, and hydronephrosis finally developed, compelling removal of the contracted kidney. The patient was under supervision during the whole fifteen months and since, and the trauma was accepted without question as responsible for the tardy hydronephrosis.

Symptoms from Displacement of the Uterus—Schwarzenbach remarks that retrodisplacement of the uterus is regarded and treated so differently by different leading gynecologists, that the practitioner is bewildered. He is convinced that the cause of the subjective symptoms is always in the ligaments, and that the circulation in the ligaments is often impaired in operative correction of the displacement. The broad ligament should be spread out wide and lifted up. This brings the uterus up into place, and promotes the circulation in these ligaments. He sustains the uterus with a pedunculated strip of fascia from the anterior aponeurosis of the rectus muscle. It is sutured with silk to the anterior wall of the uterus, as he explains, and the whole is roofed over with peritoneum. The root of the fascia flap is so high up that the uterus can expand during a pregnancy without hindrance. Six weeks after childbirth, women should always be examined for retroflexion; if found it may be corrected with a pessary worn for six to nine months. If this fails, the Alexander-Adams may suffice; if not, the fascia method, in case symptoms compel intervention.

Cancer in Tuberculous Organs.—Albertini reports a case in which the uterus contained both a carcinoma and a sarcoma, with recent miliary tubercles scattered around the sarcoma in the fundus. The adnexa showed an older tuberculous process. Sound tissue separated all these lesions.

Brazil-Medico, Rio de Janeiro

Aug. 19, 1922, **2**, No. 33

*Bacillary Dysentery in Rio. Abdon Lins.—p. 101.
Agents of European Blastomycoses. O. da Fonseca.—p. 101.
*The Katzenstein Test. O. N. de A. Antunes.—p. 102. Conc'n.
Toxicity of Chenopodium. P. A. Pequeno Junior.—p. 108.

Aug. 26, 1922, **2**, No. 34

Standardization of Wassermann Reaction. A. Moses.—p. 115.
Mercury Salicylate in Ambulatory Treatment. M. Kroeff.—p. 117.
Prophylaxis of Venereal Disease in the Merchant Marine. Eleyson Cardoso.—p. 119.
Complete Prolapse of Uterus at Term. de Camargo Madeira.—p. 121.

Bacillary Dysentery at Rio.—Abdon Lins isolated from the stools of fifty patients with dysentery the Shiga, the Flexner or the Morgan types in only four. In the others, seven various types of bacilli were cultivated from the stools, none resembling the usual species.

Katzenstein's Test.—Antunes' experience in thirty-six cases of heart disease has confirmed the reliability of Katzenstein's test, namely, the effect of compressing the femoral arteries at the crural arch for two or three minutes, comparing the pulse and blood pressure before and after. It reveals the functional capacity of the myocardium, especially of the left heart, and also throws light on the work of the cardiovascular system as a whole. As a rule, however, the response merely confirms what we already know from the general examination.

Sept. 2, 1922, **2**, No. 35

Foundation of Ophthalmologic Society. Abreu Fialho.—p. 129.
*Bacteriophagy. Costa Cruz.—p. 131.
Scientific Mission in Northern Brazil, 1873. A. da Matta.—p. 133.

Bacteriophagy.—Costa Cruz concludes from his research that the bacteriophage is an antigen. The antiserum to the Flexner bacillus protects against bacteriophagy, and the same protection is realized with an antiserum for the bacteriophage. He asserts that these two facts prove that bacteriophagy is not a normal principle of the bacterium. He was able to cultivate an antiserum-resistant strain. He says that this might be interpreted from Bordet's standpoint, but d'Herelle's theory seems to offer a simpler and more plausible explanation.

Sept. 9, 1922, **2**, No. 36

*Tumors of Frontal Lobe. F. de Azevedo.—p. 143.
Surgery of Digestive Tract in France in 1921. A. Buquet.—p. 145.

Tumor in Frontal Lobe.—de Azevedo declares in concluding his study of this subject that we can never be absolutely sure of the location of a brain tumor, even when all the signs point to a certain focus. A puzzling case is described in which symptoms of hysteria and epilepsy were the first clinical manifestations from a sarcoma involving the frontal and temporal lobes. A year and a half after the first symptoms, the clinical picture was that of epileptic seizures with exaggerated suggestibility, of the hysteria type, headache, facial paralysis and vasomotor derangement. Choked disk and rapid emaciation followed; lumbar puncture aggravated conditions in the young man.

Policlinico, Rome

Oct. 1, 1922, **29**, Medical Section No. 10

*Mechanical and Other Jaundice. G. Sabatini.—p. 519.
*Electric Tests in Gastroduodenal Diagnosis. A. Roccavilla.—p. 540.

Pathogenesis of Jaundice.—Sabatini has been applying the diazo reaction in jaundice from a mechanical obstacle and jaundice from insufficiency of the liver. The bilirubin content of the blood determines to which of these classes the jaundice belongs, in a given case. In 19 normal subjects, the test for bilirubin was constantly negative; in 11 with obstruction of bile ducts from cancer or gallstones, the test was constantly positive. In 3 other cases, jaundice and enlargement of the liver appeared with other manifestations of the second stage of syphilis, and the bilirubin test was positive, the same as with mechanical jaundice, contrary to what was anticipated. This occurred also in a case of jaundice in croupal pneumonia. In 2 cases of pernicious anemia, the bilirubin findings were of the dynamic type. In 5 cases of heart disease with more or less tendency to jaundice, the findings were of the dynamic type in 4, and of the mechanical type in the case with the severest form of cardiovascular disease. He applied the diazo reaction according to H. van den Bergh's method. It requires only 0.5 c.c. of serum. He theorizes to explain these findings and their practical import for treatment. The reagents used were the original Ehrlich reagents (No. 1: sulphanilic acid 1 gm.; 15 c.c. of hydrochloric acid and distilled water to 1,000 c.c. and No. 2: 0.5 per cent. aqueous sodium nitrite solution). They are mixed at the moment of using, and van den Bergh dispels any turbidity by heating the test tube or adding a drop or two of ether or 0.5 c.c. of alcohol; this gets rid of the fat acids.

Electric Tests and Applications in Esophagus, Stomach and Duodenum.—Roccavilla gives an illustrated description of the tubes he uses for introduction of the electric current directly into the upper digestive tract. The motor and secretory responses are tabulated as recorded from numbers of healthy subjects and those with gastroduodenal affections. The sensitiveness to the electric current has not only diagnostic importance but can be utilized in treatment. The electric current has a stimulating action in certain conditions, and the slow gradual action of minimal doses may tend to restore the functional balance.

Oct. 9, 1922, **29**, No. 41

Sudanophil Leukocytes in the Tuberculous. F. Durand and E. Musante.—p. 1321.
Eosinophilia in Muscular Rheumatism. E. Banaudi.—p. 1322.
Forward Dislocation of the Foot. D. Giorgacopulo.—p. 1325.
*Chronic Epidemic Encephalitis. G. Pellacani.—p. 1326.

Transient Restoration of Motor Functions in Chronic Epidemic Encephalitis.—Pellacani theorizes to explain the cases in which the amyostatic condition in chronic epidemic encephalitis did not interfere with the subjects being able to dance or ride the bicycle when at all other times they were more or less helpless cripples from the parkinsonian rigidity. He describes two of these apparently paradoxic cases in boys of 16 and 17. One when excited could join in a running game; the other had distress in breathing from muscular insufficiency, and to overcome this he breathed very fast with loud inspirations. This continuous polypnea contrasted with the otherwise inert behavior.

Riforma Medica, Naples

Sept. 18, 1922, **38**, No. 38

The Circulatory Apparatus in the Tuberculous. P. E. Livierato.—p. 889.
*Vital Stain for Blood. F. Durand.—p. 893.
Subtotal Volvulus of the Small Intestine. G. Razzaboni.—p. 893.
Technic for Intravenous Injections. E. Lolli.—p. 896.

Stain for Blood.—Durand uses brilliant cresyl blue and sudan III dissolved separately to saturation in equal parts of hot glycerin. After filtering, the two solutions are mixed and, when cool, 2 per cent. of alcohol is added. A drop of this stain is mixed with the fresh blood on the slide, and the mixture is aspirated into the pipet, which is then fused.

Rivista Critica di Clinica Medica, Florence

June 25, 1922, **23**, No. 18

*Case of Pulmonary Streptotrichosis. A. Testi.—p. 205.

Streptotrichosis of the Lungs.—The boy of 14 was ailing for months, complaining of pain in the upper chest, and finally what seemed to be a pneumonic process developed in the lower lobe and became chronic, with profuse bloody expectoration, with fever, returning every week or two. Puncture was negative, as also the bacteriologic tests repeatedly applied, until finally the streptothrix was cultured from the sputum and from the pus in an indolent lesion which developed on the cheek toward the last. The diagnosis of subacute pulmonary tuberculosis had seemed so certain that time was wasted on repeated tests to detect it—all negative. Testi knows of nineteen similar cases of streptothrix bronchopneumonia on record. Four of them were necropsy surprises in 8,399 cadavers examined at Milan. In the case here described, the boy—fond of sports—may have slept on straw and inhaled the fungus.

July 5, 1922, **23**, No. 19

*Central Nervous System in Hemorrhagic Purpura. C. Alessandri. p. 217. Conc'n No. 20, p. 229.

The Brain in Hemorrhagic Purpura.—The first symptom in Alessandrini's three cases was hemorrhage from the gums of the woman of 57 and the man of 42 and epistaxis in the boy of 16. In the course of the disease all presented symptoms showing injury of the brain, evidently from cerebral hemorrhage. It proved fatal in the woman and the boy, but the man recovered under symptomatic treatment. There had been no headache, delirium or convulsions in this case, the cerebral symptoms being limited to the ocular and arm muscles. These localized convulsions were accompanied each time with fever, which subsided at once afterwards. With uremic convulsions, the temperature is subnormal as a rule.

July 15, 1922, **23**, No. 20

*Epidemic Encephalomyelitis. A. Bolaffi.—p. 232.

Epidemic Encephalomyelitis with Abdominal Onset.—Bolaffi adds three new cases to the few on record in which epidemic encephalomyelitis began with symptoms suggesting a surgical abdominal affection. In some cases an operation was performed on the diagnosis of appendicitis or ileus, but nothing was found to explain the symptoms, and the clinical picture of the epidemic encephalitis soon dispelled all doubts. In one of his cases the abdominal pains continued for nine days. In another case the abdominal pains and rigidity developed the second day after the first symptoms, and unmistakable encephalitis followed a few days later. The pain was intense and continuous in both, and tender points were found along certain nerves. In both there was retention of urine and stools for a few days, as also in another case of epidemic encephalomyelitis, and in several on record. The mechanism of this retention probably differs from case to case.

Aug. 5, 1922, **23**, No. 22

Typhoid in 1921. C. Capezzuoli.—p. 253.
The Blood with Exophthalmic Goiter. B. Benvenuti.—p. 255. Conc'n No. 23, p. 265.

Aug. 25, 1922, **23**, No. 24

*Are Tuberculin Tests Specific? A. Casini.—p. 277.

Specificity of Tuberculin Reactions.—Casini applied the tuberculin skin and intradermal tests to 106 tuberculous subjects and healthy controls, parallel to similar tests with an emulsion of killed cholera germs, typhoid bacilli, diphtheria toxin-antitoxin, or peptone. Analysis of the reactions shows that there is a specific action, plus a nonspecific action and a primary toxic action combined, in the response to tuberculin in the tuberculous. The tuberculous react in the same way to heterogenous proteins of various kinds, especially of bacterial origin. The reaction to tuberculin differs in being more inclined to itch and to be tender, and it is longer in developing and persists longer. These and other features easily distinguish the tuberculin reaction. The research reported warns to use great caution in injecting any heterogenous protein in the tuberculous, and to test with tuberculin before using any special antigen for any purpose.

Archivos Españoles de Pediatría, Madrid

June, 1922, **6**, No. 6

*Fatal Toxic Colitis in Children. B. González Alvarez.—p. 321.
*Cephalic Tetanus in Children. M. Ponce de Léon.—p. 324.
*Exostosis in Nasopharynx. A. Martín Calderín.—p. 334.

Fatal Toxic Colitis in Children.—González Alvarez has encountered five cases of a rapidly fatal form of enterocolitis in previously healthy children, between 4 and 13. The children succumbed in collapse the third to the fifth day. The toxin generated by the disease seems to attack the suprarenals in particular, as is evident by the extreme and variable arrhythmia, the abolition of the pupil reflexes, the asthenia and the bulbar paralysis. No treatment seemed to have any effect.

Cephalic Tetanus in Children.—Ponce de Léon reports four cases of different types of cephalic tetanus observed at Montevideo in children from 2½ to 8 years old. All recovered under serotherapy. In one case the tetanus developed in the course of whooping cough. The spasms were limited to the face and the mild affection soon subsided. In two cases the spasms were limited to the head at first but then became general, the continuous rigidity spreading in one case, but not in the other. The fourth child had dysphagia, and the paroxysms resembled those of hydrophobia, with facial paralysis. The wound was in the domain of the facial nerve in this case. The portal of entry for the infection was not discovered in the others. In a fifth case the soft palate had been injured by a stick; there was no paralysis in any in this group. Two had purulent rhinitis. The children were in the hospital a little less than a month.

Exostosis of Pharyngeal Tubercle.—The difficulty in breathing of the infant, only 2 weeks old, was explained by the bony growth in the nasopharynx. Palliative treatment on the assumption of adenoid vegetations had been ordered, and when the exostosis was discovered and the operation planned, it was too late. The child died the night before. There was no history of inherited taint.

Crónica Médica, Lima

August, 1922, **39**, No. 710

Peruvian Tick Parasite of Man and Animals. C. A. Bambarén.—p. 281.
Auricular Fibrillation. R. M. Alzamora.—p. 287.
Scurvy in Infant. R. Eyzaguirre.—p. 292.
Biologic Reactions to Myiasis in Nose. E. A. Martínez.—p. 294.
Research on Materia Medica of Peru. A. Maldonado.—p. 318.

Semana Médica, Buenos Aires

Aug. 3, 1922, **2**, No. 31

Pirquet's Nem System in Dietetics. M. H. Bortagaray.—p. 229.
*Pirquet Index of Nourishment. Garrahan and Bettinotti.—p. 236.
*Traumatic Ischemia. A. G. Gallo and B. N. Calcagno.—p. 238.
Intraspinal Anesthesia. E. Matons.—p. 240.
*Intolerance for Breast Milk. R. Kreutzer and J. Mendilharzu.—p. 242.
The Temperature in Diagnosis. A. Vitón.—p. 258.
Progress in Plasmogenia in 1921. A. L. Herrera.—p. 262.

Index of State of Nourishment.—The Pirquet index was applied to 203 schoolchildren at Buenos Aires. In some of the children the index did not conform to the facts. The largest proportion with a high index was found in children who had grown most during the year in question.

Traumatic Stupor of an Artery.—The boy of 8 had fractured the humerus from a fall on the elbow, and the forearm was cold and pulseless. No pulse could be felt even in the axilla above. This ischemia persisted for thirteen hours, notwithstanding the simple reduction of the fracture. The prognosis of this "stupor of the artery" is favorable. The artery resumes functioning spontaneously sooner or later. The artery should be exposed and examined, however, as this is the only means to exclude thrombosis. The contraction of the artery responsible for the stupor may be accepted as evidence that the artery itself has not been injured. To clear up the question, in the case reported, Gallo and Calcagno punctured the artery and injected tepid saline under slight pressure. Red blood flowed into the syringe and the saline entered easily and seemed to pass along in the artery without encountering any obstacle or distending it at any point. When the needle was withdrawn, some blood flowed but was easily staunched with gauze. The skin was sutured and the circulation was found normal the next day.

Intolerance for Breast Milk.—This article presents the history and the results of attempts to desensitize infants by parenteral injection of a small amount of breast milk, when there was vomiting from intolerance for the mother's milk. The means for differentiation of the vomiting from this cause are described, and three cases personally observed are analyzed. The infants were 40, 90 and 45 days old. The children seemed to be in perfect health otherwise, and the persistence of the vomiting, rebellious to all ordinary measures, gave the clue. One child was given four parenteral injections of from 2 to 4 c.c. of breast milk in three weeks; another eleven injections of 4 or 5 c.c. in twenty-five days, and the other, three daily injections of from 1.5 to 2 c.c. The cure was complete in all and no local or general reaction was apparent.

Aug. 10, 1922, **2**, No. 32

Congenital Malformations of the Heart. A. Casaubon.—p. 281.
*Puerperal Endometritis. L. G. Gret.—p. 288.
New Species of Tenia: Tenia Infantis. J. Bacigalupo.—p. 302.
Suprarenal Insufficiency. Soler.—p. 305.
The Suprarenals in Morphin Intoxication. J. T. Lewis.—p. 309.
Psychopathology of Puberty in a Young Bandit. G. Bermann and F. Trongé.—p. 312.

*Experiences with Radiotherapy. C. Heuser.—p. 318.
The Chromogen Reaction of Acetone. A. Troise.—p. 321.
The Skin in Diagnosis of Internal Disease. A. Vitón.—p. 322.

Puerperal Endometritis.—This account of research on puerperal endometritis is accompanied by analysis of several cases treated on biologic principles. The conclusions are that the antecedents and the modern obstetric interventions do not seem to be factors in puerperal endometritis, but there is a close connection between it and constipation. Gret urges to depend more on the bactericidal properties of the lochia, emphasizing the importance of not allowing the antibodies generated in the organism to be removed before they have accomplished their biologic task. He regards rinsing out the uterus or vagina as directly contraindicated, and extols vaccine therapy plus heart tonics and means to augment leukocytosis as required in the individual case. In his cases he found a pneumococcus or *Streptococcus viridans* the responsible infectious agent.

Experiences with Radiotherapy. — Heuser gives an illustrated description of his method of applying roentgen therapy to the prostate, rectum, uterine cervix, vagina and urethra. The patient sits in a special chair, the rays below. In four cases of inoperable cancer of the prostate, two are still living six months after this treatment, and have gained 10 and 12 kg. in weight. They are able to retain up to 250 c.c. of urine, and can sleep and are much benefited in every way. One has had his earning capacity partly restored. In another case the cancer partially melted away under the rays, the bladder perforating in consequence, and the man died the sixth day.

Deutsche medizinische Wochenschrift, Leipzig

Sept. 22, 1922, **48**, No. 38

Importance of Physical Chemistry for Internal Medicine. L. Michaelis. —p. 1269.
Cataract in Elderly Patients. J. Hirschberg.—p. 1271.
Intestinal Tumors in Children, Caused by Trichocephalus. H. Stahr. —p. 1274.
Therapeutic Use of Invert Sugar, Especially in Heart Disease. F. Sacki.—p. 1276.
Differential Diagnosis of the Acute and Chronic Stage of Sporadic and Epidemic Lethargic Encephalitis. H. Higier.—p. 1276.
Determination of Urea in Small Quantities of Blood and in Organic Secretions. A. Szili.—p. 1278.
Importance of Odors in Clinical Diagnosis. F. Mandl.—p. 1280.
Chemical Basis of Odors in Clinical Diagnosis. J. Klimont.—p. 1281.
Treatment of Syphilis with Mixed Arsphenamin and Mercury. F. Mauelshagen and R. Strempel.—p. 1282.
Cystitis Caused by Paraffin. Geyer.—p. 1284.
Observations on Diabetes. H. Höpfner.—p. 1284.
Pathogenesis of Rickets. G. Brückner.—p. 1285.
Rectal Findings in Gonorrhea in Children. L. Lauter.—p. 1285.
Chronic Bronchitis. Goldscheider.—p. 1287.
Testing Eye Tension and Pupil Reactions. S. K. Steindorff.—p. 1289.

Research on Diabetes.—Höpfner gives the results of sevral experiments applied to diabetics. He refers to Grünhal's findings that after the intravenous injections of small uantities (20 to 40 c.c.) of normal blood (1) in two cases f diabetes a sudden lowering of the blood sugar values to .07 to 0.08 per cent. occurred, which was 31 to 34 per cent. f the original value, and (2) that the greatest decrease of ie blood sugar content always occurred thirty minutes after ie injection. Höpfner likewise found, applying small quanties of normal blood twenty-four hours old (in the same ianner as Grünthal) a marked lowering of the blood sugar urve. The lowest point was reached in thirty minutes. ater he found that the action of the normal blood was iuch increased if it was used fresh instead of twenty-four ours old. Roentgen irradiation of the liver he found had effect on either urine sugar or blood sugar. Irradiation the suprarenals caused, after an increase of short duraon, a temporary lowering of the blood sugar level. Irraiation of the bone marrow, with a view to enriching the lycolytic ferment in the blood, produced neither an increase erythrocytes nor a decrease of urine or blood sugar.

Rectal Findings with Gonococcus Infection in Children.—auter reports that 10 out of 15 newly admitted cases of norrhea in children and 7 out of 13 old cases presented acroscopically visible changes of the rectal mucous memane, chiefly in the form of coatings. In all these cases ukocytes and gonococci were found in the deposits in most every smear and at every examination. He concludes, therefore, that children with gonococcus infection must not be pronounced cured until repeated examination of the rectum has shown the rectal mucosa to be normal in appearance.

Medizinische Klinik, Berlin

June 18, 1922, **18**, No. 25

Treatment of Chronic Joint Disease. E. Roos.—p. 783.
Obstetrics and Gynecology as Influenced by War. A. Mayer.—p. 787.
*Treatment of Muscular Spasm and Contracture. E. Moser.—p. 791.
*Constructive Surgery. J. F. S. Esser.—p. 793.
Initial Spasms with Ulcer. S. Jonas.—p. 796. Conc'n.
Research on the Wassermann Aggregate. Otto and Winkler.—p. 799.
Present Status of Puberty Gland. C. Hart.—p. 803.

Artificial Relaxation of Muscles.—Moser calls attention to his success in curing spasm in the digestive tract by injection of an anesthetic. Postoperative ileus has been cured by intraspinal injection of an anesthetic. With contracture of joints, intramuscular injection of an anesthetic may cure completely and permanently, as he shows by a number of examples. It often aids in correction of talipes, contracture of fingers, trismus, etc., and he regards it as indispensable in correction of luxations, and to facilitate endoscopy. Presacral injection of 130 c.c. of a 0.1 per cent. procain solution has cured chronic constipation in numbers of rebellious cases. Injection of the anesthetic into the pylorus cured permanently a case of pains and vomiting—sometimes with blood—after eating. The pylorus could be palpated as abnormally thick in this young woman. In another case the stomach disturbances of two years' standing subsided at once after injection into the tough pylorus of 4 c.c. of a 0.5 per cent. solution of procain, from two separate points. Similar success was realized in cases of stenosis of the small intestine or impacted gallstones; the patients vomited the contents of the duodenum or jejunum, and great relief followed.

Constructive Surgery. — Esser describes various methods he has applied in what he calls "structive surgery." Most of them have been summarized in these columns as he published them in surgical journals. This is a general summary, with demonstration of patients before the Berlin Medical Society.

Aug. 27, 1922, **18**, No. 35

*Feeding of Healthy Infants. E. Nobel.—p. 1109.
*Severe Injury During Treatment of Abortion. W. Liepmann.—p. 1110.
*Vesicular Mole and Chorio-Epithelioma. B. Schweitzer.—p. 1113.
*Thermometer in Duodenum. G. A. Preiss.—p. 1116.
Correction of Flaring Ears. E. Eitner.—p. 1117.
Treatment of Abortion. Graetzer.—p. 1118.
Staccato Breathing. R. Peyrer.—p. 1120.
*Mechanical Treatment of Bronchitis, etc. M. Krieg.—p. 1120.
Splashing Sound in Stomach. E. Ehrlich.—p. 1121.
Bacteriophagy. W. Seiffert.—p. 1121. Conc'n.
Gonorrhea in Women. E. Portner.—p. 1122.
Recent German Works on Abdominal Surgery. O. Nordmann.—p. 1124.
Concentrated Food for Infants. R. Benzing.—p. 1126.

Feeding of Healthy Infants.—This article is from the children's clinic at Vienna, in charge of Pirquet.

Severe Injuries During Treatment of Abortion. — Seven illustrations are given of various injuries during curetting or manual exploration or overhasty dilatation. In one case the thumb and three fingers perforated the uterus wall separately. The physician was trying to detach the placenta at the fifth month of pregnancy. He was pushing with his other hand from outside, and he suddenly felt that his fingertips were close to the abdominal wall. The woman died from peritonitis. In three cases the uterus was torn completely out in separating the placenta, and the women bled to death. In two of the cases the fetus slipped into the abdominal cavity through an opening made with the abortion forceps, and the physician was not aware of the mishap in either instance. One thought the uterus was empty, the other that he had removed all the fragments of the fetus. The first part of Liepmann's analysis of these fourteen cases was summarized on page 1646.

Mole and Chorio-Epithelioma.—Schweitzer discusses the clinical picture and the pathologic anatomy of hydatidiform mole and malignant chorio-epithelioma. His review is based on fifty cases and the outcome of treatment.

Clinical Thermometer Impacted in Duodenum.—This is the case mentioned in the News Department on page 1778. The thermometer registered 41.5 C.

Mechanical Treatment of Bronchitis, Pleurisy and Pneumonia.—Krieg has applied the principle underlying Schultze's swinging of new-born infants to older children suffocating from tenacious bronchial and pulmonary secretions which they are unable to expel. He applied the Schultze swinging method to infants; for older children, he pushed the trunk forward and back till the head was below the seat, pressing rhythmically on the chest, repeating this a dozen times. The children all recovered. In other children he pressed the root of the tongue down with a spoon every two hours, to induce retching. The aim is to get air into the lungs, and for adults he applies artificial respiration, raising and lowering the arms while compressing the sides of the chest. This has aided materially in hastening convalescence, but he warns not to attempt it till all recent inflammation has subsided.

Münchener medizinische Wochenschrift, Munich

Sept. 22, 1922, **69**, No. 38

The Tumor Question and Studies on Epithelial Growth. H. Burckhardt.—p. 1365.
Rachitis. H. Maass.—p. 1369.
Functional Asymmetry. R. Engeland.—p. 1372.
Jugular Vein Phenomenon as Symptom of Faulty Respiration in Speaking. W. Schnell.—p. 1374.
Simple Method for Necropsy Diagnosis of General Paresis. H. Spatz.—p. 1376.
History and Symptomatology of Iodothyroidism. L. Friedmann.—p. 1377.
A Form of Intermittent Dyskinesia. T. Hoepfner.—p. 1379.
Protein Bodies in Typhoid as Therapeutic and Diagnostic Aids. P. Becker.—p. 1380.
*Treatment and Pathology of Blackwater Fever. R. Beck.—p. 1381.
Intratracheal Struma. E. Wurster.—p. 1382.
Pluriglandular Endocrine Insufficiency in Relation to Myositis. A. Viessmann.—p. 1383.
Addendum to Article "Appendicitis and Situs Inversus." Landgraf.—p. 1384.
Diverticula. G. Ledderhose.—p. 1385.

Therapy and Pathology of Blackwater Fever.—Beck reports in five cases good success in using Matko's treatment for blackwater fever. In all five cases very dark urine and icterus were symptoms in the beginning of the affection. The course of the disease was exactly as Matko described in his two cases. Immediately after the first injection the urine became clear. In some cases hemoglobin reappeared, but vanished after a second or third intravenous injection of 100 to 200 gm. of the Matko solution (a watery solution containing 3 per cent. sodium phosphate and 3 per cent. sodium chlorid). No marked icterus developed, because the hemolysis ceased at once. The patients were well in a few days. Beck refers to ten cases observed by Müllern, all of which were treated by the Matko method. One patient who was in a moribund condition when admitted for treatment died. Ten cases observed by Müllern during the war—before the introduction of the Matko method—presented a mortality of 50 per cent. He describes the theoretical and chemical bases on which Matko bases this treatment.

Wiener klinische Wochenschrift, Vienna

Aug. 31, 1922, **35**, No. 35

*Operative Treatment of Sterility. E. Graff.—p. 721.
Elementary Bacteriophages of the Shiga Bacillus. O. Bail.—p. 722. Cont'd.
Questions Pertaining to Allergy. L. Karczag.—p. 724.
Goiter Stridor. F. Wiltschke.—p. 726.
The Growth of Implanted Carcinoma After Previous Treatment with Roentgen Rays. O. Frankl.—p. 726.

Operative Treatment of Sterility.—Graff tested the patency of the fallopian tubes in connection with 60 cases of sterility. The tubes were found to be impermeable in more than half the cases, which was confirmed in 5 cases by laparotomy. Occlusion of the tubes is thus much more frequently the cause of sterility than was formerly suspected. Graff regards the apparatus of Rubin (New York) as a valuable means of testing by means of transuterine pneumoperitoneum the permeability of the tubes. By the application of this method more than half the women were saved a superfluous operation. The only justifiable intervention in such cases is salpingostomy, which in the future will gain in significance as a sterility operation from the etiologic standpoint. The results of the intra-uterine inflation and artificial pneumoperitoneum were especially instructive with respect to 13 women who had previously been operated on for sterility: Of the 4 women with patent tubes, 3 had become pregnant, while the 9 with closed tubes had remained sterile in spite of the operation. Graff demands, therefore, that no patient be operated on for sterility until the permeability of the tubes has been tested by the Rubin apparatus. He reproduces an illustration of it.

Zentralblatt für Chirurgie, Leipzig

July 1, 1922, **49**, No. 26

*Autoplasty After Exarticulation of Hip Joint. Stubenrauch.—p. 938.
Peritoneal Closure Without Suture or Bassini Operation for Oblique Inguinal Hernia. K. Hofmann.—p. 939.
*Sterilization of Ivory for Plastic Operations. M. Bab.—p. 943.

Autoplastic Transplantation of Bone Into Soft Parts Stump After Exarticulation of the Hip.—Von Stubenrauch states that the favorable results of autoplastic transplantation of bone into soft parts, such as have been secured by the substitution of phalanges of the foot for phalanges of the hand, caused him to try this method in exarticulation of the hip. In his case, exarticulation of the bone at the hip joint was done for osteochondrosarcoma of the femur. A portion of the tibia taken from the leg removed was demarrowed and implanted in the muscles of the stump. Unfortunately wound infection set in, and special conditions made it necessary to remove the transplant after four months, but the significant part of it is, that, during this period of four months, a vigorous bone development proceeding from the implanted periosteum took place, so that the anatomic proof of the feasibility of the procedure in such cases has been furnished, for which reason the writer urges that this experiment be repeated in like cases. The most essential condition of the transplant is an abundant mass of muscle, in order to have sufficient muscular support for the functional weight-bearing that will be required of the stump.

Sterilization of Ivory.—Bab observed that ivory to be used for plastic operations is sometimes injured by long boiling in sterilization. He consequently experimented to discover the minimum time required to sterilize ivory by boiling. Pieces of ivory 1.5 cm. thick were absolutely sterilized in eight minutes. Experiments with alcohol as a sterilizer proved unsatisfactory. He holds that if the boiling time for sterilization is reduced to eight minutes, the durability of ivory used for implants will be considerably increased.

July 8, 1922, **49**, No. 27

Treatment of Cancer of the Rectum. F. J. Kaiser.—p. 970.
Nontraumatic Tumors of the Metatarsus. C. Deutschländer.—p. 975.
*Hepatopexy by Establishing a Support for the Liver. Kaiser.—p. 979.
"New Operation for Hypospadias." Z. Nagel.—p. 982.

Hepatopexy by Establishing a Support for the Liver.—Kaiser describes his method of hepatopexy which he has employed in six cases, without exception with good success. The principle of giving support to the liver from below is carried out consistently and completely. The abdomen is opened by a median incision beginning just above the umbilicus. While strong traction is applied to the abdominal wall and the liver is pushed aside, the round ligament is freed or divided, and a notch is made in the falciform ligament, beginning three fingerbreadths from the spine and ending two fingerbreadths from the anterior midline, a horizontal incision (the patient conceived of as standing) is made through the peritoneum and the transversalis fascia. The incision does not run parallel to the ribs but begins a rib space lower (tenth rib behind; ninth rib in front). The lower margin of the divided peritoneum is held with clamps, and the peritoneum and transversalis fascia are freed to a sufficient extent from the under surface of the diaphragm and the abdominal wall, to form a pocket, so that the musculature of the abdominal wall is devoid of covering within the pocket. The pocket formed by loosening the peritoneum receives the lower portion of the right lobe of the liver. The liver is forced into the dome of the diaphragm and the right lobe of the liver is pushed upward far enough to get it over the free edge of the peritoneal pouch, in which it is allowed to rest. As a rule the liver, especially if the right lobe is enlarged, will now be firmly seated, which will end the fixation operation. If the liver is inclined to slip out, the edge of the pouch can be sutured to the fibrous margin of the liver or to the thickened capsule of Glisson on the under surface of the liver, or it can be attached to the freed round ligament. If this is not possible or desirable, the margin of the pouch and the round ligament can be joined by transplanted strips of fascia.

Zentralblatt für Gynäkologie, Leipzig

June 17, 1922, **46**, No. 24

Intravenous Therapy in Gonorrhea in the Female. C. J. Gauss.—p. 977.
*Treatment of Retroversioflexion of the Uterus. R. T. v. Jaschke.—p. 986.
Laceration of Uterus, Without Apparent Cause, During Childbirth. M. Schwab.—p. 989.
Colpitis from Trichomonas Infection. S. Stephan.—p. 992.
Some Unusual Gynecologic Cases. J. Hofbauer.—p. 994.
Herff's Clamps for the Closure of Wounds. H. Hellendall.—p. 999.

Treatment of Retroversioflexion of the Uterus.—Von Jaschke holds that uncomplicated mobile retroversioflexion of the uterus in general needs no treatment. He points out that, in every fifth or sixth virgin or nullipara, such a condition exists, which however is usually to be regarded merely as a variation in position. Either the troubles and symptoms which bring such persons to a gynecologist have plainly nothing to do with the change in position or there are conditions present (dysmenorrhea, menorrhagia, leukorrhea, constipation, or other localized symptoms in the abdomen) in which the causal connection with retroversioflexion is at least extremely doubtful. However, it must be admitted that, as soon as such persons know about the retroversioflexion, they stubbornly associate all kinds of symptoms with it. In such cases the gynecologist may sometimes feel compelled to get rid of the anomaly, in order to create a psychic basis for the cure. He likewise approves of operation in cases of sterility and habitual abortion in which at least a probable connection with the anomaly can be established. He operates also in certain cases of retroflexion of puerperal origin.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

Aug. 12, 1922, **2**, No. 7

*Treatment of Vesicogenital Fistulas. P. Klumper.—p. 674.
*Motile Anaerobes. M. van Riemsdijk.—p. 679.
*Glioma of the Retina. E. Marx.—p. 683.
*Differential Diagnosis of Lip Ulcers. E. Wiener.—p. 691.
*Protection of the Perineum. H. Veen.—p. 695.

Vesicovaginal Fistulas.—Klumper reports three cases in which it seemed advisable to treat the fistula by way of a laparotomy. The outcome is not known in one case, and suppuration had weakened the tissues in the second case, and the fistula opened up anew later. But the outcome was perfect in the third case. A strip of omentum had been sutured over the opening in both the bladder and the vagina, after each had been sutured. He cites Zweifel's success in six out of eight cases, and a few other favorable cases from the records. There was no infection of the peritoneum in any instance. Koblanck has reported a few instances of ileus developing in consequence of binding from the pedunculated strip of omentum, and hence he now advocates free flaps of omentum.

Motile Anaerobes.—Van Riemsdijk describes a simple method of obtaining a "hanging drop" free from oxygen. In this the movements of the anaerobes can be studied from the differential standpoint.

Diagnosis and Treatment of Glioma of the Retina.—Marx describes a case in a child of 2. The eyeball seemed to be somewhat shriveled, and the glioma developed rapidly and soon became necrotic. Roentgen-ray treatment did not arrest the lesion. In thirty-seven cases he has compiled, the outcome was bad in twenty-two and dubious in ten, so that the results of radiotherapy have often been disappointing. But Marx advises to keep on with it as it is the only recourse, and it may yet prove possible to act on the glioma in some way to make it more sensitive to the radiant energy.

Tuberculous Ulcer on the Face.—The physician, 62 years old, developed a tubercle near the corner of his mouth. His age misled the diagnosis, and the lesion was treated with radium. This modified its characteristics beyond recognition, but did not cure it. The lesion was then cut out, but an atypical lesion developed in the course of a year. This, after long blundering, was assumed to be a tardy radium injury and was treated with the ultraviolet rays. A complete cure followed, closing the four years of the humiliating history. The skin tuberculin test was negative for human tubercle bacilli but positive for the bovine. In some other cases of radium lesions, Wiener supplemented the ultraviolet rays with the high frequency current, but it was not required in this case.

Protection of the Perineum.—Veen's illustrations show his method of protecting the perineum, particularly as the shoulder is being delivered.

Sept. 2, 1922, **2**, No. 10

*Parkinsonism After Epidemic Encephalitis. J. M. Rombouts.—p. 1038.
*Pregnancy in Postoperative Tetany. H. W. Stenvers.—p. 1049.
*Toxic Action of Neo-Arsphenamin: Three Cases. J. van Asselt.—p. 1055.
Explanation of Kohnstamm Phenomenon. Hazelhoff and Wiersma.—p. 1062.
Case of a Cervical Rib. A. J. M. van den Bos.—p. 1067.
Present Status of Homosexuality Question. H. C. Rogge.—p. 1068.
*Treatment of the Insane in Former Centuries. H. Breukink.—p. 1076.

Parkinsonian Symptoms After Epidemic Encephalitis.—Rombouts remarks that the two-day meeting of the Société de neurologie at Paris in June was entirely devoted to the parkinsonian symptoms after epidemic encephalitis, and an amazing diversity in the previous course of the encephalitis was evident. In his own experience at Leiden, in some cases only the parkinsonism first gave the clue to the nature of the malady a few weeks or months before. The parkinsonian symptoms develop more rapidly than in paralysis agitans. Erb's recommendation of scopolamin as the best treatment for paralysis agitans seems to apply to the parkinsonism after epidemic encephalitis. Rombouts describes his favorable experiences with this treatment in a number of cases, even when given by the mouth. Although the disease itself may not benefit, yet the patient's condition may be immeasurably improved. The drug can be given with good effect for months at a time, but always under strict supervision. He gave 0.25 mg. at a dose, in series of two or three doses.

Pregnancy with Postoperative Tetany.—The tetany had developed at the second sitting of the operation on the enlarged thyroid. The tetany persisted, and there were still occasional convulsions a year and a half later. Then the tetany improved after implantation of human parathyroids, and the woman passed through a normal pregnancy. It seemed to have cured the tendency to tetany, but this returned to a slight extent while she was lactating. This case refutes the tradition of the danger from a pregnancy in a case of chronic tendency to tetany. Borchers advises to sterilize the woman, even if the tetany has subsided under parathyroid grafting, as he assumes that the nervous system is in a very excitable condition, even if there are no more paroxysms. But in Stenvers' case all the signs indicating a tendency to tetany subsided nearly or entirely during the pregnancy.

Neo-Arsphenamin Poisoning.—One of van Asselt's three cases proved fatal; the woman of 32 had been injected with 4.95 gm. of neo-arsphenamin in the course of twenty-six days. A suppurative dermatitis developed suddenly in all three cases, the consequent sepsis proving fatal in one. There had been nothing to warn of this eventuality beforehand. In conclusion, van Asselt remarks that intramuscular injection of epinephrin, plus possibly venesection, combat the arsenical poisoning so effectually that a fatal outcome is extremely rare.

Management and Treatment of the Insane in Previous Centuries.—Breukink presents this third profusely illustrated article on this subject. He says that the first institution built in Europe exclusively for the insane was at Upsala, in the fourteenth century. The paintings and monuments reproduced testify that it was the medical profession that freed the insane from chains. A number of devices for restraint are pictured; the Amsterdam museum has a large number.

Hospitalstidende, Copenhagen

Sept. 27, 1922, **65**, No. 39

*Wildbolz' Auto-Urine Reaction. C. Holten.—p. 633.

The Auto-Urine Reaction in Tuberculosis.—Holten applied the Mantoux intradermal tuberculin and the Wildbolz own urine test to 65 patients with active tuberculosis, 17 suspects, 5 with healed tuberculosis and 9 healthy subjects. The urine test gave contradictory findings; positive in over 50 per cent. of the healthy and negative in nearly 33 per cent. of the progressing cases.

Hygiea, Stockholm

Aug. 31, 1922, 84, No. 16

*Diuresis in Relation to Convulsions. K. O. Larsson.—p. 641.
Pocket Cases for Practitioners. C. O. Segerberg.—p. 664.

The Electric Excitability in Conditions Displaying a Tendency to Convulsions.—Larsson has long been impressed with the similarity between the clinical picture in eclampsia, in uremic nephritis, true and false uremia, in eclampsia in connection with pregnancy, and in convulsions in children. With spasmophilia in children we have a characteristic form of electric excitability on the part of the peripheral nerves, and he queried whether this same excitability might not be found with convulsions in adults. He was unable to find any record of research in this line, and reports the results of his own investigations in twenty cases of kidney disease. He found the electric excitability practically normal in all forms of kidney disease free from retention of salt and water. When there was retention of salt and water, the threshold of electric excitability was always found high for the cathodal closure contraction; as a rule above 5 ma. When the edema was retrogressing, the excitability threshold dropped, sometimes down to below 0.1 ma. at the cathodal closure. Even the cathodal opening contraction occurred with very low currents. In short, the electric excitability assumed the type of what is familiar in spasmophilia. When this was the case, certain symptoms were always observed which might be called eclampsia-equivalent phenomena, such as headache, restlessness, nausea, vomiting or fleeting contraction of some muscle or group of muscles. He has even observed transitions from these to general tonic or clonic contractions, followed by coma or somnambulism, in short, an actual eclampsia convulsion. As a rule, these convulsions occur in kidney disease only when there is high blood pressure. But even with normal blood pressure, these symptoms may develop as edema is retrogressing. He has encountered them even in simple nephrosis when the edema was subsiding. In all these conditions with a tendency to convulsions, the electric excitability of the peripheral nerves was always found of the characteristic "spasmophilia" type, and he reasoned that if this occurs constantly during the flushing out of the system in kidney disease after retention of salt and water, then it might occur in the healthy if the organism were flooded with salt and water and diuresis was then induced. This raised the question of the mechanism of diuresis, and he turned to study this in rabbits, as he describes. His findings encourage the hope, he remarks in conclusion, that it soon will prove possible to synthesize the whole eclampsia condition.

Ugeskrift for Læger, Copenhagen

Aug. 31, 1922, 84, No. 35

*Differential Diagnosis of Interlobar Effusion. F. Møller.—p. 1110.
Sensibility of the Pleura. H. I. Bing.—p. 1123.
*Blood Pressure During Sleep. P. Blume.—p. 1126.

Radiography of Interlobar Pleural Effusion.—Møller's radiograms show that the shadow supposed to be pathognomonic of an interlobar effusion can be found exactly the same with a tuberculous infiltration of the base of the superior lobe of the lung, or even with simple bronchopneumonia. Certainty can scarcely be obtained without an exploratory puncture. A sharp upper edge to the shadow speaks more for an effusion, and a sharp lower edge more for infiltration. In any event, the possibility of tuberculosis should always be borne in mind in investigating such cases.

Blood Pressure During Sleep.—Blume has been examining the blood pressure during sleep of 20 men, 20 women and 10 children with various affections. The difference between the systolic pressure awake and asleep averaged 15 mm. in the 8 men with day pressure under 120. The difference averaged 21 mm. in the 13 women with blood pressure under 116, the average day pressure dropping to 89 in sleep. When the day pressure was high, the difference averaged 31 in the 12 men and 39 in the 7 women. In one child of 14 with pneumonia, the day pressure was between 116 and 132, and two hours after slumber had begun it measured 87, then 112 and then 79. The findings thus confirm those published recently by Müller and summarized in these columns, Dec. 24, 1921, p. 2100.

Sept. 7, 1922, 84, No. 36

*Cases of Cincophen Poisoning. K. Schroeder.—p. 1141.

Cincophen Poisoning.—Schroeder describes 9 cases of severe by-effects from the therapeutic administration of cincophen, and 4 other cases described to him retrospectively by patients, and 4 by other physicians. He has compiled a number of similar experiences from the literature. The drug may induce local irritation in the digestive tract or there may be a general itching eruption and edema with fever, headache, etc., or an abnormally profuse excretion of uric acid and its salts, entailing irritation and pains in the kidneys. He says that by giving sodium bicarbonate with the drug, the first and third by-effects may be warded off. The toxic eruption, etc., may be combated with calcium treatment, as is proving useful in exudative affections and with antipyrin eruptions; sometimes even in urticaria of unknown origin. The patient should drink freely while taking cincophen.

Sept. 14, 1922, 84, No. 37

*Epidemic Sore Throat in Greenland. E. Bay-Schmidt.—p. 1187.
*Multiple Sclerosis. A. Faber.—p. 1192.
*Dosage of Strophanthus. Marie Krogh.—p. 1195.

Epidemic Sore Throat in Greenland.—Bay-Schmidt remarks that in his experience in Greenland an epidemic of tonsillitis and an epidemic of diphtheria were both accompanied by an eruption impossible to distinguish from scarlet fever.

Early Diagnosis of Multiple Sclerosis.—Faber reports five cases with an unusual beginning, misleading the diagnosis. In one the first symptoms suggested cerebral hemorrhage. In two others visual disturbances and pyramidal tract symptoms opened the clinical picture. Physical and emotional stress may aggravate all the symptoms. The ocular and the pyramidal symptoms are the most instructive, but they may be very vague, and may be labeled neurasthenia, rheumatism or gout. Physical measures, especially massage, seem to aggravate the condition. Large doses of salicylate after preliminary intragluteal injections seemed to benefit one of his patients.

Dosage of Strophanthin.—Marie Krogh warns that a chemical change of strophanthin may occur even in the ampules if the fluid is not perfectly neutral. The tinctures examined showed widely varying strengths. Intravenous doses of 1 mg. strophanthin are certainly dangerous. That this dose has been apparently tolerated is explained by the drug's not being of full strength.

Sept. 21, 1922, 84, No. 38

*Tests for Free and Bound Pepsin in Stomach Content. R. Ege. —p. 1227.
Radiotherapy as Applied at Paris Pasteur Institute. E. Collin.—p. 1247.

Pepsin in Stomach Content.—Ege has modified the Fuld method for estimating the free and bound pepsin in the stomach content and reports extensive research with it. Each step, he remarks, opened up new problems such as the durability of pepsin preparations, the possibility of an antipepsin, the distinction between pepsin and pepsinogen, and other questions.

Sept. 28, 1922, 84, No. 39

*Surgical Complications of Acute Otitis Media. H. Mygind.—p. 1265.
Case of Universal Hyperkeratosis. J. Henrichsen.—p. 1277.

Surgical Complications of Otitis Media.—Mygind reports a mortality after 1,000 mastoid operations of 10.1 per cent. in children and 15.5 per cent. in adults. In young infants it was 18 per cent. and, after 50, 37.5 per cent. Bilateral mastoid operations on children with rickets or tuberculosis almost invariably proved fatal, even when the children seemed well nourished. In the 55 cases of thrombophlebitis, 60 per cent. were cured by the operation, bilateral in one. The 7 with metastasis all recovered. He noticed a brief period of latency with postoperative thrombophlebitis; during this period there was no fever or it was not of septic nature, and puncture of the sigmoid sinus showed no sign of thrombosis. But in several such cases the microscope revealed the tendency to thrombosis in the excised wall of the vein. Of the total 1,000 operations, 83 were done for recurrence, and 95 of the operations were bilateral, the patients numbering only 830 in all.

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CESAREAN SECTION

ITS INDICATIONS AND TECHNIC BASED ON TWO HUNDRED AND FIFTY-TWO OPERATIONS

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The indications for cesarean section can be divided into two classes: (1) the absolute, in which there is no question of choice, and (2) the relative, in which a choice of methods of delivery exists, but cesarean section seems to give the best chance of safety for both mother and child.

The absolute indications are comparatively simple: (1) a contracted pelvis, with a conjugate at the brim of less than 7 cm., or with other measurements so small that delivery could be accomplished in no other way; (2) complete obstruction of the pelvic canal by a fibroid tumor, ovarian cyst or tumor of the sacrum; (3) a gigantic child, whose head will not engage in the pelvic inlet and whose anterior parietal eminence projects well beyond the symphysis.

In all these cases, safe delivery by methods other than cesarean section is out of the question. It must be remembered, however, when dealing with a fibroid tumor, that the mass will often be pulled up spontaneously above the pelvic brim, or can be pushed up, so that an apparently hopeless case will quickly be transformed into an easy and simple delivery.

The relative indications open a wide field for discussion. Chief among them are: (1) a moderately contracted pelvis, in which one or more previous labors have ended disastrously for the child; (2) arrest of the head in the upper third of the birth canal, after a satisfactory test of labor; (3) a breech presentation in an elderly primipara; (4) placenta praevia in a primipara, whether central or partial; (5) moderate hydrocephalus; (6) impacted shoulder presentation, with or without prolapse of the arm, when the child is alive and in good or fair condition, and (7) face or brow presentation, with the chin posterior, and the baby living. The operation is always indicated as an alternative to the employment of axis-traction forceps.

This is by no means a complete list. It can be considerably amplified before all the possible indications are enumerated. We are well aware that some of the indications mentioned above can be questioned. We do not wish to be understood as recommending cesarean section indiscriminately, simply because it is an easy operation. It has been abused enough on those lines. But we do contend that it is infinitely safer for both mother and child than an axis-traction forceps delivery, with the great danger of severe or irreparable injury to both mother and child. We do not believe that delivery by axis-traction forceps should ever be chosen in preference to cesarean section, if moderately good facilities for the latter can be obtained.

After a test of labor, with unsatisfactory progress, in a breech presentation in an elderly primipara, especially if the mother is past 40 years of age, or even 35, section is much the safest form of delivery for both mother and child. We do not believe that, in any case in which the head or breech is arrested in the upper birth canal, after a satisfactory test of labor, the child should be unceremoniously dragged through the canal by any forcible method. It can be done, of course, but at a risk of injury to both mother and child that renders it perilously close to malpractice. No longer can we advise craniotomy for hydrocephalus, when, by draining the spinal canal into the perirenal connective tissue, these children can be given a very fair chance of life and useful mentality. We have seen results of this that are astonishing, and would no longer consider craniotomy as a means of delivery in hydrocephalus. We do strongly indorse the stand that cesarean section be chosen in a case of obstructed labor, in preference to a means of delivery threatening permanent disability to the mother and a high rate of death or crippling for the child. The risk of cesarean section in competent hands is not nearly as great as the risk of serious or fatal sepsis after one of these complicated vaginal deliveries, and the operation does not, unless the indication for it is of a permanent nature, prejudice a normal delivery later.

The risk of cesarean section is in direct ratio to four factors: (1) the length of time the patient has been in labor; (2) the length of time the membranes have been ruptured; (3) the number and technic of the vaginal examinations made; (4) previous attempts at vaginal delivery by forceps.

In an elective case, in competent hands, before the patient has fallen in labor at all, the risk is negligible. All the foregoing factors increase the risk enormously. Whatever may be thought of rectal examinations as a routine procedure, they are desirable and should be performed in any case undergoing a test of labor, as a preliminary to a possible cesarean section later in the course of labor.

METHODS OF OPERATION

No single technic will answer for all the indications to be met in the complications encountered. The operator, equipped to give his patient the best possible service, must choose, to fit the individual case under consideration, one of at least five different technics:

1. The old classic operation, with a long incision and eventration of the uterus, before it is incised. This operation is now rarely performed justifiably. It is the easiest of all, and hence better for the first few cases of the inexperienced operator, but it should not be considered, ordinarily, except in a case requiring extraordinary exposure of the uterus and abdomen, such as central placenta praevia, where immediate control of bleeding is essential.

2. The short high incision, with emptying of the uterus in situ, and then eventration for purposes of suturing. This is the best operation for the case *known* to be clean and uncontaminated.

3. One of the various technics for extraperitoneal cesarean section, in which previous contamination has occurred but the case is not frankly infected. These operations are often called the low cervical cesarean sections. In their field, they are most useful.

4. Abdominal hysterectomy with dropped stump, the Porro operation, in cases requiring hysterectomy and known to be uninfected, such as fibroid tumor, multinodular.

5. Abdominal hysterectomy with marsupialization of the stump in the abdominal wall, and its drainage extraperitoneally; this in cases which have been neglected, in long labor, with every likelihood of infection.

In all cases in which time is not too great a factor, the appendix should be removed. We have had a number of cases in which we neglected to do this, and operation for acute appendicitis was required within a few weeks; in one case, before the patient left the hospital. We now do it routinely and have not had cause to regret it. It should be emphasized that there is no need for hurry in these operations. The practice of timing the operation, to see how few minutes or seconds it requires, is a reprehensible one and should not be countenanced.

Hemorrhage is not to be feared. We have not yet seen an alarming hemorrhage in any operation. If 2 c.c. of a sterilized preparation of ergot, each cubic centimeter equivalent to 2 grains of crude drug of normal activity and 1 c.c. of pituitrin "O" are given hypodermically, deep in the thigh or deltoid muscle, when the abdominal incision is made, by the time the uterus is incised, it contracts so quickly and firmly that the bleeding is reduced to a negligible amount. It gives no greater effect to inject these substances directly into the uterine muscle, and it is not a good plan to do so. The less the uterus is interfered with, the better.

It is undesirable to handle the uterine cavity except for the absolute minimum necessary for the extraction of the placenta and membranes. Repeated sponging to clear out blood, and, above all, the packing of the uterus and carrying the end of the packing into the vagina cannot be too strongly condemned. There is no need whatever of any artificial dilation of the cervix, whether instrumental or manual, to permit the escape of blood, even though the operation is performed before the patient is in labor. Both these practices enormously increase the risk of infection.

In all cases in which the patient is in labor or has been examined repeatedly, the vagina should be scrubbed with tincture of green soap and water, dried, and painted thoroughly with 7 per cent. tincture of iodin. Sterile gauze packing is inserted, to be removed as soon as the operation is completed, as it then seriously obstructs drainage.

Whenever time permits, the abdominal skin should be prepared as carefully as for any other operation. Many of the operations are performed as emergencies and without time for elaborate preparation. In such cases, we are in the habit of shaving the abdomen and pubes, scrubbing the abdomen for ten minutes with tincture of green soap and hot water, using gauze mops and frequently rinsing. The abdomen is then covered with gauze dripping wet with tincture of green soap, held in place by an abdominal binder. On the table, this is removed, the skin wiped off with alcohol and painted with 7 per cent. tincture of iodin and again wiped off with alcohol, and dried. As in all our sections, the skin is then covered with a sterile rubber dam, secured on the edges of the incision by clips, so that no skin surface is visible.

It is unnecessary to wash the baby's eyes at once and instil silver. As the child has not been exposed to vaginal infection, it is a foolish waste of time. The eyes can be washed at the time of the child's first bath, with boric acid solution, but the silver is unnecessary.

At the completion of the operation, when the uterus is returned to the pelvic cavity, any clots present will be found anterior to the uterus, on either side in the vesical pouch. These should always be removed by sponging before the peritoneum is closed.

When the uterus is opened, the blood and liquor amnii which gushes out is usually sterile and harmless to the peritoneal cavity. The cavity can be protected as described in the detailed technic of the various operations, but the spill can be regarded as harmless, except in the neglected case considered under the fifth class. Even though the liquor amnii is strongly colored with meconium, the spill is usually harmless and can be disregarded until time for closing the peritoneum.

As the foregoing points of technic are general and apply more or less to all the methods of operating, it seems better to include them here rather than under any particular description of technic.

DETAILS OF OPERATIONS

OLD CLASSIC OPERATION WITH LONG ABDOMINAL INCISION

Indications.—These are: (1) the inexperienced operator; (2) central placenta praevia, when rapid control of bleeding is a vital factor. By experienced operators, this operation is rarely performed.

Objections.—These arise from the facts that: (1) the long incision gives a greater risk of hernia; (2) the uterine and abdominal wounds coincide, and there is great risk of adhesions; (3) the wide exposure of the abdomen renders contamination and infection more likely.

Technic.—1. The patient's abdominal skin is prepared as for any abdominal section.

2. If she has been in labor, or recently examined, the vagina is cleansed with tincture of green soap and water, dried, painted with 7 per cent. tincture of iodin, and packed with sterile gauze. This is done on the operating table, after the patient is anesthetized.

3. Just before the abdominal incision is made, 1 c.c. of pituitrin "O" and 2 c.c. of the preparation of ergot already mentioned are injected deep into the thigh or deltoid. The pituitrin "O" is given first.

4. The abdominal incision is made, from about 3 inches (7.5 cm.) above the umbilicus nearly to the symphysis, going around the umbilicus to the patient's right.

5. The rubber dam is spread over the abdomen, incised to correspond to the incision, and the edges are secured into the incision with clips.

6. The uterus is delivered through the incision.

7. Large gauze sponges are packed around the uterus to protect the abdomen from contamination.

8. The uterus is incised in the middle line, by an incision estimated as just large enough to permit the child's head to

pass. In about one third of the cases, this incision opens the placental site, which is of no moment at all.

9. The membranes are ruptured, the child grasped by one leg and quickly extracted. It is held upside down to allow the liquor amnii to drain from the mouth and air passages, while the cord is clamped in two places and cut between. It is then handed to an assistant to be revived.

10. The placenta and membranes are gently extracted, gauze being used to hold the membranes if they show any tendency to tear.

11. If the membranes are completely extracted, no sponging or manipulation of the uterine cavity should be done, nor should any attempt be made to dilate the cervix.

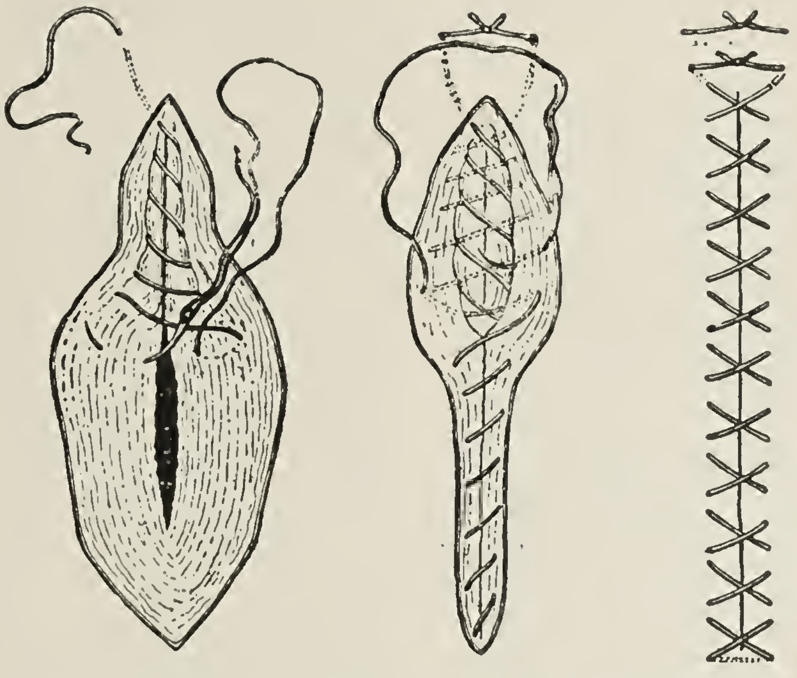
12. The uterine muscle is closed by a continuous tier stitch of No. 2 chromic catgut, the full length of the strand, threaded on a curved needle with a round point. The deeper half of the muscle is first closed, the endometrium being avoided; and then the upper half. The stitch must be kept taut throughout. When the last stitch has been taken, the catgut is tied above the wound, so that there is no knot in the wound. It is not necessary or advisable to use interrupted stitches for support, whether of catgut or permanent suture material. A glance at the illustration will make this stitch clear.

13. The peritoneal coat of the uterus is closed by a continuous stitch of No. 2 catgut, threaded on a straight needle with a round point. This stitch is in two layers, first made the length of the wound and then back again to the starting point, going *between* the previous stitches. The knot is again above the wound, and the effect of the completed stitch is that of a laced shoe, as the illustration shows plainly.

14. All soiled sponges are removed, the uterus is returned to the abdominal cavity, and any blood which may be present is sponged out. This will be found anterior to the uterus, in the vesical pouch.

15. At this time, the appendix is removed.

16. The abdomen is closed by the ordinary layer method, as in any section. If the subcuticular stitch is used, it should be of catgut, owing to the length of the wound.



Closure of the uterine wound, illustrating the tier stich of the uterine muscle and the peritoneal stitch. The material is No. 2 catgut of forty-day durability. (From J. C. Hirst: Manual of Obstetrics.)

SHORT HIGH INCISION, WITH EVACUATION OF THE UTERUS AFTER EMPTYING

Indications.—This is the operation to be chosen in the case in which operation is performed before labor, or in a case known to be clean and free from contamination.

Advantages.—These are: (1) a short abdominal incision, hence less risk of hernia; (2) no coincidence between uterine and abdominal wounds, hence a minimum risk of adhesions; (3) a stronger abdominal wall than in other technics.

Disadvantages.—There are no disadvantages unless there is contamination. Then, because of the slight unavoidable spill into the abdominal cavity, there will be some risk of peritonitis.

Technic.—1. The patient is prepared as for any abdominal section. If she is not in labor, vaginal preparation is unnecessary. It is *not necessary* to secure any preliminary dilatation of the cervix, to permit escape of blood during and after operation. This takes care of itself.

2. Pituitary extract and ergot are given as described.

3. A short incision, just long enough to allow the extraction of the head, is made, one third above and two thirds below the umbilicus, going to the patient's right of the umbilicus.

4. A rubber dam is applied as described.

5. An assistant places his hands around the wound and pushes the uterus from the patient's right to her left. This is partly to guard the peritoneal cavity from unnecessary spill, but chiefly to correct the normal lateral torsion of the uterus and make possible the uterine incision in the middle line and away from the broad ligament, where the uterine wall is much more vascular.

6. The uterine incision is made, just large enough to enable the child to be extracted. The child is grasped by one leg and gently delivered.

7. Just as the child's head is delivered, the first assistant hooks his finger in the upper angle of the *uterine* wound and pulls the uterus out through the abdominal incision.

8. Gauze pads are then packed in front of, behind and all around the delivered, contracted uterus.

9. The placenta and membranes are extracted as described.

10. From this point, the further steps of the operation are precisely as described in the first technic. The uterus is closed in exactly the same way. When it comes to returning it to the abdomen, it must be sharply rotated to the right, so that the left tube is in the middle line, to go through the small abdominal incision.

11. The abdomen is closed as in any section.

EXTRAPERITONEAL OPERATION

Indications.—This mode of operation is indicated and can be carried out with a maximum of safety in dealing with the patient in labor for some time, with ruptured membranes, especially when ineffectual attempts at delivery have been made, but the patient is not frankly infected.

Objections.—(1) The patient should be in labor, with the lower uterine segment thinned out. When the operation is done as an elective one, it is considerably more difficult. (2) Placenta praevia often entails a very severe and alarming hemorrhage, in this type of operation. (3) The operation is technically the most difficult of all, though this is a matter of slight moment to the experienced operator.

Technic.—Of the many technics devised, we prefer the one described herewith, essentially that of Beck.

1. The abdomen and vagina are prepared as already described.

2. The patient should not be catheterized unless the bladder is very full. A moderate distention of the bladder makes the operation easier.

3. The abdomen is incised in the midline, from umbilicus to pubis, and the rubber dam applied as described.

4. The abdominal walls are held up by retractors and a cofferdam of gauze is built, from side to side, between the abdominal and the anterior uterine walls.

5. The vesical reduplication of the peritoneum is grasped in two forceps, just above the bladder, and split *transversely* from one broad ligament to the other.

6. The upper flap is dissected up as far as possible, and the lower (bladder) half as low as possible, and this lower half held back by a hand retractor.

7. The exposed anterior lower uterine segment is incised in the middle line, as far as exposed. Dr. J. B. DeLee has devised a sickle-shaped knife which is most useful for this purpose.

8. The operator's hand rotates the child's face into the wound.

9. Light obstetric forceps are applied to the sides of the child's head, and it is delivered through the uterine and abdominal wounds. Forceps must be used, because there is no room for the hands.

10. The body is then easily extracted.

11. The cord is clamped in two places and cut, and the child is given to an assistant to revive.

12. The placenta and membranes are then extracted.

13. A stitch of No. 2 chromic catgut is placed at the upper limit of the uterine wound and another at the lower limit. When these are pulled on, the whole length of the uterine wound is lifted up for easy suturing.

14. Several interrupted stitches are placed in the muscle, and left untied, for the time being.

15. The edges of the cut muscle are joined by a single layer of No. 2 chromic catgut.

16. The interrupted stitches are then tied.

17. The upper flap of peritoneum is tacked down over the exposed muscle; then the lower flap with the bladder is sewed, by a continuous stitch, above the cut edges of the upper flap. This completely covers the lower uterine segment and incision.

18. The gauze is removed, and the abdomen closed in layers as usual. In this operation, the cervical canal, theoretically, at least, contaminated, is opened. There may be some doubt of the propriety of invading the upper abdomen, so carefully protected from contamination, to remove the appendix. We have never found any objection to it; we do it routinely, after a change of gloves, but recognize the justice of the objection.

PORRO OPERATION WITH A DROPPED STUMP

Indications.—This mode of operation is indicated in any clean case complicated by fibroid tumor or other condition which makes removal of the uterus necessary.

Technic.—As considerable exposure is necessary, the first technic, with long incision, is followed, up to the point where the child is delivered and the cord clamped and cut. Then, no attempt is made to deliver the placenta, but the cord and remaining hemostat is tucked back in the uterine cavity, which is then clamped together by several volsella, securely enough to prevent leakage. Then, the uterus is removed by clamping and cutting the broad ligaments, uterine arteries and cervix. The cervical stump, because of its great vascularity, must be very carefully sewed together, to prevent oozing and formation of a hematoma, and it is carefully peritonealized by its anterior and posterior flaps. The stump is then dropped back and the appendix removed. The abdomen is closed as in any ordinary section.

No attempt should be made to drop the stump in the peritoneal cavity, unless one is positive that there is no infecion. This is not the type of operation for a case which has been neglected or badly handled, or is infected.

PORRO OPERATION WITH MARSUPIALIZATION AND DRAINAGE OF THE CERVICAL STUMP

Indications.—These are: (1) ruptured uterus; (2) cases in which the patient has been long in labor, with many ineffectual attempts at delivery, with probable infection; (3) cases in which the patient is known to be infected. Unless the uterus is removed and the cervical stump drained in the cases listed, the mortality of the operation from peritonitis will be appallingly high.

Technic.—Except for extra care in packing off the peritoneal cavity from contamination, the steps of the operation are exactly those of the Porro operation just described, until the cervical stump is closed. This should be just as carefully peritonealized as if it were going to be dropped, but instead it is sewed outside of the peritoneal cavity, in the lower angle of the wound, its end resting on the stump and the wound then closed around it, leaving a pouch for drainage. The short length of tube required is then sewed to the skin, as otherwise the pouch is too shallow to hold it. By employing one of the technics described, depending on the indications in each case, the operator is equipped to cope with any emergency he is likely to meet.

ROUTINE AFTER-TREATMENT

The routine after-treatment does not differ materially from that of any ordinary section, except in certain particulars, to be mentioned, but must be combined with the ordinary obstetric care of the breasts and nursing.

It is essential that proper drainage of the birth canal be secured. As the vagina, with the patient recumbent, drains uphill, the head of the bed should be raised on blocks 12 inches. This is particularly important in primiparas; and further, to make sure there is no retention of lochia in the upper one third of the vagina, a vaginal douche of sterile water, once daily, is needed. Improper uterine drainage is a common cause of fever in the convalescence of these cases.

It is very common for tympanites to develop. That associated with a slow pulse need give no concern, although the distention may be alarming in appearance. It is advisable routinely to give 0.5 c.c. of pituitrin "O" hypodermically, twice daily, with a hypodermic of one-fortieth grain of physostigmin (eserin) sulphate and one-fortieth grain of strychnin sulphate, four times a day. This does more to control the distention than any combination we have tried. In addition, high compound enemas will aid materially in expelling the gas. Should the distention be confined to the epigastrium, and appear to be acute dilatation of the stomach only, gastric lavage with a 3 per cent. sodium bicarbonate solution is the quickest and surest relief. It may be necessary to repeat it several times in twenty-four hours.

We have not yet seen serious postpartum hemorrhage after any operation. Should the amount of bleeding seem excessive, a repetition of doses of 1 or 2 c.c. of the preparation of ergot hypodermically has always been ample to control it. We should not hesitate, however, to pack a uterus sewed up as described, should it seem necessary to control the bleeding.

At times, these patients will develop moderate sapremia and purulent lochia, with some rise of temperature. We have felt no hesitancy in irrigating the uterine cavity in such cases, using a Bozemann intra-uterine douche nozzle, of large caliber, and a very slight head, not more than a foot, to the flow. The solution is 7 per cent. tincture of iodin, one-half (15 c.c.) ounce; 95 per cent. alcohol, 8 ounces (240 c.c.) and water to make 4 pints (1,920 c.c.). Once daily is often enough. Nothing is gained by too frequent douching.

The child is given water as needed for the first twenty-four hours, then condensed milk, 1 dram (3.9 c.c.); boiled water, 12 drams (47 c.c.), every three hours for the next twenty-four hours; and is put to the breast for regular nursing, just as in a normal delivery, after the milk appears.

COMMENT

Cesarean section can apparently be performed repeatedly. There is a case on record in which there were ten operations. One of us (J. C. H.) has performed the fifth cesarean section on a patient (he did not do all five, however), and has perferomed three on one patient in the space of four years.

Sterilization of the mother after cesarean section is a matter for considerable divergence of opinion. We do not believe in it, even though the mother has several children. She might lose them all, or most of them, and then bitterly regret her inability to have others. A procedure seeming desirable at one time may easily seem very different at a later date. Should it be decided on, written consent of both husband and wife should be obtained, and filed with the patient's history, and in the absence of this consent, nothing should be done. It is best performed by excising the tube at the cornu, resecting about an inch and burying the stump in the layer of broad ligament.

Rupture of the wound in subsequent pregnancy or labor is a comparatively rare occurrence. Statistics in this country give about 3 per cent. as the frequency; abroad, figures run from 4 to 5 per cent. We do not subscribe to the dictum "once a cesarean, always a cesarean," unless the reason for the operation is a permanent indication such as a badly contracted pelvis.

We believe that the danger of rupture in a uterus properly closed is much less than the foregoing figures would indicate. It is more common in cases with a febrile convalescence, naturally. We know of two cases in this series; one in which the uterus ruptured in the last month of a subsequent pregnancy. The second case cannot be charged to any fault in the operation. A patient with a rachitic pelvis of only 7 cm. was delivered by cesarean section, with a smooth, afebrile convalescence. She was warned that, in any subsequent pregnancy, she should not fall into labor, as the obstacle was insuperable, but should undergo a cesarean section. She informed her physician of this fact, but he disregarded the warning, allowed her to go two weeks beyond term, and to fall into labor. After twelve hours of active labor, during which no attempt was made to aid her in any way, the uterus ruptured. We have heard of no others. Rupture of the scar is much less likely in the low extraperitoneal operation; another argument in favor of it to offset the extra difficulty in technic. We have had many patients who passed through a normal labor without trouble after a cesarean section done for a transient indication. We believe, therefore, that it is safe to allow a patient to fall into labor and attempt to deliver herself, provided her pelvic measurements and the fetal measurements justify the attempt.

RESULTS OF OPERATIONS ON WHICH THIS PAPER IS BASED

Our experience to the present totals 252 operations. The cases were unselected, and the patients were operated on just as they presented themselves. They vary in desirability from the ideal clean case, in which operation was performed before labor, under ideal conditions and surroundings, to those in which operation was performed in unfavorable surroundings, in various stages of neglect, and one particularly in which a patient with a rachitic funnel shaped pelvis had been in labor five days, with four physicians making a total of thirteen attempts at forceps delivery and one attempt at version. (This patient recovered after hysterectomy and drainage of the stump; the child is alive and well). In this series of 252 cases, there have been five maternal deaths. One from hemorrhage from a ruptured varicose vein in the broad ligament, eight hours after operation (proved by postmortem examination); one from mesenteric embolism of the transverse colon; three from septic peritonitis. Of these latter, two occurred before the days of extraperitoneal cesarean section. Had this technic been used, we are confident one or both might have been saved. This maternal mortality gives a percentage slightly less than 2. The fetal mortality, in any series of unselected cases, will run relatively high. In neglected cases, the child is so often injured by prolonged pressure or ill advised attempts at instrumental delivery that it is either stillborn or dies shortly after delivery. This can be in no way ascribed to the operation. Even in clean cases, the child is not entirely safe. It is born anesthetized in many cases, and inspiration pneumonia will later claim some of these infants though the risk is naturally many times less than in any other form of delivery in these particular cases. It is a mistake, however, to say that in a clean ideal case of cesarean section, the child runs no risk. It does, though a small one in comparison.

In this series, eighteen children were stillborn or died shortly after delivery; some of these deaths might have been avoided had the patient been brought to operation without needless delay. Two died of enlarged thymus, which would have occurred in any method of delivery.

It is vitally necessary, however, for the operator to provide a competent assistant to receive the baby and attend to its resuscitation, if needed, rather than trust this important duty to any one who happens to be present. It is a great mistake to keep on working with the child after it has begun to breathe regularly, and try to make it cry. After regular breathing has been established, the child should be well covered and left strictly alone.

1823 Pine Street—7240 Germantown Avenue.

THE FAMILY ASSOCIATION OF CARDIAC DISEASE, ACUTE RHEUMATIC FEVER, AND CHOREA

A STUDY OF ONE HUNDRED FAMILIES [*]

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The frequency with which cardiac disease is observed in two or more members of the same family is impressive, and investigation soon leads to the belief that this family association is far greater than may be accounted for by the laws of chance. Textbooks make note of a family predisposition to acute rheumatic fever, although little is said concerning disease of the heart or chorea (Sydenham's). The literature of the last ten years reveals little recent work on the subject. Although of great importance, the question as to whether cardiac disease is communicable and the means by which it is disseminated have excited little interest.

In the recent war it was demonstrated that syphilis is rarely an etiologic factor in cardiac disease in persons under 35 years of age;[1] and so few cases are observed to arise as a result of such infectious diseases as scarlatina, pneumonia and influenza that they are of little importance. The arteriosclerotic and degenerative diseases of the heart which cause such high death rates in the older ages are unusual in childhood and early adult life. Disease of the heart in children and young adults is commonly a sequel of the rheumatic manifestations, for between 80 and 90 per cent. of the cases are closely associated with acute rheumatic fever, chorea, myositis, bone or joint pains (growing pains) or recurrent attacks of sore throat.[2] This frequent association and apparent causal relationship has given rise to the belief that these conditions are different clinical expressions of the same disease. The cardiac problem in persons under 40 years of age is therefore virtually that of the so-called "rheumatic infections." It appears at once that it is the "rheumatic infection" rather than the complicating cardiac disease that is of importance from the standpoint of public health and prophylaxis. If, then, it is admitted as a premise, not yet satisfactorily proved, however, that cardiac disease in the young is of bacterial origin and a clinical expression or complication of "rheumatic infection," it is of the utmost importance that the means by which such rheumatic disease is disseminated should be investigated. Only then will it be possible intelligently to formulate plans for the prevention of a disease which as yet is little influenced by the known measures of management. Since it has been realized that tuberculosis is a communicable disease which is transmitted chiefly by close contact between the diseased and exposed susceptibles, great advance in its eradication has been made until at present it ranks, in New York City, below cardiac disease as a cause of death.[3] It is a matter of common knowledge that this decline in the death rate began before the causative organism was discovered.

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[*] Read before the New York Academy of Medicine, Oct. 19, 1922.

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[1] Conner, L. A.: Cardiac Diagnosis in the Light of Experiences with Army Physical Examinations, Am. J. M. Sc. **158**: 773 (Dec.) 1919.

[2] St. Lawrence, William: Potential Cardiac Disease and the Prevention of Heart Disease in Children, J. A. M. A. **78**: 947 (April 1) 1922.

TABLE 1.—AGE DISTRIBUTION IN ONE HUNDRED FAMILIES

Years of age	Number of Persons
From 1 to 5	28
From 6 to 10	109
From 11 to 15	162
From 16 to 20	91
From 21 to 30	23
From 31 to 40	74
From 41 to 50	87
From 51 to 60	6
Total	580

This study was planned for the purpose of determining the frequency of acute rheumatic fever, chorea and cardiac disease in families known to have one young member the subject of organic disease of the heart. The other members of these families presented a group of individuals bearing an intimate relation, in terms of close family living, with cardiac disease, and very frequently with acute rheumatic fever and chorea. As it seemed reasonable to consider an individual who suffered from any of these conditions as the subject of "rheumatic infection," it was felt that the frequency with which these were found in other members of the family would indicate either the degree to which a susceptibility had been transmitted or the extent to which the infection had been disseminated among those in close contact with the disease.

This series consists of 100 families. Each family had at least one child (from 5 to 15 years of age) enrolled in the Children's Cardiac Clinic of St. Luke's Hospital. They were selected alphabetically as the case histories appeared in the files, and the first 100 completed were chosen for the study. The parents were questioned carefully as to the previous occurrence of acute rheumatic fever and chorea in themselves and in each of their children. Acute, self-limited joint disturbances in which the joints returned apparently to normal after the attack had subsided were not counted as cases of acute rheumatic fever unless the attack had been sufficiently severe to require bed care. All subacute and chronic ailments of the joints were eliminated. Chorea was assumed certainly to have occurred only when the diagnosis had been made by a physician. As most of the families resided in the neighborhood of the hospital and had been under its care for many years, the hospital case records frequently gave valuable information in doubtful cases. Members dead of heart disease were counted as such only in those cases in which the history seemed to be beyond doubt. Myositis, bone and joint pains (growing pains) and recurrent attacks of sore throat were not included in the series, because it was deemed wise to deal only with precise clinical entities susceptible of little misinterpretation. The diagnosis of cardiac disease was made only in those cases in which there were definite physical signs of organic disease. Cases presenting functional disturbances and cases showing questionable signs of disease, such as borderline enlargement, were not included. The cases accepted were definitely or apparently of rheumatic origin, and included lesions of the endocardium, pericardium and myocardium. Persons with syphilitic, sclerotic and degenerative lesions were eliminated.

The 100 families included 626 individuals (parents and children). Sixty-three families were studied completely. In the remaining thirty-seven it was not possible to examine every member because of death, absence from home, or poor cooperation. However, only forty-six persons remained unexamined, so that the number studied was 580. Deducting from this number the 100 children who formed the nucleus for selection, there remained a group of 480 persons known to have been exposed to long contact with persons suffering from cardiac disease, and very frequently to those with acute rheumatic fever and chorea. Throughout this paper these people will be referred to as exposed persons. About 40 per cent. of these were adults; the remaining 60 per cent. consisted of children and adolescents. The age distribution is given in Table 1.

The families varied in size from three to eleven persons, and the average size was six. American, English, Irish, Scotch, French, Italian, Scandinavian, Slavic, Jewish and German stock was represented.

TABLE 2.—INCIDENCE OF RHEUMATIC INFECTION IN ONE HUNDRED FAMILIES (FIVE HUNDRED AND EIGHTY PERSONS)

Number of Members of Same Family Affected with Rheumatic Infection, Cardiac Disease, Acute Rheumatic Fever or Chorea	Number of Families	Per Cent.
2	33	33
3	14	14
4	2	2
5	1	1
2 or more	50	50
Number of cases found in exposed persons	71 of 480	14.8

INCIDENCE OF "RHEUMATIC INFECTION" (ACUTE RHEUMATIC FEVER, CHOREA OR CARDIAC DISEASE)

It seemed logical to consider a person who suffered from acute rheumatic fever, chorea or cardiac disease as the subject of rheumatic infection. Table 2 is based on this assumption. In this table are listed as cases of rheumatic disease those persons who were suffering or had suffered from any one or more of these conditions.

Two or more persons in the same family were found to be the subjects of rheumatic infection in fifty families—one half of the number studied. Included, of course, were the children who formed the basis for selection. Two affected members were found in thirty-three families (33 per cent.); three such persons in fourteen families (14 per cent.); four members were infected in each of two families (2 per cent.), and one family contained five persons who had been affected (1 per cent.). Of the 480 exposed persons, seventy-one, or 14.8 per cent., presented evidence of rheumatic infection. It would seem that, having determined the presence of a rheumatic manifestation in one member of a family, there is one chance in two that on examination at least one other member will be found to have been affected by a condition of similar nature.

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[3] Emerson, Haven: The Prevention of Heart Disease—A New Practical Problem, Boston M. & S. J. **184**: 590 (June 9) 1921.

TABLE 3.—INCIDENCE OF CARDIAC DISEASE IN ONE HUNDRED FAMILIES (FIVE HUNDRED AND EIGHTY PERSONS)*

	Number	Per Cent.
In 2 or more members	29	29
In 2 members	22	22
In 3 members	5	5
In 4 members	2	2

* Of the 480 exposed persons, thirty-eight, or 8 per cent., showed cardiac disease.

INCIDENCE OF CARDIAC DISEASE

Two or more members were found to be the subjects of organic disease of the heart in 29 per cent. of the families. There were two members affected in twenty-two families; three members in five families, and in each of two families there were four members similarly affected. Among the 480 exposed persons, thirty-eight were found to suffer from disease of the heart. These equaled 8 per cent. and far exceeded the incidence quoted for the general population, which is usually estimated at between 1 and 2 per cent. Of the thirty-eight cases found among the exposed persons, twenty-seven did not know that they had heart disease until examined for this study. In other words, 70 per cent. of those affected were not conscious of their condition. When disease of the heart is found in one member of a family, there is almost one chance in three that on examination of all members, at least one other member will be found to be afflicted.

In a small percentage of cases of heart disease in children (about 10 per cent.), painstaking investigation will reveal no history of acute rheumatic fever, chorea, myositis, bone or joint pains, or recurrent attacks of sore throat. It was interesting to find that other members of families of these children frequently showed a high incidence of what we have described as the rheumatic manifestations. This observation gave weight to the belief that these cases of heart involvement were also of rheumatic origin, and it would appear that the exciting cause of heart disease may affect the heart without giving any other clinical expression of rheumatic infection. In a few families, several members presented definite evidence of a lesion in the heart, yet in these families not a single member had suffered from any other rheumatic manifestation. Apparently transmission, if it occurs, may occur without the throat disturbances so commonly encountered.[4] Cases diagnosed, probably in error, as congenital disease of the heart, are frequently accompanied by a high incidence of cardiac disease and the other rheumatic manifestations in other members of the family. Occasionally, cases of congenital heart disease have been observed in which the mother had acute rheumatic fever during the period of that child's gestation.

Acute rheumatic fever had occurred in two or more members in twenty-four families (24 per cent.), and as many as five members of one family had suffered one or more attacks of this manifestation. Two of these five persons had suffered from the disease at the same time. The family distribution is given in Table 4. Forty-nine, or 10 per cent., of the 480 exposed persons had suffered from this condition. This would seem to exceed by far the incidence of acute rheumatic fever in the general population, for while the exact figures are unknown, general clinical experience in the hospitals of New York would not lead one to believe that one person in ten suffered from this manifestation at some time during life. In many instances it was found that parents had been affected with acute rheumatic fever some years before attacks appeared in their children, although few facts could be established concerning its appearance in three succeeding generations. In two or three instances, grandparents were known to have had the disease which later appeared in the uncles, aunts and parents of the children of this series, these children themselves succumbing at a still later date. No conclusions could be reached as to whether a susceptibility had been transmitted or the exciting cause had been transferred from generation to generation. Those parents who had suffered from this manifestation quite commonly escaped it in childhood and adolescence and suffered from the first attack in adult life. In view of the high rate (88 per cent.) of heart involvement in acute rheumatic fever in childhood, and since many children who contract heart disease do not reach adult life, this may mean that had these parents suffered infection in childhood or adolescence, they would have long since been dead of heart disease.[5]

Myositis and bone and joint pains (growing pains) were exceedingly common in the children of this series: far more common, it was thought, than would appear in the general population. It would seem that bone and joint pains and sore throats in children known to live in infected families should be treated with the utmost care, for this combination is present to the exclusion of acute rheumatic fever and chorea in the histories of 9 per cent. of cardiac children.[2] Similarly, subacute and chronic arthritis seemed unusually frequent, although they were not included in the presumably rheumatic infections.

TABLE 4.—INCIDENCE OF ACUTE RHEUMATIC FEVER IN ONE HUNDRED FAMILIES (FIVE HUNDRED AND EIGHTY PERSONS)*

	Families	
	Number	Per Cent.
In 2 or more members	24	24
In 2 members	17	17
In 3 members	6	6
In 4 members	0	..
In 5 members	1	1

* In 480 exposed persons there were forty-nine cases of acute rheumatic fever, or 10 per cent.

Of the twenty-nine adults who had acute rheumatic fever, thirteen, or 45 per cent., showed cardiac involvement. This was a much lower rate than existed in the seventy-two children who had suffered from this manifestation, among whom there were sixty-three cases, or 88 per cent.

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[4] Branson, W. P. S.: The Avenues of Rheumatic Infection, Brit. M. J. 2: 1429 (Nov. 23) 1912.

[5] Dunn, C. H.: Pediatrics, Troy, N. Y., the Southworth Company, 1917, p. 43.

CHOREA

Chorea was present in two members in each of three families and in eight of the 480 exposed persons. It was present in twenty-four of the 100 children with heart disease. Aside from the fact that chorea was exceedingly infrequent among the parents of these children, no enlightening information was obtained.

A COMPARISON OF THE FAMILY INCIDENCE OF THE "RHEUMATIC INFECTIONS" AND TUBERCULOSIS

As an unexpectedly high incidence of rheumatic infection and cardiac involvement in families in which one young member was known to have organic disease of the heart was discovered, the question arose as to what would be shown by a similar study of a disease known to be communicable. Tuberculosis was chosen for comparison. In this disease the causative organism has been determined, and the knowledge of transmission has been based on scientific facts, whereas in the case of rheumatic infection, the assumption rests on clinical evidence alone. While the evidence is strong that acute rheumatic fever, chorea and cardiac disease result from infections, the causative organisms have never been determined and the belief that they are the same in origin is merely a presumption. Nevertheless, it was hoped that the comparison proposed might be productive of interesting facts. We have learned much concerning the method of transmission and the degree of communicability of such diseases as measles and scarlatina, although their causative organisms have remained obscure.

TABLE 5.—COMPARISON OF THE FAMILY INCIDENCE OF "RHEUMATIC INFECTION" AND TUBERCULOSIS IN TWO HUNDRED FAMILIES*

Number of Affected Members in Same Family	"Rheumatic Infection" (Cardiac Disease, Acute Rheumatic Fever or Chorea)	Tuberculosis
2	33 families	33 families
3	14 families	9 families
4	2 families	3 families
5	1 family	3 families
2 or more	50 families	48 families
Number of cases found in exposed persons	71 of 480	72 of 492
Percentage of cases found of exposed persons	14.8	14.6

* One group comprised 100 families, each with at least one member who was the subject of rheumatic infection; the other comprised 100 families with at least one member who suffered from active tuberculosis. The families subject to rheumatic infection comprised 580 persons. The families exposed to tuberculosis included 592 persons. Deducting the 100 members who formed the nucleus for selection in each instance, there remained 480 persons exposed to rheumatic infection, and 492 persons exposed to tuberculosis. By "rheumatic infection" is understood either acute rheumatic fever, chorea or cardiac disease, presumably of rheumatic origin; for, as explained in the text, a person presenting any one of these conditions was considered to be the subject of rheumatic disease. It will be seen that in families having one member the subject of the disease, rheumatic infection exceeds tuberculosis in family incidence and in frequency among exposed persons.

A study by Miss Billings, described by Hawes,[6] gives the results of the examination of 959 persons known to have been exposed to tuberculosis by the presence of an active case in the family. This report states that on the examination of 597 exposed adults, seventy-five, or 12.5 per cent., were found to have positive cases of "consumption," presumably meaning cases of pulmonary tuberculosis. The examination of 362 exposed children revealed thirty-eight, or 10.5 per cent., to be positive cases. Whether the latter included all clinical types of tuberculosis or referred to disease of the lungs alone was not stated. The average for adults and children equaled 113 cases of the disease, or 11.7 per cent. of the exposed 959 persons.

An analysis of 100 families each known to have one member the subject of active tuberculosis was prepared by Miss Grace Cooke of the Tuberculosis Department of St. Luke's Hospital, New York, for the purpose of comparison with this series of 100 cardiac families. The families of Miss Cooke's series came from the same neighborhood as the cardiac families, where they lived at the same time and under the same social conditions. They therefore make excellent material for comparison. They were selected by taking the most recent 100 families enrolled in the tuberculosis clinic, to which they were admitted because of the known presence of active tuberculosis in at least one member. This series comprised 592 persons, which included the 100 patients who formed the nucleus for selection, and 492 exposed individuals (adults and children). Counting all types of tuberculosis (lungs, glands, bones, meninges, eyes, etc.), seventy-two of the 492 exposed persons were found to have contracted the disease. This number equaled 14.6 per cent. Forty-eight of the 100 families presented two or more members who had contracted the disease. It will be seen, therefore, that in families having one member the subject of the disease, rheumatic infection exceeds tuberculosis in family incidence and in frequency among exposed persons. A detailed comparison of these two groups of families is given in Table 5.

With these figures in mind, it is deemed wise to present the views of those familiar with tuberculosis on the subject of the family in its relation to the spread of this disease. Hawes[6] states that "it is now a generally accepted fact that a very large amount of tuberculous infection occurs in childhood in the intimate contact of family life." MacCorison and Burns,[7] referring to tuberculosis, say: "The swiftest channels for the spread of the disease and for the furtherance of its activity are through family lines," and they designate family groups of infected people as "family clusters." Newsholme[8] states that "it is sufficiently clear that young children are particularly prone to be infected, partly because they are more caressed and possibly also because they are more susceptible than their elders," and that "tuberculosis is undoubtedly caused most often by domestic infection." He quotes Koch as saying that "tuberculosis has been frankly and justly called a dwelling disease."[9]

After comparison with tuberculosis, the incidence of rheumatic infection and cardiac disease in infected families seems striking indeed. It would appear that, as far as the incidence of family infection is concerned, the problems do not differ greatly. With the weight of opinion in favor of the family group as a most important means of disseminating tuberculosis, the question arises whether a less serious attitude may safely be adopted toward disease of the heart. While these results are only suggestive, they lead, nevertheless, to a desire for further information, for it is difficult to evade the proposition that rheumatic disease, and therefore cardiac disease, is communicable to a degree not generally imagined, and that close contact over long periods of time between the diseased and exposed susceptibles is an important means of transmission. May not the intimate living in the "family cluster" prove as important in relation to cardiac disease as it has been found to exist in tuberculosis? The causes underlying this great frequency in families are difficult to determine, and from the facts at present available no conclusions can be reached as to the relative importance of inherited susceptibility and dissemination by close contact between infected and noninfected persons. If the latter should prove to be the case, the exact manner of dissemination will almost certainly provide an important subject for future investigation. The frequency of sore throats in persons who suffer from the rheumatic infections, and the marked effect of tonsillectomy on the recurrence of these conditions, naturally call to mind the possibility of the spread of the disease by throat to throat infection during the active stages.[10]

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[6] Hawes, J. B., 2d: The Problem of Infection in Tuberculous Families, Tr. Nat. Assn. for Study and Prevention of Tuberculosis, 1914, p. 264.

[7] MacCorison, C. C., and Burns, N. B.: The Rôle of "Family Clusters" in the Prevalence of Pulmonary Tuberculosis, Boston M. & S. J. **169**: 224, 1913.

[8] Newsholme, Arthur: The Prevention of Tuberculosis, London, Methuen & Co., p. 149.

[9] Newsholme, Arthur: The Prevention of Tuberculosis, p. 146.

It is well known that conclusions cannot be drawn from so small a series. Nevertheless, from the findings presented, it would seem imperative that physicians, on discovery of rheumatic infection or cardiac disease in one member of a family, should strongly recommend the examination of all other members of that family for evidence of these conditions. The rheumatic manifestations must be taken seriously, for persons subject to recurrences are potential cardiac cases and candidates for heart involvement at any time. Should these findings be confirmed, the "family group" will assume increased significance in the dissemination of rheumatic infection, and therefore of cardiac disease, and offer an important place for the intensive application of such preventive measures as are available.

950 Park Avenue.

CARBON TETRACHLORID IN THE TREATMENT OF HOOKWORM DISEASE

OBSERVATIONS IN TWENTY THOUSAND CASES *

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The value of carbon tetrachlorid in the treatment of hookworm disease in dogs was first noted by Hall.[1] He found that 0.3 c.c. of the drug for every kilogram of body weight sufficed to expel all the hookworms without subsequent purgation—a result that he had not been able to achieve with any other anthelmintic. Tests of the drug made in combination with thymol and with chenopodium produced equally favorable results. Monkeys, swine and horses were also treated, and postmortem examinations performed on these animals, months later, revealed no pathologic changes in the organs which could be attributed to carbon tetrachlorid. Dr. Hall himself took 3 c.c. of the drug without ill effect.

In view of the interesting results obtained by Hall, the Bureau of Ankylostomiasis of the Medical Department of the Colony of Fiji undertook to study the value of carbon tetrachlorid in the treatment of hookworm disease in human beings, and, during the period from Feb. 14 to May 30, 1922, administered the drug to more than 20,000 persons. Because it is considered that the information obtained is valuable enough to warrant wide distribution, the steps leading up to this series of treatments and the observations resulting from them are here summarized.

PRELIMINARY TESTS WITH CARBON TETRACHLORID

A number of cautious tests were made in the Colonial Hospital, Suva, under the supervision of the resident medical officer. After the dose of the drug had been given the patient, his stools were washed and the worms counted for three days. A test treatment was then given one week later, and the stools again washed and counted for three days to recover the remaining worms. Thus, the percentage of drug efficiency was established. All this work was done by a European assistant of wide experience, aided by Fijian medical students.

Every one knows how difficult it is to control any kind of native for three days of trial and three days of test treatments. Among East Indians, it is especially difficult at present, when they are feeling the first "growing pains" of a national spirit. From some trial treatments and some test treatments, the stools were lost; but in the following group, every necessary condition of the treatment was fulfilled.

The first test was performed on a group of four Indians. They were given a purge of castor oil on the evening preceding the treatment. The carbon tetrachlorid was given at 7 a. m. on an empty stomach. There was no succeeding purge. A test treatment of 3 c.c. of oil of chenopodium was given one week later, Darling, Barber and Hacker[2] having shown that such a test treatment after a trial treatment removes all remaining worms.

During the three days following the administration of 3 c.c of carbon tetrachlorid, 244 worms were expelled, and four worms were expelled during the three days following the test treatment of 3 c.c. of oil of chenopodium. The total number of worms expelled was 249; the percentage of worms expelled by one dose of 3 c.c. (45 minims) of carbon tetrachlorid was 98. One of the persons treated, having ninety-five worms, was cured.

In a second trial, 4 c.c. (60 minims) of carbon tetrachlorid was given, with no preliminary purge, to two adult Indians. The usual test treatment was given after a week. In the first case, 185 worms, and, in the second case, 528 worms were expelled in the three days following the administration of carbon tetrachlorid. Following the test treatment of 3 c.c. of oil of chenopodium, four worms were expelled by the first patient and twenty-four by the second patient, in three days. The total number of worms expelled by the first patient was 189; the percentage of worms expelled by one dose of 4 c.c. of carbon tetrachlorid was 97. The total number of worms expelled by the second patient was 552; the percentage of worms expelled by one dose of 4 c.c. of carbon tetrachlorid was 96.

At the Dilkusha Indian Mission, the first mass treatment of 500 persons was made. The worms recovered from twenty-four Indians who ranged in age from 4 to 18 were counted. An arbitrary dose of

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[10] St. Lawrence, William: Effect of Tonsillectomy on the Recurrence of Acute Rheumatic Fever and Chorea, J. A. M. A. **75**: 1035 (Oct. 16) 1920.

* The experiments described in this paper were made during the progress of a campaign for the relief and control of hookworm disease, conducted by the government of Fiji in cooperation with the International Health Board of the Rockefeller Foundation.

[1] Hall, M. C.: The Use of Carbon Tetrachlorid for the Removal of Hookworms, J. A. M. A. **77**: 1641-1643 (Nov. 19) 1921.

[2] Darling, S. T.; Barber, M. A., and Hacker, H. P.: The Treatment of Hookworm Infection, J. A. M. A. **70**: 499-507 (Feb. 23) 1918.

0.2 c.c. (3 minims) to the year of age, with a maximum dose of 3 c.c. (45 minims) for the ages from 15 years upward, was given to these twenty-four persons. There was no preliminary purge, nor any purge following the treatment unless the bowels failed to act. The persons treated were lightly infested, as most of them had for several years been receiving treatments for hookworm disease.

The fourth test was made on twenty-four persons, with no preliminary purge. Following the administration of 0.2 c.c. of carbon tetrachlorid, to the year of age, up to 15, 397 worms were expelled in three days. Following the test treatment of 3 c.c of oil of chenopodium, five worms were expelled in three days. The total number of worms expelled was 402; the percentage expelled by one dose of carbon tetrachlorid was 99.

Dr. Kalamkar made fourteen tests in the government jail in Suva. Most of the persons had previously received several treatments for hookworm disease, and the average worm count was low. Seven Indians and seven Fijians comprised the group. Counts were made for only two days after the trial and the test treatment. The dose was given on an empty stomach at 7 a. m., with no preliminary purge. Three hours later, an ounce of Epsom salt was given.

Test 5 was made on fourteen persons, with no preliminary purge. The number of worms expelled in forty-eight hours after the administration of 4 c.c. of carbon tetrachlorid, followed three hours later by 1 ounce of magnesium sulphate, was 215. The number of worms expelled in forty-eight hours after the test treatment of 3 c.c. of oil of chenopodium was 13. The total number of worms removed was 228; the percentage removed by one dose of carbon tetrachlorid was 94.5.

Seven of the patients were cured by the one dose. It is recognized that it is more difficult to secure a high percentage of drug efficiency with a light infestation than with a heavy one. Originally, there were sixteen persons in this group, only four of whom were shown by the microscope to be infested. After all of the original sixteen had been treated, worm counts revealed that only two had been negative.

SYMPTOMS

Almost no symptoms were produced in the fourth group that received the purge after the drug, not one person being incapacitated for his regular duties. With the previous tests, either with or without the preliminary purge but with no purge following the administration of the drug, some persons had minor symptoms. Many were sleepy for several hours, two small adults in Test 3 vomited, and several persons had severe headaches for two or three days.

Test 5 was made on a young Indian who was working in the office. He was given 3 c.c. (45 minims) of carbon tetrachlorid at 7:45 a. m. He had had five bowel movements by 10:15 a. m., which, when washed, gave eighty-five hookworms. The total count for three days was 101 worms. The test treatment demonstrated that he was cured. This illustrates the rapid rate at which this drug expels the worms.

On the basis of these tests, made under his immediate observation, the chief medical officer, Dr. A. Montague, adopted carbon tetrachlorid as the drug to be used for the treatment of hookworm disease in the government institutions in Fiji, and recommended its use by the Bureau of Ankylostomiasis for routine field treatments. It was decided to adopt the dosage of 0.2 c.c. (3 minims) to the year, with an adult dose of from 3 to 4 c.c. (from 45 to 60 minims), depending on the size of the adult. The drug was to be given in water on an empty stomach, followed in three hours by 1 ounce of magnesium sulphate.

WORK IN DETAIL

From Feb. 14 to May 30, 1922, the staff treated more than 20,000 persons with carbon tetrachlorid, and it is expected that, as the plan of campaign develops, at least 6,000 a month will be reached. Even greater numbers might be handled in more closely settled countries with tractable inhabitants.

The 20,000 treated persons were composed of 1,000 Europeans, 6,500 Indians and 13,000 Fijians. Original examination with the microscope revealed an infestation rate of 89 per cent. among the Fijians and of 93 per cent. among the Indians. To date, reexamination has been made of 823 persons in this district, of whom seventy-two were found to be still infested. This indicates that the single treatment method has reduced what was originally a 100 per cent. infestation to an infestation of less than 9 per cent. It is only reasonable to expect that as the untrained staff becomes better qualified and field methods improve, this percentage will be still further reduced. As a matter of fact, better results are already being obtained each month. The persons reexamined were not selected but were taken as they were found, more than half of them being Indians.

COST

The cost of the work for the three and one-half months under discussion has been £387, exclusive of the salary of the director, which sum, in a large enough area, could be spread over at least four more units of the same size. However, the cost includes every other charge, among which is that of some nonexpendable equipment. The determination of this cost should be spread over a longer period of time to give a fair estimate. If the sum of £387 is divided by the number of treatments (20,500), the cost of each treatment is found to be fourpence halfpenny.

DOSAGE

The dose given is 0.2 c.c. (3 minims) to the year of age, up to the age of 15, when the adult dose of from 3 to 4 c.c. (from 45 to 60 minims) is reached. The maximum dose depends on the size of the adult. It may be shown later that much larger doses than this can be given safely.

Children take the drug, in this dosage, better than adults. Three c.c. (45 minims) has been given to many adults over 80 and to one man of 93. The dosage indicated is administered to all ages from 2 years upward.

METHOD OF ADMINISTRATION

The drug is placed on a tablespoon or in a small glass, covered with water, and swallowed. It has a faint smell, reminding one of carbon disulphid, but no taste. When swallowed it may produce a sensation of heat. At first, no preliminary purge was given, and magnesium sulphate was taken if the bowels did not act. Later, it was found that most symptoms were eliminated by a routine dose of magnesium sulphate administered three hours after the drug. To obtain the best results, the drug was given on an empty stomach. A mild laxative on the preceding day proved beneficial when the patients suffered from constipation. Though the patients were advised to rest for the day, they did not do so, and nearly all of them carried on their usual work.

SYMPTOMS AND PHYSIOLOGIC EFFECTS

The symptoms seemed to depend on the amount of absorption of the drug by the human host. The drug itself is a purge when taken in sufficient dosage on an empty stomach. The purgative action seemed to be diminished or lost, however, when the medicine was taken by one suffering from constipation, or when food had been taken just before or just after the drug. It is in these cases that symptoms of absorption occurred. These symptoms seem to be the same as those exhibited by a person recovering from chloroform anesthesia. The commonest is a dull headache, which may last for two or three days and is best relieved by free purging with magnesium sulphate. A few patients reported nausea and vomiting; many were sleepy for several hours after taking the medicine, and a few who followed directions to the letter said that they had suffered from headache. Since magnesium sulphate has been given as a routine measure, headache symptoms have rarely been reported. With the cases under control, no symptoms are ever heard of. Recently, at Nukulau Quarantine Station, 360 Indian immigrants were treated with somewhat larger doses, and not a single person had nausea or vomiting, or reported a headache.

The tests seem to indicate that there was most absorption when there was no purge; that there was some absorption when the preliminary purge was given, and that there was almost none when the purge was taken several hours after the drug. The fact that not a single death has resulted among the 20,000 people who have been treated with an adequate dose of the drug, administered by relatively uneducated Fijian and Indian assistants, speaks for the safety of the medicine. Legal action has forced no one to take the treatment, and the fact that with such a small staff so many persons have been treated in so short a time demonstrates that the drug is easy to take, and produces few symptoms. Such urinary records as have been secured have shown nothing pathologic. The action of the heart seems to be slowed a few beats a minute for two or more hours.

CONTRAINDICATIONS

Alcohol is a contraindication. The severest symptoms have been found in those who have taken alcoholic drinks in the period intervening between several hours before and several hours after taking the drug. The ingestion of food just before or after taking the drug produces a very constipating effect and results in increased absorption.

EFFECTIVENESS IN REMOVING PARASITES OTHER THAN HOOKWORM

Carbon tetrachlorid, in the dosage here given, is not so effective a vermifuge as oil of chenopodium for removing *Ascaris*, only 40 per cent. of them being removed by the Fijian tests. This is regrettable, particularly in Fiji, where there is so high a rate of infestation with this parasite.

The drug occasionally removes *Trichocephalus dispar* in small numbers, but it does not cure the disease. It seems, however, to remove *Oxyuris vermicularis* in large numbers.

PUBLIC SUPPORT

By no means the least valuable feature of carbon tetrachlorid treatment is the fact that, with it, it is easy to secure individual and public cooperation, as there is much less opposition to a campaign in which this drug is used than to one employing chenopodium or thymol. Rarely is there a refusal to take treatment. The dispensary in Suva, in response to public demand for treatment, opened two months before it had been planned to begin work in that district. In this preliminary period, 2,000 persons were treated at their own solicitation.

CONCLUSIONS

1. Carbon tetrachlorid is a vermifuge and vermicide of great potency.

2. It gives little discomfort to the patient.

3. It permits of rapidly treating, at a low cost, vast populations suffering from hookworm disease.

4. Reexamination of the feces of 823 treated patients indicated that one treatment administered to each individual in a given area had lowered the original infection rate of 100 per cent. to less than 9 per cent.

5. Clinically, the standard of health of the community is immediately raised.

CALCULOUS ANURIA

REPORT OF CASE

DANIEL N. EISENDRATH, M.D.
CHICAGO

The number of reported cases of calculous anuria in which recovery has followed operation or ureteral catheterization is so small that it seems justifiable to add another one.

REPORT OF CASE

History.—A woman, aged 34, married, was first seen on account of pain in the right upper quadrant of the abdomen. The onset had been sudden, about eight weeks before admission to Michael Reese Hospital. The pain had recurred periodically, but with increasing intensity. The pain bore no relation to the ingestion of food and did not radiate.

Physical Examination.—This was negative except for slight tenderness on pressure over the right kidney region. There were no symptoms referable to the urinary tract. Roentgenographic examination of the gastro-intestinal tract was negative. In the roentgenograms which were made for the purpose of detecting the possible presence of gallstones, two small shadows, as shown in Figure 1, were seen, lying within the larger shadow of the right kidney. Further study of the roentgenograms of the urinary tract revealed also an oblong shadow in the region of the left kidney. A pyelogram of the right kidney confirmed the diagnosis of two calculi in this organ. One of the shadows on this side was oval and located at the outlet of the renal pelvis. The other and smaller one was thought to be in the parenchyma of the lower pole. The bottle-shaped shadow on the left side was lying obliquely in the pelvis of the corresponding kidney. The pyelogram also revealed the existence of a hydronephrosis of moderate degree on the right side.

The ureteral orifices and bladder presented no abnormal changes on cystoscopic examination. No obstruction to the passage of a No. 6 catheter was encountered in either ureter. Many pus cells were found in the specimen of urine from the right kidney, and only a few in the specimen from the left side. Phenolsulphonephthalein was excreted in larger amount and appeared more rapidly in the urine from the right than in that from the left side.

First Operation.—The presence of a calculus at the ureteropelvic junction and the apparently better function of the right kidney led me to operate on this side first. Aug. 14, 1922, an oval calculus 1.5 cm. long and 0.5 cm. wide was removed from the dilated, much inflamed pelvis of the right kidney through a pyelotomy incision. The second and smaller calculus was in the parenchyma of the lower pole and was easily delivered through a small nephrotomy incision.

Course.—The amount of urine passed during the six days following this right side operation indicated excellent function of both kidneys. The convalescence was uneventful until the evening of the sixth day, when the patient suddenly complained of severe colicky pain in the left side of the abdomen. The syndrome was that of a typical ureteral colic, with marked tenderness over the left kidney. During the following twelve hours, 8 ounces (250 c.c.) of urine containing many red cells was voided. When seen early on the following morning (August 20), the patient presented the picture of severe shock. The pulse was rapid, small and soft; the skin was cold, and the lips were cyanotic. She had vomited at frequent intervals since the onset of the attack, and on the morning of the 20th had a severe chill followed by high fever.

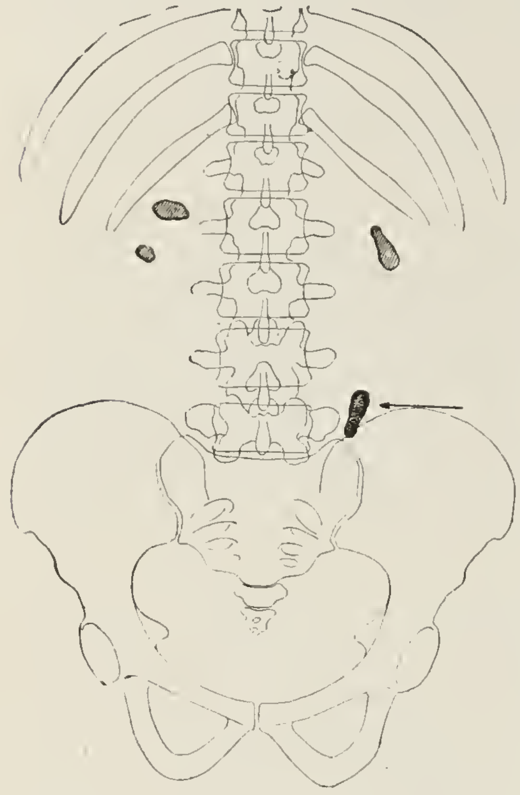

Fig. 1.—Tracing of roentgenogram of the urinary tract in a case of calculous anuria. The lighter shadows represent the preoperative location of the calculi in the right and left kidneys, respectively. The dark shadow to which the arrow points on the left side represents the location at which the left renal calculus, the cause of calculous anuria, was found in the ureter.

A diagnosis of probable propulsion of the left side calculus (Fig. 1) from the renal pelvis to the ureter was made. Cystoscopic examination revealed the presence of only a few drops of urine in the bladder.

A roentgenogram of the urinary tract was made immediately, but was of no assistance because the patient was so restless that a satisfactory picture could not be obtained.

A No. 6 ureteral catheter was easily passed to the renal pelvis on the right side, and about 2 c.c. of clear urine was obtained. On the left side, an obstruction was encountered in the midportion of the ureter. Repeated attempts to pass this obstruction were unsuccessful. About 10 c.c. of a clear watery fluid was, however, obtained through the ureteral catheter on the left side. Both ureteral catheters were left in situ for nearly three hours. During this period, no urine was obtained from the left kidney, and only 10 c.c of urine, containing many red cells, from the right side.

On account of the serious condition of the patient, further attempts to pass the obstruction on the left side were deemed inadvisable.

Second Operation.—The left kidney and upper ureter were exposed through the usual incision. A large quantity of serous fluid escaped from the perinephritic tissues. The kidney was large and deeply congested, and its capsule was very tense. The ureter was greatly distended as far down as the beginning of its iliac portion (Fig. 1), where a large calculus was tightly impacted. This was easily delivered through an incision in the lumbar ureter. The form and size of the calculus confirmed our diagnosis of the migration of the one seen in the left renal pelvis in the original roentgenograms. Urine was voided about eight hours later, and the amount rose steadily until it reached 69 ounces (2,070 c.c.) on the fourth day after the relief of the anuria. Vomiting, however, continued until nearly forty-eight hours after the ureterotomy, showing the extremely toxic condition of the patient.

Aside from an extensive infection of the parietal wound, the patient made an uneventful recovery.

Calculous anuria can occur in cases in which one of the following conditions exists:

1. Both kidneys obstructed by calculi, as shown at *A* in Figure 2.
2. Both ureters obstructed by calculi as shown at *B*.
3. One ureter obstructed and opposite kidney nonfunctioning as a result of (*a*) more or less complete destruction by disease, as shown at *D*; (*b*) the presence of some congenital condition, such as infantile kidney, as shown in Figure 3; complete absence of development (solitary kidney), or of congenital hydronephrosis; and, finally, (*c*) as the result of reflex inhibition of secretion (renorenal reflex).
4. Pelvis or ureter of remaining kidney obstructed after nephrectomy.

The case just described belongs in the third group. The right kidney from which calculi had been removed six days prior to the onset of the left side obstruction had not regained its functioning completely. I believe that reflex inhibition also played a part, because the size of the left kidney and ureter as found at operation indicated the existence of a complete obstruction on this side for a period fully as long as that during which the pain was first complained of on the left side; that is, twenty-two hours.

There has been considerable discussion as to the existence of a renorenal reflex; that is, obstruction on one side inhibiting the secretion of the opposite kidney. Legueu and others (Rovsing, Albarran, Casper, Watson) are of the opinion that, when this occurs, the supposedly inhibited kidney has already ceased to function long before the onset of the anuria, as the result of more or less complete destruction by disease. Kümmel[1] states that he has never seen a case of true reflex anuria. Others, like Guyon, Israel, Marion and Baetzner, believe that such a reflex inhibition can occur even when the opposite kidney is perfectly normal.

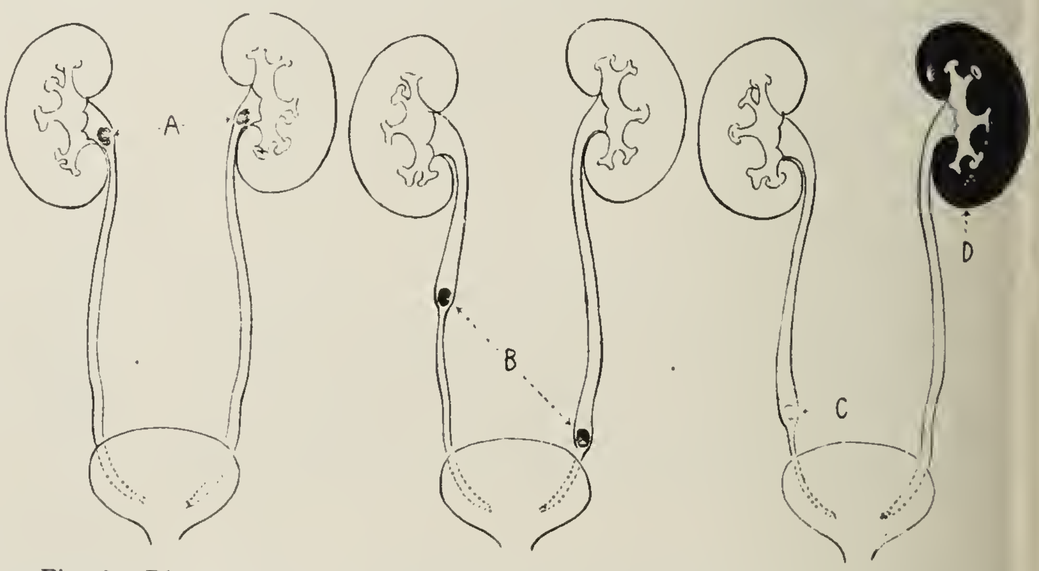

Fig. 2.—Diagrammatic representation of three forms of calculous obstruction causing anuria: *A*, calculi obstructing both renal pelves; *B*, calculi obstructing both ureters at different levels; *C*, calculus obstructing one ureter, the opposite kidney (*D*) being destroyed by disease or having been removed.

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[1] Kümmell: Handbuch der praktischen Chirurgie, Stuttgart, F. Enke **4**, 1922.

My own case is very instructive in this respect. The escape of only 10 c.c. of urine from the ureteral catheter on the nonobstructed (right) side during a period of nearly three hours shows that reflex inhibition must have played a rôle. The fact that 8 ounces (250 c.c.) of urine was passed prior to this observation indicates some functioning power of this right kidney, since the left side was completely blocked, I am certain, during the twenty-two hours following the onset of the colic.

Another question which arises in connection with the case just reported is, How long should one wait before operating? The period of tolerance varies greatly. Watson found that the average in sixty-two cases was from five to six days. In four, it was only twenty-four hours. In fourteen, it was from ten to sixteen days. As an example of an unusually long period of tolerance, that in the case of Frank[2] may be cited; namely, twenty-two days. Uremia may occur without warning, and a patient may die without symptoms of uremia, that is, during the period of tolerance. Judging from the fulminant manner in which the symptoms of toxemia developed in my case within sixteen hours, both Dr. D. L. Schram, who saw the patient in consultation, and I felt that further delay was dangerous. In this connection, let me warn against too prolonged an effort to relieve the anuria by ureteral catheterization. One is perfectly justified when anuria has existed for only twenty-four to forty-eight hours in attempting to pass the obstruction or even to deliver the calculus by nonoperative methods for another forty-eight hours; but even urologists, such as André, who have been successful with ureteral catheterization, etc., urge operation on the fifth day, at the latest, of the period of tolerance.

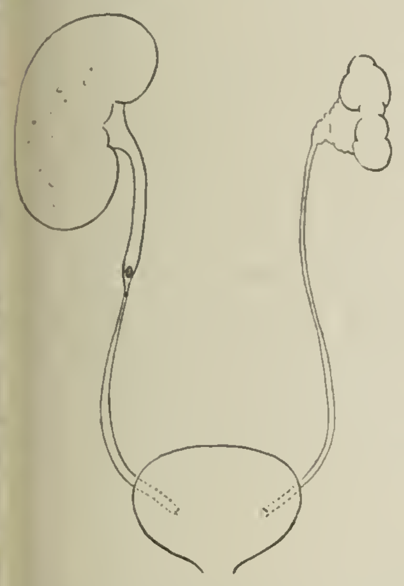

Fig. 3.—Diagrammatic representation of conditions found at necropsy in a case of calculous anuria due to obstruction of the right ureter, the opposite kidney being infantile. The patient entered the hospital in a state of coma. No operation was performed.

The older statistics of Watson[3] as to the comparative merit of operative versus nonoperative treatment are not of great value at present. The rapid advances in diagnostic methods enable us to recognize these cases much earlier than it was possible to recognize them when the cases collected by Watson were observed. Another factor is that, when these statistics were collected, there had been comparatively few attempts to relieve the anuria by ureteral catheterization alone. In a recent paper, Thevenot[4] reported two cases of his own and compiled reports of thirty-eight others in which catheterization had been tried. There were thirty-two recoveries, and to this number can be added three cases of Buerger, Frank and Baetzner.[5]

Calculous anuria is most frequently encountered clinically in two groups of cases: (*a*) those giving a history of previous attacks of ureteral colic with or without transitory anuria, and (*b*) those in which the anuria is the first symptom.

One can place but little reliance, in the majority of cases, on the clinical history as to the side which is obstructed. A roentgen-ray examination of the entire urinary tract should be made at the earliest possible moment. This should be supplemented by ureteral catheterization. These two methods will enable one to localize accurately not only the side on which the obstruction has occurred, but also its approximate level in the ureter, an indispensable guide for the operative incision.

If these two methods of diagnosis are not available, one is compelled to resort to some operation on the side on which the colic has occurred most recently.

The ideal method of treatment is, of course, relief of the anuria by ureteral catheterization, and expulsion of the calculus by the various nonoperative methods which are today familiar to every one. As I have already stated, one should not continue with these methods for more than four or five days at the utmost. The operation of choice is ureterotomy, as performed in the case reported. If the obstruction has not been localized, it is best to be content with simple opening and drainage of the renal pelvis on the obstructed side, in preference to nephrotomy or similar procedures, such as decapsulation.

30 North Michigan Avenue.

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[2] Frank: Surg., Gynec. & Obst. **20:** 526, 1915.

[3] Watson (Watson and Cunningham: Genito-Urinary Diseases, Philadelphia, Lea & Febiger, 1908) compiled 205 cases. The mortality in the cases in which operation was performed (ninety-five) was 46.3 per cent., and that in the cases in which operation was not performed (110) was 72.7 per cent.

[4] Thevenot: Progrès méd. **35:** 129 (March 20) 1920.

[5] Baetzner, Wilhelm: Diagnostik der chirurgischen Nierenerkrankungen, Berlin, Julius Springer, 1921.

MULTIPLE MYELOMA

OLGA S. HANSEN, B.S., M.D.
MINNEAPOLIS

Since 1847, when Bence-Jones[1] first described a substance occurring in the urine of a patient said to have "mollities ossium," there has been much study and thought put on this rare disease, which was first named multiple myeloma by Rustizky,[2] in 1873. It must be confessed that but little more is known of the cause and treatment of the disease or of the origin of the curious Bence-Jones body, which is so frequently found on urinalysis, than when it was first described. Kahler, in 1889, reported a case of eight years' duration. The disease is often called by his name.

Multiple myeloma has been defined by Ewing[3] as a "specific malignant tumor of the bone marrow, arising probably from a single cell type. It is characterized by multiple foci of origin, a uniform and specific structure composed of plasma cells or their derivatives, rare metastases, albumosuria and a fatal termination."

The disease is so rare that thorough reviews of all cases reported have been made from time to time. From 1848 to 1907, Permin[4] had found only forty cases. In 1916, Martini[5] had collected 204 case records.

The tumors arise from the elements normally present in the bone marrow, and may show the characteristics of parenchyma cells of the marrow, of leukocytes and their immature forms (myelocytes of various types), or of nucleated red cells. Metastases have been reported in rare cases.

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[1] Bence-Jones: Phil. Trans. Roy. Soc., London **1:** 55, 1848.

[2] Rustizky: Deutsch. Ztschr. f. Chir. **3:** 162, 1873.

[3] Ewing, James: Neoplastic Diseases, Philadelphia, W. B. Saunders Company, 1919.

[4] Permin: Myeloma, Hospitalstidende **15:** 1241, 1265, 1907.

[5] Martini: Kahler's Disease, with Illustrations of a New Case, Policlinico **23:** 382, 1916.

The symptoms are most frequently referred to the bones, the patient complaining of pain, often periodic at first, with intervals of freedom, so that a diagnosis of rheumatism or of neuritis is often made. Deformity in the form of protuberances or of shortening of the stature by curvature of the spine may be noticed first. Kahler's patient, who lived eight years, developed a pressure sore under the chin because of the shortening of the cervical spine, which brought the chin to rest on the sternum. Symptoms due to pressure on the spinal cord or nerves by disease of the vertebrae may be most prominent, so that paralyses of the bladder, rectum and legs may be complicating factors. Pain in the chest on breathing, due to involvement of the ribs or sternum, may simulate an intrathoracic disease. Fractures may occur on slight pressure. Hirschfeld[6] mentions a case in which the ribs were broken by the pressure of a stethoscope. Any of the bones of the body may be involved, though there seems to be a tendency to the appearance of the earliest symptoms in the ribs, vertebrae and sternum rather than in the long bones.

The Bence-Jones body is excreted in 80 per cent. of cases, according to Rosenbloom,[7] who has studied this phase of the disease and has collected data from various workers; but its origin is as much of a mystery as it was at the time of its discovery, in 1848. It is generally thought to be a product of abnormal metabolism in the body, caused by the enzymotic action of the tumor cells on the serum globulin and excreted as a foreign body by the kidneys. It has been found in the blood serum of a patient who also excreted it in the urine.[8] It may be intermittent in its appearance.

A disease with so marked a destruction of the bone marrow might be expected to show some disturbance in the blood picture. In the stage of cachexia, a secondary anemia is commonly present. Occasionally, 5 or 6 per cent. of myelocytes have been found, but there is no typical blood picture, and the finding of marked blood changes speaks against multiple myeloma.

In the course of the disease, cachexia is a prominent and almost universal symptom. The disease is one of adults between the ages of 40 and 60 in 60 per cent. of cases.[9] Males are more frequently affected. The duration varies from six weeks to eight years. In a short series of cases found in the recent literature, with the one here reported, the average length of life was a year and a half after the onset of symptoms. Pneumonia and asthenia are most frequently given as the immediate cause of death.

REPORT OF CASES

CASE 1.—*History.*—A man, aged 38, married, a sales manager, came to the medical division of the Nicollet Clinic, June 21, 1921, with a complaint of albuminuria. The family history was unimportant. The patient's habits were good except for a tendency to overwork. At 8 years of age, the patient fell astride a rail fence, with moderate injury to the tissues of the perineal region, but was not confined to bed. He had typhoid fever in childhood and two attacks of influenza. A soft chancre, fifteen years before, had been treated and cured by the cautery. There were no skin symptoms. The patient had passed life insurance examinations on several occasions.

Present Illness.—About May 1, 1921, the patient noticed a severe pain in the right side of the rectum and penis, and in the right leg, thigh and testicle. There was some pain in the right sacro-iliac region. He consulted his family physician, who found albuminuria but did not make a rectal examination. The patient rested in bed for three weeks on a low protein diet, but the albumin was constantly present in the urine and the pain in the right sacro-iliac region persisted, although there was improvement in the perineal pain. After getting up from his rest, he had some fatigue and constant pain in the right lower back, which his physician called neuritis. The symptoms were not severe, and he came for advice about the albuminuria rather than because of the pain.

Examination.—The patient was a small man in a condition of fair nutrition and with good color. He was comfortable and did not appear sick, but was worried about his persistent albuminuria. He had infected tonsils and a normal heart, lungs and abdominal organs. The blood pressure was: systolic, 122; diastolic, 90. There was no evidence of arteriosclerosis. There was distinct tenderness in the right sacroiliac region, and rectal examination disclosed a mass on the ventral surface of the sacrum, about 8 cm. in diameter, with a flat base. This mass was near the median line, but more to the right than to the left, of firm but not bony consistency, rounded, fairly smooth, with the rectal mucosa freely movable over it. Sigmoidoscopic examination revealed a normal mucosa. Cystoscopic examination revealed no disease of the kidneys, ureters or bladder. A roentgenogram of the chest was negative except for a bronchial thickening in the lower lobes. Roentgen-ray examination of the sacro-iliac region revealed an area of almost complete absorption involving the right side of the lower three segments of the sacrum. The blood count was: hemoglobin, 90 per cent.; white blood cells, 9,800; polymorphonuclears, 68 per cent.; large lymphocytes, 11 per cent.; small lymphocytes, 15 per cent.; transitionals, 1 per cent.; eosinophils, 5 per cent. The Wassermann reaction was negative on repeated tests, and the spinal fluid was negative. Urinalysis revealed: albumin, four plus (from 1.75 to 2.5 gm. per liter in a twenty-four hour specimen); phenolsulphonephthalein, 45 per cent.; specific gravity, from 1.008 to 1.020. Blood chemistry tests revealed: sugar, 1.12 per cent.; urea nitrogen, 16.25 mg.; creatinin, 1.35 mg.

SUMMARY OF SEVEN REPORTED CASES OF MULTIPLE MYELOMA

Case	Sex*	Age at Onset, Years	Duration of Symptoms, Months	Bence-Jones Protein
1	♂	38	5	Present
2	♂	46	3	Not reported
3	♀	62	9	Absent
4	♀	65	11	Absent
5	♀	57	6	Absent
6	♂	63	6	Not reported
7	♂	52	12	Absent

* In this column ♂ indicates male; ♀ female.

Treatment and Course.—In view of the persistent albuminuria, of the bone tumor of unknown cause and of the history of a venereal lesion, it was decided to give him a course of antisyphilitic treatment as a therapeutic test. He developed a mercurial stomatitis, but no decrease in his sacral tumor. July 1, the patient noted several painless nodules on his skull. Roentgenograms disclosed several areas of bone absorption from 1.5 to 4 cm. in diameter. No bone production or invasion was seen. A soft gelatinous tumor about 3 cm. in diameter, attached to the skull and penetrating as far as the dura, was removed under local anesthesia. Microscopic examination made at the University of Minnesota Department of Pathology revealed that the growth was a myeloma. Subsequent to this, a specimen of urine was sent to the laboratory of the Mayo Clinic, where Bence-Jones protein was found by the Bradford test (layer test with concentrated hydrochloric acid).

The pain in the sacral and perineal regions continued. There were no fractures or any new tumors observed, although the patient's wife reported that the swelling in the sacral region increased some weeks before his death. He gradually lost strength and weight, and died, apparently of exhaustion, October 4, five months after the onset of his symptoms. He was not seen by a physician the last two months of his life, and a report was obtained from his wife after his death. Necropsy was not permitted.

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[6] Hirschfeld, in Krause and Brugsch: Spezielle Pathologie innerer Krankheiten, 1920.

[7] Rosenbloom, J.: Bence-Jones' Protein, Med. & Surg. 1: 257 (May) 1917.

[8] Jacobson, V. C.: Multiple Myelomata, J. Urology 1: 167 (April) 1917.

[9] Vance, B. M.: Multiple Myelomata, Am. J. M. Sc. 152: 693 (Nov.) 1916.

The clinical diagnosis was multiple myeloma.

Six other cases are recorded in the Department of Pathology of the University of Minnesota, following biopsy or necropsy, and have been made available through the courtesy of Dr. E. T. Bell of that department. They are here summarized:

Case 2.—A man, aged 46, who had been having pain in the back for three months, presented a mass at the end of the sacrum, palpable by rectal examination. The patient died of lobar pneumonia, and at necropsy a myeloma was found, involving the ilia, the sacrum, the vertebrae and one rib.

Case 3.—A woman, aged 62, had noticed a mass in the right side thought to be a tuberculous kidney, and had had pain in the right axilla for nine months. There was a small amount of albumin and some leukocytes in the urine. Death occurred from pyelonephritis. Myelomas were found on two ribs, but on no other bones.

Case 4.—A woman, aged 65, who had complained of weakness and pain in the chest, back and hips for eleven months, had sustained a fracture of the wrist and ribs eight years previously and again of a rib six years previously. There was a marked hypersensitiveness of the sternum and of the long bones of the body. Several ribs showed fusiform swellings. Cystlike degeneration of all the bones was shown in roentgenograms. The temperature ranged from 99 to 101 F. Blood examination revealed: 59 per cent. hemoglobin; 3,100,000 red blood cells; 14,200 white blood cells, with 69 per cent. lymphocytes and 25 per cent. polymorphonuclears. The urine showed a faint trace of albumin, but no Bence-Jones protein, on three tests. The patient died of lobar pneumonia. At necropsy, the ribs were fragile and showed many fractures. There was very little calcium in the bones and there was red marrow in the femur.

Case 5.—A woman, aged 57, had had spontaneous fractures of the legs and forearms for several years and had been on antisyphilitic treatment. Six months previously, she had become incapacitated by severe pain in the left hip, which continued. At times, a trace of albumin was found in the urine. Death was due to lobar pneumonia and necropsy revealed tumors in the ribs, great trochanter, innominate bone and one thoracic vertebra.

Case 6.—A man, aged 63, who had recovered from a double empyema four and one-half years previously, had pain in the lower back, developing six months previously. Rarefaction of the bodies of the lumbar vertebra was revealed by roentgen-ray examination. Abscesses of the thorax infiltrating the muscles developed before death, which was due to a purulent bronchitis and bronchopneumonia. Necropsy revealed myeloma of the lumbar vertebrae.

Case 7.—A man, aged 52, who was admitted to the hospital complaining of pain in the region of the dorsal vertebrae, developing first as recurrent attacks of backache, beginning about one year previously, had, for the past five months, suffered pain daily which for three weeks had been associated with numbness of the legs and a staggering gait. The roentgen ray revealed destruction of the body of the sixth dorsal vertebra, probably pressure atrophy due to a cord tumor. The urinalysis was negative. The blood Wassermann reaction was positive; the spinal fluid showed a doubtful positive and a negative Wassermann reaction on two tests. The cell count was 7 and 150, and the Nonne-Apelt reaction was positive both times. Arsphenamin was given, with some improvement in sensation. A laminectomy was performed, revealing a myeloma of the sixth dorsal vertebra. The patient died shortly after this. There was no necropsy.

COMMENT

Multiple myeloma should be suspected in cases of backache or pains in the bones of obscure origin. All the tests available for the Bence-Jones body should be tried repeatedly. The absence of this protein in no way speaks against myeloma as a diagnosis.

It is of interest to note that in this small group of seven there are four men and three women; the average age at onset was 55; the duration of symptoms from onset to death varied from three months to twelve months, with an average of seven and one-half months; Bence-Jones proteinuria was found in only one of the seven and that, after many tests, had been negative. In several of these patients the diagnosis had not been made until necropsy was performed.

1009 Nicollet Avenue.

RADIUM IN TREATMENT OF NEW GROWTHS OF THE MALE BLADDER

A CONVENIENT AND EFFECTIVE METHOD UTILIZING AN OPEN AIR CYSTOSCOPE *

WILLIAM NEILL, Jr., M.D.
BALTIMORE

For many years in this clinic, the open air cystoscopic technic has been in daily use. It is convenient and rapid, affords direct information as to the bladder surface, and allows of the widest range of manipulative procedures within the entire bladder. As early as 1893, Dr. Kelly had made a speculum 18 cm. long and 8 mm. in diameter, similar to the now well known Kelly female cystoscope, for investigation within the male bladder; but he was unable to secure an opportunity for a practical demonstration until Nov. 20, 1897. Two patients were provided through the courtesy of Dr. H. H. Young; one was a sexual neurasthenic, awkward to control, no cocain being used, but the principle was demonstrated and the bladder inspected, with the patient in the knee-breast posture. Another demonstration was made at the Mercy Hospital the same year, while a further demonstration was made before an audience of surgeons and urologists in St. Luke's Hospital, New York, the following year.[1] This method, however, was not employed by urologists for the male, and we ourselves had for years used only one or the other of the various modifications of the lens system water cystoscopes. Luys [2] of Paris constructed and extensively used an admirable instrument with a curved beak for direct vision with an electric light at the end of the cystoscope, giving perfect illumination with the patient in the dorsal posture, with the plane of the table at an angle of 45 degrees. The recognized utility of this method abroad is largely due to Luys' practical demonstrations. Dr. Geza Greenburg of New York has more recently devised a cystoscope which can be effectively used for intavesical radium application.

Dr. Kelly himself has always used the knee-chest posture as the one giving the best dilatation of the bladder and most convenient to him through long practice. While painless and best in females, this posture is not convenient in males; on the other hand, an exaggerated Trendelenburg posture with the head of the table lowered to an angle of 60 degrees gives an effectual air dilatation in all but contracted irritated bladders, and very fat subjects; in the latter groups,

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* From the Howard A. Kelly Hospital.

[1] Kelly, H. A.: Ann. Surg. **27**: 71 (Jan.) 1898; ibid. **29**: 475, 1898; Bull. Johns Hopkins Hosp. **9**: 62, 1898.

[2] Luys, Georges: Endoscopie de l'urètre et de la vessie, Paris, 1905.

a general anesthetic will usually secure the desired result (Fig. 1).

I myself work with two instruments: the Greenberg[3] cysto-urethroscope and a Kelly cystoscope 16 cm. long and 10 mm. in outside diameter. This size Kelly cystoscope is easy to introduce in the average man. It is convenient to have a series beginning with a diameter of 7.5 mm. The instrument can be introduced with a straight obturator, but an excellent modification of Dr. Curtis F. Burnam twelve years ago allows the use of an obturator curved to take the prostatic urethra, and then straightened out and withdrawn when the cystoscope is once in the bladder. The illumination in the Greenberg instrument is by a small electric bulb in the vesical end of the instrument. The lighting in the Kelly cystoscope is by reflected light from a head mirror, exactly as in his method in women.[4] Though this has some slight inconveniences, it gives a good light, removes all possibilities of electrical breakdowns, and is as satisfactory in bleeding bladders as in normal ones. In describing the direct aeroscopic method, I would emphasize its value in this particular connection. With the instrument in the bladder, the operator puts on the commonly used head mirror and prepares for the inspection in a darkened room. An electric light is held close to the symphysis, making as small an angle as possible, so that the light can be easily caught by the head mirror, reflected into the bladder, and kept on the object. It may be necessary at this point to remove by suction residual urine lying in the base of the bladder. By an occasional automatic touch to the head mirror and a simple manipulation of the handle of the cystoscope, all parts of the interior are accessible to a direct inspection, with the exception of the retrosymphyseal region. It is helpful when examining the vertex to invert the abdominal wall above the symphysis with the free hand. A beginner experiences difficulty with the reflected light, as the head mirror is adjusted at an angle, and a slight movement leaves the field in the dark. After a little practice, however, it soon becomes as easy and simple as the examination of the throat and larynx. In this way, we can see each area in the bladder as clearly as through a suprapubic opening, and can thus determine accurately the size and position of any existing tumor or ulcer. Tissue for microscopic examination can likewise be quickly taken with suitable forceps, or fulguration or cauterization may be carried out. The ureteral orifices can also be seen and catheterized easily, and a small stone picked up and removed. Diagnostic wax bulb catheters of any desired diameter can be introduced into the ureter with a facility unknown by those who depend on a water cystoscope.

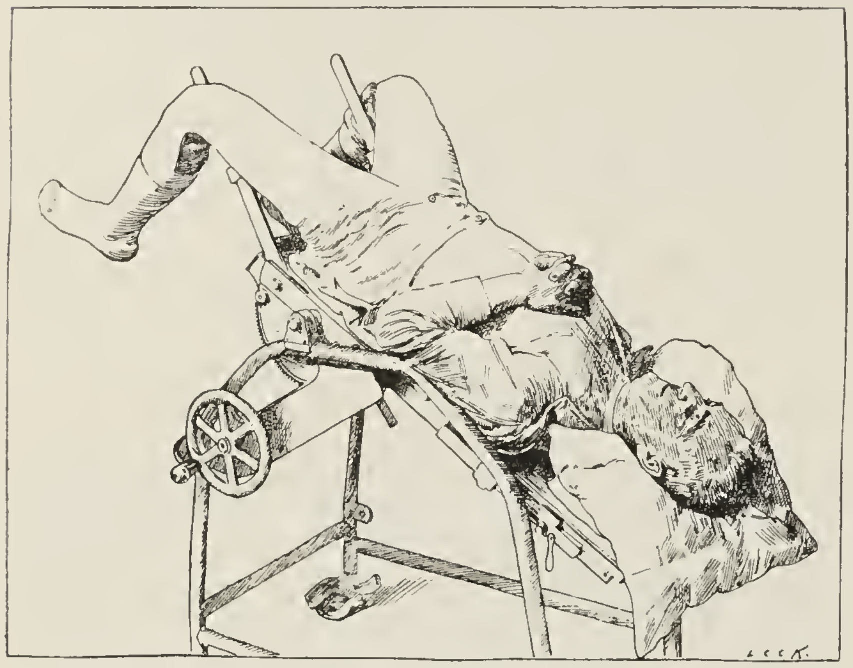

Fig. 1.—Position of patient on a Young cystoscopic table with the head lowered to an angle of 60 degrees; patient purposely not draped in order to show accurately the position.

Passing to the subject in hand, the treatment of bladder tumors through a cystoscope should be limited to cases in which all parts of the growth can be clearly seen and outlined; if it is large and infiltrating, provided the general condition of the patient permits, and there is no evidence of metastases, the treatment should preferably be by suprapubic exposure. However, when an operation is contraindicated, such patients can be helped and should be treated by the cystoscopic method.

Fortunately, vesical tumors often give rise to early symptoms, and many are discovered at a stage when the cystoscope offers as simple and as effective a route as a suprapubic opening. This method is applicable in all growths confined to and around the neck of the bladder, papillomas, papillary carcinomas and infiltrating carcinomas of not over 4 cm. in diameter. Growths other than these without evident metastasis, extensive infiltration of the bladder wall, and all doubtful cases are submitted to a suprapubic section.

I have used radium emanation with two types of applicators, as shown in Figures 2 and 3. The radium emanation for surface treatment is contained within a tiny glass bulb, 3 mm. in diameter, encased in a small brass capsule measuring 1 by 0.5 cm. and 1 mm. thick, which in turn is placed in a second brass capsule, 3 by 1 cm. and of the same thickness, and screwed to the handle. The points for implantation, bare tubes or spicules, as they are called, contain the emanation in tiny glass capillary tubes, 2 mm. long and 0.5 mm. in diameter. These are placed in the end of the hollow needle on the point of the introducing instrument, and after it is implanted into the growth, the tube containing the radium is pushed out from the needle into the tissues by means of a stylet (Fig. 4).

In 1920, Dr. Robert M. Lewis (at that time an associate at this hospital), devised an excellent instrument for implanting bare emanation tubes into the nasopharynx and larynx, as well as for use in the female bladder through the Kelly aeroscope; the instrument I use is my modification of his original one. Care must be taken to insure an accurate estimate of the amount of emanation in each tube used, and it is imperative that each individual tube should be an active one before implantation.

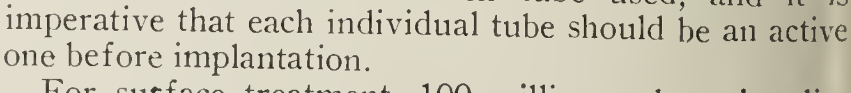

Fig. 2.—Type of applicator used for intravesical surface radium treatment through the aerocystoscope.

For surface treatment, 100 milligram hours' radiation is the maximum dosage for each square centimeter of the area of disease. In using an applicator containing 1,000 millicuries, it is therefore necessary only to hold the applicator six minutes on each area to obtain the equivalent amount of radiation. In this way, a tumor with a surface of 9 sq. cm. would receive the maximum dosage in a total of fifty-four minutes. By using a stronger applicator, the actual time of exposure can be further reduced. The entire treatment is finished in one or two exposures, extending over a period of from two to three days. This amount of surface irradiation should not be repeated within six weeks.

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[3] Greenberg, G.: Ann. Surg. **70**: 212 (Aug.) 1919.
[4] Kelly, H. A.: Am. J. Obst. **39**, No. 1, 1894.

For implantation treatment, the small glass emanation points are implanted directly into the growth. We employ 0.5 millicurie of radium emanation to destroy 1 c.c. of tumor. In this way, with a number of introducing instruments prepared beforehand, we can quickly and accurately introduce from ten to fifteen of the points throughout all parts of the growth, the entire time consumed being about five minutes. The points are left permanently embedded in the tissue to decay, giving off their maximum activity by the end of seven days, but continuing slightly active for twenty-eight days; the action is local and caustic. An intensive treatment such as this should not be repeated until a period of two months has elapsed. We have found that a better result can be expected by using multiple points containing a fraction of a millicurie, rather than by implanting fewer stronger points. A number of these points escape with bits of the tumor and are discharged with the urine.

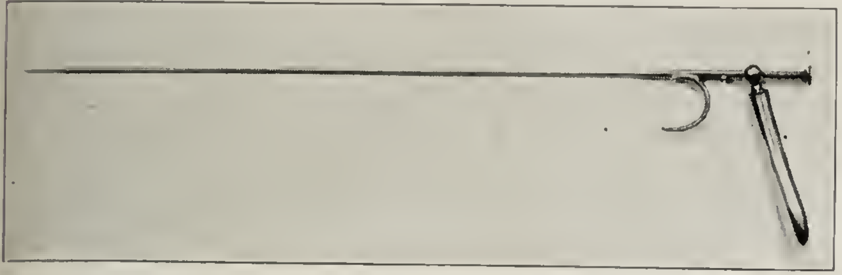

Fig. 3.—Instrument used for intravesical radium implantation treatment of bladder tumors through the aerocystoscope.

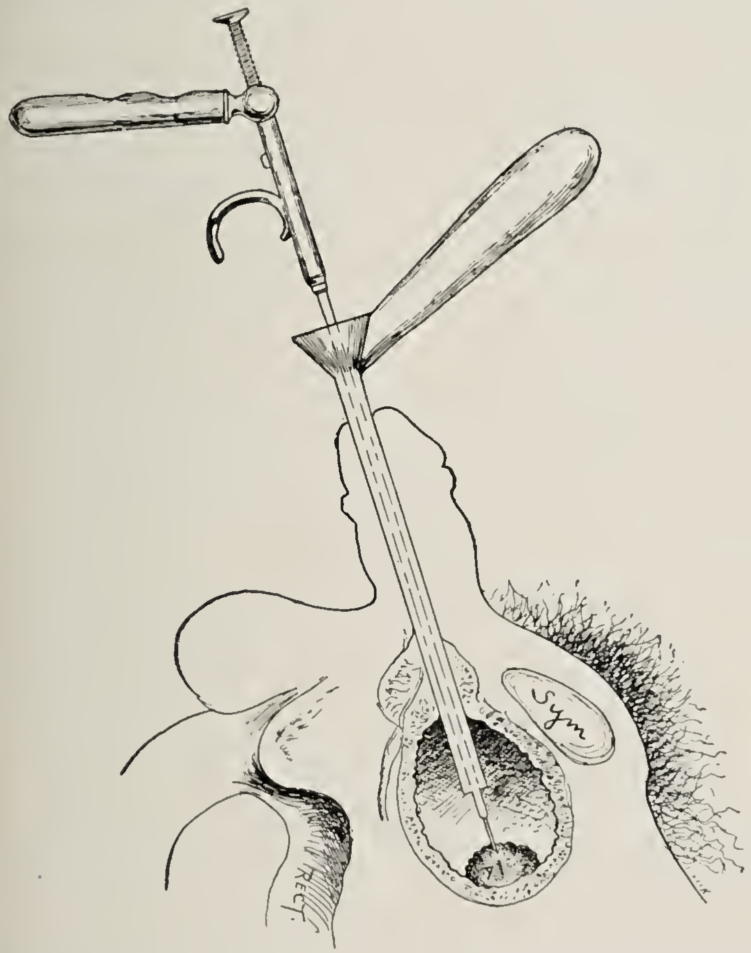

Fig. 4.—Actual implantation of emanation points into the tumor through the aerocystoscope; *A*, emanation point implanted into the growth.

Geraghty [5] has described the implantation treatment, which I introduced at the Johns Hopkins Hospital. Through the courtesy of Dr. Young and Dr. Geraghty, I had the pleasure of demonstrating this method repeatedly. Not infrequently, a considerable amount of tenesmus is caused by this type of treatment, which is not experienced when the surface technic is used alone; it persists about two weeks, and is rarely severe. We note a perfect healing of the surface after a lapse of two months, and no complications have arisen from the remaining points.

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[5] Geraghty, J. T.: J. Urol. **7**: 33 (Jan.) 1922.

CUTANEOUS ALLERGY IN SYPHILIS

WITH SPECIAL REFERENCE TO THE LUETIN REACTION AND THE NECESSITY FOR CONTROLS IN INTRACUTANEOUS TESTS *

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AND
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Statements to the effect that cutaneous allergy to *Spirochaeta pallida* and its products develops during the course of syphilis are based on the reactions observed following the intracutaneous injection of "syphilin" (extract of fetal syphilitic liver), "pallidin" (extract of fetal syphilitic lung) and more especially of "luetin," a sterilized and ground up ascites agar culture of *Spirochaeta pallida,* as prepared by Noguchi. An extensive literature has accumulated on the use of the luetin reaction as a means of diagnosis for syphilis, but not a few investigators have reported nonspecific or doubtful reactions, with the comment that control fluids of the culture medium alone yielded reactions of the same or almost the same kind and degree.

The most thorough investigation bearing on the nonspecific phase of the luetin reaction is that of Stokes.[1] This investigator has observed that the intracutaneous injection of 0.5 per cent. solution of sterile agar and emulsions of normal skin elicit reactions in syphilis quite similar to those produced by luetin. Stokes has explained these reactions on the basis that agar and other substances are capable of adsorbing antiferments and thereby liberate or render active proteolytic ferments capable of producing toxic or irritating substances by processes of proteolysis and autolysis of the individual's serum and cells responsible for the inflammatory reactions of papulation and pustulation. Stokes has very clearly described this mechanism in the following words: "While the luetin reaction seems several steps removed from the plainer case of the agar reaction, a close examination of experimental evidence bearing on it gives ground for placing it, in large part at least, in the class of antiferment-adsorbent or anaphylatoxin reactions, and treating it as in the case of the reaction to agar, not as specific for syphilis, but as a measure, albeit perhaps a sensitive one, of the ferment-antiferment balance, and of the amount or intensity of action of nonspecific proteases in the body of the syphilitic."

Stokes believes that with luetin the processes are of a dual nature, that is, that antiferment is adsorbed not only by the ascites agar, but likewise by the fragments of *Spirochaeta pallida,* in which case the injection of luetin may be expected to yield somewhat stronger reactions than the control fluid of culture medium (ascites fluid and agar) alone, but that both processes are essentially nonspecific.

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* From the Dermatological Research Institute.

[1] Stokes, J. H.: An Intradermal Reaction to Agar and an Interpretation of Intradermal Reactions, J. Infect. Dis. **18**: 402, 415 (April) 1916.

In our opinion, studies of this kind, interpreted in conjunction with the fundamental observations of Jobling, Eggstein and Petersen on ferments, antiferments and their balance, offer satisfactory explanations for the production of reactions following the injection of various substances (agar, blood, kaolin, gelatin, tissue and bacterial extracts, etc.) into the skins of healthy and diseased individuals; they do not, however, explain specific allergic skin reactions, and notably the intracutaneous tuberculin reaction, which may be elicited by the injection of 0.1 c.c. of a 1:10,000 dilution of tuberculin O. T., carrying an almost infinitesimal amount of glycerin-bouillon incapable of eliciting these nonspecific reactions. In other words, the physical theory of anaphylatoxin production enlisted for explaining the agar reaction is not acceptable in explanation of specific allergic reactions, which is very probably an intracellular, colloidal phenomenon without the essential production of such toxic substances as anaphylatoxins, proteotoxins, and the like.

Very probably, the intracutaneous injection of luetin may elicit a dual reaction; one nonspecific, due to the absorption of antiferment by the agar, ascites fluid and even fragments of *Spirochaeta pallida,* and the other specific, a true allergic reaction to pallida protein. But the latter has not been proved, and our experiments reported in this communication caused us to question whether true cutaneous allergy to culture pallida actually exists. On the other hand, there can be no question but that the intracutaneous injection of luetin into syphilitic patients has usually elicited more frequent and stronger reactions than those observed among nonsyphilitic persons; this difference may be ascribable, however, more to the development of nonspecific and nonallergic hypersensitiveness of the skin in syphilis, an enhancement of the nonspecific ferment-antiferment activities, than to the development of specific allergic sensitiveness to the proteins of *Spirochaeta pallida.* It was for the purpose of shedding more light, if possible, on the question of whether or not true cutaneous allergy developed in syphilis, that our experiments were conducted.

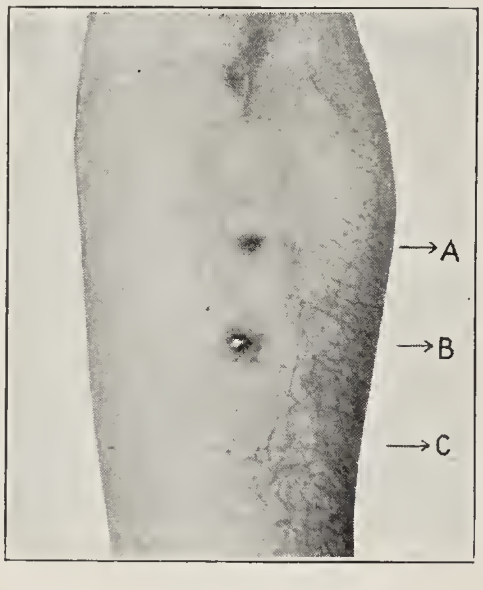

Fig. 1.—Reactions forty-eight hours after the intracutaneous injection of a tertiary syphilitic patient with *A,* 0.1 c.c. of undiluted luetin (upper); *B,* 0.1 c.c. of ascites agar control, and *C,* 0.1 c.c. of pure luetin or vaccine of *Spirochaeta pallida.* The luetin and its control produced reactions of similar kind and degree, but the pure luetin or vaccine of pallida produced nothing but a small area of erythema barely to be seen in the illustration.

TECHNIC EMPLOYED BY AUTHORS

In our investigations three products were employed: (*a*) ascites agar luetin prepared according to the original method of Noguchi, of six or more strains of pallida originally isolated by Noguchi, and, therefore, many years removed from syphilitic lesions; (*b*) ascites agar culture medium in exactly the same proportions as contained in the luetin and prepared in exactly the same manner, and (*c*) a saline suspension of washed *Spirochaeta pallida.* Naturally, the greatest interest was centered in the last preparation as being the most likely to yield true information as to the occurrence of intracutaneous reactions to the fragments and products of pallida alone and free of the constituents of culture mediums.

These vaccines of *Spirochaeta pallida* were prepared by cultivating the same strains as were used in preparing the regular luetin in fluid mediums and removing them by thorough centrifugation. The sediment of spirochetes was then washed at least once with sterile saline solution and resuspended in sufficient saline solution to give a turbid suspension, showing twelve or more spirochetes in each dark field by microscopic examination. The number of spirochetes in each unit volume was, therefore, somewhat higher than that present in ordinary luetin.

These suspensions were thoroughly shaken with beads, heated at 60 C. for an hour, cultivated for sterility and preserved with 0.3 per cent. tricresol. Duplicate samples of each of the three preparations were prepared in another laboratory [2] and employed by us in order to minimize the occurrence of any errors due to technic of preparation.

Each of the three products was injected intracutaneously into the forearms of groups of syphilitic and nonsyphilitic individuals. The amount injected was always 0.1 c.c. of each, but varying dilutions of the stock products were injected in order to elicit possible differences in the reactions. For example, the regular ascites agar luetin was injected in a dose of 0.1 c.c. undiluted, 1:2, 1:4, 1:8, 1:16, etc., at the same sitting. The control fluid of ascites agar was injected at the same time in the other arm in similar amounts. The pure luetin or vaccine of washed spirochetes was injected in a dose of 0.1 c.c. undiluted, 1:2 and 1:4, higher dilutions not being employed because of the complete absence of all reaction except that ascribable to trauma.

By injecting the luetin and its control in serial dilutions and then measuring the reactions at the end of forty-eight hours, it was hoped to elicit differences ascribable to the presence of pallida, which might be checked up by the reactions engendered by pallida alone in the washed suspension.

RESULTS

Without detailing or tabulating the results of a large number of tests, it may be stated that the reactions engendered by the regular luetins and their controls were almost identical in degree and extent. Minor differences occurred in some instances, as might be expected, but these were not constant in that sometimes a given dilution of the control fluid gave a slightly stronger reaction than the corresponding dilution of the luetin, and the reverse.

The intracutaneous injection of the pallida vaccine in a dose of 0.1 c.c. sometimes produced well defined areas of erythema and induration in syphilitic patients; but milder reactions of the same kind were observed among nonsyphilitic persons. In any set of tests conducted on the same day with both classes of patients, reactions of similar kind and degree were observed in both. In general terms, the syphilitic patients usually showed somewhat larger and better defined reactions, which we ascribed to the increased nonspecific ferment-antiferment cutaneous processes occurring in this disease.

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[2] We wish here to express our deep appreciation of the aid rendered by Mr. F. Glenn in preparing these products for us.

Our results indicate one of two possibilities: Either (*a*) true cutaneous allergy to pallida protein and products does not occur in syphilis and the ordinary luetin reaction is purely a nonspecific physical reaction, or (*b*) some change has occurred in the culture pallida employed in our work and for the manufacture of luetin in general, reducing or removing their allergogenic or anaphylactogenic activities.

That the latter is no idle possibility is indicated by the recent report of Alderson,[3] who has compared the results obtained with luetins made at present by different commercial firms with those observed some years ago after luetin was first prepared by Noguchi. Owing to the frequency of negative reactions among syphilitic subjects, Alderson has concluded that the luetin available at present may be inert, and wisely cautions against its use for diagnostic purposes.

In view of the fact that allergic reactions in tuberculosis and some other bacterial and mycotic infections may be elicited by preparations of organisms long in artificial cultivation, it would appear improbable that *Spirochaeta pallida* could lose to such a large extent in allergogenic qualities. Future investigations conducted with freshly isolated pallida must be awaited to settle the question; but with the culture pallida not available, our results indicate either that true and specific cutaneous allergy to pallida does not develop in syphilis at all, or but to a slight degree, or that the culture pallida has actually lost in allergogenic activity, as indicated by the work of Alderson.

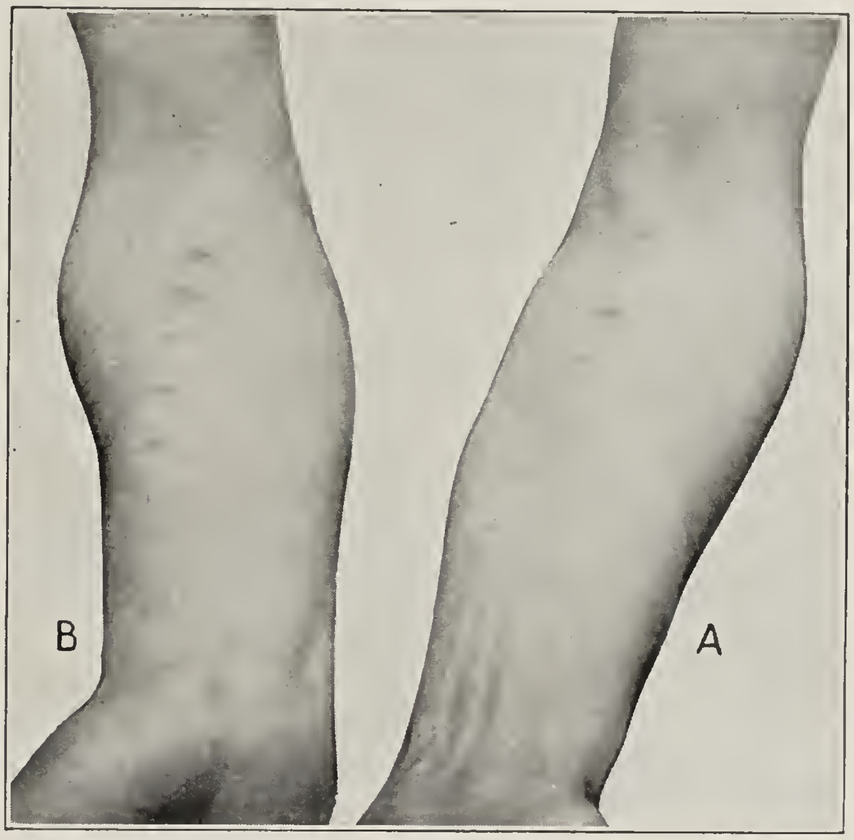

Fig. 2.—*A*, reactions on the right arm of a tertiary syphilitic patient, with a ++++ Wassermann reaction after the intracutaneous injection of 0.1 c.c. of undiluted luetin and 1: 2, 1: 4, 1: 8 and 1: 16 dilutions (above downward); *B*, results on left arm of similar injections of the control fluid of ascites agar; no differences in the kind or extent of the reactions engendered by the luetin and its control.

We may also mention in this communication that intracutaneous injections of glycerin bouillon employed in the preparation of old tuberculin, and of maltose bouillon employed in the preparation of trichophytin, are all capable of eliciting the nonspecific physical (ferment - antiferment) or adsorption reactions described by Stokes and others for agar and ascites agar, providing sufficient amounts are injected. The administration of potassium iodid greatly increases the severity of the reactions to all of these, as originally discovered by Sherrick in relation to the luetin reaction, and confirmed by Kolmer, Matsunami and Broadwell and others.

With the single exception of tuberculin, all intracutaneous tests should be accompanied by a control unless the menstruum is plain sterile saline solution with not more than 0.3 per cent. preservative. In the interests of the best work, even a control fluid of this kind should be used because of the marked differences of nonspecific sensitiveness of the skins of healthy individuals and especially of those with cutaneous manifestations of disease. When the substance injected intracutaneously contains culture mediums, the necessity for controls of the menstruum alone becomes imperative, and it is very much to be regretted that the control fluid for luetin was dropped so many years ago.

With tuberculin, the maximum amount injected intracutaneously in human beings for diagnostic purposes is seldom greater than 0.1 c.c. of a 1: 100 dilution (0.001 c.c. of tuberculin) which carries such a small amount of the original broth as to render the injection of a control fluid unnecessary. But, if larger amounts of tuberculin were injected intracutaneously for diagnostic purposes, as 0.1 c.c. of 1: 10 dilution of tuberculin O. T., a control fluid would be required.

With the exception of tuberculin, we believe, therefore, that all intracutaneous tests for allergic sensitization should be controlled by one of two methods: (*a*) the simultaneous injection of a control fluid capable of eliciting in the same degree the nonspecific reaction, or (*b*) the injection of an amount of the test substance small enough not to elicit nonspecific reactions, this amount being determined by a sufficient number of actual tests on healthy control subjects. Without doubt, the intracutaneous test for allergic sensitiveness is more sensitive than the cutaneous, but its value in diagnostic tests for food, pollen, bacterial and other kinds of sensitiveness is greatly impaired unless the possibility of nonspecific reactions is kept in mind and adequately controlled.

CONCLUSIONS

1. The intracutaneous injection of syphilitic subjects with 0.1 c.c. of serial dilutions of luetin and a control fluid of ascites agar yielded reactions of the same kind and degree.

2. The intracutaneous injection of a pure luetin or vaccine of washed *Spirochaeta pallida* suspended in saline solution did not yield specific allergic reactions. The reactions occurring among syphilitic subjects were sometimes slightly larger and better defined than those occurring in healthy subjects, but the differences were slight and of no diagnostic significance.

3. The reactions occurring among syphilitic patients following the intracutaneous injection of old luetin, the

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[3] Alderson, H. E.: Value of Tests with Commercial Luetin, Arch. Dermat. & Syph. **5**: 610 (May) 1922.

control fluid and new luetin or vaccine of *Spirochaeta pallida,* were ascribed to nonspecific and physical processes of antiferment adsorption.

4. In syphilis, nonspecific cutaneous sensitiveness is enhanced by some unknown mechanism, so that the intracutaneous injection of different substances is capable of engendering nonspecific reactions of greater extent than occurs in nonsyphilitic individuals.

5. The results of the present investigation indicate either (*a*) that true specific cutaneous allergy does not occur in syphilis or (*b*) that the cultures pallida employed have lost completely, or nearly so, in allergogenic or anaphylactogenic properties.

6. In conducting intracutaneous tests, a control fluid should always be included, capable of engendering the same nonspecific reactions, or the amount injected must be small enough on the basis of actual tests not to elicit nonspecific reactions. These precautions are particularly necessary for intracutaneous tests among syphilitic patients, or in subjects with other diseases accompanied by enhanced nonallergic cutaneous sensitiveness.

THYROIDECTOMY *

A MODIFIED TECHNIC †

C. A. ROEDER, M.D.

OMAHA

Following the operation of resection of the thyroid gland for goiter, the undesirable technical results, although of relatively minor importance, not infrequently cause no little annoyance to the patient, and distract thereby, through criticism or apprehension, many other goiter patients from surgical treatment when they are in the greatest need of it. We too often see: (1) a brawny induration beneath the flap; (2) a more or less conspicuous and tender nodule where the anterior muscles, sternohyoid and sternothyroid, were reunited after their transverse division for additional exposure; (3) an annoying adhesion between the trachea and the skin at the point of drainage, which also produces, here, a widening of the scar; and (4) an abnormal deepening of the suprasternal notch, due to a loss of the thyroid isthmus and retraction of the skin by the adhered trachea.

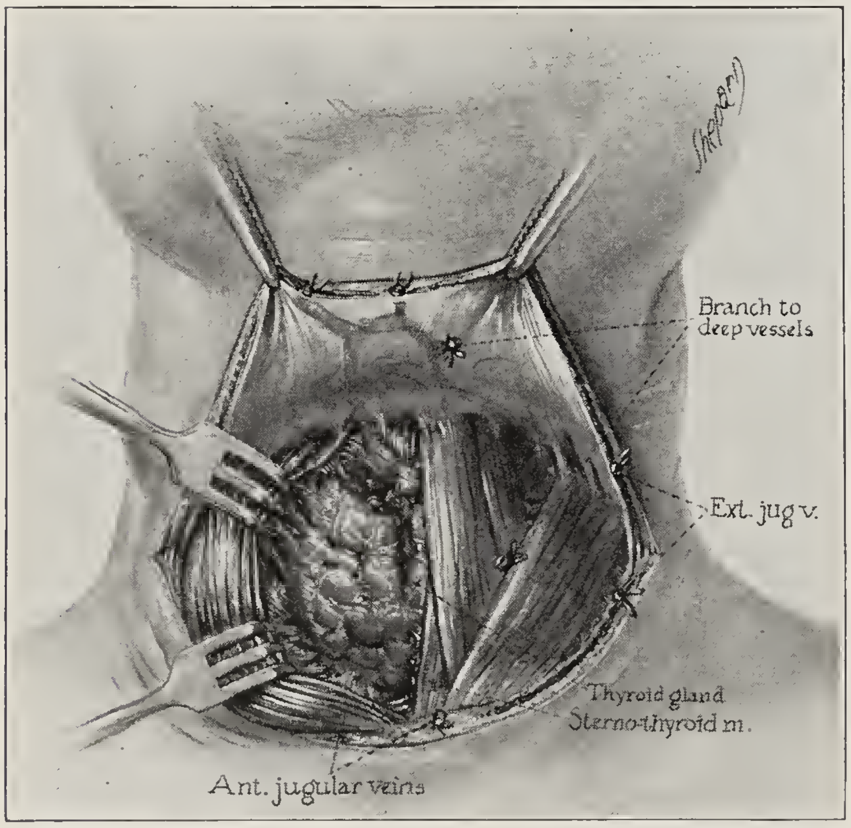

Fig. 1.—Reflected flap composed of skin, fat, platysma muscle and deep cervical fascia, which uncovers and mobilizes the sternohyoid and sternothyroid muscles covering the thyroid gland.

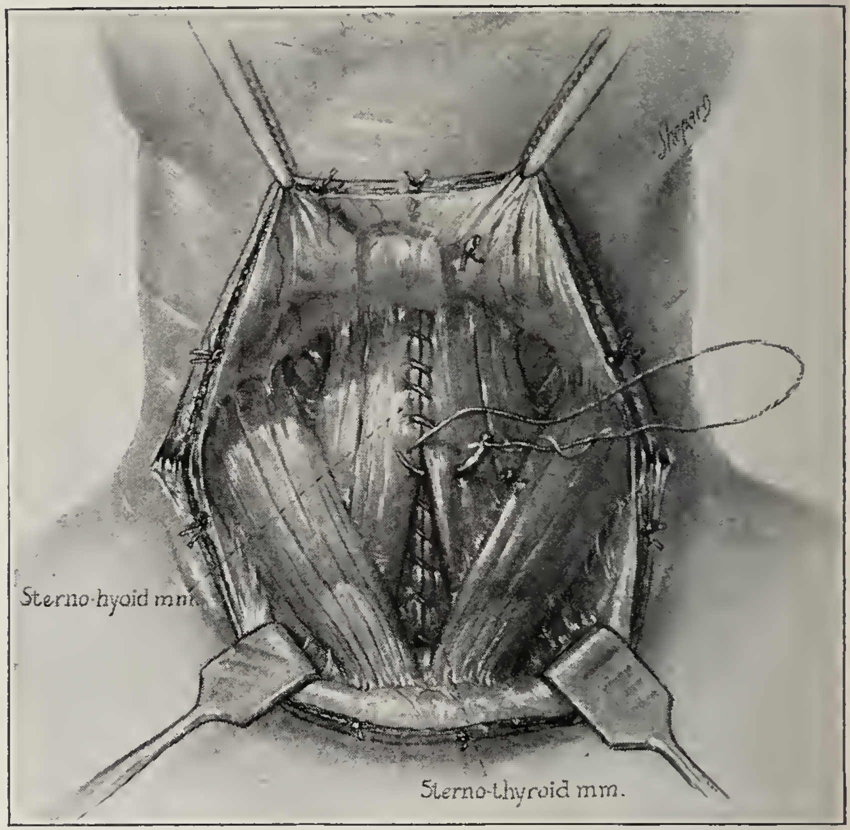

Fig. 2.—With or without drainage, the separated sternohyoid and sternothyroid muscles are completely united in two layers, entirely covering the trachea.

I here present a modification in technic, which has not only overcome to a marked degree these postoperative technical results, but has, in addition, with certain types of goiter given an easier and more rapid exposure of the gland.

EXPOSURE OF THE GLAND

The collar incision of Kocher, as originated and generally practiced today, extends down to the deep cervical fascia, making a flap of skin, fat and platysma muscle.

This type of flap, which leaves the sternohyoid and sternothyroid muscles immobilized by their covering of deep cervical fascia, is most applicable to all large goiters, in which a transverse division of the sternohyoid and sternothyroid muscles covering the gland is always necessary for exposure, and also to all small goiters in which only a moderate amount of retraction is necessary. The most frequent type of goiter operated on, however, is the one of medium size, in which midline separation of the anterior muscles and their fascial covering allows generally not sufficient exposure of the gland without a transverse division of these muscles.

With this type of goiter I extend the collar incision through the deep cervical fascia, and after ligating the anterior jugular veins, reflect the fascia as the inferior layer of the flap. This liberates the sternohyoid muscles to the extent that, with only occasional exceptions, they can be retracted sufficiently to allow all the exposure desired without their transverse division (Fig. 1).

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* Thyroidectomy, removal of a portion of the gland.

† From the Department of Surgery, University of Nebraska College of Medicine.

With these anterior muscles not cross-sectioned, we do away with the frequently persisting and tender nodule where they were reunited, which in addition allows a more rapid return of normal flexion and extension of the neck. The brawny induration so often seen beneath the flap composed of skin, fat and platysma muscle only, and due to the muscle adhering to the deep fascia, is prevented to a great extent by reflecting this deep fascia, the reunion of which to the muscles beneath results in very little, if any, noticeable induration.

DRAINAGE

With an increasing experience in goiter surgery, I am draining a smaller percentage of all cases. I have practically ceased draining all resected exophthalmic goiters with a toxicity of one on a scale of four, with excellent results. I fully believe in the other extreme, in very toxic exophthalmic goiter cases, of leaving the wound wide open, which I first saw the late Alexander Hugh Ferguson practice twelve years ago, and advocated at present, with greatly improved technic, by Crile.

Drainage, as generally practiced today, is through the midline, directly over the trachea; this prevents a complete reunion of the muscles and fascia, which allows in too many instances the adhesion between the trachea and the skin. This adhesion produces also the abnormal and conspicuous deepening of the suprasternal notch, particularly when the thyroid isthmus has been removed, which removal is generally necessary. Furthermore, the platysma muscle is absent in the midline, and the drainage tube therefore comes through the thinnest portion of the flap, resulting in a widening of the scar at this point.

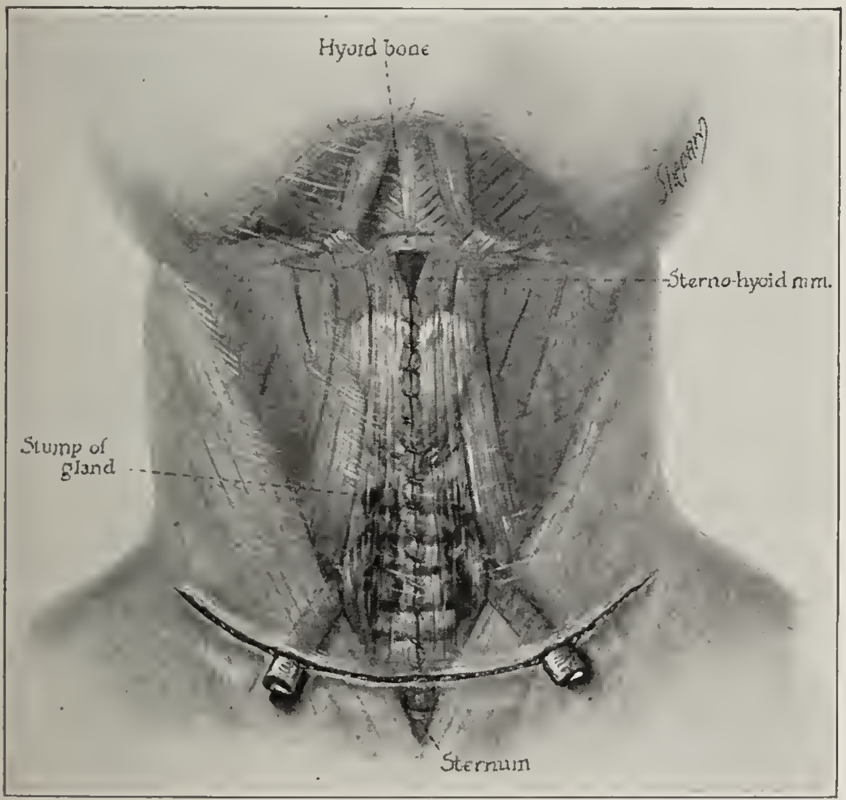

Fig. 3.—Lateral drainage with the muscles completely covering the trachea: The drainage tubes are brought through stab wounds in the anterior muscles and out through the incision lateral to the suprasternal notch.

For several years I have placed, lateral to the midline and trachea, one drain for each side of the gland operated on; the rubber tube passing through a stab wound in the sternohyoid and sternothyroid muscles and directly out through the line of incision, thereby entirely avoiding the midline of the neck, the trachea and the suprasternal notch (Fig. 3). The inner borders of the muscles are completely united in two layers over the trachea, which keeps the latter entirely away from the skin: the line of incision is firmly closed in the thinnest portion of the flap, which not only prevents the conspicuous widening of the scar at this point, but also serves partly in leaving a more normally appearing suprasternal notch.

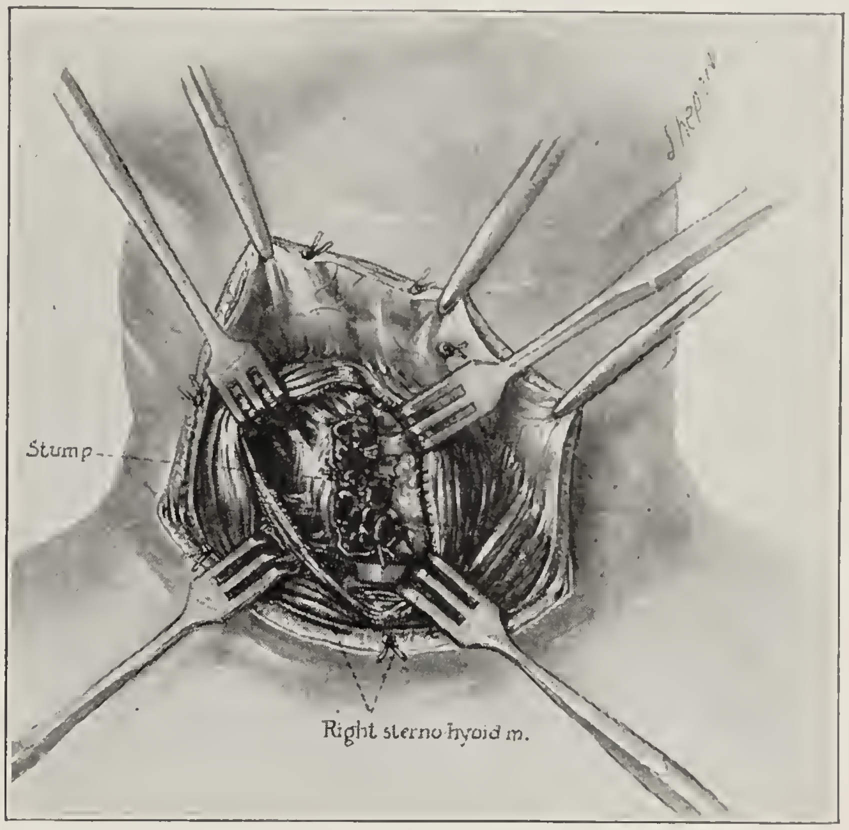

Fig. 4.—The three-quarter incision on the right side, with the deep fascia reflected in the flap, and the sternohyoid and sternothyroid muscles split in their midline lateral to the trachea; this procedure exposes only one lobe.

THREE-QUARTER INCISION

The inferior thyroid artery may be ligated through a 2 inch incision, in direct line with the full collar incision to be used later in a resection of a hyperplastic gland (exophthalmic goiter). Frequently after making this small incision, in anticipation of ligating only one inferior artery after unsatisfactory superior pole ligations, I found the corresponding lobe so well exposed by a slight extension of this incision that I could easily resect this portion of the gland if the patient was withstanding the anticipated ligation better than expected. About six years ago this experience led me to adopt, with no little satisfaction, what I term the three-quarter incision for every operation in which it represented the first or second step in a two or more stage operation of bilateral lobe resection for exophthalmic goiter.

In the severe types of exophthalmic goiter there is no need of making an incision and a flap large enough on both sides to expose the entire gland, when only one lobe dare be operated on. Here I make the three-quarter collar incision through the deep fascia, full length on the side of the gland to be operated on and one-half the length or less on the opposite side; i. e., three-quarters the length of an incision necessary to expose the entire gland. After the deep cervical fascia is reflected with the flap, the anterior muscles directly over the lobe to be resected are easily split lengthwise, resulting always in an ample and rapid exposure (Figs. 4 and 5).

Draining these unilateral resections through the center of the three-quarter incision, away from the trachea and suprasternal notch, has never caused an increase in scar formation at this point in the line of incision. This has led me to substitute lateral for midline drainage in all goiter operations when drainage was deemed necessary. The final results of single and multiple resections, with lateral drainage, with or without the three-quarter incision, always presented a better looking neck than when the drainage tube was brought out through the suprasternal notch directly over the trachea.

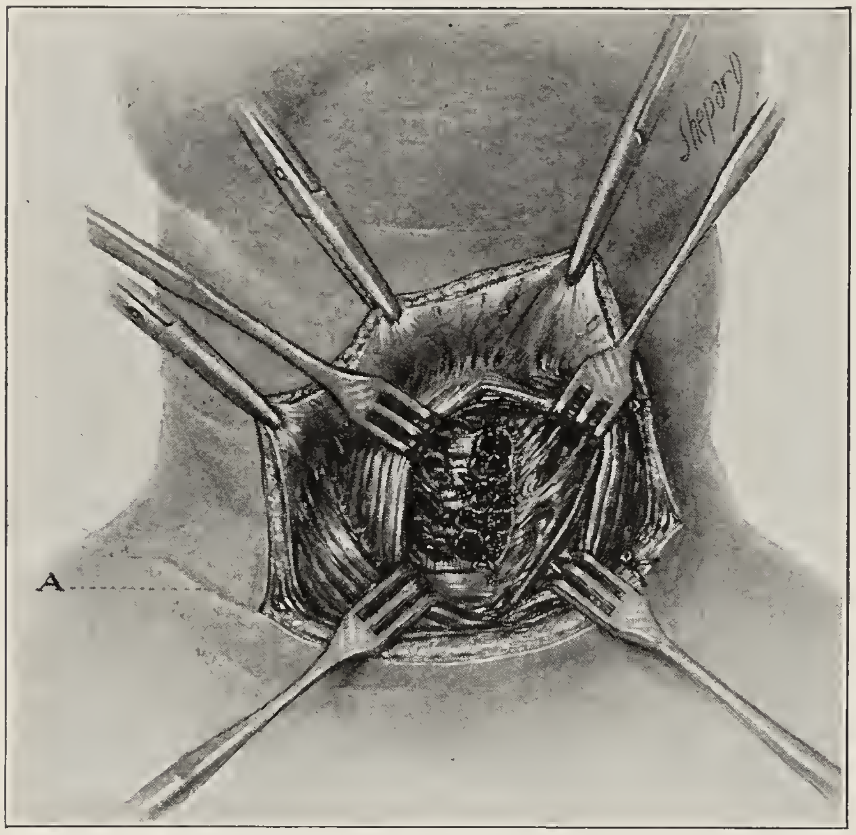

Fig. 5.—The three-quarter incision on the left side. Note the scar, *A*, from the previous three-quarter incision on the right side.

834 Brandeis Theater Building.

THREE CASES OF ACUTE ENCEPHALITIS TREATED WITH SPECIFIC SERUM *

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Ever since the pandemic of influenza, an unusually large series of cases of encephalitis has been observed. With each succeeding year the number of cases has gradually decreased; but if our experience is any criterion, there is still an excess of encephalitis over and above that previous to the pandemic.

Our clinical material during the past year has consisted in large measure of the sequels and chronic residues of encephalitis, but we have also observed a number of acute cases, in three of which we used lumbar drainage and the usual symptomatic treatment, with a specific serum recently prepared by one of us (E. C. R.). This serum was obtained from a horse repeatedly injected with a streptococcus isolated from a patient suffering from typical encephalitis.

REPORT OF CASES

Case 1.—B., a girl, aged 5 years, became ill, Dec. 15, 1921. She weighed at birth 7¾ pounds (3.5 kg.); she had been breast fed. At the age of 6 months she had severe pyelitis, with remissions and exacerbations until the tonsils and adenoids were removed in August, 1921.

Physical examination was negative. The child was pale and listless, and did not feel well. December 24, she refused her meals and was very apathetic. The next day her temperature was 100.4; she was nauseated and rather excitable, and slept more than usual. An enema, a cathartic and a mustard bath were given, December 26, but she slept eighteen of the twenty-four hours. The excitability gradually increased until Jan. 1, 1922. She laughed, cried or giggled, and moved around constantly. The leukocyte count was 9,000. January 5, restlessness became very marked, and abdominal pain developed; the leukocyte count was 24,000. Appendicitis was suspected, but no evidence of it found. The leukocytes at two-day intervals numbered 18,000 and 10,000.

January 10, because of extreme irritability, stupor and slight twitching of the extremities, a lumbar puncture was made, and 25 c.c. of fluid obtained under pressure. There were 18 cells to the cubic millimeter; no coagulum formed. The puncture relieved the child's irritability immediately; her mind became clear, and she had better control of muscular movements. January 12, her condition gradually returned to what it had been before puncture, but with more marked choreiform movements. No Kernig or Brudzinski signs were present. The eyegrounds were negative, as were the tuberculin tests.

January 14, a second lumbar puncture was made, and 65 c.c. was obtained under considerable pressure. The fluid contained 50 cells to the cubic millimeter. No tuberculosis bacilli were found. After the withdrawal of fluid there was again a decided improvement, followed by a rapid return of the choreiform movements. When the child was seen, January 17, she was in a state of constant activity, moving around in her bed and having choreiform movements of her extremities, head, neck and trunk. Her sensorium seemed clear, and physical examination revealed nothing except a slight redness of the nose and throat and a general exaggeration of the reflexes. Swabs were taken from the throat and nasopharynx

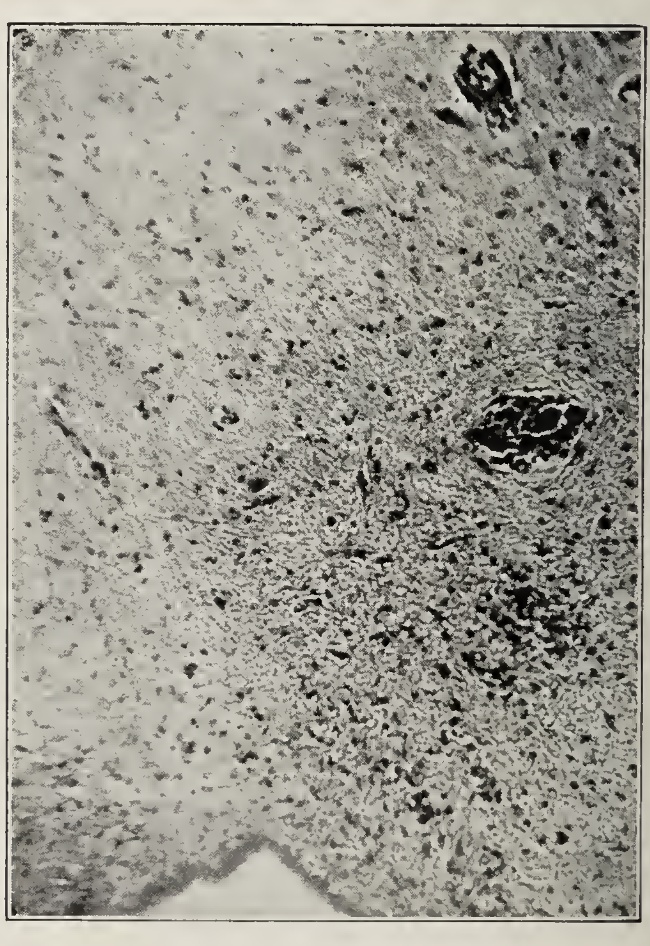

Fig. 1.—Perivascular and localized round-cell infiltration in the pons near the ventricle in rabbit; hematoxylin and eosin, × 1,000.

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* Read before the American Pediatric Society, Washington, D. C., May, 1922.

* From the Section on Pediatrics and the Division of Experimental Bacteriology, the Mayo Foundation.

On the afternoon of January 17, after a preliminary desensitization injection of 1 c.c. of serum, 5 c.c. of the encephalitis serum was given. January 18 and 19, 10 and 15 c.c., respectively, were given. After the second injection the child was very much improved, and after the third the nervous manifestations entirely disappeared. The clinical picture of constant motion and choreiform movements completely changed, and she became quiet, lay in her bed, and played with her toys. The choreic movements never returned, and the reflexes became normal. On the third day after the serum was given, the mental and nervous symptoms had all disappeared.

January 24, after two days of increase of temperature (102), the child developed widespread urticaria. After February 12, her temperature became normal. She was up for two hours in the morning and two hours in the afternoon, slept soundly through the night, rested in the afternoon, and seemed perfectly well. April 10, she was still being carefully watched and had had no nervous irritability or choreiform movements. Whether there are any further manifestations must be left to the future.

The swab from the nose was stabbed into plain agar and brought to the laboratory. From this, glucose-brain broth was inoculated and the twenty-four hour culture, which contained a great many colonies of indifferent and green-producing streptococci and a few staphylococci on plating, was injected intracerebrally into rabbits. The organism isolated from the nose was agglutinated by the specific serum. One rabbit received 0.2 c.c., and one 0.1 c.c. of the undiluted culture, one 0.1 c.c. of a 1:10 dilution, and one 0.1 c.c. of a 1:1,000 dilution in salt solution. The first three animals were found dead the following morning. The one receiving the smallest dose had become tremulous and weak in its hind extremities, and had developed marked choreiform movements of the head. These symptoms continued and grew worse until the second day, when the animal died. Marked congestion of the vessels of the pia over the cerebrum, and edema of the pia over the cerebellum were found at necropsy. Cultures from the brain yielded a pure culture of indifferent streptococci; the blood proved sterile. On the basis of the striking train of symptoms noted in this animal, two additional rabbits were injected with 0.1 c.c. of a 1:1,000 dilution of the forty-eight hour glucose-brain-broth culture. They developed almost identical symptoms, as follows:

A rabbit, weighing 1,910 gm., was injected intracerebrally, January 21. January 22 the animal was slightly tremulous, but otherwise well. January 23, respirations were increased, expirations were rapid, almost explosive, and tremor was more marked. The animal was hyperesthetic; it became tremulous and ataxic when hopping, which it was disinclined to do. January 24, the tremor and ataxia were still present, and as the animal hopped it threw its head irregularly. January 25 and 26, the condition remained practically unchanged, and the animal was chloroformed and examined at once. There were no gross lesions in the brain or the cord. The blood was sterile. Culture from the brain on a blood-agar plate yielded a few colonies of indifferent streptococci, and glucose-brain-broth culture yielded a granular growth of the same organism.

Sections of the brain and cord of this rabbit, as of the one injected in the same way which developed identical symptoms, showed moderate mononuclear infiltration of the pia around the blood vessels, rather extensive perivascular round-cell infiltration, which was most marked in the pons (Fig. 1) and upper portion of the medulla, areas of localized infiltration in the brain substance independent of the vessels, and moderate neurophagocytosis in the basal ganglions.

Sections of the brains of the animals that died soon after injection showed moderate infiltration of the meninges, perivascular spaces and adjacent brain substance by leukocytes and round cells in varying proportions, depending on the duration of the experiment.

CASE 2.—F. P., a boy, aged 10 years, had had measles and pertussis, and his tonsils had been removed six months before. His past history was otherwise negative. He had become acutely ill, Jan. 24, 1922, with almost continuous movements of the face and trunk. He lay in a state of semicoma, breathing noisily; his mouth filled with mucus.

Examination revealed weak abdominal muscles, normal reflexes, and pupils reacting to light. His temperature was from 101 to 102. Twenty cubic centimeters of clear spinal fluid was removed; the cell count was 4. January 25, the eyes showed an early choked disk. The child seemed a little brighter for a short time after puncture, but stupor continued. January 27, the temperature was 103.5, and the child was definitely worse. Forty cubic centimeters of spinal fluid was removed, and 15 c.c. of serum was given intravenously. The child was somewhat brighter the next day, and movements had decreased. The temperature remained 103. Eight cubic centimeters of encephalitis serum was given intravenously. January 29, 40 c.c. of spinal fluid was removed. The temperature was 103; the general condition was about the same. January 30, the child seemed definitely brighter and said a few words for the first time. Seventeen cubic centimeters of serum was given intravenously. January 31, the temperature was practically normal. The patient appeared and acted brighter; choreic movements had practically disappeared, and he was resting quietly. Spinal puncture yielded 30 c.c. of fluid containing 14 cells. Twenty cubic centimeters of serum was given. February 1, the general condition was good, and the mind clear. The nervous symptoms had practically disappeared except for occasional grimaces.

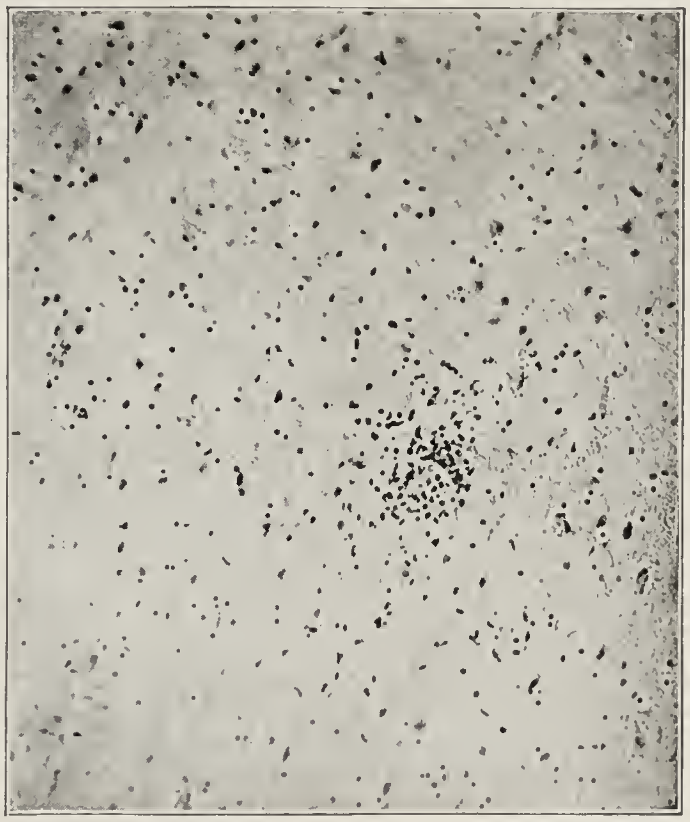

Fig. 2.—Area of leukocytic and round-cell infiltration in the pons of rabbit two days after intracerebral injection with the tonsil strain, after one animal passage; hematoxylin and eosin, × 100.

February 3, the child's temperature rose to 105; he had a right-sided parotitis, but was otherwise apparently well. February 7, the abscess opened in the right parotid gland. A staphylococcus culture was obtained from the pus. February 12, the temperature remained high. Blood culture yielded staphylococci. The child was very sick; he did not have nervous symptoms, but complained of pain in his legs. February 16, the temperature was normal for the first time.

February 22, the temperature was 102, and pain developed in the arm, knee and toes on the left side. February 24, the temperature was 103. The left ear was discharging, and the left axillary glands were swollen. Blood culture was negative. A rash appeared over the body. March 3, the joints were still painful, and the boy was unable to flex the left foot and toes. An abscess appeared in the left axillary glands. March 7, the temperature was normal, and the foot and toes could be flexed. April 17, the child was in excellent condition, and had gained 10 pounds (4.5 kg.). He limped slightly with his left leg, and the dorsal flexion of the foot was rather weak.

CASE 3.—F. J., a boy, aged 2½ years, was examined in the clinic, March 19, 1922. On the evening of March 17, the mother had noticed that the child was rather warm and that he slept restlessly. The next morning he developed general convulsions that recurred at irregular intervals of about one hour. He was semicomatose most of the day, and when seen by the local physician in the evening, he could be aroused only with difficulty; his temperature was 102.6 by axilla. March 19 he had convulsions, recurring at irregular intervals, and could no longer be aroused from his coma. The convulsions were more marked in the right side.

During his examination in the afternoon of March 19, he lay in deep coma. He had a slight stiffness of the neck, his nose and throat were slightly red, and his tonsils were swollen but without exudate. The findings in the chest and abdomen were negative. The Babinski, Brudzinski and Kernig signs were negative.

A lumbar puncture yielded 25 c.c. of clear fluid under increased pressure. The Nonne test was negative. The cell count was 80 questionable (because of acid). The following morning only one cell was found. No change in his condition followed the puncture. He entered the hospital at 10 p. m., March 19. His temperature was 105, pulse 140, and respiration 34. The erythrocytes numbered 3,420,000; the leukocytes, 5,000; the hemoglobin was 67 per cent.; the polymorphonuclears, 67 per cent.; lymphocytes, 38 per cent., and large mononuclears, 6 per cent. A trace of albumin was found in the urine. Convulsions continued during the night. Chloral given at 3 a. m., March 20, controlled the convulsions, but they recurred at 9 a. m. At 10 a. m., 10 c.c. of serum was given intramuscularly. Swabs were taken from the nose and throat. The child seemed drowsy, and slept most of the day. He was rather restless during the night, but convulsions did not return.

March 21, 15 c.c. of serum was given, and lumbar puncture repeated; there were 11 lymphocytes to 1 cubic millimeter. The Nonne test was negative. Culture revealed a green-producing streptococcus. The patient appeared much better, talked intelligently, and asked for food. A divergent squint (present since birth) was very evident. March 22, the temperature was 104, the pulse 130, and the respiration 32. March 25, the child's temperature was normal for the first time, and he seemed entirely recovered. April 10, the home physician reported a single convulsion without fever or other symptoms, but no recurrence since then.

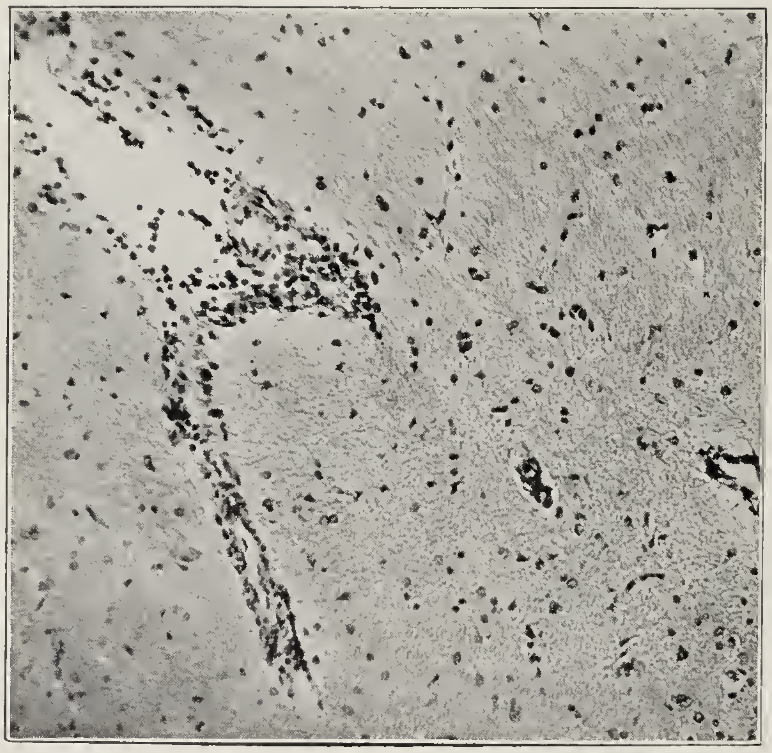

Fig. 3.—Leukocytic and round-cell infiltration of the pia and around blood vessels in the brain of rabbit five days after intracerebral injection with the strain from the spinal fluid; hematoxylin and eosin, × 100.

EXPERIMENTS ON ANIMALS WITH THE ORGANISMS ISOLATED FROM THE TONSILS AND THE SPINAL FLUID

A small amount of pus was expressed from the tonsils, and suspended in 2 c.c. of salt solution. Two rabbits were injected intracerebally, one with 0.2 c.c. of the suspension, and the other with 0.2 c.c. of a 1 : 100 dilution.

The first rabbit was found dead the next morning; the vessels of the meninges were markedly congested, and there was a hemorrhage at the point of injection in the right frontal lobe.

The second rabbit, weighing 1,170 gm., was injected intracerebrally, March 20, with 0.2 c.c. of a 1 : 100 dilution of the salt solution suspension of the pus from the tonsils. March 21, at 7 a. m., the animal appeared well. At 2 p. m., its respirations were somewhat increased and it was decidedly tremulous. At 2 : 30 p. m., it developed peculiar attacks of tonic spasms of the muscles of the fore extremities, head and neck, in which it usually turned its head rather sharply to the right, and sometimes sharply downward. The attacks recurred at intervals of from two to five minutes. In some of the more severe attacks the animal extended its fore extremities in a stiff manner, raising the forepart of its body almost to the point of falling over backward, and holding its head rigid. It drooled saliva. At 2 : 45 p. m., the tonic spasms of the muscles of the forepart of the body continued. Between attacks the animal appeared half asleep, and rested its head on the floor. At 2 : 50 p. m., during an attack, it suddenly plunged forward for a short distance, fell to its side, kicked violently with fore and hind extremities, urinated, held its breath, and seemed to be dying. Respirations then returned slowly, and it lay quietly on its side. Repeated tonic contractions of the right fore and hind extremities, head and neck followed. At 3 : 10 p. m., it had another convulsive attack. From 3 : 15 to 3 : 25, the attacks recurred frequently; in the intervals, the animal was semicomatose, and at the end of each attack it turned its right eye sharply forward and inward, holding its head very stiff. At 3 : 30 the attacks continued, but were less severe. The animal was growing weaker, and the respirations were feeble. At 3 : 40 p. m., it died without a struggle. The animal was examined at once.

The vessels of the meninges were extremely congested, but there were no hemorrhages in the brain or the cord; the cerebrospinal fluid was slightly turbid; the stomach was tightly contracted over a large amount of contents, and the mucous membrane contained numerous linear hemorrhages. There was no mark at the point of inoculation. Cultures from the blood and the brain yielded a large number of green-producing streptococci.

A mixture of equal parts of the primary (twenty-four hour) and secondary (ten hour) cultures of the suspension of pus from the tonsils was injected intracerebrally into two rabbits, one receiving 0.1 c.c., the other 0.2 c.c., of a 1 : 1,000 dilution of the neutralized culture.

The first rabbit was extremely shaky and tremulous, and had several attacks of slight but universal spasms. It was found dead the second day.

The second rabbit, weighing 1,610 gm., was injected intracerebrally, March 21, 1922, with 0.2 c.c. of a 1 : 1,000 dilution of equal parts of primary and secondary glucose-brain-broth culture from the tonsils. March 22, the animal sat quietly, rather humped up, and was disinclined to hop. It was slightly hyperesthetic, and the respirations were slightly increased. At noon the next day it had repeated spells of quivering of the muscles of the neck on the left side, hopped slowly, and was a bit shaky. At 7 : 30 a. m., March 24, the animal was found sitting in a corner of the cage having repeated spells of clonic spasms of the muscles of the left side of the neck and the left shoulder. At 8 : 30 a. m., the attacks had grown worse; the spasms of the muscles had become continuous; the head was held downward and to the left; the muscles of the fore extremities twitched repeatedly, as the body was raised high. At 9 p. m., the spasms of the muscles of the forepart of the body still continued. When the animal was prodded, general tonic spasms of the muscles developed, first on the left side and then on both sides. In one of these the animal fell on its side, relaxed, gasped for breath, had a recurrence of the spasms involving the muscles of almost the entire body, more marked on the left side, and died, apparently from cardiac failure. It was examined at once.

The vessels of the meninges were markedly congested, but there were no hemorrhages in the brain or the cord, and there was no mark at the point of inoculation. Cultures from the brain and blood yielded a pure growth of the green-producing streptococcus. The spinal fluid in tall tubes of ascites meat infusion and meat infusion yielded a pure culture of a pleomorphic short-chained streptococcus. When a week old, this culture was transferred to glucose-brain broth, and the twelve hour growth in this medium was inoculated into two rabbits, one receiving 0.1 c.c., the other 0.1 c.c. of a 1:1,000 dilution. The findings in the two rabbits were almost identical. Those of the first are sufficiently illustrative.

A rabbit, weighing 2,000 gm., was injected intracerebrally, April 2, 1922, with 0.1 c.c. of a glucose-brain-broth culture of the streptococcus from the spinal fluid in the second culture generation. April 3, at 10 p. m., the respirations were somewhat increased, but the animal did not have spasms. April 4, at 7 a. m., the respirations were greatly increased. The animal was restless and uncomfortable, and when made to hop became markedly tremulous, and the muscles over most of the body twitched; at times this almost amounted to a universal clonic spasm. At noon the condition was about the same. Spasms of the extremities and of the muscles of the back were repeated rapidly. At 6 p. m., the condition was unchanged. April 5, at 8 a. m., the respirations were still markedly increased. The animal was hyperesthetic and excitable, and had repeated attacks of general twitchings of the muscles, especially those of the fore extremities. When it was forced to hop, the spasms extended to the hind extremities, became quite violent, and threw it around. At 10:15 it was found lying on its side with continuous tremor and twitchings of the masseter muscles, and the muscles of the neck, shoulder, back and fore extremities; at intervals it had clonic twitchings of the hind extremities. These increased greatly on prodding. A little later the animal died, and was examined at once.

The vessels of the meninges were moderately congested; the spinal fluid was slightly turbid; there were no gross lesions at the point of injection, none in the brain or the cord elsewhere, and none in the viscera. The blood was sterile, and cultures from the brain yielded a pure growth of the organism injected.

Sections of the brain and cord of this rabbit showed a variable degree of leukocytic and round-cell infiltration of the meninges, perivascular spaces, and substance of the brain and pons remote from the blood vessels. The proportion of leukocytes and round cells varied with the duration of the experiment. The character of the lesions found in the animals injected with the strain from the nasopharynx and in those injected with the strain isolated from the spinal fluid was identical (Figs. 2 and 3).

On account of the striking improvement in the patient following the injection of the encephalitis serum, a protection experiment with this serum was made in rabbits. Six rabbits of approximately the same weight were selected and divided into three groups of two each. All were injected intracerebrally twice, twenty-four hours apart, with 0.1 c.c. of a 1:1,000 dilution of the glucose-brain-broth culture of the streptococcus isolated from the rabbits injected with the salt solution suspension of the pus from the tonsils. The serum was given to four of the rabbits, two receiving it at the time of each injection of the bacteria, two the day before the injection and also at the time of each injection. The two that were not given the serum were found dead the morning after the second injection. One of the two given simultaneous intravenous injections of 1 c.c. of the serum died late on the second day, the other on the fourth day after the second injection. One of the two given 1 c.c. of the serum intravenously the day before and 1 c.c. with each injection of the culture died on the fifth day, and the other survived. The latter remained well until the third day, when it developed a peculiar motion of the head, throwing it from side to side and occasionally backward. These movements, which were always worse when the animal hopped and when it was prodded, gradually grew less, but were still noticeable three weeks later when it was chloroformed. Cultures from the brain and the cord were negative.

COMMENT

The effect of the injection of serum in all three cases was so striking that it seemed advisable to report this small group, with the hope of interesting others in the specific treatment of encephalitis, in order to determine whether the same excellent results can be obtained in a larger series of cases. The experience of any one man with acute encephalitis is rather limited, but the number of cases is large in the aggregate, and we are anxious that the serum shall be tried out in a larger number of cases. It is available to all who are interested in using it.

We do not claim at present that the specific serum was the curative factor in these cases. With the injection of the serum, however, there was a decided improvement in the patients' general condition and a complete clearing up of the nervous symptoms of encephalitis. Furthermore, we know that the serum protects animals against disease following intracerebral injections of the streptococcus, which is not the case with normal horse serum.

THE PHARMACOLOGY OF MERCURY

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A considerable volume of information has been accumulated on the behavior of mercury in the body. Valuable contributions to the pathologic changes produced in the liver, kidney and other organs have also been made by cases of poisoning in man and by experimental studies on animals. Very few reports, however, have appeared on the pharmacologic action of mercury. Dreser[1] studied the action of various compounds of mercury on the isolated heart. More recently Mueller, Schoeler and Schrauth[2] reported experiments on the effects of several organic preparations on the circulation and respiration in cats in which injection was made intravenously.

During the past year Kleitman and I carried out experiments with compounds of mercury on different animals and on the isolated heart of the frog and turtle. We have also studied the effect of different substances on the action of mercury, giving some attention to its absorption from the small intestine and when given by intramuscular injection. The results that we obtained showed that small quantities of mercury given intravenously in the form of the succinate, benzoate or acetate produced very severe disturbance of the circulation in all animals, though the effects were not exactly the same in each case. Some differences in reactions were observed in cats, dogs and rabbits. The injection of from 2 to 4 mg. of mercury in divided doses produced a sudden fall of blood pressure, which often occurred after a long latent period (one or two minutes). Blood pressure sometimes fell to zero. The heart stopped at the same time, but arrest of cardiac action was not permanent after doses of 2, 4 or even 6 mg. of mercury. The inhibition of the heart lasted for periods varying from one-half minute to three minutes. Blood pressure then rose suddenly, sometimes reaching a height of 160 mm.

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[1] Dreser: Arch. f. Exper. Path. u. Pharmakol. 32: 456, 1893.

[2] Mueller, Schoeler and Schrauth: Biochem. Ztschr. 33: 381, 1911.

of mercury, or even more. Since this rise of blood pressure may be ascribed to asphyxia on account of the associated suspended respiration, when the heart stopped, this was controlled by other substances that likewise caused suspension of respiration and arrest of heart action. But no sudden rise of blood pressure occurred on recovery. We performed a number of experiments with acetone in this laboratory, but in no case was the suspension of heart action and respiration followed by an abrupt rise of blood pressure.

This striking resemblance to cardiac inhibition produced by stimulating the vagus nerve suggested the advisability of testing the action of mercury when the vagus mechanism was either partly or entirely eliminated. The administration of the mercury salts after double vagotomy or after paralysis of the vagus endings in the heart by atropin produced exactly the same effects as when the vagus mechanism was intact. As previously mentioned, the response varied in different animals. Dogs were found to be much more sensitive to mercury than cats. Paralysis of the circulation and of respiration occurred in one experiment on a dog after the injection of 2.3 mg. of mercury (as succinate) per kilogram. Nor were the other symptoms of circulatory disturbance and of cardiac irregularity observed in dogs the same as in cats. The reaction of the rabbit to mercury was qualitatively the same as that of dogs, but our experiments indicated that rabbits could tolerate larger amounts of mercury than dogs.

Particularly interesting were the results we obtained in experiments with mercurochrome—220 soluble. This compound is the disodium salt of dibromoxymercury fluorescein, and was first prepared by Young, White and Swartz,[3] who reported that it was a substance of very low toxicity. Dogs tolerated 10 mg. of mercury for each kilogram by intravenous injections when it was in the form of mercurochrome, but rabbits were less resistant to this compound. We studied the effects of mercurochrome on the circulation and respiration by intravenous injections given to cats and dogs under urethane and chlorbutanol anesthesia, respectively. The results obtained showed that its action was in some respects decidedly different from that of other organic compounds of mercury, but that it at the same time retained the characteristic effect of mercury. The smallest fatal dose of mercurochrome given intravenously to cats was 14 mg. of mercury for each kilogram. The first indications of circulatory disturbance occurred after 10 mg. of mercury for each kilogram, which is about two or three times the fatal dose of mercury in the form of acetate, succinate or benzoate. Much larger doses of mercury as mercurochrome were tolerated in the other experiments, one of which will be reported for illustration.

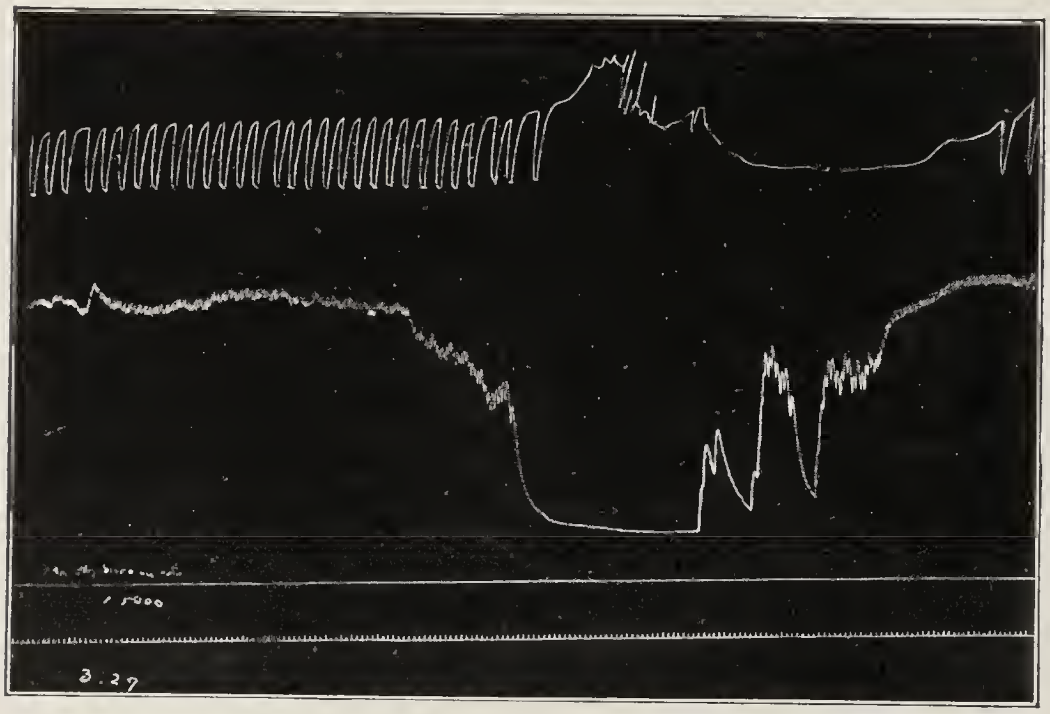

Fig. 1.—A cat, weighing 2.6 kg., under urethane anesthesia, was given 13 c.c. of mercuric succinate (2.6 mg. of mercury) at each of three injections. There was sudden fall of blood pressure after the third injection, arrest of heart action and recovery. Respiration stopped, but also recovered. Upper tracing, respiration; lower tracing, blood pressure; time in seconds.

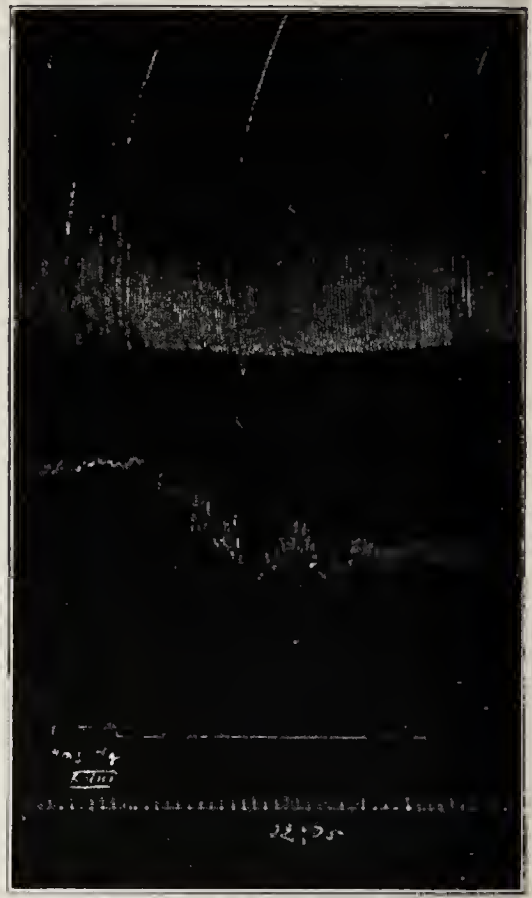

Fig. 2.—A cat, weighing 2 kg., under urethane anesthesia, was given, as Injection 18, mercurochrome-220 soluble. Previously, 42 mg. of mercury had been injected. There was fall of blood pressure; respiration slightly slowed; time, four seconds.

A full grown cat under urethane anesthesia received intravenously four injections of 4 gm. of mercury each in twenty-six minutes. There was a slight fall of blood pressure, with cardiac irregularity, which lasted about half a minute. Sixteen minutes later another injection produced a much greater effect, though only half of the preceding amount was used. Heart action was slowed considerably, and blood pressure fell 30 mm. of mercury. The effect lasted only about one minute. During the next forty minutes, 12 mg. of mercury was injected in divided doses. Each injection was followed by cardiac irregularity indicating heart block, but recovery occurred in every case. The administration of the mercury dye was continued. When the total amount injected was 25 mg. of mercury for each kilogram, the blood pressure fell promptly, reaching almost to zero, and heart action ceased. This lasted about one and a half minutes, when blood pressure rose abruptly, attaining almost the same level as before the injection. The pulse was slow at first, but within a few minutes, heart action suddenly became rapid, the acceleration lasting until the next attack. Respiration, which was slowed during the period of cardiac inhibition, stopped when the heart recovered. Though it returned after two minutes, respiration remained permanently slower than before the circulatory changes described set in.

The cardiac effects observed in intact animals were also observed in experiments on the isolated heart of cold blooded animals. The frog heart and the turtle heart were perfused with Ringer's solution containing different amounts of mercury. Tests were made with succinate, benzoate and acetate, but we also studied the action of mercuric chlorid. Surprisingly small amounts of these salts proved to be very injurious to the heart. We could reproduce the same phenomena in the heart of the cold blooded animals as we observed in warm blooded animals. Mercury in a concentration of 1 : 100,000 in Ringer's solution usually produced heart block and delirium cordis in the turtle heart, when perfused for very brief periods. So marked was the toxicity of mercury that delirium cordis sometimes occurred when the turtle heart was perfused with concentrations of mercury of 1 : 1,000,000 or even 1 : 10,000,000. The frog heart was more resistant, but the action of mercury also proved to be very powerful on the hearts of these animals. Particularly interesting is the observation we made that the heart may be permanently damaged by mercury, for little or no improvement occurred in the heart of the frog when perfusion with the salts of mercury was discontinued. In the turtle heart some improvement was observed, but complete recovery never occurred after mercury.

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[3] Young, H. H.; White, E. C., and Swartz, E. O.: A New Germicide for Use in the Genito-Urinary Tract, J. A. M. A. **73**: 1483 (Nov. 15) 1919.

Experiments were also made on the influence of mercury on peristalsis. The movements of the intestine in situ as well as the isolated intestine of different animals were studied. Intravenous injections of mercuric compounds failed to produce any effect on peristalsis. The reaction of isolated segments of intestine was not constant. Considerable improvement of the rhythmic contractions, and especially stimulation of tonus, was observed in some experiments. No response or relaxation of the intestine occurred in several others. As these studies are still in progress, no definite conclusions can be drawn at present. It is evident, however, that the reaction of smooth muscle to mercury is quite different from that of the heart.

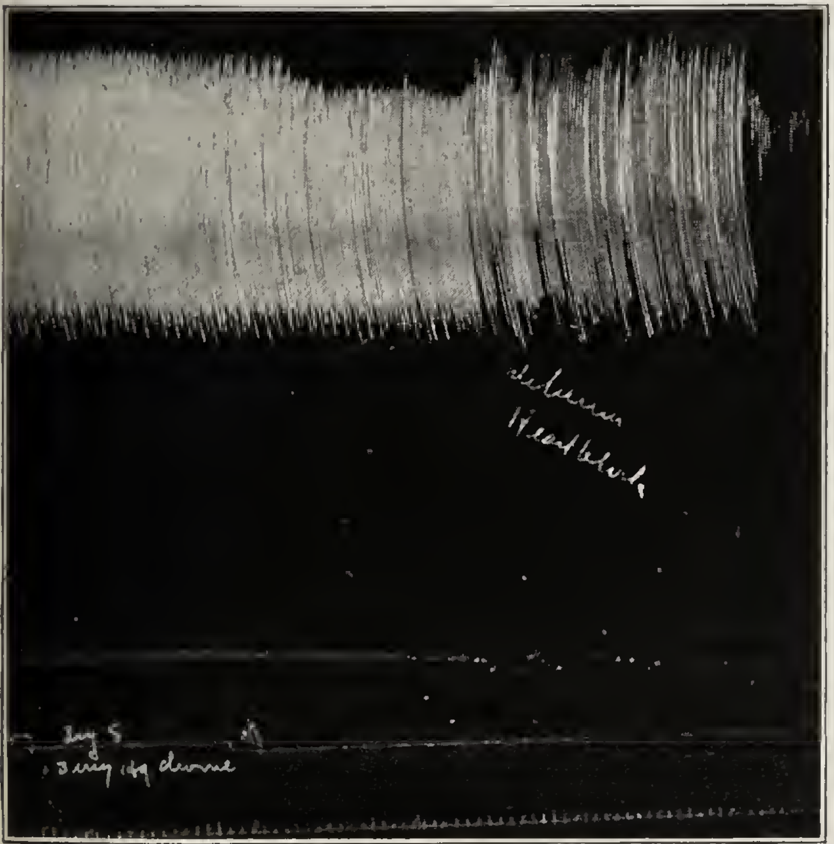

Fig. 3.—A dog, weighing 6.36 kg., under chlorbutanol anesthesia, was given, as Injection 5, 13 mg. of mercurochrome-220 soluble intravenously, which produced heart block, delirium cordis, and finally cardiac paralysis. (Mercurochrome had previously been injected, 8 mg. of mercury for each kilogram). Upper tracing, myocardiogram; lower tracing, blood pressure; time, four seconds.

Cardiac muscle is unquestionably very sensitive to mercury, while the effect of the metal on smooth muscle is at best not considerable. Of interest also from a practical and clinical standpoint is the absorption of compounds of mercury. Observations were therefore made on absorption when given by intramuscular injection or when solutions of the salts were introduced into the duodenum. When injected into the gluteal muscles there was definite indication that absorption of appreciable amounts occurred within twenty-six minutes. The symptoms produced corresponded to those observed when 4 or 5 mg. of mercury for each kilogram was injected intravenously. Exceptionally, however, the characteristic effects of the metal appeared much later. In one experiment, evidence of absorption was first obtained one hour and forty-five minutes after injection into the muscles.

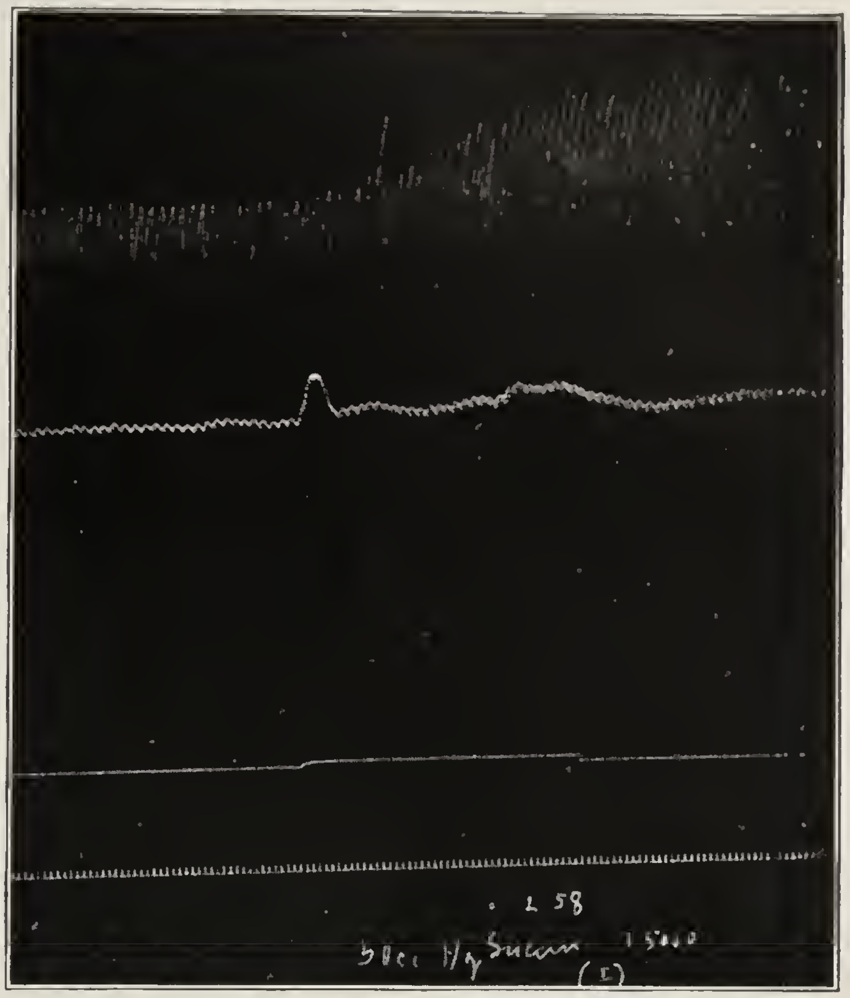

Fig. 4.—A cat, weighing 3 kg., under urethane anesthesia, was injected intravenously with 3 c.c. of 3 per cent. sodium citrate. Ten minutes later, 2 mg. of mercury per kilogram (as succinate), intravenously, stimulated respiration. Upper tracing, respiration; lower tracing, blood pressure; time in seconds.

When mercury was introduced into the small intestine, symptoms appeared much sooner than when given intramuscularly. A fall of blood pressure of 20 mm. of mercury occurred seventeen minutes after the injection of 10 mg. of mercury in the form of the succinate into the small intestine. During the next hour there was a further fall of 70 mm. In another experiment, heart block occurred within ten minutes. As in the case of intramuscular injections, the rate of absorption differed in various animals, the characteristic effects being delayed sometimes about two hours. It may be safely concluded, therefore, that the rate of absorption of organic compounds of mercury from the intestine is fully as good as, if not better than, from the muscles.

Attention may also be called to the observation we made on the effect of various substances on the behavior of mercury in the body. That the action of drugs may be modified by various conditions has often been pointed out by a number of investigators. Indeed, examples of complete reversal of action are by no means rare. The action of mercury in citrated animals shows that respiration may be considerably stimulated by mercury. When dilute solutions of salts of the metal were injected intravenously into animals after the effect of citrate had worn off, respiration became much more frequent and deeper. The effect in most cases lasted about three minutes, but in one experiment the duration of the effect was about a quarter of an hour. It should be added, in this connection, that the effect of mercury on respiration was independent of the condition of the circulation and that mercury not preceded by citrate never stimulated respiration. However, when considerable amounts of citrate were injected, the subsequent administration of mercury failed to stimulate respiration. Furthermore, we found that large amounts of citrate produced well marked decrease of tolerance to mercury. That mercury may modify reactions to drugs was shown in experiments we carried out with barium and mercury on the isolated heart. We found that when the heart was perfused with barium chlorid in Ringer's solution, after previous treatment with mercury, depression instead of stimulation occurred.

Finally, it may be stated that the action of mercury may be modified also by epinephrin. It was found in several experiments that the onset of delirium cordis and heart block produced by mercury was hastened by the injection of epinephrin.

SUMMARY

In brief, mercury is highly toxic to the heart, causing various cardiac irregularities, such as heart block, delirium cordis and finally paralysis. It is also toxic to the respiration, but the effect in this case is not nearly so pronounced as on the circulation. Furthermore, the action of mercuric salts may be greatly increased by citrate or by epinephrin, suggesting that under certain conditions associated with disturbances of metabolism the toxicity of mercury may be still more increased.

To Remove Rust from Instruments.—First place the instruments in a saturated solution of stannous chlorid, which causes the spots to disappear by reduction. Then rinse the instruments with water and place them in a hot solution of soda soap, and dry. It is also desirable to rub them with a little absolute alcohol and prepared chalk. Another method to remove rust is to place the instruments in kerosene. Paraffin oil is the best preservative against rust, and the most convenient way of applying it without getting an unnecessary thick coating is as follows: One part of the oil is dissolved in 200 parts of benzine, and the objects, after being thoroughly dried and warm, are plunged into the solution. Instruments with joints, as scissors or needle holders, are worked in the fluid, so as to cause it to penetrate into all crevices, and the benzine is then allowed to evaporate in a dry room.—*Pharm. Zentralh.*

INTRAPERITONEAL INSERTION OF BURIED CAPILLARY GLASS TUBES OF RADIUM EMANATION

RESULTS IN TWO CASES OF TUMOR OF THE GASTRO-INTESTINAL TRACT

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The intratumoral application of buried capillary glass tubes containing radium emanation presents a comparatively new departure in radium therapy. The method was originally suggested by Duane, and subsequently developed by the late H. H. Janeway. The results to date are so gratifying that, in my opinion, the method will play a prominent part in the future development of the whole field of radiotherapeutics.

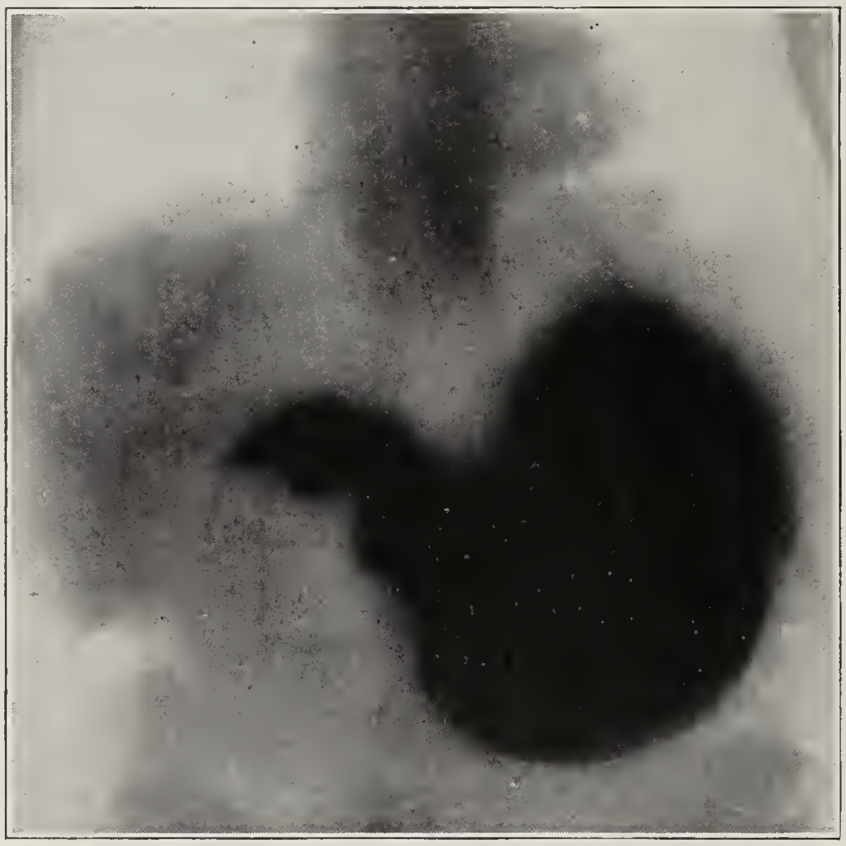

Fig. 1 (Case 1).—Tumor of second part of duodenum before treatment.

TECHNIC

Radium emanation—an elementary body in the state of a heavy gas—is the first active product of decomposition of radium. It is collected by means of appropriate apparatus in capillary glass tubes from 3 to 5 mm. long. The tubes, containing between 0.3 and 1.5 millicuries of radium emanation each, are sterilized either by boiling or by immersion in an alcoholic solution of iodin, and are inserted by the aid of a trocar into the tumor tissue. These tubes exert a comparatively weak but continuous action on the tissues which lasts for several weeks. The cumulative action of 1 millicurie is calculated to equal 132 millicurie hours. Depending on the mass of the tumor, the number of tubes and the strength of each varies. The tumor tissue immediately surrounding the capillary is influenced by the soft beta rays, and may become necrotic. This area of necrosis is minute in extent and acts as a filter on the soft rays. The next zone of tumor tissue is then influenced only by the hard gamma rays of radium. As an ultimate result, the tumor tissue in the vicinity of each capillary tube is replaced by a connective tissue capsule which wholly encloses the tube. The latter meanwhile becomes inert and causes no discomfort to the patient. When the capillaries do not contain more than 1 millicurie of radium emanation and the tubes are not placed too close to one another, there does not take place any sloughing of tissue.

In the course of the last two and a half years, I have used this method extensively on intraperitoneal tumors of the gastro-intestinal tract, the uterus, the ovaries and retroperitoneal tumors. An exploratory laparotomy is performed. When it is found that the tumor itself is inoperable, i. e., cannot be completely removed surgically, then the emanation tubes are inserted into the tumor, and this is followed by the necessary palliative surgical procedures. The laparotomy incision is immediately sutured.

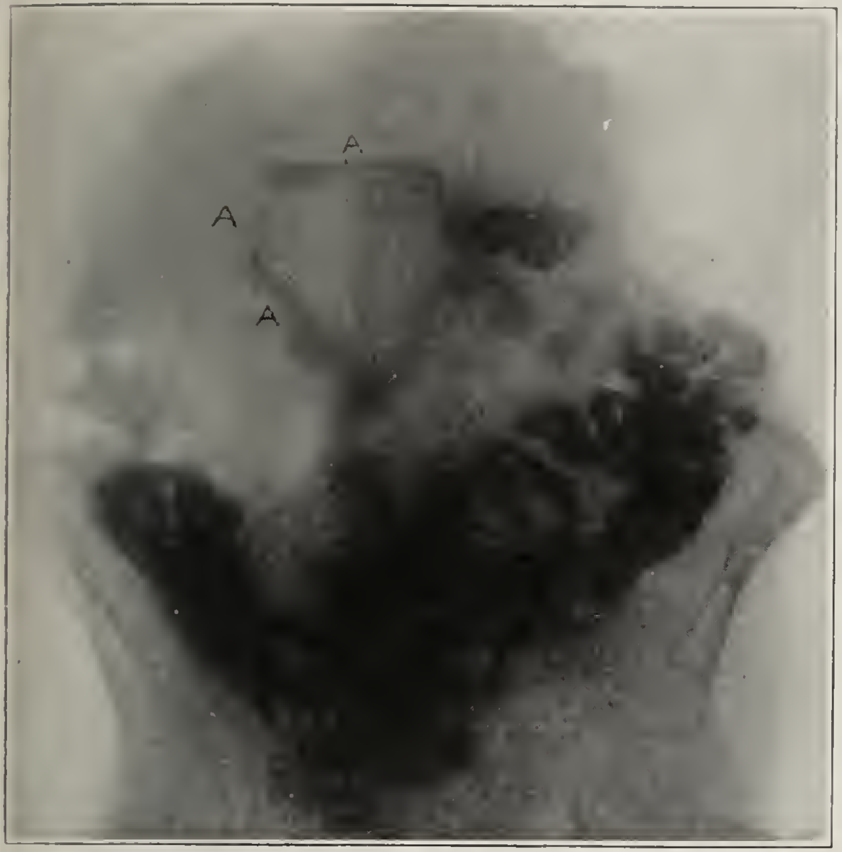

Fig. 2 (Case 1).—Tumor of duodenum after radium treatment: *A*, patent pylorus.

RESULTS

The following two cases indicate the results which may be obtained by this method of radium therapy:

Case 1.—O. B., a man, aged 55, was admitted, Oct. 3, 1921, to the service of Dr. Jerome Lynch at St. Bartholomew's Hospital, with symptoms of pain in the stomach, nausea and severe attacks of vomiting. The patient had lost 45 pounds (20 kg.) within six months. There was a tumor in the middle line of the abdomen, 2 inches above the umbilicus, about the size of an orange, freely movable. Provisional diagnosis was made of a tumor of the hepatic flexure. Roentgen-ray examination (Fig. 1) disclosed a complete obstruction in the pyloric region. None of the barium suspension passed beyond the pylorus. Laparotomy was performed, October 4, by Dr. Lynch. The tumor was situated in the second part of the duodenum, and could not be removed surgically. I inserted radium emanation capillaries throughout the tumor, and then a gastro-enterostomy was performed. November 9, the patient was discharged clinically improved; there was no vomiting, and bowel movements were regular. The patient had gained 4 pounds (1.8 kg.) since the operation. The mass appeared to have receded in size. December 8, the patient was readmitted to the hospital for further study and treatment. He had gained 16 pounds (7.25 kg.) since the operation, and the tumor mass was not palpable. A second laparotomy was performed; the tumor was one fourth of the original size, and very hard in consistency. Again radium emanation capillaries were inserted into the mass, and the wound was closed. December 21, a second roentgen-ray examination disclosed that the barium suspension filled the stomach completely; gastric contents began to empty through a stoma into the jejunum immediately. No other abnormality was noted. Three hours later a very small gastric residue remained; the appearance was such as to suggest that part of the stomach contents was passing along the normal route (Fig. 2 A, A, A).

The essential points in this case are that the whole volume of the tumor shrank considerably and this shrinkage apparently took place also in the depth of the tumor so that the lumen of the duodenum became patent and the original obstruction of the pylorus was partially relieved.

Case 2.—S. F., a man, aged 58, a patient of Dr. Leo Buerger, in December, 1921, began to complain of pain in the epigastrium, and constipation. A mass was felt in the region of the transverse colon, slightly movable. Roentgen-ray examination (Fig. 3) revealed a complete filling defect in the middle of the transverse colon. However, the obstruction apparently was not complete, since the barium passed into the peripheral end of the transverse colon. December 31, a laparotomy was performed by Dr. Buerger. The tumor infiltrated diffusely all the walls of the transverse colon, and the whole mass, which measured about 3 inches long by 2½ inches deep and about 2 inches wide (7.5 by 6.5 by 5 cm.) was firmly bound down to the posterior wall of the peritoneal cavity. The tumor, consequently, was inoperable. I inserted radium emanation capillaries into the tumor, and the wound was closed. The patient left the hospital at the expiration of four weeks, feeling well and having regular bowel movements.

Late in March he was examined again. He felt well, and the tumor was not palpable. March 27, a second laparotomy was performed. The tumor was a third of its original size and freely movable, so that possibly an attempt at a radical removal might have been made. However, since the patient felt well, and there was no evidence of obstruction, it was decided not to undertake a severe surgical interference, but instead a few more radium emanation tubes were inserted into the tumor, and the wound was closed. June 9, roentgen-ray examination revealed a very striking picture. The extent of the filling defect was somewhat diminished, and a new canal formed between the two ends of the transverse colon. Apparently here again the tumor was shrunk in all directions,

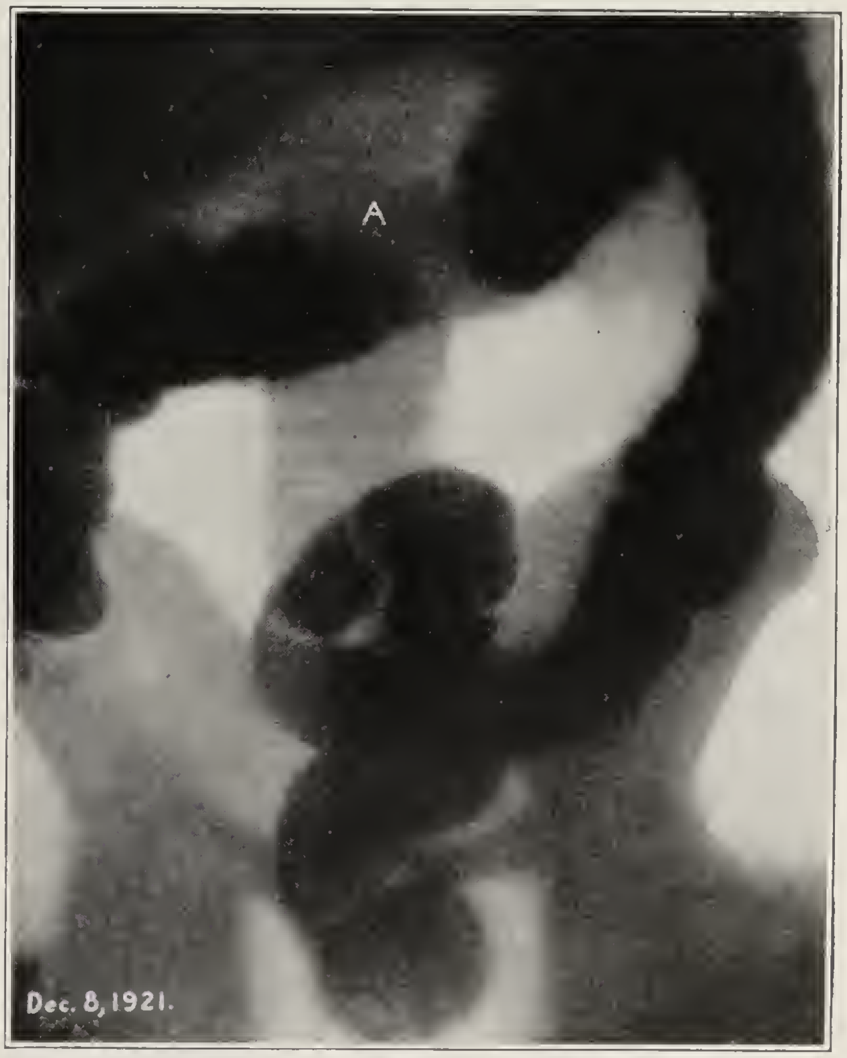

Fig. 3 (Case 2).—Tumor of transverse colon before treatment: *A*, filling defect.

as a result of which a small lumen was formed in the center of the tumor through which the barium emulsion passed. Figure 4 shows the new canal at *A*.

CONCLUSIONS

Both the method itself and the two cases reported are too recent to indicate the final results of this method of radium therapy in cancer. The efficiency of the method, however, is evidenced by the results obtained in these two cases, as well as in several others which will be reported later. The patients make an uneventful recovery, and there is no rise in temperature, and no peritoneal irritation or subsequent sloughing of tissue.

In a word, the insertion of radium emanation does not add in the least to the hazard of the operation. At the same time, the tumors diminish in size considerably. This shrinkage takes place gradually in the course of from six to eight weeks after the operation.

Inoperable carcinoma of the gastro-intestinal tract presents the most hopeless type of cancer. Surface applications of radium alone is ineffectual in the majority of cases. Deep high voltage roentgen-ray therapy does not influence this class of cases, and is followed frequently in my experience, as well as in that of other investigators, by severe cachexia.

Thus the method of intratumoral insertion of radium emanation produces no general deleterious effect on the organism, and at the same time in every instance causes a shrinkage of the tumor mass. The method seems, therefore, to be of great promise, and should be tested by all surgeons and radiotherapeutists who are in a position to obtain the capillary tubes of radium emanation.

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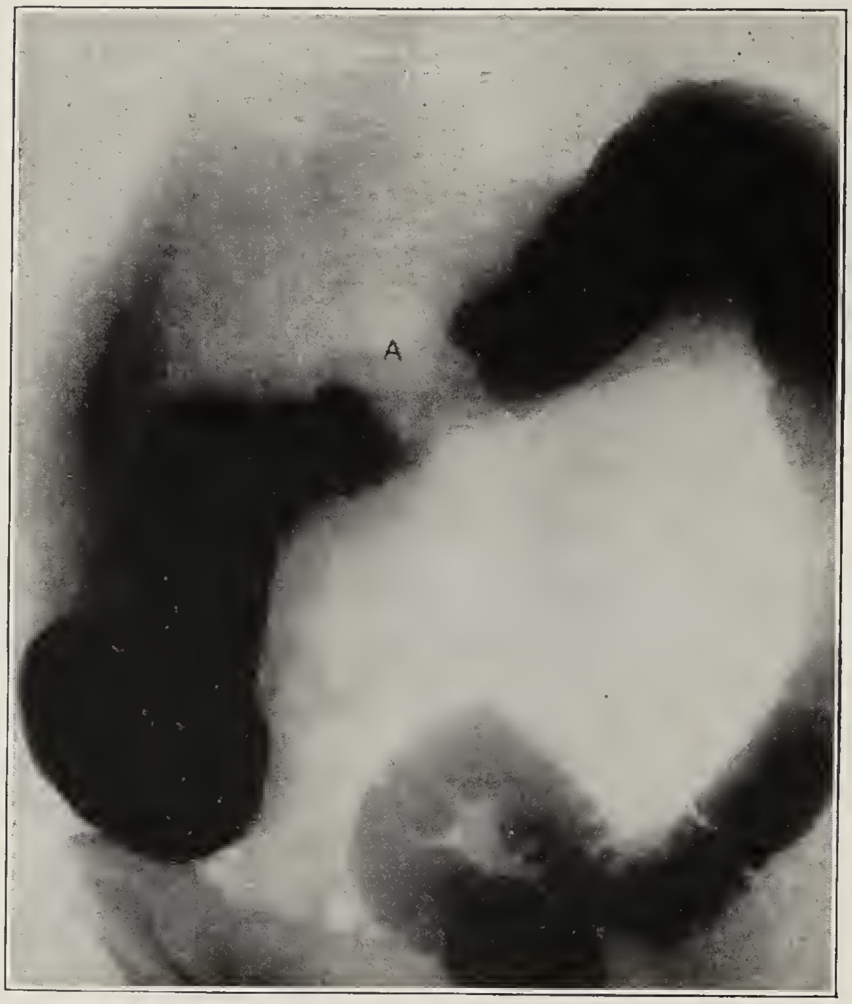

Fig. 4 (Case 2).—Tumor of transverse colon after radium treatment: *A*, new canal formed between the two ends of the colon.

Medical Teaching in Mexico.—For nearly three centuries, medical teaching in Mexico was in charge of the royal protophysicians. These, in addition to supervising public health and the practice of medicine, taught the subjects at the university and examined applicants. This practice lasted until Mexico proclaimed its independence from Spain, when the so-called papal university was closed. In 1823 and 1825 bills providing for the organization of a medical school were passed but no action was taken until a physician, Dr. V. Gómez Farias, became president of the republic and ordered in a decree, dated Oct. 23, 1833, the foundation of the school. This was done on Dec. 4, 1833. Its first head was Dr. Casimiro Licéaga, assisted by a group of twelve professors. The school at first was lodged in convents, but in 1854 the government bought the old building of the Inquisition, which the school still occupies.

TUBERCULOSIS OF THE TESTIS IN A CHILD *

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Whether or not tuberculosis may be primary in the body of the testis has aroused much argument. Hektoen[1] states that "tuberculosis of the testis and epididymis is common, and it may be primary in either organ in the sense that the testis or epididymis may be the first organ in the genito-urinary tract to be affected." It is in this sense that I wish to present briefly the history and pathologic report of a case of tuberculosis of the testis in a child, aged 3 years. The left testis was almost entirely involved in the tuberculous process, while careful examination of the epididymis failed to reveal any lesion.

Tuberculosis of the testis in children presents apparently a somewhat different pathologic condition and pathogenesis from that affecting the adult male.

REPORT OF CASE

History.—M. M., aged 3 years, was brought to the service of Dr. L. E. Schmidt in the Sarah Morris Hospital, Aug. 31, 1920. The mother said that the child suffered from pain and swelling of the scrotum, especially on the left side. The first symptoms occurred one day before entrance to the hospital. The mother said that while bathing the child she observed swelling of the scrotum, and that the child complained so of pain that she was prevented from cleansing the parts. The mother had not been in the habit of bathing the child herself, and, therefore, could not state the exact date of the first appearance of the swelling. However, the child had not complained of pain until the day before he was brought to the hospital.

The child had been delivered normally and was breast fed. His appetite had been poor usually. There had been no painful urination, and the child usually slept well. There was no history of previous illness. The family history was negative, except for the fact that the child's father had been suffering with a chronic cough for the last two years.

Physical Examination.—No positive findings were revealed except swelling of the left half of the scrotum. The skin was slightly erythematous, and the left testis was enlarged to about three and one-half times its normal size. The testis was very sensitive to palpation, and the epididymis was apparently also enlarged.

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* Read before the Chicago Urological Society, May 18, 1922.

* From the Department of Genito-Urinary Surgery and the Nelson Morris Memorial Institute for Medical Research of the Michael Reese Hospital.

[1] Hektoen, Ludvig, and Riesman, David: An American Textbook of Pathology, Philadelphia, 1901.

Laboratory Findings: The white blood corpuscles numbered 13,750; red blood corpuscles, 4,900,000. All other findings in the urine and blood were negative. The roentgen-ray examination of the chest was negative for any evidence of pulmonary or bronchial gland tuberculosis.

Operation.—In view of the findings, it was determined to operate. A high castration of the left testis with the epididymis and as much of the vas as could be reached was performed. There was a small amount of clear hydrocele fluid present. The wound healed by primary union, and the temperature at no time reached above 100.2 F., taken rectally. So far as we can determine, the child has not suffered any extension of the process.

Report of the Pathologist.—Dr. O. T. Schultz, director of the Nelson Morris Memorial Institute for Medical Research, made the following report:

Gross: The specimen is a rounded mass, 3.3 by 2 by 2 cm., with a piece of spermatic cord, 2 cm. long, attached. The surface is smooth and pale. Near the lower pole of the mass is a firm nodular area, and near the upper pole another similar area. The epididymis cannot be distinguished from the body of the testis, externally. On section, the body is uniformly dense, pale and firm, and has lost the appearance of testicular tissue. The epididymis is compressed along one side of the body. In places, it appears somewhat denser than normal, but it is apparently involved to a much slighter degree than the testis.

Microscopic: The tubules of the testis are almost completely replaced by avascular cellular inflammatory tissue composed of fibroblasts and lymphocytes. In this tissue are numerous endothelioid tubercles with large giant cells. In areas, the tubercles are so closely placed that they have fused, forming conglomerate tubercles which are centrally necrotic. In the peripheral portion of the testis, a few groups of tubules can still be recognized. Spermatogenesis is absent. In some of the tubules, the epithelium is separated from the wall. The epididymis is quite sharply demarcated from the testis by a layer of fibrous tissue, which, next to the testis, is infiltrated by lymphocytes. The tubules of the epididymis are normal. The outer layer of the walls of some of them is slightly infiltrated by lymphocytes. The intertubular stroma is somewhat edematous; about some of the vessels is a slight degree of lyphocytic infiltration. The epididymis, in sections from various levels, is entirely free of tubercles, and is not even involved by direct continuity from the markedly involved testis. In sections through the cord, the vas is normal. Moderate edema and slight perivascular lymphoid infiltration are present in the loose tissue about the vas, but tubercles are entirely absent. The tuberculous process is very clearly limited to the testis. Such slight inflammatory reaction as is present in the epididymis and vas is not tuberculous in character, and is apparently wholly secondary to the involvement of the testis.

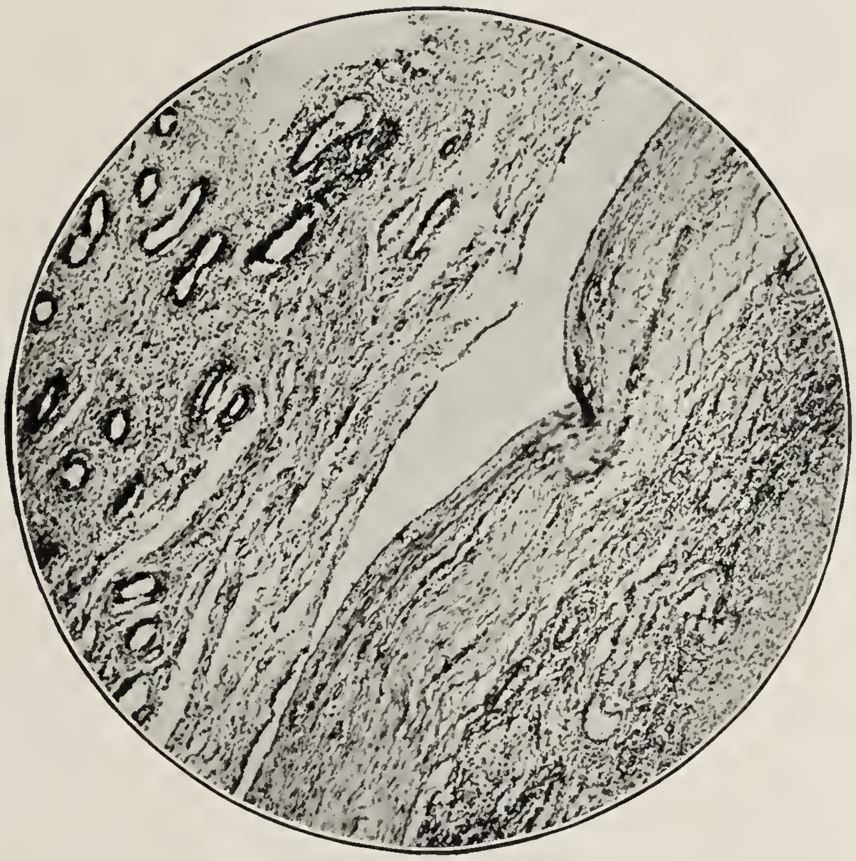
Fig. 1.—Section, showing, in the left upper portion, normal tubules of the epididymis; central portion, inflammatory changes in tunica, no evidence of tuberculous lesions; right lower portion, remnant of testicular tissue, and at periphery, productive tuberculous involvement; slightly reduced from a photomicrograph × 60.

Pathologic Diagnosis: Diffuse productive tuberculosis of the testis.

COMMENT

According to Kocher,[2] in primary tuberculosis of the testis, the entire organ is involved. It appears as a hard body with a relative homogeneous surface in which the normal characteristics of testicular substance are no longer to be seen. Adami[3] says that in adults with tuberculosis of the testis the process begins in the epididymis and involves the testis secondarily, while in children before puberty the reverse is the case. Felizet[4] states that acute tuberculosis of the testis may assume the form of acute hydrocele or acute orchitis.

A further careful search of the literature reveals many cases reported as tuberculosis of the testis which were actually tuberculosis of the epididymis, while the testis was free from lesions.

There has been considerable discussion as to the manner in which the testis is involved by the tubercle bacillus. Kocher said that there were three possibilities: First, that involvement occurred by way of the blood stream; second, that it occurred by way of the mucous surfaces through the urethra; third, that bacilli are present at birth and develop after local trauma. Rokitansky[5] considered the infection to be an ascending one, beginning in the testis. Simmonds,[6] however, states that the spread of the infection is always toward the testis (testipetal), against the current of the secretory stream. Baumgarten[7] differs wholly from Simmonds, saying that the dissemination of tuberculosis in the male genital tract is always in the direction of the physiologic current. In agreement with him also are such authorities as Virchow,[8] Corning,[8] Ranvier,[8] Dufour,[8] Jullien,[9] Weigert,[10] Hueter[11] and Ziegler.[8] In opposition to this view, however, are ranged Cohnheim,[8] Steinthal,[8] Tuffier[8] and Terillon.[8] In view of this diversity of opinion, certain fundamental principles and the results of research on this subject merit discussion.

Clinicians and pathologists of experience will agree that in discussing human pathology the words "always" and "never" should give way to the terms "usually" and "seldom." With this point of view in mind, it appears from careful histopathologic research that either or both processes mentioned may operate in a given case or in a series of cases.

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[2] Kocher, Theodor: Die Krankheiten der männlichen Geschlechtsorgane, Stuttgart, F. Enke **48**, 1887.

[3] Adami, J. G., and McCrae, Thomas: Textbook of Pathology, Philadelphia, Lea & Febiger, 1912.

[4] Felizet: Tuberculose testiculaire chez les enfants, Progrès méd., 1899.

[5] Quoted by Kocher (Footnote 2).

[6] Simmonds: Virchows Arch. f. path. Anat., 1906, p. 183; ibid. 1914, p. 216.

[7] Baumgarten: Experimentelle Untersuchungen über die Histologie der Hodentuberculose, Verhandl. d. deutsch. path. Gesellsch., 1901, p. 91. Baumgarten and Kroner: Experimentelle Studien über Histogenese und Ausbreitung der Urogenital-Tuberculose, Tübingen **5**, 1906.

[8] Quoted by Sussig: Deutsch. Ztschr. f. Chir. **165**: 101 (July) 1921.

[9] Jullien: De la tuberculose testiculaire Arch. gén. de méd., April, 1890.

[10] Weigert: Virchows Arch. f. path. Anat. **88**: 307, 1882.

[11] Hueter: Ausbreitung der Tuberculose in männlichen urogenital System, Beitr. z. path. Anat. u. Physiol. **35**, 1904.

Until 1921 all reports in the literature, as far as I have been able to determine, have dealt with well advanced clinical cases or cases coming to necropsy. In this connection, Strümpell [12] remarks, "In cases coming to necropsy the tuberculous lesions are usually so widespread that the location of the very beginning of the process cannot be definitely determined." The work of Sussig, who laboriously examined between 150,000 and 180,000 serial sections of the male genital tracts of thirty patients dying of acute tuberculosis, none of whom showed gross lesions of the seminal tract, deserves especial attention. Twenty of the thirty cases examined were entirely negative microscopically, as far as lesions in the genital tract were concerned. His findings of microscopic lesions in the ten positive cases demonstrate conclusively that early hematogenous tuberculosis of the genital tract possesses a marked tendency to attack blood vessels first. In 60 per cent. of the early cases definite vascular involvement occurs. Sussig's work also definitely demonstrates that no single organ in the male genital tract is solely the site of predilection for the primary focus of tuberculosis in the tract, but rather that tuberculosis can and does attack every organ in the genital tract and can produce any possible combination of organs involved. This, as I shall try to show later, is extremely important from the prognostic as well as the therapeutic point of view.

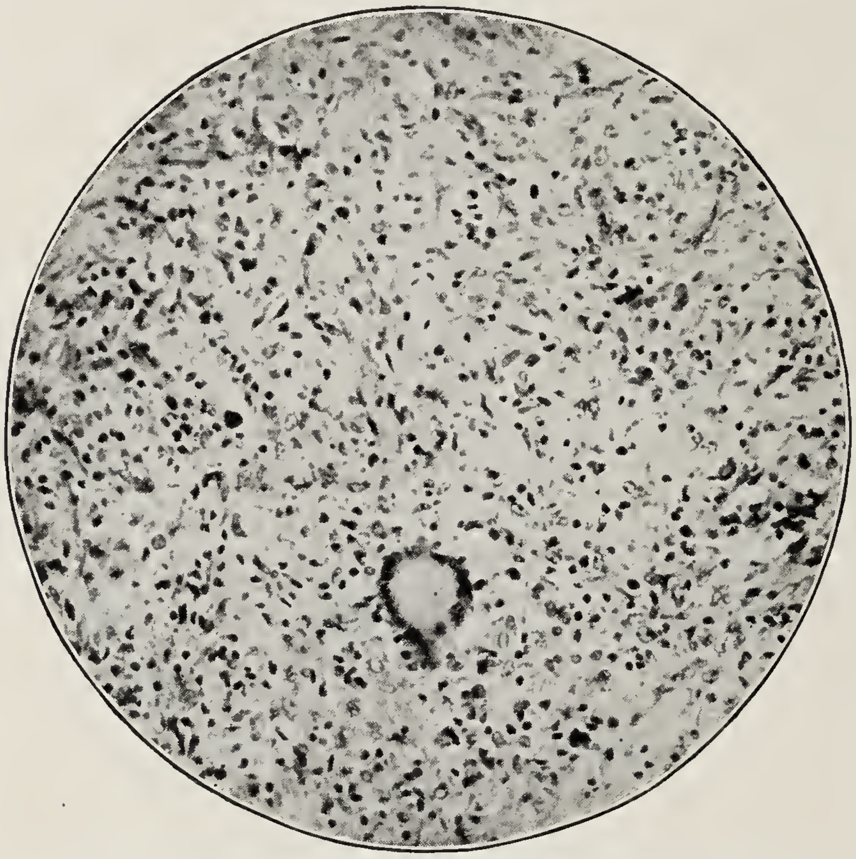

Fig. 2.—Productive tuberculosis involving practically the entire testis; characteristic giant cell in center of endothelioid tubercles; slightly reduced from a photomicrograph × 230.

The ten positive cases show the following organs involved: Case 1, epididymis; Case 2, testis and seminal vesicle; Case 3, left spermatic vein; Case 6, seminal vesicle; Case 7, testicle, seminal vesicle, epididymis and spermatic plexus; Case 9, testis, seminal vesicle and prostate; Case 11, epididymis, seminal vesicle, prostate and vas deferens; Case 12, epididymis, seminal vesicle; Case 13, prostate, and Case 14, prostate.

Thus it will be noted that the primary microscopic lesions in the genito-urinary tract were multiple in most of the cases. In four of the cases it was single. Twice the solitary focus was in the prostate, once each in the left spermatic vein and in the seminal vesicle. In 70 per cent. of the cases a primary microscopic focus was present in the seminal vesicle, in 50 per cent. in the epididymis, and in 30 per cent. in the testis.

Usually the testis is involved secondarily from the epididymis, but not invariably. This fact has been denied chiefly in the American literature on the subject. The case reported is evidence of this fact, as is also Sussig's case in an 11-weeks old infant in whom the testis was involved, whereas in serial section of the epididymis, no tubercles were found. The tubercles in the testis were all in the interstitial tissue and invariably about a blood vessel. A tubercle which was followed in serial section could be seen attacking first the wall of the blood vessel and eventually breaking into the lumen of a tubule. Hutinel and Deschamps [14] have reported examinations of tuberculous testes in children in whom they saw the lesions begin along the blood vessels, and they believe that it is possible for bacilli coming from without, by the respiratory or digestive route, to reach the testicle by way of the blood stream without coming from a primary focus existing in the body. This opinion as a whole has not, of course, been substantiated, and I believe that in most cases a primary focus exists outside the genito-urinary tract. Lecène [15] reports a case of an isolated tuberculous focus in the epididymis in which the lesions were confined to the outer walls of the tubules and in no instance involved the mucosa, thus confirming the observations of Sussig and Deschamps and Hutinel.

Reclus [5] reported three cases of tuberculosis of the testis in which the epididymides were not involved. Collinet,[5] out of forty-one cases, reported nine in which the epididymides were not involved. Kocher [2] said that after carefully examining material obtained at necropsy he believed there are cases in which tuberculosis of the testis remains the only tuberculous change until death. Koenig [16] said that tuberculosis of the testis may remain in loco, but that it need not do so. Shaw [17] reports the case of a man, aged 26, with a large caseating nodule in the right testis, centrally situated, in whom the epididymis, cord and tunica were normal. The left testis was normal. However, the left epididymis was the site of advanced tuberculous changes. These findings speak very strongly for a hematogenous infection and against dissemination by the mucous surfaces. Barling [18] reports the case of a patient, aged 31, similar to the one reported herein, in which there was bilateral acute tuberculosis of the testes, and the epididymides were free from lesions. Trauma preceded the swelling of the testes.

Legueu [19] states that the epididymis is always involved first, and that the testis is secondarily infected by extension along the mucous surfaces. This point of view is contradicted by Lecène,[15] who remarks that all of Legueu's conclusions are open to attack. MacFarland Walker [20] says that in all his cases the earliest signs were demonstrable in the lower pole of the epididymis and explained this by stating that the fact "that the lower pole of the epididymis should be the commonest site is only to be expected if the tuberculous infection is a descending one." This view may be discarded in the light of more recent observations and histopathologic research.

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[12] Strümpell, Adolf: Lehrbuch der speciellen Pathologie und Therapie der inneren Krankheiten, Ed. 16, Leipzig, F. C. W. Vogel, 1907.

[13] Sussig: Deutsch. Ztschr. f. Chir. **165**: 101 (July) 1921.

[14] Hutinel and Deschamps: Arch. gén. de méd. 1891.

[15] Lecène: Bull. Soc. anat. de Paris **81**: 479, 1906.

[16] Koenig René: Beitrag zum Studium der Hodentuberculose, Deutsch. Ztschr. f. Chir. **18**, 1898.

[17] Shaw, J. B.: Tuberculous Testes Following an Attack of Measles, Brit. M. J. **1**: 1586, 1898.

[18] Barling, G.: Double Acute Tuberculosis of the Testis, Lancet, 1892, p. 864; ibid., 1892, p. 800.

[19] Legueu: Traité chirurgicale d'urologie, 1910.

[20] Walker, MacFarland: Lancet **1**: 435 (Feb. 15) 1913.

Keyes [21] states that testicular tuberculosis is never an isolated lesion. In a recent article, Young [22] says, "These statistics show conclusively the absence of isolated testicular tuberculosis and the rarity of testicular involvement when the epididymides are extensively involved." Further in the article he states that "it is probably erroneous to suppose that primary tuberculosis of the epididymis often occurs. It probably seldom occurs through blood stream infections, as is so often asserted. The seminal vesicles are not only the primary focus from which the epididymides are involved, but from which also the prostate, bladder and the kidneys in many cases are involved." He is undoubtedly correct in many of the conclusions expressed in his article, especially in showing that tuberculosis of the adult testis or epididymis is often but a part of the pathologic change present. In the statement that blood stream infection is rare, I cannot concur; nor can I in the view that the testis and epididymis seldom represent the primary focus of the disease. It is undoubtedly true that the seminal vesicles present the most frequent site of primary foci in the seminal tract; but when it is borne in mind that the earliest microscopic evidence discloses the primary focus to be multicentric in 60 per cent. of the cases and that the frequency of earliest foci in the seminal vesicles, epididymides and testes are represented by the figures seven, five and three, respectively, it is apparent that the testis and epididymis together are more frequently the site of the primary focus than the seminal vesicle.

CONCLUSIONS

1. Tuberculosis of the testis may be primary and even solitary as far as the genito-urinary tract is involved.

2. The infection when primary in the testis is hematogenic and first involves the blood vessel walls, later breaking into the lumen of the tubules.

3. Infection via the mucous surfaces is possible in the chronic type of the disease but not the only method of dissemination.

4. Acute hematogenous tuberculosis of the testis involves the entire gland, owing probably to the rich anastomoses of the peculiar blood supply of the organ.

5. Tuberculosis of the male genital tract is more often primarily multicentric than single.

6. Tuberculosis may affect the testis on one side and the epididymis or seminal vesicle on the opposite side.

7. Tuberculosis of the testis is usually, in the adult, secondarily involved by extension from the epididymis. In children the reverse is true.

8. Surgical removal of a tuberculous testis is indicated in acute infections of the gland if there is no evidence of other tuberculous foci. The disease may be localized there.

9. Unilateral radical removal of the seminal tract is not indicated because involvement of contralateral organs is not infrequent in the disease, while corresponding organs may be free.

10. General hygienic care and upbuilding of the patient, as advised by Thompson Walker [23] in the treatment of chronic cases, is rational.

11. The roentgen ray offers the hope for cure in many cases of the chronic type, as recent reports indicate.

A SCARLET FEVER EPIDEMIC IN AN AGRICULTURAL SCHOOL *

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In February, March and April of 1922, fifty-nine of the 840 students of the agricultural school of the University of Minnesota contracted scarlet fever. At this university, the powers and the responsibilities of health officer and of practitioner of medicine are vested in one organization—the Students' Health Service. This dual interest makes possible careful studies by one institution both of epidemiologic conditions and of clinical cases. Such studies, made of the scarlet fever epidemic, are epitomized in this article.

ENVIRONMENTAL CONDITIONS

The school of agriculture admits as regular students boys and girls who have completed eighth grade work or its equivalent; and as special students, men and women of mature years. Exclusive of the 262 ex-service men who were here receiving vocational training, most of the students came from rural communities, 59 per cent. of them living in places of less than 100 population. This gave a group of boys and girls most of whom were between 16 and 25 years of age, with presumably very little immunity to the usual contagious diseases of childhood. At the school, 36 per cent. of these students lived in dormitories, and 40 per cent. took their meals in a common dining hall. Most of the others rented rooms near the campus, and took their meals at restaurants or boarding houses. The conditions here closely paralleled those in certain of our national Army camps, where the more common contagious diseases took a high toll both in morbidity and mortality. A review of the history of the university shows that in this school, as in no other part of the institution, have frequent and extensive epidemics of contagious diseases occurred.

THE OUTBREAK AND COURSE OF THE EPIDEMIC

During the winter of 1921-1922, there were many cases of scarlet fever in the Twin Cities, and, in November and December, three university students were sent to the hospital with this disease. It was not, however, until January 25 that scarlet fever made its first appearance in the school of agriculture. A girl, aged 18, was the first victim. She knew of no exposure to scarlet fever; but she had spent the week-end, before being taken sick, at her home, returning to school one day before the development of her first symptoms. As to the source of her infection, one can only speculate; but, as there were no other patients at the school and except for her trip home she had remained on the campus, it seems probable that she was exposed during her trip. This girl was isolated immediately on her reporting to the health service. Her closest associates, although not isolated, were inspected daily for evidences of infection. In spite of the fact that this girl had been living in a dormitory, there was, during the epidemic, only one other case from any of the girls' dormitories, and that one developed more than a month later.

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[21] Keyes, E. L., Jr.: Ann. Surg. **45**: 918, 1907.

[22] Young, H. H.: The Radical Cure of Tuberculosis of the Seminal Tract, Arch. Surg. **4**: 334 (March) 1922.

[23] Walker, Thompson: Surgical Diseases and Injuries of the Genito-Urinary Organs, London, Cassell & Co., 1914.

* From the Students' Health Service, University of Minnesota.

A boy, aged 17, was the second victim, his first symptoms appearing January 31. On the evening of January 24, he had taken a walk with Miss W—, the first patient, who at this time had a beginning sore throat. There was no other known exposure. As the onset was sudden and severe, the patient reported immediately to the health service, and was placed in isolation. The rash appeared on the following day, the second day of the disease.

The third patient came from one of the boys' dormitories. The first symptoms appeared, February 1. On the following morning, he reported to the dispensary, and was isolated. His rash appeared two days later. From this time on, new cases appeared, at the rate of from one case in three days to four cases in a day.

The course of the epidemic in three-day periods is shown in Chart 1.

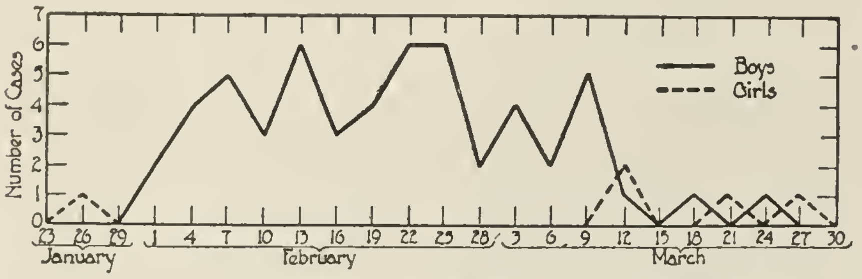

Chart 1.—Incidence curve of epidemic in three-day periods.

PREVENTIVE MEASURES

The preventive measures which were put into effect by the health service may be briefly outlined as follows:

1. Reduction of direct contact by (*a*) prompt isolation of all patients and of students in whom suspected cases were developing; (*b*) isolation for seven days of all students directly exposed to a scarlet fever patient before his isolation; (*c*) daily throat inspections, the throats of all students being examined daily over a period of thirty-eight days; (*d*) the prohibition of all gatherings of large groups of students, such as parties, dances and assemblies; (*e*) the closing of the gymnasium and swimming pool; (*f*) the separation in the dining hall of boys and girls; (*g*) the education of the student body by means of bulletins and public addresses concerning the early symptoms of scarlet fever, the usual method of transmission and the necessity for reporting to the dispensary on the very earliest appearance of symptoms.

2. Reduction of indirect contact by (*a*) the supervision of the dishwashing process and directing that live steam be turned on all dishes before they were removed from the machine; (*b*) the adoption of paper napkins, which were burned after use; (*c*) the collection and sterilization of all clothing and bed clothing from the rooms of all patients having scarlet fever, immediately after diagnosis.

3. Precautions against return cases by (*a*) quarantine in the hospital of all patients for a minimum of twenty-eight days; (*b*) holding all patients until the mucous membranes of the nose and throat seemed normal; (*c*) exclusion of all patients from classes and dormitories for one week after release from hospital.

Those measures apparently kept the disease limited to the school students, not affecting the college of agriculture, and to the boys within the school. Among them, however, a new case continued to appear every few days, so that, February 28, the radical procedure of isolating all students with reddened throats was resorted to. Previous to this time, at the daily inspections, all students with suspicious signs or symptoms were picked out of line; their temperatures were taken, and they were thoroughly examined and either isolated or kept under close observation. After this date, however, the examiners at the daily inspections picked out of line all students whose tonsils or pharyngeal walls appeared at all injected. Those who lived at home were instructed to remain there for from three to five days, during which time they were advised either to consult a private physician or to come daily to the dispensary for examination. Those who lived in the dormitories were isolated in the large gymnasium, cots being provided and placed well apart. Isolation within this group was not perfect, but with the large floor area and air space, close contact was infinitely less than in the dormitories. If any of these students developed a fever or definitely suspicious symptoms, they were removed from the gymnasium and placed in solitary isolation. This extensive isolation was begun on February 28, and continued until March 7, at which time the epidemic appeared to be at an end. After this date, only three persons developed the disease; one was a school girl, one a school boy and one a dining hall maid.

As to whether, without this extensive isolation, the epidemic would have ceased at this time one cannot say. However, up to March 6, the date after which the most marked drop in the incidence curve occurred, there had been fifty-two cases, over a period of six weeks. This was an incidence of 6.2 per cent. The health records of the general student body were at this time not sufficiently complete to give accurate information as to the percentage of immunes and susceptibles in the group. It does not seem likely, however, that in such a student body 6.2 per cent. of the total number would represent anywhere near the proportion of nonimmunes. If this assumption is correct, it is probable that the striking relationship, as shown in Chart 2, between the number of students in isolation and the incidence of new cases is more than a coincidence.

The "known exposures," which are shown in the third curve in Chart 2, represent the unisolated students who were showing some symptoms. Their number on each day was computed by determining the number of students who, when they later developed scarlet fever, stated that on that particular day they had had some symptoms. Of our patients, 70 per cent. were isolated before the rash appeared. Of the other 30 per cent., practically all were isolated immediately on the appearance of the rash, only five patients remaining unisolated as long as twelve hours. Hence, our "known exposures" represent for the most part cases which were showing only the very earliest of symptoms. Concerning the importance of such cases in the transmission of the disease, there is considerable difference of opinion. Rosenau[1] writes, "It is commonly stated that scarlet fever is not contagious during the period of incubation; little, if any, during the period of invasion, and most contagious during the period of eruption." Forchheimer[2] is still more emphatic when he says that "in a large experience with scarlet fever, the author has never seen a second case arise from exposure to the patient during the preeruptive stage. Indeed, it is his experience that the disease is not very contagious even during the first day of eruption." Griffith,[3] on the other hand, believes that the period of infectivity undoubtedly commences on the appearance of the first symptoms or even before. In this epidemic, as Chart 2 shows, the coincident drop in cases and "known exposures," when extensive isolation was begun, is suggestive as well as interesting.

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[1] Rosenau, M. J.: Preventive Medicine and Hygiene, New York, D. Appleton & Co., 1922, p. 230.

TRANSMISSION

Against the older belief that the epidermal scales make up the chief source of infection in scarlet fever, so much evidence has been produced that the theory is now generally rejected, and today authorities agree that the discharges of the nose, throat and ears contain the virus and are most important in the spread of the disease. But as to whether this transmission is more frequently direct or indirect, there is considerable difference of opinion. Kobrak,[4] after a careful investigation of eight cases, was convinced that the disease is usually transmitted directly and that fomites are relatively unimportant. One argument which he offers in support of this belief is that, in fifty homes quarantined for scarlet fever where maids cared for the rooms but did not come in contact with the patients, not one of the maids developed the disease. He believes further that mild, unisolated cases are responsible for most exposure. On the other hand, Victor C. Vaughan[5] writes that "until we have some evidence to the contrary, we must continue to believe that scarlet fever is disseminated largely by fomites."

In addition to the transmission by fomites and by actual cases of the disease, the possibility of the transmission by carriers must be considered. Chapin,[6] in a study of the scarlet fever in Massachusetts from 1855 to 1916, concludes that the most frequent sources of infection are mild, missed cases, but that carriers are also probably of importance. Mironesco[7] reports experiences which convince him that, during an epidemic of scarlet fever, certain patients who show only a moderately sore throat may spread the infection. Chesley,[8] in discussing the control of scarlet fever, states that he believes that immunes may become carriers, and that, in attempting to control an epidemic, one must search for these carriers.

In the epidemic under consideration, all but 30 per cent. of the patients were placed in isolation before the rash developed, and not one was at liberty for more than twenty hours after the rash appeared. Desquamation had not commenced in any before isolation. All students with tonsillitis, or acute pharyngitis, were also isolated and observed for from seven to twenty days. Such isolation certainly should have removed from the community the atypical as well as the typical cases. Sixty-six roommates of scarlet fever patients were more or less intimately exposed. Of this number only one, or 1.5 per cent., developed the disease. For six and a half weeks during the epidemic, no girl contracted the disease, although the girls and boys associated in the dining room, in class rooms and in corridors. In only fifteen of the total of fifty-nine cases could definite evidence of previous exposure to known cases be obtained.

As to the means of transmission, there is in our epidemiologic study much apparently conflicting evidence. In some instances, the infection seems very definitely to have been spread by direct contact. In a few others, fomites seem to have been the only possible means of transmission. Most notable among this group is that of a maid in the dining hall, who contracted the disease as Case 55. Direct exposure could quite satisfactorily be ruled out. One of this maid's duties in the dining hall, however, was to collect and burn the paper napkins after each meal. At first, she carefully followed instructions; but afterward she admitted that toward the end of the epidemic she became careless about the washing of her hands after performing this duty. On March 12, she developed a mild but typical case of scarlet fever. In addition to those students who seem quite clearly to have been infected either directly or by means of fomites, 74 per cent. of our patients gave no history of close exposure, either direct or indirect, to known cases. This leads us to suspect that we were dealing with carriers, possibly themselves entirely normal but more probably with a mild atypical pharyngitis or tonsillitis. It was with this in mind that the extensive isolation of all students with "red throats" was determined on. The drop in the epidemic coincident with this isolation seems to be some evidence in favor of the conjecture.[9]

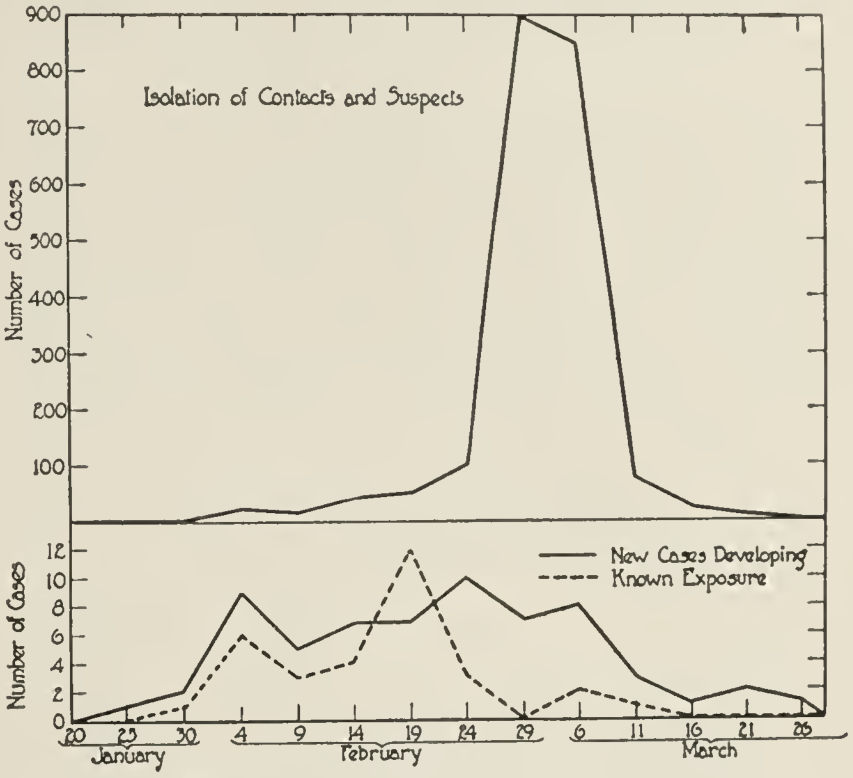

Chart 2.—Relation of incidence, isolation and known exposure. The points on the curves show the totals for five-day periods, of which the date indicated is the third day.

THE EPIDEMIC AND THE HEALTH OF THE STATE

When an epidemic of contagious disease occurs in an institution in which are found students from rural communities and from towns widely scattered, one cannot but consider the possible effects of the epidemic on the health of the state as a whole. In this instance, there was already established an organization which provided for the patients' immediate isolation and medical and hospital care, and for the rest of the community general and epidemiologic supervision. This made possible the prompt hospitalization of all who contracted the disease, provided for the early inauguration of control measures, formed the basis for a certain sense of security on the part of not only the students but also the faculty, and prohibited any students from returning to their homes until the epidemic was at an end. Suppose, as was suggested by Dr. A. J. Chesley,[10] executive officer of the Minnesota State Board of Health, the university had made no provision for an emergency of this kind, what would have happened? Possibly some of the students would not have received the prompt hospitalization that they needed; possibly some would have become panic stricken and returned to their homes; or possibly the school would have been closed and the students scattered broadcast over the state. As soon as the students had left the institution, they—the carriers, those in the incubation period of the disease, and the well alike—would have come in contact with age groups much more highly susceptible than themselves. Both en route and at their homes, they would have exposed children, among whom not only the morbidity but also the mortality rate is much higher than it is among young adults. The figures presented in Table 1 will illustrate the greater danger to the health of the state as a whole which would have resulted from any method of handling the epidemic which involved permitting the students to return to their homes.

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[2] Forchheimer, F.: Twentieth Century Practice of Medicine, New York, William Wood & Co. **14**: 13,1898.

[3] Griffith, G. P. C., in Forchheimer: Therapeusis of Internal Diseases, New York, D. Appleton & Co., 1914, p. 17.

[4] Kobrak, E.: Beitrage Zur Kenntnis des Austeckungswege des Scharlachs, Ztschr. f. Kinderh. **26**: 150 (April 16) 1920.

[5] Vaughan, V. C.: Epidemiology and Public Health, St. Louis, C. V. Mosby Co. **1**: 259, 1922.

[6] Chapin, C. V.: Scarlet Fever, Boston M. & S. J. **175**: 715 (March 16) 1916.

[7] Mironesco, T.: Angine et Scarlatine, Presse méd. **29**: 176 (March 2) 1921.

[8] Chesley, A. J.: The Control of Scarlet Fever, Am. J. Pub. Health **6**: 234 (March) 1916.

[9] For a more detailed epidemiologic study, the reader is referred to another article which is being prepared.

TABLE 1. — MORBIDITY AND MORTALITY OF SCARLET FEVER IN MINNESOTA IN 1921 *

	Number of Cases	Fatality Rate Per Cent.
Total	6,588	2.9
Age unknown	220	0.0
Under 1 year	40	27.5
1 to 2 years	107	12.1
2 to 3 years	257	9.7
3 to 4 years	368	3.5
4 to 5 years	363	3.6
Total under 5 years	1,235	6.3
5 to 9 years	2,585	2.1
10 to 14 years	1,262	1.6
15 to 19 years	569	2.5
20 to 24 years	334	2.4
25 to 34 years	288	4.2
35 to 44 years	72	4.2
45 to 54 years	21	4.8
55 to 64 years	1	0.0
65 and over	1	0.0

* Report of Division of Preventable Diseases, State Board of Health, Scarlet Fever During 1921 in the State of Minnesota.

CLINICAL NOTES

Initial Symptoms.—Among these fifty-nine scarlet fever cases, we found practically every mode of onset which has ever been described: 15 per cent. were typical, with acute tonsillitis, vomiting, "strawberry" tongue, general malaise, fever and tachycardia; in 18 per cent., there was only a moderately severe tonsillitis with a low-grade fever; in 20 per cent., there was vomiting; in 51 per cent., a so-called early "strawberry" tongue was noted; that is, a tongue brighter red than normal, with very prominent papillae. At some time during the disease, 86 per cent. of the patients had "sore throat," while 6 per cent. had no subjective symptoms whatsoever before the rash appeared.

Fever.—In most instances, the fever was between 100 and 103 F. for the first four to seven days, after which it gradually dropped to normal. One patient, Case 55, with an extensive rash, had fever only two days, one day 99 and the other 99.2 F. Other subjective symptoms were absent. In another patient, Case 16, the temperature reached 104.4 F. on the third day, and continued above normal for seventeen days.

Rashes.—In most cases, the rash was typical; but in two cases it was so transient that it was noted only once; while in three cases which had all the other clinical symptoms including desquamation, a rash was never seen either by the patient or by the physician. Table 2 will show the interval between the onset of first symptoms and the appearance of the rash.

TABLE 2.—INTERVAL BETWEEN ONSET OF FIRST SYMPTOMS AND APPEARANCE OF THE RASH

Day	Cases	Percentage
First	5	8.5
Second	34	57.8
Third	10	16.9
Fourth	2	3.3
Fifth	1	1.7
Sixth	2	3.3
Seventh	1	1.7
Nineteenth	1	1.7
No rash observed	3	5.1

Delayed Rash.—Case 47 presented such an unusual picture of a delayed rash that it is worth recording briefly.

Case 47.—The patient was admitted to observation, February 26, complaining of "fever." The clinical notes on admission state that "the pharynx and palate are moderately injected; the tongue is very suspicious; skin shows no rash. Hold for desquamation." The temperature was 102 F., the pulse 116. Subjective symptoms subsided, and the temperature was normal on the fourth and fifth days. The "strawberry" tongue and adenitis persisted, and the pulse continued rapid, so observation was continued. From the sixth to the twelfth day, the temperature again rose, reaching 103 F. on the eighth day; but still no rash appeared. On the tenth and eleventh days, there was evidence of a right otitis media, and, on the twelfth day, spontaneous perforation of the drum occurred. From the twelfth to the nineteenth day, the temperature was normal, but the pulse rapid, for several days not going below 120. On the nineteenth day, with a clear tongue and no subjective symptoms, a typical and extensive scarlatinal rash appeared. The temperature, which at this time was 99.4 F., gradually became progressively lower, staying below 98.6 F. after the twenty-fourth day. Desquamation, which was typical, commenced coincidently with the appearance of the rash. Convalescence was normal and rapid.

From the time of admission, it was thought that this boy had scarlet fever, but observation was continued, and no diagnosis was made until the rash appeared. He seems either to have had a delayed rash, or possibly a relapse with a second rash. Mut[11] reports a somewhat similar case in a child of 4, in whom the rash did not appear until the end of the third week.

Leukocytosis.—From 8,600 to 19,500 leukocytes were present in all cases in which counts were made. The presence of leukocytosis was one of the points considered in differentiating atypical scarlet fever from the influenza which was occurring at the same time, the latter disease showing either a leukopenia or an absence of leukocytosis.

Desquamation.—Two of our patients showed beginning desquamation on the fourth day of the rash. At the end of four weeks, our minimum period of quarantine, desquamation was complete in 66 per cent. of our patients, exclusive of those who were held longer in quarantine on account of complications. Eight per cent. with completed desquamation were held longer because of inflamed mucous membranes of the nose and throat; 29 per cent. with uncompleted desquamation were released from quarantine on the twenty-eighth day, on the basis of normal ears, noses and throats; 5 per cent. had neither completed desquamation nor normal appearing mucous membranes of the nose and throat at the end of the four-week period.

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[10] Chesley, A. J.: Personal communication to the authors.

[11] Mut, J.: Tardy Eruption in Scarlet Fever, Arch. Espan de Pediat. 3: 666 (Nov.) 1919; abstr. J. A. M. A. **74**: 834 (March 20) 1920.

RETURN CASES

Two of our patients apparently were infected by students who had been released from quarantine. One victim was a girl who had danced with a boy the day after he had been released from quarantine. His attending the dance was contrary to instructions; for after release no student was allowed to attend student gatherings for a period of one week. The other victim was a boy who, also contrary to instructions, entertained in his room a friend who had just been discharged from the hospital. Both boys, who apparently carried the infection, had had cervical adenitis. The one was released on the twenty-eighth day with completed desquamation and normal mucous membranes. The other was held thirty-three days because of an inflamed pharynx. On discharge, desquamation was "practically complete." It seemed in this epidemic that the completion of desquamation bore no relationship to the infectivity of the patient.

SECOND ATTACKS

Of our fifty-nine patients, two gave a very definite history of a previous attack of scarlet fever. One had had the disease at the same time that a brother and sister had had it; while the other, although the only ill one in the family at the time, had been quarantined for scarlet fever and gave a history of a definite rash and desquamation. This is a definitely higher percentage of second attacks than is recorded by most writers. Vaughan [12] says that "second attacks of scarlet fever are rare."

RELAPSES

In addition to the patient in Case 47, whose clinical course is reported in detail above, as a probable instance of delayed rash, but who might possibly have had a relapse, the first rash having been so fleeting that it was never observed, there was one other boy in whom a relapse certainly occurred. While convalescing from a moderately severe first attack, this patient on the thirtieth day developed another typical and more severe attack of the disease. An abstract of the case follows:

Case 30.—A boy, aged 17, was admitted, February 20, complaining of sore throat, headache, and backache. The temperature was 99.4 F., the pulse 100. The following day the temperature was 103.8 F., and all symptoms were aggravated. The condition of the tongue and pharynx was suspicious on admission. On the third day, the pharynx and palate showed the usual bright injection, and, on the fourth day, the tongue was described as being "typical red strawberry." The rash which appeared on the second day was not extensive, and persisted only one day. Desquamation began on the sixth day and was moderately extensive. An afternoon temperature of from 99 to 104 F. persisted until the twenty-first day. There were no complications at this time except a purulent nasal discharge.

On the thirtieth day, the temperature, which had been normal for ten days, was 99.2 F., and the following day, 102.2 F. The patient complained of general malaise and sore throat. The throat and tongue were typical of scarlet fever, and the following day a most pronounced rash appeared. Desquamation, which was continuous from the first attack, persisted until the sixtieth day. Cervical adenitis was moderate with this second attack. The urine was normal throughout, and convalescence was uneventful, the patient being discharged on the sixty-first day.

Instances such as this one, although not frequent, are reported in the literature. Holt [13] speaks of true relapses in which there are a second eruption, a rise of temperature, sore throat and the other usual symptoms. McCollum and Place [14] report fifteen relapses in 5,000 cases of scarlet fever. Five of these patients had a second relapse. Ludy, Hunt and Cogswell,[15] in an army hospital, noted three relapses in 500 cases. Hutinel and Nadal,[16] in a study of seven patients who had relapses between the thirteenth and thirty-ninth days, concluded that, in each case, there occurred some coincident infection which probably interfered with the immunity process. No such secondary infection was observed in our patients.

COMPLICATIONS

Epistaxis.—Although usually considered a complication, epistaxis was so frequent in our series that we came almost to consider it a symptom. It occurred in twelve patients, or 20 per cent., usually began about the second day, and was quite severe for from two to ten days. No ill effects could be attributed to it.

Cervical Adenitis.—This occurred thirty-two times, affecting 55 per cent. of the patients. About half of these complained of associated pain, but in none was there suppuration or protracted tenderness.

Acute Purulent Rhinitis.—Fifteen of our patients had a very severe infection of the nasopharynx, and in several the infection extended to the accessory nasal sinuses. All of these cases were severe and prolonged.

Orbital Cellulitis.—During the epidemic, two boys, definitely exposed to scarlet fever, developed very virulent infections of the tonsils, nasopharynx and ethmoid sinuses. Clinically, except for the absence of a rash and desquamation, both cases resembled scarlet fever. The onset was acute in each instance, and the fever was high, the pulse rapid, the tongue suspicious and the pharynx quite typical; and in one emesis was present. On the sixth day, each patient showed signs of a most acute purulent infection of the nasopharynx and accessory sinuses. From the ethmoid sinuses, the inflammation extended into the orbits, and each developed an extremely acute bilateral orbital cellulitis. Both were in a critical condition for several days, during which time they showed exophthalmos, local cyanosis, tenderness and extreme edema of the eyelids and forehead. Although neither rash nor desquamation was observed at any time, these boys were held in isolation until all nasal discharge had ceased.

Laryngitis.—Welch and Schamberg [17] speak of laryngitis as a rare complication, and one which occurs with a severe gangrenous angina. In this epidemic laryngitis, as evidenced by a very decided hoarseness or complete loss of the voice, occurred four times.

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[12] Vaughan, V. C.: Epidemiology and Public Health, St. Louis, C. V. Mosby Company **1**: 269, 1922.

[13] Holt, L. E.: Diseases of Infancy and Childhood, New York, D. Appleton & Co., 1916, p. 962.

[14] McCollum, J. H., and Place, E. H., in Osler and McRae: Modern Medicine, Philadelphia, Lea & Febiger **1**: 356, 1914.

[15] Ludy, J. B.; Hunt, E. J., and Cogswell, L. H: Observations on Five Hundred Cases of Scarlet Fever, Mil. Surgeon **45**: 414 (Oct.) 1919.

[16] Hutinel, V., and Nadal, M. L.: A propos des rechutes et des recidives de la scarlatina, Arch. de méd. d. enf. **24**: 471 (Aug.) 1921.

[17] Welch, W. M., and Schamberg, J. F.: Acute Contagious Diseases, New York, Lea Brothers & Co., 1904, p. 381.

Three of these patients had a severe angina with cervical adenitis, while the other had a rather mild attack.

Otitis Media.—This common complication was noted in nine patients, 15 per cent. of the total. In only three was it suppurative.

Mastoiditis.—This condition did not occur in any of our cases which were frankly scarlet fever. One boy, however, who was for a time held in isolation because of a mild tonsillitis with a suppurative otitis media, developed, seven days after release, a septic temperature, general malaise, dizziness and vomiting. The right ear showed a discharge of thick, creamy pus. There was no pain, and physical examination revealed nothing else of importance. His afternoon temperature varied from 101.4 to 104.8 F. Leukocyte counts were from 12,600 to 20,000. The urine showed albumin, casts and leukocytes. There was no tenderness over the mastoid, and the infection in the middle ear was apparently subsiding. Blood cultures were at first negative, but later positive, for *Streptococcus hemolyticus.* At this time, a few metastatic subcutaneous abscesses developed. A roentgenogram of the mastoids showed "a normal left mastoid, but some haziness throughout the right, especially in the region of the attic." The roentgen-ray diagnosis was "first degree infiltration of the right mastoid." A mastoidotomy was performed on the sixth day, and pus was found in several of the cells. Two, five and eight days later, respectively, the three superficial abscesses were opened. Following these operations, the patient had a slow but progressive convalescence.

Arthritis, Simple.—Only four patients, or 6.6 per cent., developed a simple arthritis. The affected joints were all painful, tender and slightly inflamed. No effusion, however, was demonstrable. In each instance, a moderate rise in temperature accompanied the arthritis. After a few days of rest, application of local heat and administration of salicylates, all joint symptoms disappeared. The clinical pictures were that of rather mild acute articular rheumatism. The cervical adenitis, which was marked in three of these patients, may have been the focus to which the joint inflammation was secondary.

Arthritis, Suppurative, with Periarticular Abscess.—One of our patients developed a suppurative arthritis of the right knee and an abscess just above the left elbow joint. Several blood cultures were negative, but, since hemolytic streptococci were isolated from both the pus of the knee joint and that of the periarticular abscess, unquestionably they were present in the blood stream at certain times. The focus from which the septicemia developed was not identified. The course of the periarticular abscess was similar to that of the case described by Myers,[18] but the discharge from the knee continued for several weeks. A partial report of the clinical course of this case seems worthy of being included at this point:

Case 15.—This boy, after passing a very toxic first week, with an average morning temperature of 100.4 F., and an average afternoon temperature of 103.6 F., developed, on the eighth day, a pain in the right knee, and fever, the temperature ranging between 101 and 104 F. He had a moderate cervical adenitis and a severe frontal headache, but there were no objective findings to indicate a sinusitis, and no evidence of middle ear infection. There was a leukocytosis up to 35,800, and three blood cultures were negative. The knee was swollen, inflamed, painful and tender. Aspiration gave a thin, purulent fluid, containing hemolytic streptococci. On the twentieth day, a liberal incision was made on each side of the knee joint, and about 400 c.c. of a thin yellowish pus escaped. A through and through drain was inserted under the quadriceps tendon, and a Thomas splint, with Buck's extension, was applied. About the time that the knee was opened, the patient developed a painful swelling just above the left elbow joint. This was incised six days later, and thin, brownish pus was obtained. The abscess was apparently close to the joint, but it did not extend into the capsule. After incision, the elbow promptly healed, but the knee continued to discharge for three and a half weeks. Passive motion of the leg, which was instituted on the fifth day after the operation, was gradually increased until active motion was possible. The temperature remained normal after the fifty-second day of the disease. The patient was discharged on the fifty-eighth day with about 50 per cent. function in the knee. Three weeks later, the function of the knee, which was rapidly increasing, had reached about 80 per cent. of normal.

Pneumonia and Empyema.—The first case in the scarlet fever epidemic, after running a course only moderately severe, developed, on the fourteenth day, into a typical lobar pneumonia. At first, the upper left lobe alone was involved, but the process extended to the lower lobe also. On the twentieth day, there were evidences of empyema, and, four days later, by means of a trocar, a catheter was introduced into the pleural cavity, and continuous irrigation with surgical solution of chlorinated soda by means of a negative pressure apparatus was instituted. No further complications developed, and convalescence was normal. The irrigations were continued for ten days, the patient being discharged fifteen days later.

Heart Complications.—The age of our patients makes the group rather comparable with Nobécourt's [19] series among French soldiers, but the incidence of heart lesions was decidedly lower than in his reports. Only one student on discharge showed evidence of an endocarditis. Further observation of this boy by his family physician confirmed the impression that mitral stenosis of mild degree, with regurgitation, was present. Pericarditis developed in one boy. Rosenbaum [20] found that 5 per cent. of 1,770 patients having scarlet fever developed myocardial complications. In our cases, no such diagnoses were made, although four patients, 6.6 per cent., did show some myocardial weakness, as evidenced by a considerable acceleration of the pulse on rising from a reclining to a standing position. In two of these, inconstant murmurs were heard, but they did not persist on discharge. There were no irregularities of rate or evidences of dilatation.

Albuminuria and Nephritis.—Although nephritis is considered one of the most frequent, as well as the most serious, of complications of scarlet fever, Osler [21] giving from 10 to 20 per cent. as the usual occurrence, in only three of our fifty-nine cases was it possible to make this diagnosis, and in these three all evidences of nephritis had disappeared before the patients were discharged. Albuminuria without casts or blood cells occurred in seven patients, or 12 per cent. Albuminuria with a few casts was found in three others, or 5.1 per cent. In both of these groups, the presence of albumin in the urine was transient, and the condition was considered as febrile albuminuria. A large amount of albumin, with hyaline and granular casts and red blood cells, was present in the urine of three patients, 5.1 per cent. These findings were considered indicative of an acute hemorrhagic nephritis; in all of the cases the condition was mild, however, for none of the patients developed edema, and the urinary findings became normal as the fever decreased. In none of our patients were there abnormal urinary findings on discharge.

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[18] Myers, B. E. P.: Periarticular Abscess After Scarlet Fever, Lancet 1:589 (March 19) 1921.

[19] Nobécourt, P.: L'endocardite scarlatineuse, Bull. de l'Acad. de méd. **80**: 162 (Aug. 13) 1918.

[20] Rosenbaum, H. A.: The Heart in Scarlet Fever, Arch. Int. Med. **26**: 424 (Oct.) 1920.

[21] Osler, William: The Principles and Practice of Medicine, New York, D. Appleton & Co., 1916, p. 337.

Jaundice.—The appearance of a true jaundice in scarlet fever seems to be considered by most clinicians as justification for a grave prognosis. Ludy, Hunt and Cogswell[15] report it as occurring three times in 500 cases, and McCollum and Place[14] found it recorded fifteen times in 5,000 cases. The latter feel that it is not a symptom of gravity and that it may occur any time in the first three weeks. In one of our patients, jaundice, accompanied by clay colored stools, appeared on the sixth day. In forty-eight hours, the jaundice had reached the maximum intensity, after which it gradually subsided. During the jaundice, the patient was extremely toxic and his abdomen was distended, but there was no pain or tenderness. The cause of the jaundice seems to have been an angiocholitis or an angiocholecystitis.

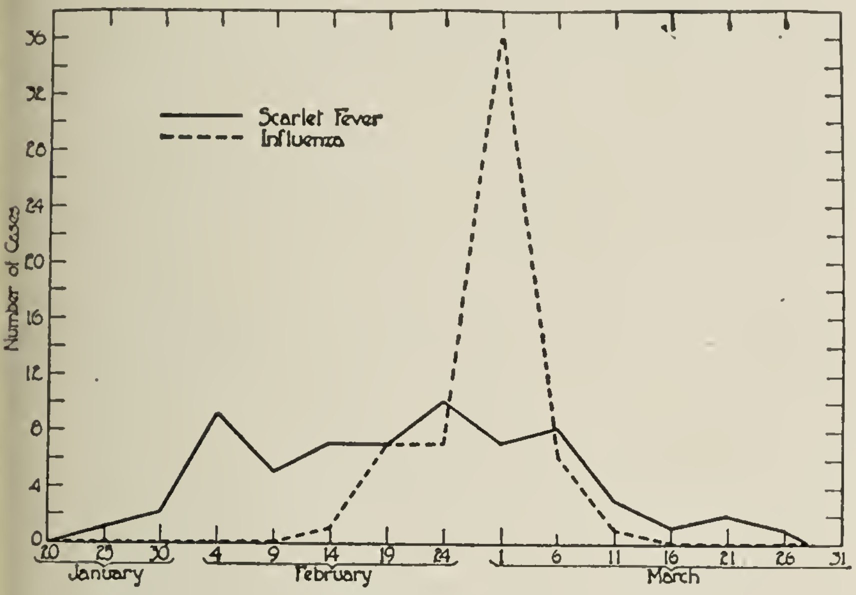

Chart 3.—Incidence of scarlet fever and influenza.

Miscellaneous Complications.—A peritonsillar abscess occurred in one boy; acute purulent bronchitis, in two boys; purulent conjunctivitis, in three boys and one girl; urticaria, in one boy; furunculosis, multiple, in one boy; and erythema multiforme exudativum, in one boy.

COINCIDENT EPIDEMIC OF INFLUENZA

During February and March, while this section of the country was experiencing an epidemic of mild influenza or "grip," 374 students of the university contracted the infection, 182 of whom were admitted to the hospital as patients. Of the hospitalized cases, fifty-eight were in students of the school of agriculture. During the period of invasion, differentiation of influenza from scarlet fever was occasionally difficult. At this time, the aid of a leukocyte count usually made the diagnosis certain. Chart 3 shows the incidence of these two diseases among the agricultural school students.

It depicts clearly the difference between the usual course of an epidemic of scarlet fever and that of an epidemic of one of the acute respiratory infections, such as influenza. The former is quite protracted, while the latter has a high peak and then is soon over. On this chart, one notices a certain parallel decrease in the incidence of the two diseases; but, at this drop in the number of cases of influenza came at the same time as the decrease in the disease among the rest of the student body, it seems doubtful whether any significance can be attached to the circumstance. Certainly neither our clinical nor our epidemiologic observations indicated any relationship between the two diseases, such as is suggested by Wohl and Detweiler.[22]

SUMMARY

1. Fifty-nine cases of scarlet fever occurred among the students of the Agricultural School of the University of Minnesota from January 25 to March 26.
2. Of the patients, 93.3 per cent. were boys, and 6.7 per cent., girls.
3. Of the patients, 55.9 per cent. lived in rural communities; 33.9 per cent. in towns of less than 5,000 inhabitants, and 10.2 per cent. in cities of more than 5,000 inhabitants.
4. New cases developed at the rate of from one in three days to four in one day during the epidemic.
5. By means of daily throat inspection with isolation of all suspicious cases and contacts, the epidemic was kept under partial control; but it was not until all students with even slightly reddened throats were isolated that new cases failed to develop.
6. From the study of the epidemic, it seems probable that students showing no symptoms other than a moderately reddened throat were responsible for the transmission of much of the infection.
7. A review of the clinical notes in the cases shows a great diversity of symptoms and complications.
8. The mortality rate was zero.

New and Nonofficial Remedies

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application. W. A. Puckner, Secretary.

ARSPHENAMINE (See New and Nonofficial Remedies, 1922, p. 43).

Arsenobenzol-Billon.—A brand of arsphenamine-N. N. R.

Manufactured by Powers-Weightman-Rosengarten Co., Philadelphia, by license of Les Etablissements Poulenc Freres, Paris, and under U. S. patents 986,148 (March 7, 1911; expires 1928); 1,081.897 (Dec. 16, 1913; expires 1930); 1,081,592 (Dec. 16, 1913; expires 1930), 1,116,398 (Nov. 10, 1914; expires 1931) by license of the Chemical Foundation, Inc.

Arsenobenzol-Billon, 0.1 Gm. Ampules.
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Arsenobenzol-Billon, 0.4 Gm. Ampules.
Arsenobenzol-Billon, 0.5 Gm. Ampules.
Arsenobenzol-Billon, 0.6 Gm. Ampules.

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[22] Wohl, M. G., and Detweiler, A. K.: The Epidemic of Streptococcic Grippe and Its Relation to Scarlet Fever, Interstate M. J. **27**: 729 (Sept.) 1916.

Coal Mine Fatalities.—According to reports received by the Bureau of Mines, accidents at the coal mines of the United States caused the death of 186 men in October. The average fatality rate for October during the last nine years (1913-1921), as determined by the bureau, was 4.27 per million tons of coal, and the average number of lives lost during the same period was 238.

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SATURDAY, DECEMBER 16, 1922

THE BUFF SUBSCRIPTION BLANK

For several years it has been the custom of THE JOURNAL to insert in a December issue a subscription slip for the use of Fellows and subscribers in remitting Fellowship dues and renewing subscription to THE JOURNAL for the coming year. The use of this slip by a large number of subscribers has been the means of insuring a saving to the Association of a considerable sum, realized not only through saving on postage but also in the clerical work necessary in taking care of yearly renewals. In this issue is inserted a buff colored subscription blank which may be used in returning remittance for 1923. It is hoped that all who have aided the Association previously by remitting in this manner will again avail themselves of the insert, and that a large majority of those who have not heretofore utilized the slip will do so now.

In this connection, attention is called once more to the announcement regarding the new publication *Hygeia,* described in our editorial columns last week and advertised again in this issue (advertising page 17). The preliminary offer made in this announcement gives opportunity to physicians to aid this new endeavor of the Association and at the same time insure a considerable saving to themselves in subscribing for a periodical which will interpret scientific medicine to the intelligent public. Moreover, opportunity is afforded for presenting to one's patients and one's friends a practical, entertaining Christmas gift, which will be renewed each month in the year. Already, in response to a previous announcement, hundreds of subscriptions and numerous letters of commendation and congratulation have been received at the headquarters of the Association. The remittance for the trial subscription to *Hygeia* may be added to that for THE JOURNAL by inserting the name *Hygeia* on the slip and adding one dollar to the check covering annual subscription to THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

SMALLPOX: A TEST OF CIVILIZATION

The marked increase in smallpox in recent years all over the civilized world is one of a group of facts that have disquieted many observers. Smallpox is a preventable disease, the first of the infectious diseases demonstrated to be preventable by inoculation. The evidence is so clear, so unmistakable and so convincing that it is a perpetual wonder that opposition can raise its head. But indifference to the protective value of vaccination and even definite hostility to its practice are today exceedingly common.

Neglect of vaccination, and its concomitant, the increase of smallpox, is but one of several striking manifestations of the breakdown of authority in the modern world. No longer do the mass of mankind receive submissively their opinions from the educated and informed. For better or worse they are attempting to form their own opinions and to act for themselves. The age of pure reason, however, has not yet dawned. Too often opinions are based on prejudice, on chance experience, on a persuasive but selfishly interested tongue, on the advertising exigencies of newspapers, on the dictum of a demagogue. To a large extent, this has been true always and everywhere; but what now disturbs many careful students of civilization is the widespread disposition to resent all attempts at direction by the better trained and better educated members of the community. In many places and on many subjects simple advocacy of a cause by the "intelligentsia" has been sufficient to rouse bitter antagonism on the part of the "proletariat." Seemingly few people nowadays want to accept advice or to regard anything as proved unless it has come within the scope of their own experience. But a state of chaos is certainly not the most comfortable state of human existence, and we trust not the final one.

In the general inclination to kick over the traces and to distrust the knowledge and the disinterestedness of every one but oneself, public health matters have not escaped. Vaccination is resorted to only if one happens to feel like it. Duty to one's associates or to the general public may go hang. This may be a transient mood or it may be a symptom of serious disease in the body politic. One thing is certain: The fact itself must be faced. If the time is going or has already gone when compulsion of the many by the few is possible or even when the many are willing to accept the counsel of the few, the only course open is the education of public opinion. If health regulations along with other governmental measures cannot be accepted on the word of the best informed, then the alternative is to persuade the mass of the people of the desirability of such regulations.

It is not to be believed that civilization will throw overboard, without a struggle, its hard-won gains. Already in several states in this country battle has been joined with the forces of prejudice and ignorance.

A vigorous campaign of education is in order on the vaccination question. The smallpox situation is not too reassuring, the mild form of the disease which has mostly prevailed in the United States in recent years is being supplemented in certain localities by a more virulent type of infection. Last year Kansas City was visited by a severe outbreak; now Denver is suffering from a visitation of highly fatal smallpox. According to the reports of the U. S. Public Health Service for the week ending October 28, there were 57 cases and 17 deaths from smallpox in Denver as compared with 55 cases and 0 deaths in the rest of the United States. For the week ending November 11 Denver had 72 cases and 21 deaths; the outbreak is evidently highly virulent. There is no reason for supposing the virulent type of the disease to be any less contagious than the mild type. In the interest of humanity it is to be hoped that a calamitous object-lesson on a yet larger scale may not be the only means of bringing about more general vaccination. It is possibly true that hereafter important public health measures can be carried out, not on the counsel of experts but on the basis of a majority vote. Those who say civilization is on trial may be right, and it may be necessary to use all our resources to educate the majority of the people, in order to avoid slipping back into the Dark Ages. But there ought to be less costly methods of convincing the people of this country of the value of vaccination than a general outbreak of virulent smallpox.

THE EFFECTS OF DUST INHALATION

There are so many dusty trades and smoky cities that pneumoconiosis is a subject of more significance than its literature would indicate. Recently there has been a greatly increased interest in the matter of the effects produced by the inhalation of dust, with numerous investigations by both the statistical and the experimental methods. This awakened interest has been shared by those having to do with industrial hygiene and by students of tuberculosis, who have commonly approached the subject from different directions. Clinical and statistical observations seem to indicate that the effects of dust inhalation depend chiefly on the character of the dust, and secondarily on the duration of the exposure. It has been suggested that the most injurious type of dust is one with hard, sharp cornered and insoluble particles; hence silicious dusts, such as are present in granite quarries and certain sorts of mines, are particularly harmful. Occasionally the chemical character of the dust is more important than its physical nature, as exemplified by the arsenical and cobalt dusts, which are believed to cause serious inflammatory changes and even cancer in the lung. At the other end of the scale come most organic dusts, as vegetable and animal fibers from the textile trades, which seem not to affect the lungs at all, although they may cause trouble in the upper respiratory passages. The harmlessness of cement dust is well testified by the very existence of workers exposed to the tremendously dusty atmosphere that occurs in and about cement plants. Also, the relatively innocuous nature of coal dust is shown by the commendable mortality figures of certain American cities, as well as by the commonly quoted statistics on the freedom of coal miners from pulmonary disease. Indeed, coal dust has been administered therapeutically by inhalation in the treatment of tuberculosis, and authors have reported a higher tuberculosis mortality rate among miners' families than among the miners themselves.

Landis[1] says that while silica dust may bring about a complete crippling of the worker in as brief a period as from two to eight years if the exposure is sufficiently intense, coal dust, even with marked exposure, usually takes from twenty to thirty years to produce changes sufficient to cause evident symptoms. It has even been urged that the mild fibrosis produced by coal dust and soot serves as a defensive barrier to the spread of human pulmonary tuberculous lesions, a theory that will secure ready endorsement by the chambers of commerce of our sootiest cities. The great trouble with much of our statistical evidence on the influence of dusty trades on tuberculosis lies in the difficulty in distinguishing clinically between chronic pulmonary tuberculosis and pure pneumoconiosis. Landis comments on the fact that, although certain forms of dust produce as definite and as characteristic changes in the lungs as do bacteria, the disease pneumoconiosis rarely, if ever, figures as such in our morbidity or mortality returns. It is usually disguised under some other term, as chronic bronchitis, asthma, pleurisy or tuberculosis. There can be no doubt that in a considerable percentage of cases a diagnosis of pulmonary tuberculosis is made when in reality the condition is a pure pneumoconiosis. This is to be ascribed to the fact that the symptoms and physical signs are frequently identical, and too much is taken for granted.

An additional factor that is too often lost sight of is the influence of the trade process. A man in stating his occupation will almost invariably give the general designation, as hatter or potter. In most occupations there is a great diversity of processes. Some of these processes involve no risk of any kind; in others there may be a distinct industrial hazard. Still another factor that is often neglected is a knowledge of exposure to tuberculosis in the home. In any considerable group of workers, no matter what the occupation may be, it will be found that there is evidence of existing cases of tuberculosis in their immediate families. In such cases it would be difficult to state whether the worker became infected because of his occupation or because of exposure to the disease in his home. Finally, it is urged that any study of the influence of occupation on the causation of disease should include a knowledge of the conditions under which the workers live. Thus, on looking into a series of cases of supposed tuberculosis occurring in potters, it was found that in about one fourth tubercle bacilli could not be found, and in one third there was a history of exposure to tuberculosis. This author supports the view that pneumoconiosis is not necessarily detrimental, by finding that when tuberculosis is superimposed on this condition it usually manifests a chronic, nontoxic form. The presence of a marked fibrosis in these cases would seem to argue in favor of its rendering the lungs less susceptible to the tubercle bacillus, rather than increasing the susceptibility. In the case of potters it seems to be true that the tuberculosis is not likely to develop until after many years in the trade, and when it does develop, that it is frequently of a latent type. On the other hand, the evidence that silicosis, in the great majority of instances, is associated sooner or later with tuberculosis, is undoubtedly true.

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[1] Landis: Pneumokoniosis and Tuberculosis, with Special Reference to Both Diseases in Potters, Am. Rev. Tuberc. 6: 766 (Nov.) 1922.

There is a widespread belief that calcareous dusts, far from being harmful, have a distinctly protective influence on tuberculosis. Fisac[2] reports that among 40,824 deaths from tuberculosis, only seventeen, or 0.41 per cent., were in lime and gypsum burners. He also asserts that among 400 employees in a gypsum factory no death from tuberculosis occurred in seventeen years. There is so much similar evidence, that inhalation of lime dust, or residence in or about lime kilns, has been recommended as a therapeutic measure in tuberculosis. Gardner and Dworski[3] have studied, in guinea-pigs, the effect of inhalation of marble dust, as present in cutting operations, and have found that the calcium carbonate particles are readily absorbed, presumably as the bicarbonate, and hence produce no injurious effects, but the silicious particles which are also present may be abundant enough to cause harm. Experiments by Willis[4] emphasize the importance of the time factor, for he found that guinea-pigs that were made to inhale coal dust in large amounts at frequent intervals for a year did not accumulate as much coal dust or fibrosis in their lungs as other animals that had lived two years under laboratory conditions without special exposure to dust. This author believes that there is probably some basis for the contention of Beattie, Haythorn and others that the fibrosis which develops in response to the presence of certain dusts would tend to limit the spread of the infectious process and should in that sense be regarded as protective. But the converse is equally true: namely, that the fibrosis would also tend to focalize and to hold bacilli because lymph drainage would be interfered with. As a matter of fact, there is less dust in the lungs of animals exposed to coal dust, less reaction to the dust, and less marked difference in the extent of tuberculosis between the dusted and nondusted lung than one might with some reason expect to find.

Apparently, we are now securing much clinical, statistical and experimental evidence on the influence of inhaled dusts, correlated to a degree which has not previously existed, and which promises to put the entire matter on a definite footing without the uncertainties that formerly were the chief characteristics of this topic. We still need especially more reliable statistics of pulmonary conditions in the workers in dusty trades in which the presence or absence of active tuberculosis is accurately determined. Only in this way can we surely decide whether our present surmises are correct, and so determine the necessity of expensive and difficult avoidance of the dusty atmosphere of life in industrial communities.

THE ETIOLOGY OF RICKETS

So long as it is true that the complete eradication of rickets would do away with much bone deformity, improve the physique, lower the infant mortality, and (what has been called most important of all) improve the teeth of the people in many countries, the etiology of the disease is well deserving of the most persistent consideration. The recent enormous activity in the study of vitamins and the consequent consideration of deficiencies in diet as a cause of disease have served to focus attention more fixedly on the problem of rickets, "a disorder which may exist without symptoms," and which is correspondingly difficult to study. The literature on the subject has become abundant, and has been reviewed from time to time in The Journal. Rickets formed a theme for discussion at the Glasgow Meeting of the British Medical Association in July,[1] at which the problem and the current findings were critically debated. The unbiased reader of the proceedings cannot fail to be impressed by the conflict of the views expressed. This feature alone should warn us to keep an open mind in a matter of such widespread national hygienic importance.

The opinion of one group of investigators—particularly in America—who have depended largely on animal experimentation for their data has lately been formulated to include at least three dietary factors in the development and normal metabolism of the skeletal tissues.[2] These are the phosphorus and calcium content, and the content of the organic substance provisionally designated as the antirachitic substance, although this is not regarded by its proponents as an entirely satisfactory term, since the substance is not preventive of rickets in the sense that the antiberiberi substance and the antiscorbutic substance are respectively preventives of beriberi and scurvy. The organic substance or vitamin under discussion and represented by cod liver oil may exert an antirachitic effect, but so also may phosphorus or calcium, depending on the peculiar constitution of the diet. According to this view, then, rickets is not a deficiency disease in the same sense as is beriberi, but involves at least three etiologic factors, disturbances of the ratios among which will affect the structure of the bones.

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[2] Fisac, quoted by Maendl: Ztschr. f. Tuberk. **35**: 184, 1921.

[3] Gardner, L. U., and Dworski, N.: The Relatively Early Lesions Produced by the Inhalation of Marble Dust, Am. Rev. Tuberc. **6**: 782 (Nov.) 1922.

[4] Willis, H. S.: Studies on Tuberculous Infection, IX, Am. Rev. Tuberc. **6**: 798 (Nov.) 1922.

[1] Discussion on the Etiology of Rickets, Brit. M. J. **2**: 846 (Nov. 4) 1922.

[2] McCollum, E. V.: The Newer Knowledge of Nutrition, New York, the Macmillan Company, 1922, p. 309.

Mellanby,[3] in England, frankly regards rickets as a disease accompanying growth, and due primarily to defective feeding. To him the rickets-producing diet is "unbalanced" in that it contains too little of those foodstuffs responsible for the proper calcification of bone, and too much of those substances responsible for the growth of tissue, the latter components being either neutral or actually antagonistic to the deposition of calcium phosphate in the growing bony matrix. Among the latter group Mellanby lays stress on the cereals, which he regards as the worst offenders in the rachitic diet. His contention is that these carbohydrate foods increase the laying down of fat and tissues generally, and that by thereby making greater demands on the calcification, any tendency of this process to lag behind is only increased when the cereal intake becomes greater.

The hygienic theory of the etiology of rickets, admitting the necessity of an adequate supply of essential nutrients, postulates additional environmental factors that make for physical well-being. Broadly speaking, they may be designated as climatic. The influence of sunlight has lately been evaluated in convincing ways, yet it has never been completely dissociated from fresh air. Light and fresh air are antagonists of lethargy. Thus the problem of exercise and the deleterious effects of confinement may come into play.

It is to some extent the conflict of opinion and seemingly irreconcilable facts and fancies that has heartened Findlay [4] of Glasgow to continue his championship of the possibility of infection as an etiologic factor. Somehow or other, he concludes, the disease is associated with confinement. Whether this is due to want of fresh air, lack of exercise, or absence of the sun's rays, or because confinement, overcrowding, and bad hygiene, in general, favor the development of some virus, it is impossible to say. It would appear, according to Findlay, that only by enlisting the participation of some virus can the geographic and social distribution, as well as the age and seasonal incidence of the disease, be interpreted. Hence he urges that the idea of rickets being of the nature of an infection should be more seriously entertained and made the basis of experimental considerations. Noël Paton [5] has frankly summarized the situation by admitting that the real cause of rickets is not known to us any more than it was to Glisson in 1650, or even to Soranus Ephesius in A. D. 100. There is sanity in his plea that the workers in this field of research combine and devise and carry out a definite plan of campaign, refraining from theories until the facts have been adequately accumulated.

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[3] Mellanby, E.: Discussion on the Etiology of Rickets, Brit. M. J. **2**: 849 (Nov. 4) 1922.

[4] Findlay, L.: Discussion on the Etiology of Rickets, Brit. M. J. **2**: 846 (Nov. 4) 1922.

[5] Paton, D. N.: Brit. M. J. **2**: 854 (Nov. 4) 1922.

Current Comment

EPINEPHRIN AND MUSCULAR EXERCISE

Most of the recent investigators of suprarenal function have denied to epinephrin the physiologic importance with which it was at first accredited. Thus, there is no real justification for the statement that it is responsible for maintaining arterial pressure and the tonus of the blood vessels at a normal level. Some students have even gone so far as to suggest that epinephrin is merely an excretory product.[1] As an alternative to the abandoned view of a more or less continuous contribution of this suprarenal product to normal circulatory efficiency, the theory of its occasional secretion as a sort of reserve mechanism in times of stress has been proposed. The progress of the vigorous debate to which this has given rise has been reported from time to time in The Journal.[2] The chief criticism of the engaging views championed by Cannon regarding the performance of the suprarenals in times of emotional excitement has centered in the contention that the proof of increased secretion under such conditions has not been conclusive. Somehow the possibility that epinephrin has at least an emergency function in some way or other persists in the minds of physiologic investigators. The newest exponents are Hartman and his co-workers [3] at the University of Buffalo. Their experiments on animals have indicated, in harmony with the belief that epinephrin increases the working power of a fatigued muscle,[4] that it may also facilitate the work of the contractile tissues at earlier periods. According to the Buffalo physiologists, epinephrin is actually liberated during muscular exercise. They assert that the maximal output of epinephrin reached depends on the intensity and duration of the exercise. After the exercise ceases, the increased output of epinephrin persists usually for a few minutes, and after vigorous exercise of long duration, sometimes for a few hours. The increase is gradually diminished until it disappears altogether. There is considerable individual variation in the after-secretion. Hartman also believes that the "warming up" process which is used as a preliminary to athletic contests undoubtedly starts the increased secretion of epinephrin. This might account, at least in part, for the better results obtained after "warming up" than before. Likewise, he assumes that the improvement accompanying "second wind" may be due partly to an increase in the epinephrin output. The physiology of exercise has long been waiting for a tenable explanation of some of these well attested phenomena of athletic performance. Whether the present hypothesis will suffice remains to be seen.

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[1] Gley and Quinquand: J. de physiol. **17**: 807, 1918.

[2] Is Epinephrin Indispensable to Life? editorial, J. A. M. A. **73**: 192 (July 19) 1919; The Debated Theories of Suprarenal Function, ibid. **74**: 326 (Jan. 31) 1920.

[3] Hartman, F. A.; Waite, R. H., and McCordock, H. A.: The Liberation of Epinephrin During Muscular Exercise, Am. J. Physiol. **62**: 225 (Oct.) 1922. Hartman, Waite and Powell: Am. J. Physiol. **60**: 255, 1922.

[4] The literature on this feature is reviewed by Gruber, C. M.: Endocrinology **3**: 145 (April-June) 1919.

CLUTTERING UP PHARMACEUTICAL NOMENCLATURE

On another page of this issue[1] will be found a report of the Council on Pharmacy and Chemistry explaining why "Esterol" has not been admitted to New and Nonofficial Remedies. Esterol is Frederick Stearns & Co.'s proprietary name for benzyl succinate. The product per se is unobjectionable. The fundamental objection to Esterol and the chief reason for its nonadmission to New and Nonofficial Remedies is its name. A multiplicity of names for any one medicinal substance is against the interests not only of scientific prescribing, but also of public welfare. Many of our readers will remember that when acetanilid was first introduced under a thousand and one names, cases were reported in medical literature of physicians calling for acetanilid under two or more names in the same prescription! More recently there was the ridiculous duplication of names for hexamethylenamin (Urotropin, Cystogen, Aminoformin, Uritone, Urisol, Cystamin, etc.), and later yet the even greater duplication in the case of phenolphthalein (Exurgine, Probilin, Prunoids, Laxine, Phenolax Wafers, Laxaphen, Phenalein, Thalosen, Laxothalen Tablets, etc.). Had Frederick Stearns & Co. been content to market their brand of benzyl succinate under the descriptive name, "Benzyl Succinate (Stearns)," the product, so far as the name is concerned, would have been acceptable to New and Nonofficial Remedies. Such a name would give the firm putting out the product all the legitimate protection that a firm should desire, while at the same time giving the physician who might wish to prescribe the product full information about its composition.

QUACKERY THRIVES ON IGNORANCE

> "No laws will ever be able to prevent quackery, while people believe that the quack is as honest a man, and as well qualified, as the physician. A very small degree of medical knowledge, however, would be sufficient to break this spell; and nothing else can effectually undeceive them. It is the ignorance and credulity of the multitude, with regard to medicine, which renders them such an easy prey to every one who has the hardiness to attack them on this quarter. Nor can the evil be remedied by any other means but making them wiser. The most effectual way to destroy quackery in any art or science is to diffuse the knowledge of it among mankind."

This might have been written in 1922 apropos of the founding of the new lay journal by the American Medical Association. But it was not. It was written by a physician in London in 1783.

Insanity in England.—At the end of 1921, the board of control reported 123,714 insane persons under care in England and Wales, an increase of 3,370 over the number recorded at the beginning of the year.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ALABAMA

Dr. Welch Elected Malaria Chief.—At the annual meeting of the Southern Medical Association in Chattanooga, Tenn., Dr. Samuel W. Welch, Montgomery, state health officer of Alabama, was elected chairman of the National Malaria Committee.

Hospital News.—The Pellagra Sanatorium, Columbia, owned by Dr. John F. Yarbrough, was totally destroyed by fire, November 16, it is announced. The patients were all saved. Some daring rescues were made by the nurses, as the conflagration spread rapidly through the building, which was filled with patients on both floors. The loss is estimated at between $35,000 and $40,000.

CALIFORNIA

Physician's License Revoked.—According to report, the district court of appeals of San Francisco, November 23, upheld the revocation by the state board of medical examiners of the license of Dr. John Lafayette Berry (also known as "Bloodless Berry" and "Phenomenal Lafayette"), a physician of Newman, for unprofessional conduct. According to the court, he advertised a bloodless surgery system under an assumed name in violation of the medical practice act. Berry's license was revoked in 1919 in California; in 1911 in Oklahoma, and in 1910 in Texas, according to reports.

Hospital News.—Construction work on the children's wing of the Cottage Hospital, Santa Barbara is practically completed. This wing was made possible by the generosity of Mrs. William Bliss, who donated $50,000.——A tuberculosis hospital with accommodations for 200 patients will be established on a 170 acre site near Napa, to be known as the Atlas Peak Sanatorium. A company was recently incorporated for $300,000, with Dr. Charles H. Bulson, Napa, as chairman. Construction work will be started in the spring, it is announced.——A new community hospital will be erected in San Antonio with the $75,000 donated by Mrs. James L. Paul for a new hospital. The institution will be named the San Antonio Community Hospital, instead of the Paul Memorial Hospital, as previously decided. The first unit will have a capacity of from sixty to seventy beds.

COLORADO

Smallpox in Denver.—From Jan. 1 to Nov. 18, 1922, 602 cases of smallpox, with 190 deaths, have been reported in Denver. During the same period, 369 cases, with four deaths, were reported for the remainder of the state. Cases of smallpox have occurred in the state of Colorado with a fair degree of regularity since 1917, but no deaths were reported until 1920. The situation is one which is causing great concern to the state health authorities, particularly on account of the sentiment against vaccination in certain quarters. Passed Asst. Surg. Thomas Parran, Jr., of the U. S. Public Health Service, has recently been sent to Denver to assist the state authorities in controlling the epidemic.

DELAWARE

Hospital News.—A three-story addition is nearing completion at the nurses' home of the Delaware Hospital, Wilmington.——A Catholic hospital will be erected for the Sisters of St. Francis at Wilmington, at a cost of $200,000, it is announced. The site for the building will cost $30,000.

DISTRICT OF COLUMBIA

Personal.—Dr. Anna E. Rude, Washington, gave an address before the second annual conference of health officers and public health nurses, at Lansing, Mich., December 7, on "Maternal and Infant Hygiene under the Sheppard-Towner Act."——Dr. William B. Johnston, Washington, sailed on the White Star liner *Cretic,* November 11, for Europe.

Health Department Budget.—The budget for the fiscal year, 1924, submitted to Congress by the President, provides $217,385 for the health department of the District of Columbia. This is an increase of $8,845 over the provision for the previous year. The appropriations recommended include $40,000 for the prevention of contagious diseases in the District of Columbia; $6,500 for maintenance of disinfecting service; $2,000 for enforcement of the act providing for drainage of vacant lots; $1,000 for maintenance of a chemical laboratory, and $8,000 for dairy farm inspection. The appropriations covering the salaries and expenses of the personnel of the District of Columbia health department complete the budget.

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[1] Esterol Not Admitted to N. N. R., Propaganda Department, page 2102.

FLORIDA

Foreign Language Lectures.—Dr. Gaetano Bottaro, Genoa, Italy, formerly of Brooklyn, delivered a lecture on "Prophylaxis and Cure of Cancer" at the Italian Club, Tampa, November 17. This was the first of a series of lectures on cancer that will be given at the Latin clubs in the native languages, under the auspices of the American Society for the Control of Cancer.

ILLINOIS

Illinois Admitted to Birth Registration Area.—It has been announced from Washington that Illinois has at last been admitted to the United States birth registration area, through the efforts of Dr. Isaac Rawlings, state health commissioner.

New Home for Medical Society.—The Peoria Medical and Surgical Society has purchased the Holly Dancing Academy on North Madison Street, Peoria, and will move to the new location early in the new year, assuming actual possession next May. The association has been formally incorporated with Drs. Peter F. James, Fred C. Walker, J. D. Jennings, Kline M. Richardson, Harlan W. Long, W. B. Whipple and Louis Schwambach as directors. The association was formerly known as the Peoria Clinic.

Reciprocal Relations Restored. — Following reorganization of the medical examining board of the state department of registration and education, under Director A. M. Shelton, reciprocal relations have been restored between Illinois and the states of Pennsylvania, Ohio, California and Kentucky. These states canceled reciprocal relations some months ago, when charges of irregularities were made against William H. H. Miller, former director of the department, who was removed from office by the governor.

Chicago

Army Physicians Elect. — At the annual election of the medical post of the American Legion, at the Army and Navy Club, recently, Dr. P. J. H. Farrell was elected commander; Dr. Joseph E. Rowan, vice commander, and Dr. Louis Rudolph, finance officer.

Hospital Wins in Will Controversy.—The supreme court of Illinois, in refusing a rehearing of the case concerning the will of Charles E. Haines of St. Charles, has brought to a close the fight for possession of a $600,000 estate brought by relatives of the deceased. Mercy Hospital, Chicago, which under the will was given two thirds of the estate, will now receive its share of the funds.

Narcotic Victims to Go to Federal Prison.—Capt. John Boddie, assistant United States district attorney in charge of narcotic law prosecutions, recently requested Judge Evans of Chicago to send all drug addicts convicted in that district to Fort Leavenworth, Kan., instead of Cook County Jail or other jails in his jurisdiction, as has been the custom. This action was taken because of better facilities at the federal penitentiary for the treatment of addicts. Accordingly, Judge Evans sentenced the next two men convicted of violation of the Harrison Narcotic Law to one year and a day in Leavenworth.

INDIANA

Hospital Sold.—The Protestant Deaconess Hospital, Indianapolis, has been purchased at a cost of $120,000 by M. J. Tibbs and D. L. Rose. The hospital will be enlarged and creditors' claims will be paid from a fund of $40,000 created by the sale. Drs. Thomas B. Noble, Sr., and Thomas B. Noble, Jr., will act in a supervisory and advisory capacity.

Personal.—Dr. Erwin C. Garber, Dunkirk, has been freed of the charge of malpractice brought against him by Mrs. Osborne of Muncie.——Dr. James H. Taylor, Indianapolis, has resumed his work in pediatrics after an absence of several months in Europe and the Orient.——Dr. William R. Phillips, Orange, was elected at the November election to the state legislature.

KANSAS

Free Psychiatric Clinic.—Dr. Karl A. Menninger, professor of abnormal psychology in Washburn College and of criminology in the Washburn Law School, Topeka, and president of the Kansas State Mental Hygiene Society, recently opened a free clinic for nervous and mental diseases at Lawrence. He has appointed to assist him Dr. Arthur W. Clark, city health officer, as resident medical director, and Drs. George W. Jones, Eugene P. Sisson, Joshua R. Bechtel, Arthur J. Anderson, Harry L. Chambers and M. L. Post, all of Lawrence.

KENTUCKY

Hospital News.—The Ashland General Hospital is now under the supervision of Miss Lawrence, the Sisters of St. Francis having left the institution to take charge of a new hospital in Toledo, Ohio.——A new addition is practically completed for the Moseley Hospital, Henderson, of which Dr. Moseley is medical director.——Dr. John T. Boldrick will erect a hospital building at Lebanon, at a cost of about $25,000, it is announced.

LOUISIANA

Hospital Projects in New Orleans.—The Sisters of Charity of St. Vincent de Paul will spend $750,000 for an addition to the Hotel Dieu, it was recently announced. A six-story addition will be erected that will double the capacity of the institution.——The new building of the Eye, Ear, Nose and Throat Hospital has been opened. Additional buildings will be erected in the near future.——The Presbyterian Hospital will erect a new building in the rear of its present plant, at a cost of approximately $1,000,000.——Final plans have been drawn for the addition to the Touro Infirmary, which will be erected at an estimated cost of $500,000.——The Baptist Hospital is also contemplating additional buildings. Nearly $1,000,000 was collected some years ago in a campaign conducted by the Southern Baptists. Part of this sum will be used for the new building, which it is expected will be completed some time during 1924.

MAINE

Personal.—Dr. Williard H. Bunker, Calais, has been appointed medical examiner of Washington County.——December 3, Governor Baxter appointed Dr. William G. Chamberlain, Fort Fairfield, to the board of registration of medicine to succeed Dr. Mary F. Cushman, Farmington, who has gone to Central Africa as a missionary.——Dr. Frank W. Searle, Portland, secretary of the board of registration of medicine, is ill. His work as secretary is being cared for by Dr. Adam P. Leighton, Portland.

MARYLAND

Founders' Day at University.—The one hundred and fiftieth anniversary of the University of Maryland, Baltimore, will be celebrated by the medical alumni, December 18, at a banquet at the Rennert Hotel. The school was organized in 1807 as the College of Medicine of Maryland. In 1812, it became the University of Maryland School of Medicine. In 1913, it took over the Baltimore Medical College. In 1915, the College of Physicians and Surgeons of Baltimore was merged with it and the present title assumed. Stereopticon slides covering its entire history and growth will be shown. The occasion will in future be an annual event.

Personal.—Dr. Joseph Earl Moore, Johns Hopkins University, Baltimore, addressed the Rochester Medical Association, Rochester, N. Y., November 22, following a dinner given in his honor by the society.——Drs. Warfield T. Longcope, Johns Hopkins University, and Hugh H. Young, Baltimore, gave addresses before the New York Academy of Medicine, recently.——Dr. Myron G. Tull, Camden, N. J., has been appointed resident physician at the Sydenham Hospital, Baltimore.——Dr. J. Colt Bloodgood, Johns Hopkins University, Baltimore, was the guest of the Academy of Medicine of Toledo and Lucas County, December 8. Following the banquet in his honor, Dr. Bloodgood gave an address.

MASSACHUSETTS

Alleged Abortionist Forbidden to Practice in State.—It is reported that Dr. Alfred D. Shea, Cambridge, entered a plea of nolo contendere, November 21, when arraigned in the superior criminal court, on the charge of performing an illegal operation. Dr. Shea was placed on probation for three years, it is reported, on condition that he shall not again practice medicine in the state of Massachusetts. In May, 1912, Dr. Shea was convicted on a charge of criminal abortion and sentenced to a term of not more than ten years and not less than seven years in the state prison. He was pardoned by the governor and council in December, 1912, having served only six months of his sentence.

MICHIGAN

Detroit Roentgen-Ray and Radium Society.—At the annual meeting of the society Dr. Roland E. Loucks was elected president; Dr. Stone, vice president, and Dr. Howard P. Doub, secretary-treasurer.

Hospital News.—The Marquette Episcopal diocese has taken over St. George's Hospital at Iron Mountain. A new institution will be erected in the spring, it is announced.——The Detroit Department of Health has been authorized to construct another unit to the Detroit General Hospital, to provide 250 beds for tuberculous patients. Altogether $1,000,000 is to be expended. This will include a new power plant and a tunnel system for heating purposes.——The mayor of Calumet will open the new Soldiers and Sailors' Memorial Hospital in that city, Jan. 1, 1923.

MINNESOTA

Appropriation for Tourist Parks.—The state board of health will petition the next legislature for an appropriation of $20,000 for the purpose of regulating the tourist camps and summer hotels in the state.

MISSOURI

School and Health Week.—December 3-10 was observed as School and Health Week in the state, in accordance with a joint and concurrent resolution adopted by the legislature in 1921. Governor Hyde strongly indorsed the movement. The state department of education, the state board of health, the Missouri posts of the American Legion and the Rotary clubs cooperated with the Missouri Tuberculosis Association in observance of the week.

NEBRASKA

Prison Sentence for Physician.—It is reported that Dr. George A. Angus, Omaha, was recently convicted on a charge of violating the Harrison Narcotic Law and sentenced to serve one year in the federal prison at Leavenworth, Kan.

Personal.—Dr. Leroy Crummer has returned from Europe. ——Dr. A. J. Carlson, professor of physiology, University of Chicago, spoke on "Recent Advances in the Physiology of the Alimentary Canal," before the Lancaster County Medical Society at Lincoln, recently.——Dr. Emory Ira Whitehead, Holdredge, has been elected to the state legislature by a large majority.

NEW HAMPSHIRE

Personal.—Dr. John M. Gile, Hanover, has succeeded President Hopkins of Dartmouth College, as chairman of the state workmen's compensation commission which was created by the last legislature.

NEW JERSEY

Midwives Fined.—It is reported that Florence Michalusek, a licensed midwife, was fined $200 for practicing medicine without a license; also that Mary Balacs and Alexiandrio Sudnikowicz were fined $200, November 13, for practicing midwifery without a license.

Epidemic of Typhoid.—Five persons are dead and ninety-five seriously ill with typhoid fever at Franklin Furnace as the result of an epidemic, declared by officials due to seepage of unfiltered water used for fire fighting into the town's drinking water mains. The residents of the town have been inoculated with antityphoid vaccine by state health inspectors and the town is quarantined until the epidemic can be controlled.

NEW YORK

Personal.—Dr. William J. Cruikshank, Brooklyn, has been appointed consulting cardiologist to the Broad Street Hospital, New York.——Miss Jessie G. Cole, Albany, has been appointed nutritionist in the division of maternity, infancy and child hygiene of the state department of health.——Dr. Clarence E. Coon, Syracuse, professor of orthopedic surgery at the Medical Department of Syracuse University, has been appointed consulting orthopedic surgeon of the state department of health.

Society News.—At the annual meeting of the New York Academy of Medicine, December 7, the following officers were elected for the ensuing year: president, Dr. George David Stewart; vice president, Dr. Samuel A. Brown, and trustee for five years, Dr. L. Emmett Holt. The address of the evening was delivered by Dr. J. E. McCartney of the University of Edinburgh, Scotland, on the subject of "Primary Pneumococcal Peritonitis."——At the annual meeting of the Medical Society of Queens County, Long Island, held at Forest Hills, Dr. Charles B. Story, Bayside, was elected president and Dr. Joseph S. Thomas, Flushing, secretary-treasurer.

Radio News Service.—The weekly radio health talks broadcasted from Schenectady under the direction of the state board of health since last spring will be delivered in future by a number of the foremost scientists and public health leaders of the country. The first talk of this series was delivered, December 1, by Mr. Homer Folks, secretary of the State Charities Aid Association. December 8, Dr. Donald B. Armstrong of the National Health Council discussed "Personal Aspects of Disease Prevention." Dr. Haven Emerson, former health commissioner of New York City, spoke, December 15. Dr. Milton J. Rosenau, Walter B. James, Frankwood Williams, Livingston Farrand and Philip B. Van Ingen will deliver health lectures by radio later.

Hospital News.—Plans for the new state hospital at Marcy have been revised so as to provide for an addition, giving the institution accommodations for a total of 3,000 patients. The cost of this addition, added to that of the original plan for the main structure near Utica, brings the total expense for the institution to $7,000,000.——A private hospital will be erected by a syndicate of New York physicians at Seventy-Second Street and West End Avenue, it is announced. The building will contain 400 rooms, exclusive of ten large operating rooms. The cost of construction will be approximately $3,000,000.——The mayor of New York recently issued a proclamation designating the week, November 27-December 3, as hospital week, during which the United Hospital Fund held its annual drive for a nonmunicipal hospital in New York.——The Carthage Hospital was recently opened to the public. A meeting of the Carthage Medical Society was held recently at the institution for the purpose of inspecting it.——The Mary Immaculate Hospital, Jamaica, Long Island, plans the erection of a building, to cost approximately $1,000,000.

New York City

Microscopical Society Exhibit.—The annual exhibit of the New York Microscopical Society was held, December 2, at the American Museum of Natural History. The exhibits were included under the heads of general biology, society exhibits, botanical, entomologic, mineralogic, polarized objects, photomicrographs and fifty-eight miscellaneous subjects.

NORTH CAROLINA

Personal.—Dr. Harry L. Brockmann, for the last nine months city physician of Greensboro, has resigned to associate himself with Dr. Burrus in the High Point Hospital. Dr. Burrus' partner, Dr. Hugh W. McCain, died recently. ——Dr. Arthur de Talma Valk, Winston-Salem, has been elected president of the Eighth District Medical Society of North Carolina.

Hospital News.—The contract was awarded, October 31, for the women's building and refrigerating plant at the Morganton State Hospital at a cost of nearly $108,000. According to the terms of the contract, work is to be completed by Sept. 1, 1923. The women's building will have a capacity for 104 inmates, and will cost $74,000.——An addition to St. Peter's Hospital, Charlotte, is under construction at a cost of approximately $65,000.——All patients from Kenilworth Hospital, Asheville (a U. S. Public Health Service hospital) were ordered removed by December 1, to Memphis, Tenn.; Atlanta, Ga.; Lake City, Fla., and Oteen, N. C.

OHIO

Scarlet Fever Epidemic.—More than 387 cases of scarlet fever are reported from Cleveland and an epidemic is feared. Schools, churches and theaters in Chardon have been ordered closed until further notice.

Ophthalmologists Elect.—At the annual meeting of the Ophthalmological Club of Cincinnati, held recently under the presidency of Dr. Robert Sattler, the following officers were elected for the ensuing year: president, Dr. Derrick T. Vail; secretary, Dr. Robert C. Heflebower, and treasurer, Dr. W. E. Schenck. Dr. Martin H. Fischer was the guest of honor.

Experimental Mental Hygiene Clinic.—The board of directors of the community chest have authorized a fund of $15,000 for the establishment of an experimental mental hygiene clinic in cooperation with the College of Medicine, University of Cincinnati. Members of the faculty appointed to work out the details are: Drs. Julien E. Benjamin, Mark A. Brown, Otto P. Geier, Herman H. Hoppe, Benjamin K. Rachford, Thomas A. Ratliff and Dean Page.

Redwood Fined for Practicing Medicine.—Carakas Redwood, half caste Indian of Circleville, was fined $250 for practicing medicine without a license, November 25, it is reported. He pleaded guilty and, unable to pay the fine, was committed to the county jail. Correspondence was found in his apartment revealing that he had corresponded with Irving Henderson of Lancaster, whose body with those of his wife and four children was found, November 22, all having been presumably poisoned. A letter to Redwood written by Henderson, but unsent, and literature sent by Redwood to the poison victim, provided the clue for the prosecution.

OREGON

Personal.—Dr. Andrew C. Smith, Portland, a member of the state board of health since its inception, has submitted his resignation to Governor Olcott.——Dr. Henry Waldo Coe, Portland, has given to the city of Portland an equestrian statue of Theodore Roosevelt, which was unveiled, November 11. The statue is the work of A. Phimister Proctor and cost approximately $40,000.

PENNSYLVANIA

Health Commissioner to Retire.—It is reported that Col. Edward Martin, Harrisburg, state health commissioner, will retire when Governor Sproul leaves office. He is contemplating a tour of South America.

Scholarship Fund Oversubscribed.—The $3,000 scholarship fund established at the Pennsylvania State College by the Rehabilitation Club for the benefit of the sons and daughters of the men of the U. S. Veterans' Bureau now in training at the college has been oversubscribed.

Personal.—Dr. William W. Richardson, Erie, has again become the resident medical director of the Mercer Sanatorium, Mercer.——Dr. Helen M. Stewart, Chambersburg, was recently appointed a member of the board of health.——Dr. David S. Bordner, Palmyra, has been elected president of the board of health, to succeed Dr. Milton B. Fretz.

Medical Fraternity Honors War Veterans.—A bronze and granite statue commemorating the service and sacrifice of members of the Allegheny County Medical Society was unveiled and dedicated, November 30, in Schenley Park, Pittsburgh. Dr. Edward B. Heckel, presided; Dr. John J. Buchanan presented to the service men the memorial, which Dr. William J. McGregor accepted and transferred to the city of Pittsburgh. A report of the war committee was read, which showed that, in addition to 450 members of the society who entered the service when the United States declared war in 1917, many members of the organization were already at the front with the allied troops. Giuseppe Moretti (the sculptor) gave an address on "The Meaning of the Statue." The memorial is a female figure of bronze bearing the caduceus, and is mounted on a granite base, the face of which bears an inscription, while the sides are utilized for plates bearing the names of the honored physicians.

Philadelphia

Mary Scott Newbold Lecture.—The ninth Mary Scott Newbold lecture was delivered by Dr. Donald C. Balfour, Mayo Clinic, Rochester, Minn., at the College of Physicians, Philadelphia, December 6.

Temple University Physician Honored.—A dinner was given, December 8, in Garrick Hall, in honor of Dr. Romeo Franceschetti on the occasion of his joining the faculty of Temple University as assistant instructor of pathology and bacteriology.

University Gets Hunter Bequest.—A bequest of $200,000 for the establishment of a department of clinical surgery was ordered paid by trustees of the estate of Edward A. W. Hunter to the University of Pennsylvania, Philadelphia, by Judge Thompson in the orhpans' court, November 28. The fund awarded the University will establish the "Agnew and Hunter Department of Clinical Surgery," in memory of Drs. D. Hayes Agnew and Charles D. Hunter.

WEST VIRGINIA

New Academy of Medicine.—Under the auspices of the Ohio County Medical Society, the Ohio County Academy of Medicine will be erected in Wheeling within a year, at a cost of about $75,000. Dr. Henri P. Linsz, Wheeling, was elected president at the recent election and Dr. A. McGregor, secretary. The membership of the new academy will include the 300 practicing physicians in the Ohio Valley.

WISCONSIN

Maternity Health Clinic Opened.—The Marinette County maternity and infant health center was opened at Crivitz, in November, with Dr. Mildred Van Cleve as physician in charge.

WYOMING

Personal.—Dr. William A. Myers, Casper, formerly of Lincoln, Neb., has resumed practice following the automobile accident last July which necessitated the amputation of his arm.

PHILIPPINE ISLANDS

More Lepers to Be Released.—A special board of examiners appointed by the Territorial Board of Health will visit the Kalaupapa Leper Settlement on the Island of Molokai to pass on the release of seventeen patients. Recommendations for their parole have been received from Dr. W. J. A. Goodhue, resident physician of Kalaupapa. This is the third time, since the use of the chaulmoogra oil treatment, that a board of examiners has visited the settlement, and it is stated that since its use in 1919 more than forty-four cures have been effected at Kalaupapa. Of the present patients who are up for parole, twelve have been confined at the settlement for more than twenty years.——The Kalihi Receiving Hospital at Honolulu, maintained for the confinement and treatment of less serious cases of leprosy, reports that more than 150 patients have been released since 1919.

CANADA

Public Health News.—Several meetings held recently under the auspices of the Toronto Board of Health have had as their purpose a consideration of the problem of feeblemindedness as it affects Toronto. A committee was organized, with Dr. Risk as chairman and Dr. E. A. Bott as secretary, to go into the matter in detail. In the near future, a research committee composed of Dr. C. K. Clarke, Dr. George Anderson and F. N. Stapleford will compile a report relative to the situation. A presentation of the facts will then be made to the board of control and city council in an endeavor to further the solution of the problem of mental deficiency.——Branches of the Canadian Social Hygiene Council have recently been organized in Ottawa, Kingston, Peterborough, Newmarket, Orillia and Windsor. This makes a total of eleven social hygiene councils in Ontario. Early in the new year, extensive organization will be started in other provinces.——The laboratory of the city of Ottawa, with the staff and equipment, has been taken over by the Ontario Provincial Board of Health, and will be operated as a branch laboratory. Similar laboratories have been established at Fort William, Sault Ste. Marie, North Bay, Owen Sound, London, Peterborough and Kingston. Dr. F. L. Letts, D.P.H., will be director of the new branch laboratory at Ottawa.——A series of social hygiene meetings have been arranged by the Toronto Social Hygiene Council, to be given every Sunday night in a large church in downtown Toronto after the church services. Community health and recreation, community music, new educational possibilities and other subjects will be dealt with by well known speakers.

New Medical Bill.—At the opening of the house recently, an act to amend the revised statutes, respecting the Quebec Medical Act was brought forward. It sets forth, first, that the quorum of the Provincial Medical Board shall be of twelve members who will be authorized to establish a minimum tariff. It defines the practice of medicine as (1) the giving of medical consultations, whether remunerated or gratuitous; (2) the ordering or prescribing of medicine; (3) practicing midwifery; (4) examining or questioning sick persons for the diagnosing of the disease or for the purpose of selling medicine, and (5) treating disease of whatsoever nature, medical or surgical, by administering, giving or selling medicine, by making use of mechanical, physical or chemical processes or of radiotherapy or of roentgen ray, with or without remuneration. There is a clause in the bill which forbids the keeping of an institute, private hospital, home for convalescents or sick persons, a maternity hospital or any establishment where consultations and treatments are given, without first obtaining permission from the lieutenant governor-in-council, which will be granted only on proof that the institution is under immediate professional supervision. The authorization granted may be revoked at the request of the College of Physicians and Surgeons. Penalties provided for violation of the law run from $50 to $300 and three months' imprisonment for third offenses. These penalties also apply to any person who assumes the title of doctor of medicine. It is also provided that "no person in the province other than a qualified and licensed physician and surgeon shall administer anesthetics except in cases where health or life may be endangered by too long a delay or by the impossibility of obtaining the services of a qualified practitioner."

GENERAL

United States Aids Earthquake Victims.—President Harding directed, November 16, that two cruisers proceed to Huasco, Chile, at once, with food, clothing and medical supplies for relief in the regions that have been devastated by the recent earthquake. Secretary Denby designated the cruisers *Cleveland* and *Denver,* which were ordered to proceed at once.

Radiological Society of North America.—At the annual meeting of the society, in Detroit, December 4-8, under the presidency of Dr. Albert Soiland, Los Angeles, the following officers were elected for the ensuing year: Dr. Rollin H. Stevens, Detroit, president-elect; Dr. Russell D. Carman, Rochester, Minn., president; Drs. Lloyd Bryan, San Francisco, Douglas A. Quick, New York, and Robert H. Millwee, Dallas, Texas, vice presidents, and Dr. Manly J. Sandborn, Appleton, Wis., secretary-treasurer.

Chemical Society Will Publish News Edition of Technical Journal.—*Industrial and Engineering Chemistry,* the technical journal of the American Chemical Society, announces an extension of its service in 1923. Besides the present journal, which will not be changed in form, there will be issued twice a month, on the 10th and 20th, a chemical newspaper, to be known as the *News Edition of Industrial and Engineering Chemistry.* This news edition is designed to carry current information, much of it nontechnical in character, and supplied to a large extent by the staff correspondents. The first issue will appear, Jan. 10, 1923.

Annual Congress on Medical Education, Licensure, Public Health and Hospitals.—The next annual congress on medical education, licensure, public health and hospitals will be held in the Florentine Room of the Congress Hotel, Chicago, on Monday, Tuesday and Wednesday, March 5, 6 and 7, 1923. This congress will be participated in by the Council on Medical Education and Hospitals and the Council on Health and Public Instruction of the American Medical Association, the Federation of State Medical Boards, the Association of American Medical Colleges, the American Conference on Hospital Service and the U. S. Public Health Service.

Smallpox in the Middle West.—Dr. Hugh Cumming, Surgeon-General of the U. S. Public Health Service, sounded a warning of the necessity of a general vaccination throughout the Middle West because of a widespread epidemic of smallpox. Unless prompt action is taken, a serious spread of the contagion is feared. He also intimated that there is danger of an outbreak of yellow fever in the South next summer unless every precaution is taken by health authorities in this section. Thousands of cases of dengue fever have been reported to the U. S. Public Health Service from Louisiana, Texas and other states, and the appearance of this disease usually presages the deadly yellow fever.

Art Instruction Courses.—A course of instruction in art as applied to medicine is now open to students in all four years at Johns Hopkins University, Baltimore. The work first deals with the exact study of plastic representation of medical objects of all kinds and later the study of diagrammatic drawings and sketches useful in taking medical histories or illustrating lectures with blackboard sketches. Instruction will also be given in the various technics suitable for medical illustrations intended for publication, such as halftone drawings in crayon, water color painting, line drawings in pen and ink, diagrams and charts for class demonstration. ——A similar course is offered at the University of Cincinnati, for which an increased appropriation has recently been made.

Child Welfare in Porto Rico.—Reporting on a year's survey of conditions affecting children in Porto Rico, the chief of the children's bureau, in the annual report, says that unemployment and underemployment are serious problems in the island, and have resulted in such poverty that many essentials in proper child care cannot be provided. The infant death rate in 1920 was 146 per thousand births, as compared with eighty-six in the United States birth registration area. The report also says that Porto Rico has made great progress in education and general development since it became part of the United States. Illiteracy has been reduced from 80 per cent. of the population 10 years of age and over, to 55 per cent., but school facilities still exist for only half the children of school age.

Provisional Mortality and Birth Figures for 1922. — The Department of Commerce announces that provisional figures compiled by the Bureau of the Census for the first six months of 1922 indicate higher death rates than for the corresponding six months of 1921. For the states compared, the death rate for the six months was 12.6 in 1922 as against 12 for the first six months of 1921. The highest mortality rate for the half year is shown for Maine (15.7) and the lowest for Idaho (8.2). These early figures forecast for 1922 a somewhat higher rate for the death registration area than the record low rate (11.6) for 1921.——The Department of Commerce also announces that provisional birth figures compiled by the Bureau of the Census for the first six months of 1922 indicate lower birth rates than for the corresponding six months of 1921. For the states compared, the birth rate for the first six months was 22.7 in 1922 as against 24.8 in 1921. The highest birth rate for the half year (30) is shown for North Carolina and the lowest (18.1) for Vermont. The 1921 rate for the birth registration area was 24.3.

Society News.—The first annual meeting of the Minnesota-North Dakota State Conference of the Catholic Hospital Association of the United States and Canada, was held in Rochester, Minn., December 5-6, under the presidency of Sister Madeleine, St. Mary's Hospital, Minneapolis.——A meeting of the Clinical Orthopedic Society of Rochester, Minn., will be held, December 15-16.——The annual meeting of the American Student Health Association will be held at Columbia University, New York, December 26, under the presidency of Dr. John Sundwall, professor of hygiene and public health, University of Michigan.——At the Mississippi Valley Conference on Tuberculosis, recently held at Milwaukee, three resolutions were adopted favoring (1) more general and extensive use of sanatoriums as training centers for rehabilitation of former service men, and more systematic health efforts; (2) better instruction in the schools, with courses for teachers in normal schools, and (3) continuance and extension of modern health crusades.——The next annual meeting of the American Gynecological Society will be held at Hot Springs, Va., May 21-23, 1923.——The Seaboard Medical Association of Virginia and North Carolina convened in New Bern, N. C., December 5-7, under the presidency of Dr. Joseph L. Spruill, Sanatorium.——The meeting of the Association for Research in Nervous and Mental Disease will be held in New York, at the Hotel Commodore, December 27-28, under the presidency of Dr. Walter Timme, New York. Dr. Douglas A. Thom, Belmont, Mass., will speak on the "Relation between Infantile Convulsions and Epilepsy."

Druggists Discuss Liquor and Narcotic Regulations.—Alcoholic liquor and narcotic drug regulations commanded a large measure of attention at the meeting of the National Drug Trade Conference, in Washington, D. C., December 5. The sale of medical supplies by the War Department without warranty as to kind, quality, or fitness was condemned.

New state legislation upon narcotic drugs should not be advocated, the conference advised the several organizations of which it is made up, until data more trustworthy than those now available have been accumulated, regarding narcotic addiction and narcotic drug control. At the same time, the proposed model state antinarcotic law formulated by the committee on narcotic drugs, of the Council on Health and Public Instruction, American Medical Association, with the active cooperation of representatives of certain drug interests, was referred to the organization members of the conference for consideration and report. The conference authorized its appropriate committee to appeal to the Commissioner of Internal Revenue to abolish the now compulsory signature of the patient or his agent on the back of the prescription, to permit druggists to supply narcotics in original packages on physicians' prescriptions without registering as wholesale dealers, and to permit druggists to refill prescriptions containing codein and its salts.

The adoption of legal standards for whisky and brandy would, in the opinion of the conference, facilitate the enforcement of the National Prohibition Act by bringing such therapeutic agents within practicable reach of the Pure Food and Drugs Act of 1906, thus enabling the Bureau of Chemistry, Department of Agriculture, to cooperate better with the Prohibition Commissioner. The Committee on Revision of the Pharmacopeia was requested to consider the advisability of adopting appropriate standards for these articles.

The conference went on record as opposing the bill now pending, to remove the Prohibition Commissioner from the supervision of the Commissioner of Internal Revenue and the Secretary of the Treasury, and to make him answerable to the President alone. To prevent the promulgation of unwise and harassing regulations relating to the use of alcohol as a raw material, the conference appealed to the Commissioner of Internal Revenue to appoint an advisory trade committee, to be consulted before regulations are promulgated.

Surplus medical supplies have been sold by the War Department, it was reported, under conditions endangering public health and in violation of law. Sales were made by competitive bidding, "as is," the War Department assuming no responsibility for quality, character, condition, size, weight or kind, or fitness for purpose for which intended. A resolution was adopted urging that medical supplies in good condition be sold with customary guaranties as to conformity to lawful standards; that the sale of articles deteriorated but having a salvage value be limited to manufacturers prepared to recondition them prior to sale or to use them for manufacturing purposes; and that articles not known to conform to legal standards or to be fit for use, or susceptible of being made so, be condemned and destroyed.

LATIN AMERICA

Public Welfare Congress in Chile.—The Second Chilean Public Welfare Congress was held at Santiago, Dec. 7-10, 1922. Most of the problems discussed were related to hospital administration.

New Mexican Sanatorium.—Jan. 2, 1923, three of the buildings of the new sanatorium for newspaper men and their families near Mexico will be opened. The first sections to be completed are the administration, the medical and the maternity, the last being a gift of the oil companies.

Blood Tests for Schoolchildren at Nicaragua. — A recent governmental order requires all schoolchildren to submit health certificates from the public health laboratory at Managua on entering school. A similar laboratory is to be established at Granada to test blood and sputum.

Antiquack Campaign.—The Oriente y Mediodía School of Medicine and Surgery, Nicaragua, acting as a licensing board, has summoned all persons professing to practice medicine and not properly graduated to appear before the board to show their qualifications. Those failing to qualify will be prosecuted.

Public Health in Salvador.—Public health work in Salvador has shown satisfactory development in the last few years, as shown by the last report of the national public health service. In 1921, 153,724 people were vaccinated, as compared with 117,162 in 1920; 66,539 fecal specimens were examined for hookworm, as compared with 51,511 in 1920. Altogether, 191,936 examinations have been made from 1916 to 1921, 55 per cent. of which proved positive for hookworm. The first national board of health was organized in 1900, when a sanitary code was also adopted. The board was reorganized in 1920. A local board of health has been organized in every town.

Typhoid Spreading in Mexican Capital.—Dispatches from Mexico City state that the prevalence of typhoid there has begun to assume the proportions of an epidemic. Owing to the water famine, the city's sewers are in bad condition and sanitary conditions in the poorer quarters of the city are extremely bad. The water reserve held by the fire department has been placed at the disposal of the poor, and postal employees have been dispensing it through the fire hose. The hospitals are taxed to their utmost. Many foreigners are leaving the city. The chamber of deputies have voted to remove the mayor and aldermen from office because of their alleged failure to deal promptly with the situation. Most of the water obtained now is dirty, and hundreds of typhoid cases have been reported.

Public Health Nursing in Brazil.—Mr. Crittenden Marriott, special representative of the U. S. Public Health Service in charge of the exhibit now in progress in Rio de Janeiro, states that public health nursing as a profession in Brazil is only about 1 year old. Nursing in Brazil is on a low plane at present, a nurse not receiving the training or the respect due her position. Recently, at the request of Dr. Chagas, Mrs. Ethel Parsons was sent to Brazil by the International Health Board to organize and train a corps of public health nurses. Later, it was found advisable to bring others to assist Mrs. Parsons, and, accordingly, ten American and two English nurses were secured for this work. A training school has been organized, and thirty nurses and forty social workers have been engaged. Prospects are bright for the successful development of the work.

FOREIGN

Medical School Incorporates.—The Bristol Medical School has been incorporated with the University of Bristol. The Bristol Medico-Chirurgical Society has recently presented to the university the library of the society, comprising more than 15,000 volumes and valued at approximately $50,000.

Another Victim to Professional Roentgen-Ray Injuries.—The cable brings word that Professor Vaillant, director of the roentgen-ray laboratory at the Lariboisière Hospital at Paris, has had to undergo his thirteenth operation. His right forearm was amputated. The left arm was affected first, and after removal of the fingers the arm had finally to be exarticulated.

Tuberculous Patients to Colonize Hot Countries.—The French Academy of Medicine is discussing the establishment of great tuberculosis colonies in hot countries, and segregation of consumptives by all civilized nations in the way that lepers are now segregated. A plan has been put forward whereby all the civilized nations would combine for the purpose of turning huge tracts of land in Africa and Mesopotamia, into tuberculosis colonies. These colonies would be self-supporting, according to the plan, and would be established in conjunction with large irrigation schemes.

Conference of Cremation Officials.—The cremation authorities and members of the Cremation Society of England held a conference in London, October 26, for the purpose of discussing what deters the people from adopting cremation as a substitute for earth burial, and the methods by which information regarding the advantage of cremation might be brought before the public and its practice facilitated and cheapened. Sir Malcolm Morris was in the chair. Every speaker touched on the very slow progress which cremation has so far made. This was attributed to sentiment, apathy and the public's lack of knowledge as to what cremation means.

Russian Professors Stranded in Berlin.—One hundred Russian university and professional men, mostly scientists, some of them internationally famous, recently exiled from Russia by the soviet government, are in serious circumstances in Berlin, it is announced. The American Relief Administration may not spend its funds outside of Russia, and so cannot aid them. Local charity is housing and feeding them, but they lack sufficient clothing, shoes and money for the coming winter. An appeal has been made to Vernon Kellogg of the National Research Council, Washington, D. C., for $1,000 to provide some relief. This will average only $10 to each person. Princess Cantacuzene of Washington has already donated $500 and Dr. Kellogg $10, and he will undertake to receive the gifts and send personal receipts for them. Other donations are requested.

Memorials to the Profession. — The memorial at the Middlesex Hospital Medical School, London, to the students who lost their lives during the World War will be in the form of four stained glass windows in the university chapel of the four soldier martyrs—St. George, St. Alban, St. Martin of Tours and Joan of Arc. These windows were dedicated by the Bishop of London, November 1. Memorial tablets have been placed in the entrance and the new common hall of the medical school. These tablets and a portrait of Capt. John Fox-Russell, V. C., were unveiled and dedicated on All Saints' day, November 1, by Sir John Goodwin, who also formally opened the new common room.——The Council of the British Medical Association has decided that the memorial to members who fell in the World War shall take the form of a book of honor to be placed in the library, a memorial tablet in the entrance hall and a small book to issue to relatives, describing the book of honor. F. G. Hallett, secretary to the Conjoint Examining Board of England, has undertaken to illuminate and superintend the engrossing of the book.——The *Medicina Contemporanea* reports that a statue of a local physician has been erected on one of the avenues of the city of Funchal, Madeira Islands. The physician thus honored is Dr. J. da Camara, Conde do Cannavial, who died in 1912 at the age of 83.——The *Riforma medica* calls attention to the subscription that has been opened by the medical faculty of the University of Modena to endow a foundation for experimental biology and therapy in honor of the memory of the late Prof. R. Luzzatto.——An imposing monument was recently unveiled by the medical faculty of the University of Toulouse in memory of the eminent research worker and professor of anatomy Charpy, who died in 1911.——The friends of the late Professor Guilleminot of Paris recently had a memorial bronze medal struck to present to his family. It is on exhibition at the Hôtel-Dieu Hospital.——A monument has been erected at Lamaloules-Bains to the memory of Dr. F. Boissier, who was killed at the battle of Verdun.

Personal.—The *Medicina Ibera* relates that the National Academy of Medicine at Madrid has accepted the design offered by the sculptor V. Macho for the proposed monument to be erected in Madrid in honor of Prof. Ramón y Cajal. The design is horizontal—"to express tranquillity and repose." Two symmetrical fountains pour water into a large basin. In the midst of the basin, on a block of marble, Cajal is represented resting in a pensive attitude.——The Spanish Sociedad de Pediatría organized a course of lectures by Dr. Arquellada, the president, and at its conclusion the society tendered him a banquet.——Professor Wintz of Erlangen has been lecturing in Spain, and he was the guest of honor at a banquet given by the profession of Madrid recently.——Dr. I. de la Villa, professor of gynecology and obstetrics at the University of Valladolid, has been elected *alcalde* of the city.——Prof. U. Baccarani of Ancona was recently presented by his assistants with a gold medal and illuminated address on vellum in token of appreciation for his many years of service as chief of the public hospital. A banquet closed the ceremony.——Dr. Soler Julia, a surgeon of Barcelona and member of the editorial staff of the *Revista Española de Medicina y Cirugía*, was presented with a silver and onyx tablet by an electricians' organization, in gratitude for services rendered.——The Rodriguez Abaytua prize was recently awarded to Dr. F. Masip y Valls of the editorial staff of the *Archivos de Medicina, Cirugía y Especialidades.* This prize is given by the National Academy of Medicine at Madrid for the best series of articles contributed during the year to the lay press, considered from the standpoint of philosophy, literary style and descriptive accuracy. His articles had been published in four different lay periodicals.

Deaths in Other Countries

Dr. **William C. Roe,** surgeon general, R. A. M. C. (retired); at Bournemouth, October 6, aged 88.——Lieut.-Col. **Robert T. Beamish,** R. A. M. C. (retired); suddenly in London, October 26, aged 73.——Dr. **Leopold G. Hill,** physician to the Church Missionary Society; in London, October 26.——Lieut.-Col. **Michael H. Thornley,** Indian Medical Service, superintendent of the Cuttack (Bengal) Medical School and Hospital; at Epsom, England, October 30, aged 47.——Dr. **A. H. Nijland,** prominent for many years in public health organization in the Far East, director of the Pasteur Institute in the Netherlands Indies, aged 54. He returned to Rotterdam in 1918, where he was connected with the Institute for Tropical Medicine.——Dr. **Jorge Laure,** chief of the French Hospital at Buenos Aires for many years.——Dr. **D. Harosteguy** of Las Flores, Argentina, deputy and senator.——Dr. **A. Casanova** of Valencia and Dr. **R. Blanco Vazquez** of Madrid.——Dr. **R. Jolly,** professor of gynecology and obstetrics at the University of Berlin, aged 47.——Dr. **L. Menditto** of Caserta, aged 32. He was a prisoner of war in Austria for sixteen months.

CORRECTION

Insanity in Egypt.—In the summary on page 2120 of Marie's article on this subject, the proportion of Arabs affected with general paresis should have been stated as 0.55 per 10,000 (not thousand). The proportion among Greeks residing in Egypt was 12.3 and for Austrians 25.1 per 10,000, while it was only 0.55 among the Arabs, according to the records for twenty-six years.

Government Services

Instruction in Navy Medical Corps

The following medical officers recently completed a course of instruction at the Harvard Medical School in ophthalmology, otology, laryngology and rhinology: Lieutenants A. L. Bryan, E. C. Ebert, J. C. W. Taylor, R. B. Team. Lieut. R. W. Hutchinson will complete a course in roentgenology at the University of California, January 1. Lieut.-Commanders G. F. Cottle and R. W. McDowell are taking a course of instruction in Surgery at the Mayo Foundation, Rochester, Minn.——The following will be graduated from the Naval Medical School, Washington, D. C., Dec. 22, 1922: Lieutenants P. T. Crosby, R. A. Barker, F. P. Keaney, A. N. Champion, J. H. Robbins, H. H. Montgomery, Oscar Davis, E. H. Prescott, Max Silverman, F. P. Gardner, J. K. Gordon, F. E. Tierney, J. J. Kaveney, L. L. Edmisten, F. M. Rohow.——The following will complete their course of instruction at the Medical Research Laboratory and School for Flight Surgeons, Mitchel Field, Mineola, L. I., N. Y., Dec. 16, 1922, and will be assigned to the various naval air stations at home and beyond the continental limits of the United States: Lieutenants A. C. Smith, R. P. Henderson, F. R. Bealer, J. C. Adams, F. H. Clements, J. R. Poppen, G. L. McClintock, W. W. Davies, W. H. Wynn, J. D. Benjamin, C. C. Ammerman. Another group of medical officers will be assigned to the Medical Research Laboratory and School for Flight Surgeons, Mitchel Field, in January. The next class at the Naval Medical School will assemble in February.

Narcotic Inspectors Wanted

The U. S. Civil Service Commission announces open competitive examinations for an inspector and an agent to investigate violations of the Harrison Narcotic Law. Applicants must have had at least one year's experience in investigation of major criminal activities.

Lieut.-Col. Dean Lewis Receives Medal

Lieut.-Col. Dean Lewis of Chicago has been awarded the distinguished service medal "for exceptionally meritorious and distinguished services." The citation says: "As chief of the surgical service of evacuation hospital No. 5 during the operations on the Marne and the St. Mihiel-Meuse-Argonne and Ypres-Lys offensives, by his tireless energy, organizing ability and unusual surgical skill, he successfully demonstrated that war wounds could be operated on in large numbers in front line hospitals with limited personnel, thus conserving many lives among combat troops."

The Navy Nurse Corps

The Secretary of the Navy has accepted the resignation of Mrs. Lenah S. Higbee, as superintendent of the Navy Nurse Corps. Mrs. Higbee, who has served continuously in the capacity of nurse, chief nurse and superintendent since the nurse corps was established, 1908, has desired for some time to take up other work. On the recommendation of Surgeon-General Stitt, Miss J. Beatrice Bowman has been appointed superintendent of the Nurse Corps from Dec. 1, 1922.

United States Public Health Service and the Budget

The 1924 budget submitted to Congress by the President recommends the following appropriations for the U. S. Public Health Service. A statement of appropriations, estimated for 1923, and actual for 1922, is given for comparison:

	Estimated 1924	Estimated 1923	Actual 1922
Salaries and expenses..........	$3,297,672	$3,539,723	$4,049,158
Prevention of epidemic diseases	334,792	399,750	574,464
Pay of personnel and maintenance of hospitals..........	4,878,925	6,611,394	3,801,658
Expenses, division of venereal diseases	225,953	398,600	194,895
Total, public health service.....	$8,737,342	$9,949,467	$8,620,177

Foreign Letters

LONDON

(From Our Regular Correspondent)

Nov. 20, 1922.

The Pancreatic Hormone Treatment of Diabetes

Toronto University has offered to the Medical Research Council as a free gift all rights in a patent covering the treatment of diabetes with its newly developed pancreatic extract, for which application has been filed in this country. The gift has been accepted by the council, which is making arrangements for further research and is considering the best method of production here. It is the object of the university to place in the council's hands for trial in this country the powers of control over the preparation that it has found desirable in America. Representatives of the council have recently visited the various centers of work in the United States and Canada, and have investigated carefully the progress made there. The council is of the opinion that the treatment opens to many diabetics a bright prospect of relief, of longer life, and less severe deprivation. The question of improvement in the methods of preparation and administration of "insulin" (the name that has been tentatively given the product) and determination of the limits of its efficacy, whether it can cure or only relieve, are matters said to demand further research. A process may succeed when carried out on an experimental scale in a laboratory, but much more serious difficulties are presented when it is developed on a large scale in a factory. To leave the manufacture to uncontrolled commercial enterprise would involve risk of the production of inactive preparations, on the one hand, and of preparations of unusually high potency, on the other hand, which might be dangerous.

The council is therefore safeguarding, while accelerating, the production of the preparation. It is arranging tests and experimental study at several hospital centers. The scientific workers who undertake the responsibility will work as members of a coordinated team in close touch with the council. The council is also considering under what conditions it may be possible to grant licenses to private institutions or factories having proper facilities for making and testing the extract. Possibly, some of the existing commercial organizations may be able to deal satisfactorily with the problem of providing "insulin" and of keeping pace with the demand, which will grow rapidly if the remedy succeeds. On the other hand, it may prove that the needs of the situation can best be met by a special organization established with the aim of benefiting patients and with no view to commercial profit.

The Progress of Surgery: Excessive Operating for Appendicitis

Before the surgical section of the Royal Society of Medicine, Mr. James Berry, the president, delivered an address on the progress of surgery. As a student, he saw the last of the preantiseptic period, when surgeons wore at operations dirty, blood-splashed frock coats. He followed surgery through its unprecedented progress in the antiseptic and aseptic periods. He thought that there was danger today that the ordinary surgeon, impressed by the brilliant results of the great masters, might imagine that he could do what they did. An extensive operation on the brain, which might be a brilliant success in the hands of a Harvey Cushing, might result in disaster in the hands of a surgeon not specially trained along this line, even though he followed the same method. A cholecystectomy that would be the right operation in a particular case for a Moynihan or a Mayo, might be the wrong operation for Dr. A. or Dr. B. A slight error in the placing of a suture in a gastro-enterostomy, the careless application of a single ligature in a thyroidectomy, the incorrect placing of a clamp in a cholecystectomy might easily prove fatal.

There was no such thing as the mortality of such and such an operation, for that depended on the condition for which it was performed, on the operator and on the manner of its performance. While the results of aseptic operations were brilliant, we could not congratulate ourselves as much on the results of operations undertaken when sepsis already existed, especially in acute suppurative abdominal conditions. For the treatment of these it was difficult for the young operator to acquire the necessary experience. The operation for appendicitis was now too frequently performed. While the majority of such operations were easy of performance and almost devoid of danger, there remained a minority that were severe and difficult. Most harm was done when the patient was not seen until late, especially when abdominal distention had set in. The operative risk then was considerable. It was not sufficiently realized that most of the patients would not die if not operated on, and that a few days' delay often rendered the patient's condition more favorable for operation, if that should prove necessary. In all such cases, the operation should be judged on the merits of the particular case. If we were all to go back to the treatment of appendicitis in vogue forty years ago, the mortality would be less. By "all," he meant not merely all hospital surgeons but all who operate for appendicitis. Much more care should be taken in selecting cases for operation as regards both time and manner. It was commonly believed that the custom of operating freely for acute appendicitis had resulted in great saving of life; but statistics showed that deaths from appendicitis had increased, the official figures being:

TOTAL DEATHS FROM APPENDICITIS AND PERITYPHLITIS IN ENGLAND AND WALES

Period	Male	Female	Total
1901-1905	4,873	3,418	8,291
1906-1910	6,299	4,587	10,886
1911-1915	7,260	5,480	12,740
1916-1920	6,827	5,591	12,418

These figures tended to show, at least, that the mortality from appendicitis had not diminished since the custom of operating in the acute stage had been prevalent. Some explained the figures by saying that appendicitis was becoming more frequent; but of that there was no evidence. During the same period, the deaths from peritonitis (nonpuerperal) showed a decrease of 3,305.

Though the war had led to great advances in the treatment of septic wounds, compound fractures, plastic surgery and orthopedics, it had a harmful effect in one direction: It produced a crop of young operators who undertook dangerous operations because of a few years' practice in military surgery—the surgery of injuries in young and healthy men. This experience did not qualify for civilian surgery, such as that of the breast or cancer of the tongue, or in diseases of the biliary passages, stomach, colon or prostate. If the cases were all straightforward and could be dealt with by a textbook operation, all might go well; but it might easily fare ill with the patient if some unexpected difficulty arose for which the operator was not prepared. Mr. Berry concluded with his favorite definition of a good surgeon: "one who always knows when to put in, and when to take out, a drainage tube."

Sterilization of the Unfit

Passing judgment on an epileptic prisoner, Mr. Justice Roche drew attention to the question of sterilization. He said: "In my judgment, the medical profession of this country would be performing a public service if they studied earnestly the question of the feasibility of sterilizing both men and women with tendencies such as this man before me has. To allow them to produce is breeding from the worst stocks, and propagating disease and crime. I am expressing no opinion whether it is feasible or whether Parliament should pass such a measure. That depends on the examination of skilled persons as to the feasibility and risks attending." This pronouncement has attracted attention in the press, where it is pointed out that while we have no sterilization laws, they have been in force in the United States for some time, fifteen states having passed them before 1920.

BERLIN

(From Our Regular Correspondent)

Nov. 18, 1922.

Conflict Between the Physicians and the Health Insurance Societies

At various times, in my letters, I have referred to the misunderstandings and discord that have existed between the health insurance societies (*Krankenkassen*) and the physicians since the beginning of German social legislation. During recent months, relations have become especially strained, which is not surprising, since the fundamental basis of the conflict is naturally much accentuated by the difficult economic and political conditions that exist at present. The physicians have continually found cause to complain of the alleged unjustifiable pressure that has been brought to bear on them by the directors of the *Krankenkassen,* whereas the latter have again and again given expression in public to the conviction that the present system of health insurance has been worked out by the physicians without regard to the welfare of the patients, and that the present plan imposes a too heavy financial burden on the health insurance societies. In addition to the physicians' former grounds for complaint, the continual falling off in the value of the mark and the consequent raising (now 200,000 marks) of the limit of income that a person may have and still be insurable under the health insurance law have made it possible that, still more frequently than formerly, patients who are financially well able to secure medical treatment as private patients take advantage of the health insurance law and are thus able to obtain medical service at the ridiculously low rate that the *Krankenkassen* pay (at present the monthly fee for each patient is 100 marks). Those insured in the *Krankenkassen* are doubtless, in the main, on the side of the physicians; for, by the granting of the right of free choice of physician, which was secured to the patients by the physicians after a long struggle, the insured must have become convinced that they enjoy the same advantages as private patients. Under former conditions, before the choice of physician was permitted, patients could not be so sure of the kind of treatment they would receive; for under the system of a so-called "fixed panel" patients were compelled to allow themselves to be treated by the small number of physicians who, through the favor of the directors of the health insurance societies, had been selected on the panel. These panel physicians were naturally desirous of keeping in the good graces of the directors, and were therefore inclined to endeavor to satisfy them rather than the patients. With the introduction of free choice of physician, the situation was reversed, which results to the advantage of the patients. On account of this difference between the former and the present condition, it will be readily understood why the directors of the *Krankenkassen* still persist in opposing the system of free choice of physician.

At the present critical moment, when the financial distress of physicians has increased with the general financial depression affecting the whole population, the directors of the *Krankenkassen* seem to think that the time has come to make a successful assault against the principle of free choice of physician. They are endeavoring to reduce still further the already wretchedly low fees paid to the physicians, which would add to the financial distress of the latter. The physicians, from a sense of self-preservation, are assuming the attitude of defense, and, of late, the conflict has become so sharp that the two parties have threatened to break off all relations with each other. In the event of such a condition arising, the *Krankenkassen,* according to law, would be reduced to the necessity of giving the patients a daily cash allowance in lieu of prescribing free medical treatment, free medicine and free hospital care. The physicians would then treat the insured as private patients and no longer as members of the health insurance societies, and would consequently receive much higher fees from the individual patients. Unfortunately, such a condition of affairs would completely nullify the blessings sought and, to a certain extent, secured by health insurance legislation, for it has been the experience of the past that a considerable portion of the patients would use for self-medication the cash they receive; others would have recourse to quacks, the result being that no rational treatment of their affections would be secured. The course of illness and the period of nonemployment would thus be prolonged, which, in view of the many thousands of patients, would inflict a heavy financial loss on the state. Then, again, the *Krankenkassen* would also suffer, for, owing to the fact that the period of illness would in many instances be prolonged, they would be compelled to pay the daily cash compensation much longer than would be the case under rational treatment. The physicians, in the end, would fare no better, for the amount gained by the increase in the individual fees would be more than outweighed by the loss suffered through the falling away of patients. Thus, all persons concerned would find their situation made worse if all relations between the health insurance societies and the physicians should be broken off as threatened.

Among the physicians, especially in view of the fact that under the present conditions a large number are in bitter want and therefore many would be inclined to accept positions on a "fixed panel," the prospects that would be opened up by the breaking off of all relations have not been altogether pleasing; therefore, the official councils of the Leipzig League (*Verband*) and of the Physicians' League of Greater Berlin, respectively—in spite of the insufficient fees paid by the *Krankenkassen* and notwithstanding their grievances against the directors of the *Krankenkassen,* have decided, for the time being, to give up all thought of canceling their contracts with the *Krankenkassen.* A factor that doubtless had some weight in bringing about this decision was the consideration that, during the weeks just preceding Christmas, patients and the members of their families would not be inclined to use the cash compensations to employ a physician —especially in view of the present seemingly high fees demanded by physicians. The reduction in income for a large percentage of physicians would be so great that they would be compelled by their need to submit to whatever conditions should be imposed by the directors of the *Krankenkassen.* In spite of these facts, the view prevails among physicians that, owing to the gravity of the situation as portrayed, a cancellation of the present contracts between the physicians and the health insurance societies is inevitable in the near future, in order that better contracts with respect to fees and other provisions may be secured. It is hoped that the government and the parliament, which heretofore, for general social reasons, have sided rather with the *Krankenkassen* and their members, may now have gained a correct insight into the actual condition of affairs and will enact proper legislation in support of the physicians in their struggle with the directors of the *Krankenkassen.* These conditions are set forth in a clear and impressive manner in two articles by S. Alexander and Stier-Somlo, respectively, published recently in the *Deutsche medizinische Wochenschrift.* Alexander is the chairman of the Aerztliche Standesvereinigung of Greater Berlin, and Stier-Somlo is a professor in the University of Bonn, and is regarded as an authority in the field of government insurance.

Death of Professor Gutzmann

Prof. H. Gutzmann, who was well known for his researches in the field of speech defects and their treatment, and who, through his endeavors, helped to found and secure recognition for this special branch of medicine, died in Berlin, November 5, at the age of 57. Gutzmann's father was director of the Berlin Municipal School for the Deaf and Dumb, and it was through his influence that the son came to take up these studies. In 1905, Gutzmann became privatdozent in internal medicine, lecturing mainly on voice and speech defects. His works deal with language in general and with speech defects in children—stuttering, voice development, care of the voice, and physiology of the voice and of speech. He has also published a commentary on Kussmaul's book "Disturbances of Speech" and numerous articles in reference works.

PARIS

(From Our Regular Correspondent)

Nov. 17, 1922.

Suit Brought for Error in Diagnosis

The correctional tribunal of Evreux rendered a decision in a case brought against Dr. Vallet of Vernon for an error in diagnosis which, it was asserted, resulted in homicide. In the early part of 1921, a war widow, about 40, presented herself at the office of Dr. Vallet during his consultation hour. Vallet's first assumption was that the patient was pregnant. But the patient affected to be slandered by this diagnosis, the incorrectness of which she asserted she could prove. Unfortunately, the surgeon allowed himself to be convinced by the alleged proofs, and after reexamining the patient diagnosed a fibroma requiring surgical intervention. During the course of the operation the truth was revealed. The woman was pregnant, and Dr. Vallet decided at once to perform a cesarean operation. The child was saved, but a few hours later, the mother had an internal hemorrhage and succumbed. The prosecution held that the error in diagnosis constituted a grave tort and, since this tort had brought about the death of a patient, Article 319 of the Penal Code, which provides for the punishment of the perpetrator of homicide committed involuntarily, was invoked. On the basis of testimony given by medicolegal experts and by Dr. J. L. Faure, professor of clinical gynecology in the Faculté de médecine of Paris, that such an error in diagnosis is not only possible but occurs frequently, Dr. Vallet was acquitted of the charge.

Psychology of the Sexes in Relation to Vocational Guidance

One of the great problems of psychopedagogy is the differentiation of the individual talents or aptitudes of pupils with the view of securing a better development and utilization of powers that will redound to the benefit of society. This differentiation will make it possible to establish a more effective vocational guidance for young women especially, and the education of women will consequently be completely reorganized. This is the conclusion reached by Mlle. Marguerite Evard in an interesting article published in the review *L'Education.*

According to the observations of Mlle. Evard, women have more delicate sense perception than men. Women perceive a weight of 30 mg.; men, under like conditions, do not perceive a weight under 40 mg. Women can distinguish a gap of 20 mm. between two points; men, under the same experimental conditions, do not distinguish a gap under 35 mm. In matters dependent on a fine sense of taste and smell; likewise in the discrimination of colors and delicate shades of color, women are superior to men. Daltonism and achromatopsia are much more frequent in men than in women. Women, therefore, can be expected to be excellent observers. A delicate sense of touch is indispensable for a seamstress, a watchmaker, a feather worker, a telegrapher or a stenographer. A delicate taste and sense of smell are indispensable also in pharmacy, in the perfume industry and in the confectioner's trade, all of which at present are monopolized by men, in spite of the fact that men possess less subtile sense perceptions. The keener perception for colors that characterizes women finds its application in the fashions, the industrial arts, and the decoration of books, jewelry, furniture and pottery. Mlle. Evard also emphasized that women have the particular faculty of seeing laterally without seeming to do so. It is a very useful aptitude that man has not acquired, and one that will often serve policewomen in good stead in connection with the supervision of expositions, large stores and the like. Being gifted with acute auditory perception, women are capable of rendering good service as telephonists, in certain factories, and in various kinds of administrative work.

Our schools as such do not prepare young women for life, in that they fail to give the needed special development to their sensorial aptitudes. Psychology has revealed in children of both sexes a phase of intense sensorial activity manifested during the period from 6 to 13, at which time the whole intelligence is absorbed in making concrete acquisitions. Binet termed this the period of "sensorial intelligence." The public schools take no account of this psychologic fact in the mental development of children. Mlle. Evard expressed the hope that scientific experimental researches might be undertaken in order to discover the aptitudes peculiar to the two sexes, with a view (1) to better adaptation of the education of women to the special qualities of the feminine mind through the introduction of more appropriate methods and on the basis of a clearer vision of the goal to be attained, and (2) to deriving a better advantage from these aptitudes for the vocational guidance of adolescents of both sexes. To men, who possess a higher creative capacity, types of work would be assigned in which they can give free rein to their technical, scientific and artistic genius—in which, too, their physical strength and endurance come into play. To women will be reserved the many fields of activity in which their superior powers of memory, observation, compilation and repetition will give them a distinct advantage over men.

Public Lectures on Medical Topics

At one of the recent meetings of the administrative council of the Syndicat des médecins of the department of the Seine, Dr. Jayle brought up the question of the organization by the syndicat of public lectures on medical topics in order to establish points of contact with the laity. This proposal, however, met with objections. Drs. Durand and Hartmann expressed serious doubts as to the usefulness of such lectures. They thought it would be a difficult and delicate matter to decide what subjects to discuss. Dr. Ferry held that certain questions of a professional nature might be treated to advantage in public lectures in order that the point of view of the syndicat might be made known to other organizations. A case in point would be the proposed legislation in regard to health and invalidity insurance. If the lecture plan should be introduced, it would be Hartmann's recommendation that the topics to be discussed should not bear on purely medical questions but solely on questions of a social nature which deserve to be considered from a medical point of view.

MADRID

(From Our Regular Correspondent)

Oct. 16, 1922.

Von Noorden Lectures on Chronic Enterocolitis

Professor von Noorden of Frankfort has given a lecture on chronic enterocolitis at the Madrid Medical School. From this category, he excludes the serious forms of the disease, having as a pathologic base an ulcerative or infiltrating colitis. He considers ulcerative colitis as due to colonic or dysenteroid bacteria, and infiltrating colitis as due to septic germs that have lodged in the intestinal wall. Purposely, he did not touch on amebic colitis or on the types of the disease caused by *Lamblia* or *Cercomonas*, which are common and are adequately treated with ipecac preparations. Von Noorden is skeptical as to the etiologic rôle of *B. paratyphosus* B, and he centered his discussion on cases presenting no demonstrable infection by pathogenic germs. So far, no bacteriologist has been able to find any specific pathogenic organism in the condition described as chronic enterocolitis and such bacteria as have been isolated in the feces must be considered as normal inhabitants of the bowel.

ENTEROCOLITIS CAUSED BY ABNORMAL FERMENTATION AND PUTREFACTION—DIFFUSE CHRONIC ENTEROCOLITIS

According to A. Schmidt, irritating bowel disturbances in either acute or chronic enterocolitis may be attributed to two different processes. In the first, fermentative agents are responsible; in the second, putrefactive agents predominate. In order to conquer the putrefactive process, the amount of protein must be reduced and the development of a fermentative flora must be furthered through the use of carbohydrates, and—with some caution—milk and buttermilk. To check the fermentative process, the intake of carbohydrates must be decreased for a long time. The cure of fermentative enteritis is usually not difficult. The putrefactive form is somewhat more rebellious, since the intestine itself furnishes the putrescible material. In addition, the name often masks other conditions, such as organic diseases of the intestine, benign or malignant growths, tuberculosis or strictures. Comby's dietetic treatment seems a good weapon when the condition is really putrefactive and not organic. In such diffuse enterocolitis, there is practically always diarrhea. This can be checked with opium, a method not indorsed by von Noorden. In fermentative enterocolitis, there is microscopic, though not macroscopic, mucus. In the putrefactive form, it is apparently destroyed by the process itself, its place being taken by white cells and even by red cells.

FECAL OR MUCOMEMBRANOUS COLITIS

Fecal or mucomembranous colitis is very common, especially in neuropathic patients. The prevalence among women is twice as great as among men. There is usually a history of neglected constipation for years. Many patients had their appendixes taken out, without improvement. In the next stage, diarrhea alternates with constipation. The stools often contain mucous masses, sometimes even surpassing the amount of feces. There are a few cells in the mucus, eosinophils predominating. The stools are putrid, and neutral or weakly alkaline. There is no fermentation, no undigested pieces of meat, nor increase of connective tissue, which shows that digestive processes in the small intestine are not involved, and that chyme is not rushed through the ileojejunal tract.

The urine contains an abundance of indican and sulphoethers, a distinction from constipation, which causes no indicanuria. Remote toxic effects also are noticed, such as headaches and rheumatic or neuralgic pains. Quite often, nerve trunks are tender to pressure, this being the phenomenon described by von Noorden as enterotoxic sensitive polyneuritis, caused, possibly, by split protein derivatives, but not by aromatic substances, such as indol or skatol. This indicanuria—which may be absent—is considered by von Noorden as evidence that putrefactive processes are at work. The secondary affections of the nervous system are true secondary toxic conditions. The manifestations of stasis and irritation resulting from the chronic fecal stasis must be taken into consideration. It is never a case of peristaltic weakness alone but of this condition in combination with vagotonic spastic contractions. These spasms are responsible for the delay of the fecal bolus in the distal colon and sigmoid. The mucus output does not indicate an inflammatory condition, being only a defense reflex of the intestinal wall. The designation mucous or pseudomucous colitis is not appropriate, since originally there is no colitis and no inflammation. But, secondarily, inflammatory irritative conditions may develop. The spasm may lead as far as an organic stricture would. Thus, we have the clinical picture of acute fecal superficial colitis, which may become chronic and lead to serious changes.

In management and treatment, the difference between chronic diffuse enterocolitis and fecal enterocolitis must be kept in mind. In the former, the causative agent is a bacterial process; in the latter, a functional stasis, i. e., a change in the neuromuscular system. Fecal enterocolitis is by far the more common of the two. For pathologists the changes due to diffuse chronic enterocolitis are a rarity. When the functional basis of fecal enterocolitis is understood, its therapy is apparent. Of first importance is a restricted diet. The spasmophilia must be relieved; and the sovereign remedy is atropin. Rest and the use of wet packs are advocated. Any hypnotics given must contain no opium. To assist in emptying the bowel, one must turn to irrigations or some mild laxative, such as rhubarb with calcined magnesia. This is the preliminary treatment. The real treatment requires an essential drug, atropin. Dosage, according to susceptibility, must be from 0.001 to 0.003 gm. a day. The diet should be such as to increase the size of the fecal bolus and produce a soft stool. Vegetables and fruits such as plums are appropriate. Agar has been advocated in combination with cascara sagrada extract.

Marriages

Gleaves B. Kenny, Lieutenant, M. C., U. S. Army, Washington, D. C., to Miss Pearl Lee Braswell of Norfolk, Va., November 30.

Guy Gibson Campbell, Tenom, British North Borneo, to Miss Helen A. Breen of Portland, Ore., October 26.

Lewis F. Soule, Salem Depot, N. H., to Miss Jesse R. Bleakney of Dorchester, Mass., November 11.

Arthur Reuben Bogue, Rochelle, Ill., to Miss Rosalind Victoria DeOn of Chicago, November 19.

William Alexander McIntosh, Oberlin, Ohio, to Miss Austa McKitrick of Kenton, October 3.

Fred Somervell Watson, Okmulgee, Okla., to Miss Gelene Nichols of Ozark, Ark., October 4.

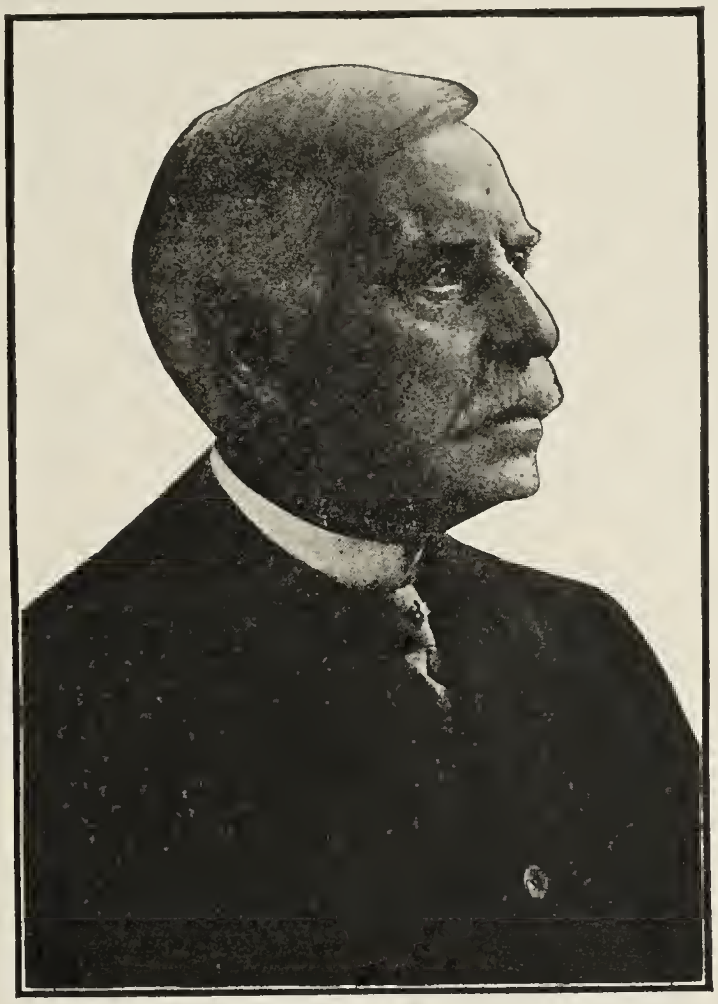
Von Heller Brobeck to Miss Helen Trostel, both of Colorado Springs, Colo., November 19.

Murdock Sykes Equen to Miss Anne Cornelia Hart, both of Atlanta, Ga., October 25.

George E. Orebaugh to Miss Hazel Sigler, both of Norwood, Ohio, October 19.

Deaths

William Edward Quine ⊕ Chicago, for thirty years professor of the principles and practice of medicine in the College of Physicians and Surgeons, died of angina pectoris at his home, December 7, aged 75 years. Dr. Quine was born in the Isle of Man in 1847 and came to Chicago with his parents in 1853. He received his medical degree from Northwestern University College of Medicine in 1869. Following his graduation he became professor of materia medica and therapeutics in his alma mater and held the appointment until 1883; in that year he was appointed to his professorship in the College of Physicians and Surgeons and held the appointment continuously until 1913, serving also from 1892 to 1913 as dean. He was prominent in the absorption of the medical school by the University of Illinois, which took place in 1913. He was president of the Chicago Medical Society in 1872, of the Illinois State Medical Society in 1904 and first president of the Institute of Medicine of Chicago in 1916. He was attending physician to the Cook County and Mercy hospitals from 1871 to 1883 and on the consulting staffs of St. Luke and Michael Reese hospitals from 1910 to 1922. From 1885 to 1889 he was president of the Illinois State Board of Health. Aside from his medical interests Dr. Quine had many activities. He built a hospital of one hundred beds for women in Chin Kiang, China, in honor of his deceased wife, who had served as a missionary in China. He also endowed four schools for girls in different parts of China, each named in her honor. He founded and for ten years supported the library of the College of Medicine of the University of Illinois, which has been named in his honor. In memory of his daughter he endowed a "Ruth Quine Deaconess" in connection with a benevolent institution in Normal, Illinois, founded by his mother. He also donated his former home to the Chicago Missionary and Church Extension Society of the Methodist Episcopal Church, for use as a community house for the benefit of negro Methodism. Dr. Quine was a deeply religious man, of intense and powerful personality, an exceptionally forceful didactic teacher, a greatly loved and genuine leader.



William Edward Quine, M.D., 1847-1922

Flaval Shurtleff Thomas, South Hanson, Mass.; Medical School of Harvard University, Boston, 1874; died, November 26, aged 70, following a long illness. Dr. Thomas received his B.Sc. from Syracuse University in 1885, and his D.V.Sc. from McGill University, Montreal, 1890. He was one of the editors of the Standard Dictionary of the English language and author of a dictionary of University Degrees, and "A Study of the LL.D., Especially at Harvard."

George William Dow ⊕ Lawrence, Mass.; Medical School of Harvard University, Boston, 1881; member of the Massachusetts Medicolegal Society; for twenty years medical examiner of Greater Lawrence; formerly member of the school board; at one time city physician; on the staff of the Lawrence General Hospital; aged 70; died, November 21, from heart disease.

Oliver R. Stuteville, Big Clifty, Ky.; Hospital College of Medicine, Medical Department, Central University of Kentucky, Louisville, Ky., 1889; member of the Kentucky State Medical Association; aged 60; died, November 14, from injuries received when the automobile in which he was driving was struck by a train.

Frank Aikman Jones, Memphis, Tenn.; Louisville Medical College, Louisville, Ky., 1890; member of the Tennessee State Medical Association; formerly lecturer on clinical medicine and physical diagnosis at the Memphis Hospital Medical College; aged 55; died, November 23, from heart disease.

James Franklin Battin ⊕ Marshalltown, Iowa, State University of Iowa College of Homeopathic Medicine, Iowa City, 1897; formerly city physician; served in the M. C., U. S. Army, during the World War; aged 53; died, November 25, at Excelsior Springs, Mo., from diabetes mellitus.

Henry R. Pennock, Wilmington, Del.; Hahnemann Medical College and Hospital of Philadelphia, 1902; on the staff of the Wilmington Homeopathic Hospital; aged 42; died, November 25, at the Hahnemann Medical College and Hospital, Philadelphia.

Charles Herman Miller ⊕ Dorchester, Mass.; Medical Department of the University of New York, 1891; member of the New England Medical Society; for thirty years practicing physician in Boston; aged 59; died, November 23, from pneumonia.

Curtis Carrington Williams ⊕ Niles, Ohio; University of Michigan Medical School, Ann Arbor, 1890; served in the M. C., U. S. Army, with rank of captain, during the World War; aged 59; died, November 11, from heart disease.

Samuel B. McGavran, Cadiz, Ohio; University of Wooster Medical Department, Cleveland, 1872; formerly member of the state legislature; at one time member of the state board of medical examiners; aged 75; died, November 20, from senility.

Leon Gerald Holland, Eugene, Ore.; Willamette University Medical Department, Salem, Ore., 1904; suffered the loss of an arm during the Philippine Islands War; aged 46; died, November 15, at the Mercy Hospital, from cerebral hemorrhage.

Norman Algernon McLeod ⊕ Brookhaven, Miss.; Medical Department of the Tulane University of Louisiana, New Orleans, 1896; served in the M. C., U. S. Army, during the World War, with rank of captain; aged 50; died, November 20.

Otto Braun ⊕ Ashland, Wis.; Rush Medical College, Chicago, 1892; specialized in ophthalmology, otology, laryngology and rhinology; aged 56; died suddenly from angina pectoris, November 21, while on a hunting trip near Spider, Wis.

Julius Barker Southworth, Stuyvesant Falls, N. Y.; University of Vermont College of Medicine, Burlington, Vt., 1882; member of the Medical Society of the State of New York; also a publisher; aged 73; died, November 18.

James M. Johns, Texarkana, Ark. (licensed, Arkansas, 1903); Civil War veteran; aged 73; died, November 21, from a bullet wound in his brain, presumably self-inflicted, while suffering from an incurable disease.

Leander B. Smith ⊕ Fremont, Neb.; College of Physicians and Surgeons, Keokuk, Iowa, 1878; first president of the Dodge County Medical Society; formerly city physician; aged 76; died, November 19, from senility.

Ignatius David Steffen ⊕ Antigo, Wis.; Rush Medical College, Chicago, 1887; member of the board of health; president of the Langlade National Bank; for three terms served as mayor; aged 67; died, November 21.

Walter D. Nicholson, Columbia, S. C.; Medical College of the State of South Carolina, Charleston, S. C., 1860; Civil War veteran; aged 87; died, October 6, at the Confederate Soldiers' Home, from rheumatic fever.

John Weigle Mehring, Littlestown, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1905; aged 41; died, November 16, at the West Side Sanitarium, York, from a complication of diseases.

James H. Jones, Jonesboro, Tenn.; Vanderbilt University Medical Department, Nashville, Tenn., 1880; member of the Tennessee State Medical Association; aged 68; died, November 6, following a long illness.

Augustus A. E. Brien ⊕ Manchester, N. H.; University of Montreal Faculty of Medicine, Montreal, Que., Canada, 1883;

founder of the Franco-Americaine Historical Society; aged 64; died, November 19.

William T. Putt, Grand Island, Neb.; Eclectic Medical Institute, Cincinnati, 1874; for eight years house physician at the Nebraska Soldiers' and Sailors' Home, Burkett; died recently, aged 79.

Eugene Justine Butler, Wilkes-Barre, Pa.; College of Physicians and Surgeons, Baltimore, 1893; member of the board of education; aged 61; died, November 6, from cerebral hemorrhage.

Frederick Darwin Stone ⊕ Syracuse, N. Y.; Syracuse University College of Medicine, Syracuse, N. Y., 1903; aged 44; was instantly killed, November 17, when he was struck by a street car.

John Calvin Wilson ⊕ Dallas, Texas; Tulane University of Louisiana School of Medicine, New Orleans, 1919; aged 33; died, November 18, at St. Paul's Sanitarium, from uremia.

William S. Cline, Woodstock, Va.; Washington University School of Medicine, Baltimore, 1867; aged 78; died, November 19, from injuries received in a fall some time ago.

Irwin Franklin Huff ⊕ Sellersville, Pa.; University of Vermont College of Medicine, Burlington, Vt., 1885; aged 62; died, November 24, from acute bronchial asthma.

John Lewis Vialet, Baton Rouge, La.; Long Island College Hospital, Brooklyn, 1880; member of the Louisiana State Medical Society; aged 72; died, September 22.

John Clay Kirby ⊕ Cedar Vale, Kan.; State University of Iowa College of Medicine, Iowa City, 1892; aged 58; died suddenly, November 16, from heart disease.

John T. Booth, Cincinnati; Cincinnati College of Medicine and Surgery, 1879; veteran of the Civil and Spanish-American wars; aged 81; died, November 15.

Isaac M. Minton, Fortescue, Mo.; Missouri Medical College, St. Louis, 1883; aged 67; died, November 11, from heart disease, following an operation.

Dennis Cornelius O'Brien, Lexington, Mich.; University of Michigan Medical School, Ann Arbor, 1867; aged 78; died, November 19, from paralysis.

Frederick William Marotz, San Pedro, Calif.; Long Island College Hospital, Brooklyn, 1885; aged 63; died, November 27, from pneumonia.

Charles Frederick Wahrer ⊕ Fort Madison, Iowa; College of Physicians and Surgeons, Keokuk, Iowa, 1887; aged 72; died, November 19.

Martin Landis Hershey ⊕ Hershey, Pa.; Jefferson Medical College, Philadelphia, 1883; aged 65; died, November 10, from heart disease.

Charles T. Horn ⊕ Lehighton, Pa.; College of Physicians and Surgeons, Baltimore, 1878; aged 74; died, November 20, from heart disease.

Joel Frank Trull, Biddeford, Maine; Boston University School of Medicine, Boston, 1894; aged 54; died, November 22, from paralysis.

Charles A. Hale, Ravenna, Neb.; University of Nebraska College of Medicine, Lincoln, Neb., 1886; aged 73; died, October 18.

John H. Hockenhull, Cumming, Ga.; Emory University School of Medicine, Atlanta, 1886; aged 59; died, November 19.

Andrew H. Barber, Dorrance, Kan. (licensed, Kansas, 1903); aged 58; died, November 5, from carcinoma of the nose.

Charles Elias McCarty, Peoria, Ill.; College of Physicians and Surgeons, Chicago, 1903; aged 40; died, November 20.

John Smith Barton, Cuba, Ill.; Eclectic Medical Institute, Cincinnati, 1878; aged 74; died, November 20, from paralysis.

Charles Fox Howell, Laurel Hill, La.; Medical College of Louisiana, New Orleans, 1882; aged 63; died, November 17.

John C. Roach, Atwood, Tenn.; University of Nashville Medical Department, 1872; aged 78; died, November 20.

David H. Mingle, Maxwell, Iowa; Jefferson Medical College, Philadelphia, 1871; aged 75; died, November 22.

Oliver H. Saunders, Findlay, Ohio; Medical College of Ohio, Cincinnati, 1891; aged 58; died, November 18.

Walter A. S. Murphy, Atchison, Kan. (licensed, Kansas, 1901); aged 71; died, November 14.

Solomon D. Shepard, Anderson, Ind. (licensed, Indiana, 1899); aged 89; died, November 28.

William D. Fall, Advance, Ind. (licensed, Indiana, 1897); aged 70; died, November 25.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

"ESTEROL" NOT ADMITTED TO N. N. R.

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following report, declaring "Esterol" (Frederick Stearns & Co.) inadmissible to New and Nonofficial Remedies.

W. A. PUCKNER, Secretary.

"Esterol" is the proprietary and nondescriptive name under which the firm of Frederick Stearns & Co. markets benzyl succinate. Benzyl succinate has been proposed as a substitute for benzyl benzoate on the ground that, being insoluble in water, it is almost tasteless and does not produce the gastric discomfort which benzyl benzoate is said, at times, to cause.

As might be expected from its composition, benzyl succinate has the action of benzyl esters, as has been determined by Macht (*Proc. Soc. Exper. Biol. & Med.* **38**:177, 1921) and also reported by Bye (*J. Indust. & Engin. Chem.*, March, 1921, p. 217). The available evidence does not permit judgment of the value of benzyl succinate as compared with that of benzyl benzoate. Thus while Nielsen and Higgins (*J. Lab. & Clin. Med.* **6**:388, 1921; **7**:69, 1921) have reported that in alkaline solution the succinate is hydrolyzed more rapidly than the benzoate, clinical trials carried out by Macht (*loc. cit.*) indicated that its action is milder than that of benzyl benzoate, probably because its insolubility retarded its absorption. The evidence was such as to warrant the admission of benzyl succinate to New and Nonofficial Remedies (THE JOURNAL, Sept. 24, 1921, p. 1023), but with the caution that its actual value remains to be determined.

The proprietary brand of benzyl succinate sold as "Esterol" is inadmissible to N. N. R. because it violates the principles and rules that govern the acceptance of articles as follows:

1. Proprietary names for medicinal articles are recognized only if the Council deems the use of such exclusive names to be in the interest of public welfare. In consideration of the benefits which may come from the discovery of a therapeutic agent, the Council concedes to the person or firm that by right of discovery controls such a product, the right to name it. If the discovery that a previously known substance has therapeutic value is deemed of sufficient importance, the Council may recognize a proprietary name for such a substance if the name be applied by the person who makes the discovery. Benzyl succinate was described in the literature about fifty years ago by Zana and Guareschi (*Gazz. Chem. Ital.* **2**:256). The therapeutic value of benzyl esters was first reported on by D. I. Macht (*J. Pharmacol. & Exper. Therap.* **2**:419, 1915). Hence Stearns & Co. are neither the discoverers of the product nor of its therapeutic properties, and therefore the Council cannot recognize the proprietary name Esterol applied to it by Stearns & Co.

In presenting their brand of benzyl succinate to the Council, Stearns & Co. argued for the recognition of the proprietary name Esterol on the ground that they first determined the therapeutic value of benzyl succinate and first made it available to the medical profession. This would commit the Council, however, to recognize the many benzyl esters described in the literature, all of which would merely present a way of obtaining the action of the benzyl radical. Thus unendurable confusion would be caused by the application of a number of uninforming names applied to the various benzyl esters which might be put out and which so far have not been studied as to their therapeutic effects, for the reason that the benzyl effect is obvious from the make-up of the compound. To prevent this confusion, the Council has admitted benzyl succinate to New and Nonofficial Remedies, has provided tests and standards for the control of the product, and will accept brands of the product only on condition that they are marketed as benzyl succinate (to which may be appended the name or the initials of the firm which markets it).

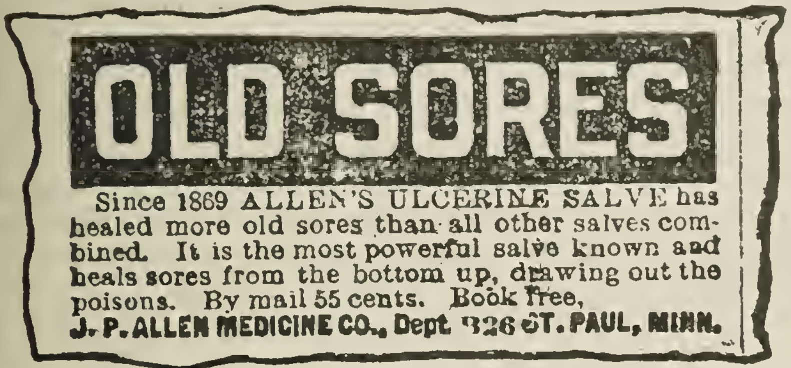
2. The label of the trade package contains recommendations for the use of Esterol in dysmenorrhea, asthma, colic, and hiccup, and thus advertises it indirectly to the public.

The Council declares Esterol (Frederick Stearns & Co.) ineligible for admission to New and Nonofficial Remedies because the name is in conflict with the provisions against the application of proprietary names to unoriginal articles and because it is advertised indirectly to the public.

MORE MISBRANDED NOSTRUMS

Abstracts of Recent Notices of Judgment Issued by the Bureau of Chemistry of the United States Department of Agriculture

Allen's Ulcerine Salve.—The J. P. Allen Medicine Co., St. Paul, Minn., shipped in July, 1918, a quantity of "Allen's Ulcerine Salve" which was misbranded. The federal chemists reported that the stuff consisted essentially of lead soap and linseed oil. It was falsely and fraudulently represented as an effective treatment for chronic ulcers, bone ulcers, varicose ulcers, syphilitic ulcers, gangrene, blood poisoning, lock-jaw, carbuncle, piles, gun shot wounds, bites of animals and reptiles, milk leg "and all old sores of every name and kind, no matter of how many years standing." In December, 1921, the J. P. Allen Medicine Co. pleaded guilty and was fined $1.—[*Notice of Judgment No. 10390; issued July 26, 1922.*]



OLD SORES

Since 1869 ALLEN'S ULCERINE SALVE has healed more old sores than all other salves combined. It is the most powerful salve known and heals sores from the bottom up, drawing out the poisons. By mail 55 cents. Book free,
J. P. ALLEN MEDICINE CO., Dept. 326 ST. PAUL, MINN.

Ward's Nostrums.—The Dr. Ward's Medical Co., Winona, Minn., shipped a quantity of nostrums in January, April and May, 1919, that were misbranded. These comprised the following:

Ward's Celebrated Liniment.—This, when analyzed by the federal chemists, was found to consist of alcohol, soap, sassafras oil, extract of red pepper and colored water. It was falsely and fraudulently represented as an effective cure for cholera, diarrhea, dysentery, colic, cramps, chills and ague, diphtheria, earache, piles, etc., as well as being a marvelous remedy for sick horses, cattle and hogs.

Ward's Lung Balsam.—This preparation the federal chemists found to consist of chloroform, menthol, tar, ipecac extract, ammonium chlorid, sugar, alcohol and colored water. It was falsely and fraudulently represented as an effective cure for asthma, bronchitis, pleurisy, sore throat, pneumonia, consumption and various other conditions.

Ward's Kidney and Bladder Remedy.—This the federal chemists reported was found to consist of extracts of bearberry and cascara sagrada, sodium phosphate, sodium acetate, alcohol and water sweetened with saccharin and flavored with lemon oil. It was falsely and fraudulently represented as an effective cure for acute and chronic kidney, bladder and urinary disorders, Bright's disease, gravel, scanty urine, catarrh of the bladder and enlargement of the prostate gland.

Ward's Sarsaparilla Compound.—This, the chemists found consisted of sarsaparilla extract, anise oil, sassafras oil, a trace of potassium iodid, alcohol and colored water. It was recommended as an effective cure for chronic affections of the skin, scrofula, erysipelas, pimples, piles, scald head, ulcers, syphilis, etc.

Ward's Kidney and Backache Pills.—These, according to the federal analysts consisted of methylene blue, bear-berry, digitalis, aloes, a trace of buchu and an aromatic oil. They were falsely and fraudulently represented as a cure for congestion of the kidneys, diabetes, gravel, all urinary troubles, etc.

In November, 1921, the company was fined $35.—[*Notice of Judgment No. 10142; issued May 10, 1922.*]

Durand's Swiss Herb Tea.—The Durand Medicine Co., Cincinnati, Ohio, shipped in April, 1922, a quantity of this product which was misbranded. The Bureau of Chemistry reported that analysis showed the product to consist of a mixture of plant drugs, including approximately 50 per cent. of senna with smaller amounts of fennel seed, orange peel, licorice root, juniper berries, althea root, sassafras bark, lavender flowers, buckthorn bark, red clover tops and saffron. Some of the therapeutic claims made for the product on the trade package were:

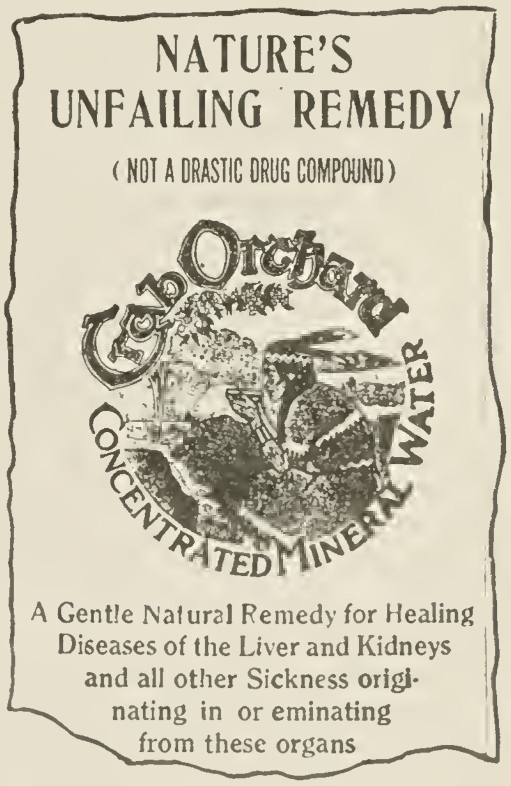
> "To be used against Headache . . . Dizziness, Indigestion, Female Complaints, Liver and Kidney Complaints, Blood and Skin diseases, etc."
>
> "To be used against Colds and disorders of the Lungs, Stomach, Liver, Kidneys and Bladder; also against Headache . . . Coughs, Dizziness, Loss of Appetite, Indigestion, Phlegm, Sleeplessness, Pale Complexion, Weakness, Pains in the Limbs, Rheumatism, Inflammation, Toothache, Blood and Skin Diseases and Female Complaints."

These and similar claims were declared false and fraudulent and applied "with a knowledge of their falsity for the purpose of defrauding purchasers thereof." In June, 1922, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 10480; issued Sept. 15, 1922.*]

Ferraline.—The Ferraline Medicine Co., Demopolis, Ala., shipped from Alabama to Texas, a quantity of this preparation that was misbranded. The federal chemists reported that analysis showed Ferraline to consist essentially of about 3 per cent. iron sulphate and other iron compounds and about 97 per cent. of water. The preparation was represented as a remedy for stomach trouble, rheumatism, indigestion, kidney trouble, eczema, burns and pellagra. The claims were declared false and fraudulent and in June, 1922, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 10529; issued Oct. 14, 1922.*]

Crab Orchard Mineral Water.—L. H. Goodwin & Co., Crab Orchard, Ky., consigned a quantity of "Crab Orchard Concentrated Mineral Water" from Kentucky to Ohio. When analyzed by the federal chemists, this was found to be a highly mineralized water, the dissolved mineral matter consisting chiefly of Glauber's and Epsom salts. The stuff was labeled in part:

> "The World's Greatest Remedy For The Following Ailments In Their Most Chronic Forms; Rheumatism, Constipation, Kidney Diseases, Liver Complaints, Dyspepsia, Biliousness, Sick and Nervous Headache, Scrofula, Malarial Fever, Hay Fever, Typhoid Fever, Lumbago, Sleeplessness, Vertigo, Piles, Skin Disorders, Indigestion, Jaundice, Flatulency, Female Complaint, Neuralgia, Colds, La Grippe, Palpitation of the Heart, Disordered Nerves, Dysentery, Gout, Bilious Colic, Stomach and Bowel Troubles, Loss of Appetite, Catarrh in All Forms, Gall Stones, Dropsy, Bladder Troubles And All Diseases Arising From a Disordered Liver, Kidneys, Stomach and Impure Blood."



NATURE'S
UNFAILING REMEDY
(NOT A DRASTIC DRUG COMPOUND)

A Gentle Natural Remedy for Healing
Diseases of the Liver and Kidneys
and all other Sickness originating in or eminating
from these organs

These claims were declared false and fraudulent as the water contained no ingredient or combination of ingredients capable of producing the effects claimed. In May, 1921, the case came to trial before the court and a jury and the jury returned a verdict of guilty. The defendant filed a motion for a new trial but in June, 1921, the motion was denied and judgment of condemnation and forfeiture was entered.

Apparently, no fine or other punishment was imposed and the water was released to the claimant on the payment of costs and the execution of a bond for $100.—[*Notice of Judgment No. 10172; issued May 12, 1922.*]

Correspondence

ACCIDENTS FROM LOCAL ANESTHETICS

To the Editor:—Reports that have come to the attention of the Committee for the Study of Toxic Effects of Local Anesthetics show that accidents or fatalities from the use of local anesthetics are at times due to errors in which cocain is substituted for procain, or cocain is used in far greater concentration than that directed by the surgeon, or to other similar errors. In order that the cause of such accidents may be definitely established, the American Medical Association Chemical Laboratory has offered to examine for the committee local anesthetic preparations, the identity or the composition of which is in doubt. Those who wish to report accidents of this character to the committee are asked to forward the specimens in question in sealed containers, accompanied by a detailed statement of the accident, to the A. M. A. Chemical Laboratory, 535 North Dearborn Street, Chicago. The laboratory, after examining the preparations, will submit its findings, together with the report of the accident which accompanied the specimen, to our committee.

Emil Mayer, M.D., 40 East Forty-First Street,
New York.
Chairman, Committee for the Study of Toxic
Effects of Local Anesthesia.

THE MODIFIED PNEUMOCOCCUS VACCINE OF ROSENOW

To the Editor:—While a member of the John McCormick Institute for Infectious Diseases, Chicago, I discovered that antibodies appear more rapidly in the blood following the injection of partially autolyzed pneumococci ("pneumococcus antigen") than following the injection of heat-killed pneumococci.

Through the cooperation of Dr. Ludvig Hektoen, director of the institute, and of physicians at the Presbyterian and Cook County hospitals, the effect of this antigen on the course of lobar pneumonia, as compared with alternate untreated cases, was studied for three consecutive years. The mortality rate was lower in the treated than in the control series. Subsequent studies have corroborated these results.

During my studies on the bacteriology of influenza in 1918-1919, I prepared, from the freshly isolated strains of bacteria, mixed vaccines which appeared to be valuable in prophylactic inoculation against the more serious respiratory infections in influenza.

The burden of the preparation and distribution of these substances became so large that it seemed best to turn the work over to a commercial firm, and, of course, without financial return to me or to the Mayo Foundation. This was done after I felt satisfied that the details and principles involved, as set forth in published reports, would be fulfilled. It was hoped that information as to the efficacy of the preparations might be obtained, and that relief of human suffering would result pending the evolution of better methods.

I have found since that samples of the antigen obtained in the open market have fallen short of the original requirements, and that information regarding the use of the antigen and the mixed vaccine has not been forthcoming. Moreover, the impression seems to have spread among physicians that I advocate the use of ordinary bacterial vaccines in the treatment of acute infections. The only statement I have made which perhaps might be so construed appeared in my paper, "Prophylactic Inoculation Against Respiratory Infections in Influenza" (The Journal, Jan. 4, 1919, p. 31), which was in the nature of a reply to many inquiries regarding the use of the vaccine in the treatment of influenza. The statement reads: "Since the severe complications in influenza, such as pneumonia, do not usually begin until the fourth day or later, the vaccine, if given at the onset of the disease, might reasonably be expected to afford some protection." It will be seen that I advocated the use of the vaccine as a prophylactic.

It is the purpose of this letter to inform physicians that, while I still believe in the efficacy of partially autolyzed (detoxicated) pneumococci in the treatment of lobar pneumonia, and in the use of properly prepared bacterial vaccines for prophylactic inoculations and in certain chronic conditions, I do not advocate the latter in the treatment of acute infections, and that henceforth the use of my name in connection with these commercially prepared products will be contrary to my wishes and without my consent.

E. C. Rosenow, M.D., Rochester, Minn.

RECOVERING TUBE FROM PLEURAL CAVITY

To the Editor:—In The Journal, April 16, 1921, page 1078, Dr. Frank Holyoke says that nowhere in medical literature has he seen any easy method for recovering with safety a rubber drainage tube lost in the pleural cavity. He then describes his method of recovering tubes by saying that the specific gravity of the tube is 0.98, and if the patient is placed on his sound side with the diseased side up and then the diseased pleural cavity is filled with physiologic sodium chlorid solution, the tube will float on top of the solution near the aperture and can be easily removed. If any surgeon has been so unfortunate—as I have—to lose a tube in draining the pleural cavity, I would not advise such a procedure. I did it once and almost lost my patient from asphyxia, and still did not get the tube.

A safe and easy plan is to place the patient on a table under or over a fluoroscope, whereupon the drainage tube can be seen. Then with a long pair of bent metal forceps introduced at the aperture both metal forceps and drainage tube are visible. The forceps can be guided directly to the drainage tube under the fluoroscope, and the tube grasped and withdrawn.

L. M. Whitsitt, M.D., Fort Worth, Texas.

"TREATMENT OF THROMBO-ANGIITIS OBLITERANS"

To the Editor:—In The Journal, November 18, appeared a paper by Dr. Samuel Silbert, who states that to his knowledge the injection of alcohol into the nerves for the relief of pain in thrombo-angiitis obliterans has heretofore not been used. In the neurologic service of Dr. William M. Leszynsky at Lebanon Hospital, cases of thrombo-angiitis and allied conditions have been treated by a method similar to that advocated. For the last six years four or five cases have been treated in this manner with temporary relief. The principle of alcohol injection into nerves for the relief of pain is not new, as Dr. Silbert admits, and the injection into the anterior tibial, plantar nerves, etc., is not an unusual procedure in neurology.

Joshua H. Leiner, M.D., New York.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

ACCIDENTAL GONORRHEAL URETHRITIS LEGALLY CONSIDERED

To the Editor:—I should like some information as to the possibility of accidentally acquiring gonorrheal urethritis in the presence of an active case in which the patient uses the same utilities. Can you refer me to any cases on record, or to any court decision relative to acute gonorrhea in the husband being accepted as evidence of adultery on his part? Please omit my name.

Physician, Ohio.

Answer.—No reference is at hand of any duly verified case in which a patient has contracted gonorrhea from the use of a water closet, urinal, wash-basin or bath-tub. Obviously, however, the statements of interested parties that they have so contracted the disease are insusceptible of verification. The spread of gonorrheal vaginitis among infants and children in institutions, however, is not uncommon; but under such circumstances the disease is usually regarded as transmitted by wash cloths rather than by the toilet fixtures named in the foregoing.

It has been held that "It is prima facie evidence of adultery that a husband long after marriage is infected with a venereal disease" (14 Cyc. 697). In support of this position is cited *Johnson* v. *Johnson*, 14 Wend (N. Y.) 637. See also *Clark* v. *Clark*, 7 Robert (N. Y.) 276. Not quite so strong, however, is the statement that "the defendant's unexplained infection with a venereal disease, while a strong circumstance, is hardly sufficient to justify the inference of guilt," 4 Encyc. of Evidence 763. See authority cited.

Affliction with a disease within so short a time after marriage that might have been contracted prior thereto is not sufficient to establish adultery as against his [the husband's] sworn denial (*Mount* v. *Mount*, 15 N. J. Eq. 162, 82 Am. Dec. 276). In this case, proof that a husband was so afflicted within six months after marriage was held insufficient.

PURIFICO

To the Editor:—Having met several times lately in my practice a preparation called "Purifico" manufactured by C. W. Diffin, Mfg. Chemist, Succeeding The Purifico Co., and E. E. Burnside, M.D. Laboratories, Buffalo, N. Y., Bridgeburg, Ont., Canada, and Ashville, N. Y., should like to know the composition of same so that I can talk intelligently about it. There are three solutions for internal medication. They are all muddy, inelegant mixtures and put up in typical patent medicine packages. They are being strongly advertised as a cancer cure.

E. V. Hardwick, M.D., Boston.

Answer.—Burnside's "Purifico" has been the subject of an investigation by the federal authorities. According to the federal chemists, "Purifico No. 1" was found to contain 10 per cent. of alcohol with sugar, small amounts of glycerin, potassium iodid, cinchona alkaloids, piperin and probably senna. "Purifico No. 2" was reported to contain 9 per cent. of alcohol, sugars, small amounts of glycerin, potassium iodid, cinchona alkaloids and piperin. "Purifico No. 3," the chemists reported to contain 14 per cent. alcohol, sugars, valerian, piperin and tannic acid. The concern claimed that Purifico was a remedy for cancer, tumors, goiters, erysipelas, etc. These claims, the government declared were false and fraudulent. Charles W. Diffin and Pearl Diffin who did business as the Purifico Co., made no attempt to justify these fraudulent claims but, on Nov. 27, 1917, pleaded guilty and the court imposed a fine of $25. An abstract of the government's report appears in "Nostrums and Quackery," Vol. 2.

PEMPHIGUS AND ITS PROGNOSIS

To the Editor:—In The Journal, November 11, under the heading "Pemphigus Neonatorum," was the following question and answer, which seems to me misleading, and open to criticism:

> "In a recent book pemphigus is given a good prognosis. Please discuss. . . ."
>
> "Answer.—The prognosis is favorable if the process confines itself to the superficial layers of the skin. If the deeper layers are attacked, abscesses and general sepsis result."

In the first place, the question and answer seem to confuse pemphigus neonatorum and pemphigus. Pemphigus neonatorum is used in the heading, but in the text apparently both questioner and answerer are writing about pemphigus, a very different thing. A favorable prognosis in pemphigus is a new idea to me, and the depth of involvement of tissue as influencing the prognosis is equally novel. Pemphigus is always a grave disease, and it is essentially a superficial involvement of the skin, which does not require the help of secondary infection to give it a bad prognosis.

The answer might be stretched as possibly covering the situation in pemphigus neonatorum. But that also is a grave disease, and it kills by sepsis without necessarily causing abscesses or deep involvement of the skin.

W. A. Pusey, M.D., Chicago.

WESTERN MEDICAL ASSOCIATION'S NOSTRUM FOR EPILEPSY

To the Editor:—Enclosed please find literature from the so-called Western Medical Association, which claims wonderful things in the way of treatment for epilepsy. Several individuals in my practice have asked me about the merits of this company and I have told them, I did not think much of it. I have seen one patient who had been taking this treatment. . . . However, this treatment did not stop her seizures and I told the parents that I did not know anything of the nature of this cure but did not believe in it.

Evert Ostling, M.D., Lewellen, Neb.

Answer.—The "Western Medical Association" sells, on the mail-order plan, an alleged remedy for epilepsy which contains, as its essential drug, phenobarbital (luminal). The matter was dealt with in the Propaganda department of The Journal, Jan. 28, 1922, and has been reprinted in the pamphlet "Epilepsy 'Cures and Treatments,'" price 15 cents.

TEKARKIN AND THE BIOCHEMICAL LABORATORIES

To the Editor:—Inclosed herewith please find a copy of *Pharmaceutical Leaves* published by the Bio Chemical Laboratories. We would like to have your opinion on this publication and the drug herein described.

F. M. Hayes, M.D., Iota, La.

Answer.—*Pharmaceutical Leaves* is an advertising sheet of Edward Percy Robinson, who exploits "Tekarkin" as a remedy for cancer. Both Robinson and his nostrum were dealt with in the Propaganda department of The Journal, May 28, 1921, and the matter is reprinted in the pamphlet "Cancer Cures and Treatments" (price 15 cents).

THE GRAHAM SANITARIUM AND "NEUTROID TABLETS"

To the Editor:—Would you kindly give me any information you may have regarding the Graham Sanitarium, Inc., New York, also the Neutroid Tablets which he puts out for obesity. I have a patient who has been taking these tablets, and I would like a little more information to back up my statements that they are a snare, and a fake.

Howard W. Jewett, M.D., Lowell, Mass.

Answer.—The Graham Sanitarium and "Neutroid Tablets" were dealt with in the Propaganda department of The Journal, Sept. 30, 1922.

"NOSTRUMS IN RETROSPECT"

To the Editor:—In The Journal of February 16, 1918, there was an article on the "Hypophosphites" under the heading "Nostrums in Retrospect." This was Article 6. I would like to know if they were published in book form.

A. T. Emmerson, M.D., C.M., Goderich, Ontario.

Answer.—The entire series of articles on "Nostrums in Retrospect" are reprinted in the recently issued "Propaganda for Reform," Vol. II, published by the American Medical Association, price $2.

MARMOLA

To the Editor:—I would appreciate a report from your investigating bureau regarding the pharmaceutical content of the Marmola Tablets, manufactured by the Marmola Co., Detroit, Mich. They are advertised as an Anti-Fat tablet.

James S. Taylor, M.D., Altoona, Pa.

Answer.—This nostrum has been found to contain thyroid. An article on the subject appears in the pamphlet "Obesity Cures" (price 15 cents) prepared and issued by the Propaganda department.

CAROID

In the November 4 issue, page 1629, appeared a reply to an inquiry about Caroid. This item did not indicate the present owners of this product. We are informed that Caroid was sold outright by Mead Johnson & Co. to the Carter Cummings Chemical Co. in June, 1918, and that since that time Mead Johnson & Co. have had no interest in it.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Alabama: Montgomery, Jan. 9. Chairman, Dr. Samuel W. Welch, Montgomery.

Arizona: Phoenix, Jan. 2. Sec., Dr. Ancil Martin, 207 Goodrich Bldg., Phoenix.

Colorado: Denver, Jan. 2. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

District of Columbia: Washington, Jan. 9. Sec., Dr. Edgar P. Copeland, Stoneleigh Court, Washington.

Hawaii: Honolulu, Jan. 8. Sec., Dr. G. C. Milnor, 401 Beretania St., Honolulu.

Illinois: Chicago, Jan. 9-11. Supt. of Registration, Mr. V. C. Michels, Springfield.

Indiana: Indianapolis, Jan. 9. Sec., Dr. W. T. Gott, Crawfordsville.

Minnesota: Minneapolis, Jan. 2-4. Sec., Dr. Thomas S. McDavitt, 539 Lowry Bldg., St. Paul.

National Board of Medical Examiners: Written examination in Class A medical schools. Part I and II. February 12-14 and February 15-16. Sec., Dr. John S. Rodman, 1310 Medical Arts Bldg., Philadelphia. Application for the February examination must be sent in by January 1.

New Mexico: Santa Fe, Jan. 8-9. Sec., Dr. R. E. McBride, Las Cruces.

North Dakota: Grand Forks, Jan. 1. Sec., Dr. G. M. Williamson, 860 Belmont Ave., Grand Forks.

Oklahoma: Oklahoma City, Jan. 9-10. Sec., Dr. J. M. Byrum, Shawnee.

Pennsylvania: Philadelphia, Jan. 30-Feb. 3. Sec., Mr. C. D. Koch, Professional Credentials Bureau, 422 Perry Bldg., Philadelphia.

Rhode Island: Providence, Jan. 4-5. Sec., Dr. Byron U. Richards, State House, Providence.

South Dakota: Pierre, Jan. 16. Director, Dr. H. R. Kenaston, Bonesteel.

West Virginia: Charleston, Jan. 9. State Health Commissioner, Dr. W. S. Henshaw, Charleston.

Wisconsin: Madison, Jan. 9-11. Sec., Dr. John M. Dodd, 220 E. Second St., Ashland.

Michigan June Examination

Dr. Beverly D. Harison, secretary, Michigan State Board of Registration in Medicine, reports the written examination held at Detroit, June 19-21, 1922. The examination covered 14 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 116 candidates examined, 114 passed and 2 failed. One candidate was licensed to practice as a chiropractor. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
George Washington University		(1914)	81.3
Loyola University		(1921)	80.8
Northwestern University		(1922)	85, 87.5*
Rush Medical College		(1922)	82.1, 86*
University of Illinois		(1922)	81.6
Johns Hopkins University		(1918) (1921) (1922)	82.8, 86.3, 83, 84.3
Harvard Medical School		(1922)	83.2, 85
Detroit College of Medicine and Surgery		(1922)	78.5, 79.9, 80.9, 81, 81.3, 81.3, 82.3, 82.5, 82.7, 83, 83.1, 83.4, 83.5, 84.1, 84.2, 84.7, 85.5, 85.6, 86.6, 87.2
University of Michigan Homeopathic Medical School		(1921) (1922)	80.1, 82.6, 82.7, 83.5, 83.7, 85.7, 87.9
University of Michigan Medical School		(1922)	79.1, 80.2, 80.2, 81.6, 82.6, 83, 83.1, 83.1, 83.3, 83.3, 83.4, 83.4, 83.5, 83.5, 83.5, 83.6, 83.6, 83.7, 83.7, 83.7, 83.9, 84, 84.1, 84.3, 84.3, 84.3, 84.4, 84.5, 84.5, 84.5, 84.6, 84.6, 84.8, 84.8, 84.8, 84.9, 84.9, 85, 85.1, 85.1, 85.2, 85.2, 85.2, 85.3, 85.3, 85.3, 85.4, 85.4, 85.5, 85.5, 85.6, 85.7, 85.8, 85.8, 85.9, 86, 86.1, 86.1, 86.2, 86.3, 86.4, 86.6, 87.2, 87.3, 87.8
Eclectic Medical College		(1922)	79, 81.8
University of Pennsylvania		(1922)	85.4
University of Manitoba		(1921)	83.6
University of Toronto		(1914) (1917) (1921)	81.3, 81, 80.7
Western University		(1920)	82.2
Chiropractor			94.5
	FAILED		
Detroit College of Medicine and Surgery		(1922)	74.1
Eclectic Medical College		(1922)	73.9

* This candidate has finished the medical course, and will obtain the M.D. degree after he has completed a year's internship in a hospital.

Texas June Examination

Dr. T. J. Crowe, secretary, Texas State Board of Medical Examiners, reports the oral and written examination held at Austin, June 20-22, 1922. The examination covered 12 subjects and included 120 questions. An average of 75 per cent. was required to pass. Sixty-six candidates took the examination and passed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Jefferson Medical College		(1921)	79.3
Meharry Medical College		(1922)	76.6, 85.6
Baylor University		(1922)	75.1, 76.5, 81.2, 81.3, 82.1, 82.6, 82.9, 83.3, 84.2, 84.4, 85.5, 85.6, 85.6, 85.7, 86.6, 86.9, 89.3, 89.9, 90.2, 91.3, 92
University of Texas		(1922)	82.8, 83.3, 83.6, 84.9, 85.9, 85.9, 86.6, 86.7, 86.9, 87.1, 87.2, 87.2, 87.3, 87.6, 88.1, 88.3, 88.5, 88.5, 88.5, 88.8, 88.9, 89, 89, 89, 89.3, 89.4, 89.5, 89.9, 89.9, 91.1, 91.3, 91.3, 91.8, 91.8, 91.9, 91.9, 92.2, 92.3, 92.5, 93.3, 93.8
University of Edinburgh		(1921)	81.3

Book Notices

Polaris. The Story of an Eskimo Dog. By Ernest Harold Baynes. Cloth. Price, $1.50. Pp. 137, with illustrations. New York: The Macmillan Company, 1922.

This is a common sense, honest book about a dog. Mr. Baynes is a lover of animals; he has contributed extensively to the literature, his works including not only "Wild Bird Guests" and the present volume but many articles contributed to current periodicals. But in addition to a love of animal kind and an ability to present animal life realistically in his writings, he has a rationality that is not dominated by passion. In his preface to the story of Polaris he defines his point of view:

> Writers who cater to the oversentimental by attributing to dogs, cats and other animals thoughts and actions possible only to human beings, are doing many of their readers a very grave injury. They are not only teaching false natural history, which is bad enough in itself, but they are creating and fostering among unthinking people an unhealthy sentimentality which often leads eventually to zoophil psychosis, a form of mental disease in which the patient's love of animals becomes distorted, if not absolutely dangerous to those around them. Sick cats give more concern than sick children; the welfare of a guinea-pig is of more consequence than that of many babies. It is the author's belief that the reader and the publisher should demand from those who write about animals either the truth or a label to inform the purchaser that he is buying fiction. . . . There is a movement now on foot for sane humane education. Let us love and be kind to animals for what they really are—many of them are worthy of all we can do for them—but, in the name of sanity and real humanity, let us avoid that morbid condition of mind in which animals appear to be more intelligent and of greater consequence than our fellow men.

Polaris was a puppy descended from members of the team that took Commander Peary to the North Pole. He adopted Mr. Baynes as soon as he was introduced to him. Mr. Baynes describes the rearing of Polaris, his friendships with Beowulf, a great Dane, and Heatherbloom, a "Scottie," and his battles with predatory hounds of the vicinity. The story is natural; there is enough of interest, and enough of humor, in the lives of men and animals to make the story interesting without artificial coloration. The reader who does not enjoy the account of Polaris' pursuit of the rooster simply does not have a sense of humor. The book is well printed, and profusely illustrated with photographs. It is an ideal gift book for physicians who are lovers of animals. Moreover, its author merits the sympathetic support of every scientist.

Cancer of the Breast and Its Treatment. By W. Sampson Handley, M.S., M.D., F.R.C.S., Hunterian Professor of Surgery and Pathology in the Royal College of Surgeons of England. Cloth. Price, $7.50 net. Pp. 411, with 82 illustrations. New York: Paul B. Hoeber, 1922.

In spite of the still gloomy outlook for cancer in general, there is little doubt that the outlook for breast cancer in particular is much brighter than it was ten years ago, in view of the greatly increased number of lasting cures reported. Were the fundamental facts of pathology and the principles of treatment so brilliantly exploited by Handley understood by every man attempting the treatment of the disease, there would be a still further reduction in the mortality rate. The author unfolds his subject matter in a way that differs from that of an author of the average surgical monograph. His central theme is thus expressed: "I have regarded the questions of etiology, pathogenesis and diagnosis as beyond the scope of this work, the aim of which is to present for the surgeon's use a careful picture of breast cancer, of its microscopic ramifications, and of its mode of dissemination. . . . The operator's eye can no more delimit the invisible margin of the growth with which he has to deal than it can see the bacteria he aims at excluding from his wounds. . . . He must rely upon pathology to supply him with the invisible. . . . Upon the accuracy of these mental conceptions his operative results must to a large extent depend." The first half of the work is devoted to pathology, with chapters on the inadequacy of the embolic theory, clinical and microscopic study of parietal dissemination, routes of lymphatic dissemination, visceral dissemination and natural processes of repair in carcinoma. The histopathology is minutely covered. The author devotes a material part of the work to the manner of growth and of dissemination, points of information so necessary to intelligent operative treatment. His chapters on the lymphatics and their permeation by cancer offer a wealth of information on the histopathology of the disease. Most American surgeons will take issue with the author for removing so small an amount of skin. Since skin, embryologically is an ectodermal structure, we feel that it should be as widely removed as fascia, even though primary closure without grafts or plastic repair is thereby made difficult or impossible. Some one has remarked that the surgeon should have his assistant close his breast incisions, that easy closure may not be a factor in tempting him to leave skin that would better be removed. The review of the subject of Paget's disease is in itself a complete monograph, and may justly be regarded as authoritative. The author does not consider clinical diagnosis. This is important to the man not familiar with methods of examining the breast; it is very necessary to him who, through lack of training or experience, must make his diagnoses from clinically evident cancer. But the diagnosis and treatment of cancer are not for the tyro. In defense of this omission, it may be said that this book will find its greatest use in the hands of the surgeon rather than of the general practitioner; in the hands of the man who realizes that the hope of cure is tenable only when the lesion is detected before a positive clinical diagnosis can be made. It is a masterful work.

DE ARTE PHISICALI ET DE CIRURGIA OF MASTER JOHN ARDERNE, SURGEON OF NEWARK, DATED 1412. Translated by Sir D'Arcy Power, K.B.E., M.B., F.R.C.S., from a Transcript Made by Eric Millar, M.A. From the Replica of the Stockholm Manuscript in the Wellcome Historical Medical Museum. Cloth. Price, $4. Pp. 60, with 16 illustrations. New York: William Wood & Co., 1922.

This volume, published under the auspices of the Wellcome Historical Museum, is a translation of the ancient manuscript of John Arderne, a physician who practiced at Newark in England, during the fourteenth century. Among other things, John Arderne taught that wounds should heal without suppuration, and that dressings should be infrequent. In his drug therapy, however, he was addicted to all the spells, incantations, herbs and nasty substances in common use during his time. The present edition is printed on a large page with numerous facsimile reproductions of pages of the original manuscript, which is now in the royal library at Stockholm. In the preface, Sir D'Arcy Power supplies a learned comment, and there is an adequate index. The book gives an excellent picture of the practice of medicine in England during the fourteenth century.

DIE VITAMINE. Kritische Uebersicht der Lehre von den Ergänzungsstoffen. Von Ragnar Berg, Leiter des physiologische-chemischen Laboratoriums auf Weisser Hirsch. Paper. Pp. 336. Leipsic: S. Hirzel, 1922.

This book contains one chapter on the biologic value of different proteins, one chapter on the rôle of the inorganic substances in foods, one chapter on beriberi and polyneuritis, one chapter each on vitamins A and C, and chapters on the requirements for growth, edema and pellagra. There is a good index, and a very good bibliography (nearly 1,600 titles). The author is well known through his important investigations on the metabolism of the inorganic food substances. The chapter on this subject is accordingly a most valuable contribution. The subjects of the other chapters in the book are treated with equal thoroughness, comprehensive knowledge of facts, and sound critical analysis. The volume is a real contribution to medical science, and should, accordingly, be in the hands of every physician who can use the German language.

AIDS TO BACTERIOLOGY. By William Partridge, F.I.C., Lecturer in Chemistry (Public Health), University of London, King's College. Fourth edition. Cloth. Price, $1.75 net. Pp. 276. New York: William Wood & Co., 1922.

The contents of this book are indicated by its title. All of the common pathogenic micro-organisms and many of the more uncommon ones are given brief consideration in a manner apparently designed to emphasize their essential characteristics. The author has accomplished his task in a satisfactory way. The book is not to be recommended as a class textbook, but it should find favor as a reference work for laboratory workers.

ARABIC AND LATIN ANATOMICAL TERMINOLOGY CHIEFLY FROM THE MIDDLE AGES. By A. Fonahn. Paper. Pp. 174. Christiania: Jacob Dybwad, 1922.

This book is a vocabulary of Arabic and "Latino-Barbarous" terms used in old medical works. It will be of great value to students of medical history as well as to philologists interested in Arabic and medieval Latin.

Miscellany

CONFERENCE BOARD OF PHYSICIANS IN INDUSTRY

Among the questions discussed at the thirty-fifth meeting of the Conference Board of Physicians in Industry, held November 18, were dental work in industry, inguinal hernia and an outline for making physical examinations.

DENTAL WORK IN INDUSTRY

An instance was reported in which prophylactic dental work had been carried on for a few years among 550 employees, among whom there had been no emergency treatments necessary during the past year.

Dental work in industry is justified for two reasons: (*a*) constitutional, in ridding the body of foci of infection, and (*b*) cosmetic in improving the appearance of the individual. It is realized that the economic effect is one of major importance, but difficult to measure with any degree of accuracy.

INGUINAL HERNIA

One case of possible traumatic inguinal hernia of recent occurrence was reported. In the experience of the other physicians present, no case of traumatic inguinal hernia had ever been known.

It was the consensus that as true traumatic hernia is rare and of negligible importance from the standpoint of the industrial physician, the development of inguinal hernia should be considered an occupational disease, and compensation should be paid on the basis of aggravation of a preexisting condition rather than as the result of a definite injury.

Pain has no relation to the size of the hernia sac as suggested, but is related to the amount of pressure that the sac makes on the ilio-inguinal or iliohypogastric nerve. This explains why small hernias may be more painful than others of much larger size.

It was brought out that recurrences after operation may be due to rupture of the tissues along the line of stitches closing the original hernia. Many cases of this type are considered recurrences at the original site of operation. Another cause of recurrence is the overlooking of a small indirect hernia which may be coincident with a larger direct hernia. Following operation for the direct hernia, the indirect may increase in size and be taken for true recurrence of the direct type.

PHYSICAL EXAMINATION OUTLINE

The standard physical examination outline developed by the Conference Board of Physicians in Industry early in its work has undergone slight revision as a result of the more extended experience of the members. This outline is to be used as a guide by physicians when making physical examinations in order that important matters may not be overlooked. Its adaptation as a form for recording physical findings is purely optional with the examiner.

In the making of physical examinations, it is realized that in many cases and for many purposes, only a partial examination will be necessary, and that, barring special cases, the examination would need to consume only an average of from six to ten minutes for each person. It is also understood that the procedure may be added to or subtracted from as the peculiar requirements of each industry may make advisable in the judgment of the examining physician.

VENEREAL DISEASE CONTROL IN PARAGUAY

Even as late as the seventies, medical science was virtually nonexistent in Paraguay, says Dr. Victor Idoyaga in his book "La Lucha Antivenérea en el Paraguay." During the war with Brazil and Argentina (1870) an English physician, Dr. Stewart, surgeon-general of the army, assisted by an English pharmacist, Mastermann, first introduced really useful drugs and comparatively new methods of treating disease. Shortly afterward foreign physicians arrived, and as the isolation of their country under the dictator Francia had ended, Paraguayans began going to Argentina and Uruguay to study. The antivenereal disease campaign really began with the appointment of the first Paraguayan venereologist, Dr. Luis Zanotti, as professor of syphilology and dermatology in the Asunción Medical School. Both in his classes held in the army hospital and in public lectures, from 1901 on, he preached venereal prophylaxis and suggested the creation of a venereal dispensary. In 1918, when Dr. Idoyaga returned from France, he suggested at once to the health authorities the opening of an institute of venereosyphilitic prophylaxis. This was finally opened in August, 1919. The attendance from August, 1919, to Dec. 31, 1919, was 1,119 patients; in 1920, 4,785; during the first six months of 1921, 3,545. The institute is divided into four sections: venereosyphilitic, venereogynecologic, laboratory and hospitalization. The staff includes two physicians and six assistants (advanced medical students). Charges for treatment are rather high, 200 pesos for a Wassermann test; administration of arsphenamin, 60 pesos; vaccine treatment, 50 pesos; vaginal irrigation, 15 pesos. Prostitution is under reglementation, and the institute is charged with the examination of public house inmates. Adenitis is a complication unusually frequent in cases of chancre. Among skin diseases most prevalent in Paraguay are eczema, seborrhea, itch, pediculosis, impetigo, ecthyma and leprosy. Mycoses, psoriasis, ringworm, lichen, lupus and all forms of surgical tuberculosis are rare.

RATS IN OUR ATLANTIC COAST CITIES

The U. S. Public Health Service recently published a bulletin (No. 121) on the "Rodent Infestation and Rat Proofing Conditions in Massachusetts Seacoast Cities, New York City and Baltimore." It was said: "By a strange and unexplained condition, the eastern seacoast of the United States, from Florida to Maine, has up until the present reported no human or rodent plague. With the exception of the northern and northwestern seacoast of Norway, this is the longest stretch of seacoast in the world that has not within the last few years reported plague along its shores. It would seem, therefore, that if chance alone controlled the question of the appearance of plague, this eastern seacoast of ours would be due to be visited very shortly by plague in some form or other. Accordingly, it is not only wise but very necessary that the cities along the seacoast should take heed unto themselves to do all within their means that it is possible to do to head off and prevent the impending danger to themselves." All of the cities surveyed were found heavily infested with rats, and their wharves generally well adapted to the spread of plague should it be introduced by ship. It was estimated that only 15 per cent. of the docks about New York City are rat proof.

Medicolegal

Evidence in Action by Physicians for Services

(Boyd et al. v. E. O. Painter Fertilizer Co. (Fla.), 91 So. R. 557)

The Supreme Court of Florida, in reversing a judgment rendered in favor of the defendant, says that the plaintiffs, two physicians, brought this action to recover $1,000 for performing a necropsy; $1,000 for office advice, conference and consultations from May 22 to June 16, and from June 25 to July 1; and $3,600, or $400 a day, for services during absence on a trip to Baltimore and a trip to New York from June 16 to June 25; making a total of $5,600. The necropsy was performed following the death by drowning of the president of the company, May 13, and was for the purpose of establishing, if such was the fact, that his death was from natural causes, he carrying at the time a large amount of life insurance in which the defendant had an interest of about $150,000. Besides this trip to Baltimore, it appeared from the testimony that, the day after the necropsy, parts of the body had been removed and sent to experts in Baltimore for chemical analysis and pathologic examination, and that the plaintiffs were sent there to remain while the specialists made the examinations, their expenses and services while so engaged being paid for by the defendant. One of the plaintiffs had originally been called over the telephone by the cashier and bookkeeper of the defendant to be present when the body was recovered to see if it could be resuscitated. Both of the plaintiffs testified that they were authorized by the defendant's secretary to perform the necropsy. One of the plaintiffs testified that the cashier and bookkeeper had stated: "I am authorized to say, 'Go ahead with the necropsy,' but if you want further confirmation, we will get it." The other plaintiff testified that the defendant's secretary, the decedent's daughter, and the cashier and bookkeeper gave their consent to the necropsy, the cashier and bookkeeper in writing. This, with other evidence, raised an issue as to whether there was any liability of the defendant company to pay for the services in performing the necropsy, by reason of the authority that the plaintiffs testified had been given them by the secretary of the corporation, and denied by him; or whether the company by its subsequent acts had ratified the alleged acts of the secretary in this matter, and what, if anything, was a reasonable compensation for such services; which the court thinks should have been submitted to the jury.

During the progress of the trial, the plaintiffs offered in evidence the written authority from the daughter of the deceased, dated May 22, "to hold a necropsy on the body of E. O. Painter and to remove such specimens as they may see fit for pathologic examination." The purpose of introducing this document in evidence was not to establish the liability of the defendant company, but to show that the physicians did not mutilate the body of Mr. Painter without authority from his wife and only child, who alone could give such authority. The defendant company could obligate itself to pay for the physicians' services in performing the necropsy, but it could not authorize them to mutilate the body. To do this, the physicians needed authority from the family. It was to relieve themselves from an imputation of having mutilated the body without such authority, which might have some effect in prejudicing the jury against the plaintiffs, that this document was offered in evidence; and it was proper for this purpose, and the trial court erred in excluding it.

The services for which the plaintiffs were suing terminated, July 1. July 7, they wrote to the decedent's daughter a letter containing a proposition to render future professional services as experts in her behalf in the case of litigation over the insurance policies. The amount charged, the character of the proposition and the tone of the letter would have a tendency to create a feeling of hostility against the writers, and served no purpose in throwing light on antecedent circumstances. The only reference to the past was that, as one of the conditions for accepting the new employment, all bills then due should be paid in full. The offer was not accepted, and, as it shed no light on the past transactions that were the subject of the lawsuit, it was not only irrelevant and immaterial, but had a tendency to prejudice the jury against the plaintiffs. The trial court erred in admitting this letter in evidence, and the error was injurious to the plaintiffs.

Fallen Women as a Constant Pathologic Danger

(Ex parte Carey (Calif.), 207 Pac. R. 271)

The District Court of Appeal of California, Third District, in remanding the petitioner, who sought to regain her freedom through a writ of habeas corpus, after she had been committed to the California Industrial Farm for Women, in conformity with the provisions of Section 8 of the Act of 1919, establishing the farm, says that the question was narrowed down to this: Does the state have the lawful right to seize its fallen women and confine them for purposes of reformation and assistance? That it may seize and confine minors, morons, lunatics and persons addicted to the excessive use of drugs and liquors was not questioned. The first and last enumerated classes are confined solely for purposes of reformation and assistance. But it was insisted that the state, if it confine its fallen women, for purposes of reformation, should make like provision for dealing with those of the opposite sex; that the act was discriminatory in that it applied only to women. However, the relation sustained by the fallen woman to her business and society at large is altogether unlike that sustained by her partner in crime. She follows a business that can be carried on only by women. The most casual observer cannot fail to see a vast difference between fallen women as a class and the balance of human kind. They stand apart. No other body of malefactors constitute so distinctly a class as do fallen women. They present a greater single element of economic, social, moral and hygienic loss than is the case with any other single criminal class. Not only do they constitute a menace to the morals and social welfare of mankind; they carry unusually heavy pathologic liabilities. From the standpoint of public health, they are sometimes referred to as pestilential and their places of abode as pesthouses. The law declares them to be a public nuisance. Altogether, they present the most perplexing problem with which modern penology and social legislation are called on to deal. The fallen woman occupies a relation to society analogous to that of the chronic typhoid carrier—a sort of clearing house for the very worst forms of disease. The right to quarantine persons suspected of contact with infectious diseases is uniformly upheld by both state and national governments. The right to quarantine at all implies the right to continue the isolation so long as the danger remains. That a woman carrying on the business denounced in the statute is a constant pathologic danger, no one would question. If this is true, the fact implies the right to seize the offender and detain her, not only for mere purposes of temporary quarantine, but also for the laudable purpose of reclaiming her and destroying the probability of a subsequent renewal of the danger. The law appraises her as so steeped in crime and in so exceptional an environment that ordinary methods of reformation and escape are impossible. The state combines both altruism and self-preservation.

Attendance at Office Is "Medical Attendance"

(Tunnard v. Supreme Council of Royal Arcanum (N. Y.), 194 N. Y. Supp. 707)

The Appellate Division of the Supreme Court of New York, Second Department, affirms an order which set aside a verdict that was rendered in favor of the plaintiff on a policy of life insurance, and does so because at the time the insured applied, in March, 1918, for reinstatement he represented and warranted that he had not received medical treatment of any kind within the year preceding, whereas in February, 1918, he twice called on a physician at his office and received prescriptions. The court holds that to constitute medical attendance it is not requisite that a physician should attend the patient at his home. An attendance at his office is sufficient. The statement made by the insured to the effect that he had not received medical treatment at any time within one year was therefore false, and a false statement as to whether an applicant for insurance has consulted or been attended or treated by a physician is material to the risk and will defeat a recovery, especially when it is warranted to be true.

Society Proceedings

COMING MEETINGS

American Physiological Society, Toronto, Canada, Dec. 28-30. Dr. Chas. W. Greene, University of Missouri, Columbia, Secretary.
Medical Society of the District of Columbia, Washington, Jan. 3, 1923. Dr. C. B. Conklin, Medical Science Building, Washington, Secretary.
Philippine Islands Medical Association, Manila, Dec. 20-22, 1922. Dr. I. Concepcion, College of Medicine and Surgery, Manila, Secretary.
Porto Rico, Medical Association of, Ponce, Dec. 15-17. Dr. Augustin R. Laugier, San Juan, Secretary.
Society of American Bacteriologists, Detroit, Dec. 27-29. Dr. A. P. Hitchens, Army Medical School, Washington, D. C., Secretary.

SOUTHERN MEDICAL ASSOCIATION

Sixteenth Annual Meeting, held at Chattanooga, Tenn., Nov. 13-16, 1922

(Concluded from page 2030)

Aplastic Anemia: Differential Diagnosis of Anemias Due to Hemolysis, and Those Due to Hematopoietic Degeneration

Dr. Bryce W. Fontaine, Memphis, Tenn.: Aplastic anemia, although rare, occurs with sufficient frequency to render difficult its diagnosis from several commoner diseases of the blood and abdominal viscera. It is possible to differentiate all of the severe anemias by a correlation of all the physical signs, analysis of the gastric contents, quantitative estimation of the bile pigments in the duodenal contents, feces and urine, the bleeding time, the resistance of the red cells to various dilutions of salt solution, the presence of skeined and reticulated cells, when the blood is stained with cresyl blue, the total and differentiated blood count, hemoglobin reading, the color index, the platelet count, roentgen-ray study of the stomach and cecum for filling defects, study of the bone marrow obtained by bone puncture, and least important of all, the study of the stained blood smear.

Acute Otitis Media in Children

Dr. Joseph B. Greene, Asheville, N. C.: I would emphasize the difference in the anatomy of the temporal bone and adjacent structures of infants and children from that of adults; our duty in urging all measures possible for the prevention of middle ear diseases, and the importance of instituting prompt and appropriate treatment as soon as symptoms arise, and the importance of early incision of the drum membrane without waiting for all the cardinal symptoms and the marked changes in the tympanic membrane, keeping in mind the fact that it is safer to operate a day too early than an hour too late.

Direct Intubation in Neglected and Desperate Cases of Tracheal and Bronchial Diphtheria

Dr. Clyde E. Purcell, Paducah, Ky.: With direct intubation and bronchoscopy, we can practically eliminate tracheotomy in the management of diphtheritic stenoses. If a patient has no lung complication or kidney involvement, and is not profoundly septic from absorption of toxins, the two means at hand, together with massive doses of antitoxin, ought to save a great majority of these patients. So far, I have been able to save every one of my own.

Eye Lesions of Nasal Origin

Dr. Joseph D. Heitger, Louisville, Ky.: In all eye lesions, regardless of possible etiology, one must be ever mindful of the nasal sinuses as a possible source. Repeated careful examinations with proper illumination are often necessary to disclose small, easily overlooked changes in the postethmosphenoidal district which may be productive of ocular lesions. Early differential diagnosis and complete comprehensive operation, when treatment fails to produce rapid results, are of great importance in the prognosis of ocular lesions of nasal origin.

Surgical Treatment of Diseases of the Gallbladder

Dr. Irvin Abell, Louisville, Ky.: In eighteen of 411 cholecystectomies in my series, a previous cholecystostomy had been performed. Some of these had been done for cholecystitis without stones, but most of them were done for cholecystitis with stones. In three of the cases the stone formation existing at the second operation greatly exceeded that found at the first operation. Of sixty-six patients operated on for common duct stone, seven had had a previous cholecystectomy. In a total of 394 cases, the stones were found in the gallbladder in 339, in the common duct in thirty-one, in the hepatic duct in one case, and in the entire tract in twenty-three cases.

Clinical Observations Following the Use of Mercuric Cyanid in Lenticular Opacities

Dr. John H. Burleson, San Antonio, Texas: All cases showed improvement. Those with metabolic disturbance relapsed. All cases traceable to infection have apparently been benefited. Seventeen of twenty cases studied showed an increased blood sugar percentage. The lowest blood sugar was 1.24 gm. per liter; the highest, 3 gm. Graded glucose tolerance tests in three of these cases showed blood sugar curves similar to those found in early diabetes.

Gallbladder Disease

Dr. Martin E. Rehfuss, Philadelphia: One always ought to be on guard for possible associated diseases, of which the most common are chronic appendicitis, chronic colitis and chronic lesions of the stomach and duodenum. It is my rule to urge operation when medical treatment fails to produce amelioration of symptoms and fails to produce a cessation of the acute attack; when there are gross deformities in the upper right quadrant, usually demonstrable by the roentgen ray; in the presence of acute inflammatory diseases; in the presence of common duct block, or in the presence of chronic gallbladder disease at the malignancy age.

Low Back Pain

Dr. R. Wallace Billington, Nashville, Tenn.: Most back pains are to be divided etiologically into five groups: traumatic; postural; diseases (including malignancy) of the lumbar and sacro-iliac regions, skeletal anomalies, and abdominal and pelvic disease. The mild or moderate degrees of trauma are most often sprains of the ligaments of the lumbosacral and lumbar joints. Sciatica and other referred pains are generally due to nerve irritation from disease or trauma in the lower lumbar region, particularly from infiltration or effusion into soft parts about nerve exits. Pain in the postural cases is due to undue muscular and ligamentous strain from faulty attitudes and weak muscles, and is comparable to that of foot strain. Diseases of the lumbar spine, particularly local and diffuse ostearthritis, are probably a more common cause of low back pain than has been believed. The posture of the patient, the attitude of the trunk, and the type of spinal curve are significant as to the location and the nature of the trouble. Genuine disability due to trauma or disease is manifested by definite objective signs, such as voluntary spasm of the lumbar muscles, persistent limitation of the lumbar movements, abnormal lumbar curves, fixed faulty attitude of the trunk, or persistently and consistently guarded movements.

Virulent Diphtheria Bacilli Isolated from Chickens Suffering from Roup

Dr. William Litterer, Nashville, Tenn.: This is the first instance, as far as I have been able to find in the literature, in which virulent Klebs-Loeffler bacilli have been isolated from fowls. It is probable that the fowls received their infection from human beings harboring virulent bacilli, since persistent virulent carriers were demonstrated in the families that owned the fowls. Experiments on healthy fowls failed to produce a permanent carrier state. Nothing corresponding to carriers as seen in man was observed. Negative results were also obtained in two fowls suffering with roup.

Pyelitis in Pregnancy

Dr. Erasmus H. Kloman, Baltimore: Far too many babies and mothers are lost by watchful waiting, and far too many laparotomies are performed for appendicitis, and gallbladder and pelvic diseases. Ureteral stricture plays a most important rôle in pyelitis which is activated by pregnancy. These cases taken before the patient threatens to abort can be relieved by cystoscopy with pelvic lavage, dilation, and drainage through the natural channels. After labor and the puerperium are over, most of these cases subside, to be followed later by pain in the kidney region, extending to the affected side and bladder, at which time removal of the nidus of infection and dilation of the stricture will effect a permanent cure.

Purpura Hemorrhagica in Pregnancy

Dr. George Clark Mosher, Kansas City, Mo.: Infection, while not shown by bacteriologic examination, is so frequently associated in the cases in which purpura and pregnancy coexist that the inference must remain that there is a relation of cause and effect. No drug treatment is of the least practical avail. Transfusion is the only remedy. This is to be followed by the immediate interruption of the pregnancy.

Prepartum Care

Dr. Thomas B. Sellers, New Orleans: Every pregnant woman with an organic lesion of the heart or pulmonary tuberculosis should be under the direct care of a competent internist, if available. Young married women with organic cardiac lesions, such as mitral stenosis and aortic regurgitation or pulmonary tuberculosis, should be sterilized with their consent. Scientific prenatal care will lower not only the maternal mortality and morbidity, but also the fetal mortality.

Experimental Intraperitoneal Division of One Ureter

Dr. Walter Clinton Jones, Birmingham, Ala.: Complete division of the ureter is an exceedingly grave occurrence, but is not necessarily fatal. As compared with ureteral obstruction, it is decidedly more serious. The mortality in my experiments on ureteral ligation was 69 per cent. The added danger from an opened ureter is due mostly to the toxemia from absorption of decomposed urine from the tissues outside the urinary tract. The chief symptoms in my animals were anorexia, weakness and diarrhea. Most of the animals were quiet the greater portion of the time. The most striking feature is the activity of the tissues in the vicinity of the severed ureter in preventing the spread of the escaping urine. In some instances the reaction is so prompt that the ureteral opening is sealed at once. More frequently a urinary sac is formed by adhesions between the intestines, omentum, bladder and body wall. This urinary cavity may contract and be obliterated, or may remain unchanged indefinitely or may increase in size; also secondary sacs may develop from the original one. The amount of infection in the peritoneum, retroperitoneal tissues and abdominal wound was surprisingly small. The effects of this operation on the kidney and the ureter are about the same as those of complete ureteral obstruction. During the first two or three months after complete severing of a ureter, it gradually dilates and the kidney suffers cystic enlargement. After three or four months, dilatation still continues in more than half of the animals, while about 44 per cent. show more or less marked general renal atrophy (decrease in size) on the operated side. A kidney in this reduced and quiescent state is, of course, entirely harmless to its possessor.

Food Allergy as a Cause of Irritable Bladder

Dr. W. W. Duke, Kansas City, Mo.: In patients who have frequent painful urination or constant pain over the bladder, the severity of the symptoms is often out of all proportion to the lesions. In patients of this type, the bladder disorder is frequently the result of hypersensitiveness to certain foods which they are in the habit of eating. Since the bladder mucous membrane does not, under ordinary conditions, come in direct contact with alien material, the local symptoms in bladder cases occur only as part of a general reaction after the alien material has entered the body through some distant part in quantity sufficient to give rise to a general reaction. The subjective symptoms resemble those of cystitis, and may be either mild or so severe as to confine the patient to bed. In uncomplicated cases, complete relief may immediately follow the avoidance of the food to which the subject is sensitive, and symptoms may recur when the ingestion of such food is resumed.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Anatomy, Philadelphia

November, 1922, **31**, No. 2

*Studies on Thyroid Apparatus. VI. Response of Submaxillary Glands of Albino Rat to Thyro-Parathyroidectomy and to Parathyroidectomy. F. S. Hammett, Philadelphia.—p. 103.
Studies on Gonads of Fowl. III. Origin of So-Called Luteal Cells in Testis of Hen-Feathered Cocks. J. F. Nonidez.—p. 109.
Studies on Lymph Nodes. I. Structure. T. T. Job.—p. 125.
Branched Tubular and Flask-Shaped Intestinal Glands in Some Domestic Animals. L. Florence, Princeton, N. J.—p. 139.
Vascularity of Enamel-Organ in Devolping Molar of Albino Rat. W. H. F. Addison and J. L. Appleton, Jr.—p. 161.

Relation Between Thyroid Apparatus and Submaxillary Glands.—The removal of the parathyroid glands from the albino rat resulted in a marked and valid increase in the size of the submaxillary glands. This result does not follow thyroparathyroidectomy. Hence, in Hammett's opinion, the cause of the enlargement is not attributable to any local irritation produced by the operative procedure. It is possible that the hypertrophy or hyperplasia is a response to an increased functional activity induced by the increased neural irritability resulting from the removal of the parathyroids.

American Journal of Ophthalmology, Chicago

November, 1922, **5**, No. 11

Injury to Cornea and Conjunctiva Due to Fish Bile. F. H. Verhoeff and J. S. Friedenwald, Boston.—p. 857.
Enucleation and Prothesis. D. J. Lyle, Cincinnati.—p. 859.
Case of Lipemia Retinalis. H. H. McGuire, Winchester, Va.—p. 862.
Studies in Monocular and Binocular Accommodation with Their Clinical Applications. A. Duane, New York.—p. 865.
Few of Many Results of Slow, Painless Cyclitis. G. H. Burnham, Toronto, Canada.—p. 878.
Importance of Heterophoria Tests in Routine Refraction. H. H. Briggs, Asheville, N. C.—p. 880.
Perimetry: Variable Factors Influencing Breadth of Color Fields. C. E. Ferree and G. Rand, Bryn Mawr, Pa.—p. 886.
Cabinet for Galvanic Electricity. M. E. Smukler, Philadelphia.—p. 895.
Eikonoscopy. C. D. Jones, Boston.—p. 897.
Velonskiascopy Determination of Principal Meridians of Astigmatism. E. J. Brown, Minneapolis.—p. 897.

Annals of Surgery, Philadelphia

November, 1922, **76**, No. 5

Treatment of Chronic Empyema Where Recognized Surgical Procedures Have Failed to Produce Obliteration. W. L. Keller.—p. 549.
*Pulmonary Fat Embolism. G. E. Sutton, Rochester, Minn.—p. 581.
Surgical Treatment of Hepatic Abscess and Hydatid Cysts Evacuating Via Bronchus. J. O Conor, Buenos Aires, Argentina.—p. 591.
*Treatment of Fractured Clavicles. W. L. Bell, Oakland, Calif.—p. 595.
Compression Fractures of Lower End of Radius. J. H. Stevens, Boston.—p. 599.
Cases of Arthroplasty of Elbow: Interposed Flap Operation. W. C. Campbell, Memphis, Tenn.—p. 615.
Diagnosis and Treatment of Incomplete Epiphyseal Fractures at Hip. R. Whitman, New York.—p. 624.
Immediate Operation as Method of Choice in Treatment of Fracture of Neck of Femur. A. O. Wilensky, New York.—p. 631.
*Sprains of Rhomboideus Minor Muscle. Study of One Hundred and Fifty Injuries of Shoulder Girdle. J. P. Replogle, Johnstown, Pa.—p. 641.

Pulmonary Fat Embolism.—One outstanding point in Sutton's analysis of cases is that an obese person undergoing a major operation, particularly if it is necessary to destroy fatty tissue, undergoes an added risk. In the greater number of cases the symptoms appear suddenly; they may develop even during the operation. A point of differentiation that has been made between shock and pulmonary fat embolism is that the symptoms of pulmonary fat embolism make their appearance later. This is not necessarily true. Death from pulmonary fat embolism is relatively rapid. Most of the patients in Sutton's series died on the first, second, or third day after operation. Only one patient lived eleven days; one lived six days. A positive diagnosis was made in four cases. The temperature was elevated in all cases. All of the cases were proved by necropsy. Necropsy was not permitted in two other cases in which all the clinical symptoms pointed to pulmonary fat embolism. Stimulative treatment, and saline intravenously, seemed to have little effect.

Treatment of Fracture of Clavicle.—Bell describes a three piece plaster cast which he uses in the treatment of fractured clavicles. One is a solid foundation around the chest, another is a movable unit around the arm, and a third section overlaps the adjoining ends of the first two sections to facilitate accurate and satisfactory relationship between the two units and maintain it with a structure equally strong and dependable.

Sprains of Rhomboideus Minor Muscle.—Examining into the causes of this injury, such as swinging a sledge, firing a furnace, lifting a heavy object, sudden pulling upon objects with arms extended, Replogle found that pain occurs at the end of the pitch of a shovel or at the end of the swing of a sledge; in other words, at the position where the lateral angle of the scapula is raised and the rhomboideus minor is on the greatest tension. Clinically, pain is produced only on those movements which elevate the lateral angle of the scapula, change the angle of the spine, and depress the base of the spine of the scapula, producing tension on the rhomboid muscles. Occasionally there is slight pain and tenderness near the spinous process of the last cervical vertebra at the origin of the rhomboideus minor, and in 30 per cent. of the cases there was slight tenderness along the vertebral border of the scapula below the spine in the region of the rhomboideus major. The treatment is based on anatomic lines to cause relaxation of the overstretched muscle. The shoulders are thrown back so as to lessen the interscapular space and criss-cross adhesive straps are applied maintaining this position. The arm is placed in a sling and a small pad placed under the adhesive over the point of tenderness to possibly hasten the absorption of the serous effusion at the point of rupture or strain. This treatment gives immediate relief from aching, and pain on abduction is greatly reduced. Replogle says that the frequency of occurrence of sprain of the rhomboideus minor, the unusual constant symptomatology and clinical picture, the efficacy of simple and proper treatment, together with the fact that it is of sufficient seriousness to cause industrial disability, demand cautiousness for diagnosis of this lesion.

Archives of Internal Medicine, Chicago

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*Interpretation of Wassermann Reaction. W. W. Duke, Kansas City, Mo.—p. 531.
*Studies in Asymptomatic Neurosyphilis. III. Apparent Influence of Pregnancy on Incidence of Neurosyphilis in Women. J. E. Moore, Baltimore.—p. 548.
*Specific Gravity of Urine. T. Addis and M. G. Foster, San Francisco.—p. 555.
*Test of Capacity of Kidney to Produce a Urine of High Specific Gravity. T. Addis and M. C. Shevky, San Francisco.—p. 559.
Studies on Blood Lipoids. I. Relation of Cholesterol and Protein Deficiency to Basal Metabolism. A. A. Epstein and H. Lande, New York.—p. 563.
Distribution of Metabolites in Blood and Tissue. H. Rypins, Minneapolis.—p. 578.
*Quinidin in Auricular Fibrillation with Some Observations on Its Use in Combination with Digitalis. T. S. Hart, New York.—p. 593.
Unusual Paucity of Symptoms in Some Cases of Pontocerebellar Tumors. Diagnostic Difficulties. A. Gordon, Philadelphia.—p. 606.
Osteomalacia. E. P. C. White, Philadelphia.—p. 620.
*Alkali Reserve in "Roentgen-Ray Sickness." R. Golden, Boston.—p. 629.
Analysis of Some of Factors of Variability in Vital Capacity Measurements of Children. D. J. Edwards and M. G. Wilson, New York.—p. 638.
Studies on Respiratory Organs in Health and Disease. VI. Significance of Vital Capacity Test in Pulmonary Tuberculosis, Bronchial Asthma, Pneumonia and an Acute Infection Outside Respiratory Tract. J. A. Myers, Minneapolis.—p. 648.
Effect of Administration of Hypertonic Salt Solution on Blood Volume and Certain Related Blood Constituents. A. L. Barach, New York; W. Mason, Fall River, Mass., and B. P. Jones, Los Angeles.—p. 668.

Interpretation of Wassermann Reaction.—Duke uses a five tube test, two tubes of which are delicate enough to give a positive result almost invariably in patients with active syphilis, two tubes so coarse or insensitive as virtually never to give a false positive, and one intermediate tube. The most sensitive tube (cholesterinized antigen 0.4 per cent., one unit of complement, icewater bath incubation) was found by titration to be approximately eight times as delicate as the least sensitive one (alcoholic extract antigen, two units of complement, icewater bath incubation.) Tube 1 (extremely sensitive) gave a four plus reaction in 95 per cent. of patients in whom syphilis could be demonstrated by other means; a one to three plus reaction was obtained in four of the remaining 5 per cent. of cases, and a flat negative was obtained in less than 1 per cent. It came out four plus in 31 per cent. of miscellaneous medical cases regardless of diagnosis. Of this 31 per cent. which gave positive tests, syphilis could be demonstrated by other methods in only 32.7 per cent. In other words, 67.8 per cent. were apparently false positives. Furthermore, it was found that of patients who gave a positive reaction in this tube with negative reactions with the coarser ones, apparently 93.5 per cent. were false positives. A positive reaction with a test of this delicacy, therefore, is of no value whatever in the positive diagnosis of syphilis. A negative reaction, however, is very useful in its exclusion. Tube 5, which was relatively insensitive (noncholesterinized antigen with two units of complement and icewater bath incubation) came out positive in 57 per cent. of patients who had syphilis which could be demonstrated by other means. Syphilis was proved positively in 98 per cent. of patients who gave a four plus reaction in this tube. No evidence of syphilis was found in the remaining 2 per cent. A positive reaction with tests of this delicacy (only moderately sensitive) is believed, therefore, to be almost proof positive of syphilis. It is quite apparent, however, that a negative reaction could be of no value whatever in its exclusion. The intermediate Tube 3 (cholesterinized antigen 0.2 per cent. with two units of complement and icewater bath incubation) gave four plus reactions in 75 per cent. of patients with proved syphilis. It came out four plus in 8.5 per cent. of miscellaneous medical cases (including syphilis). Only 7.3 per cent. of this latter group of positives were false positives. Of the miscellaneous cases, however, which gave positive reactions in this tube with negatives in the less sensitive tubes (4 and 5), 30 per cent. were apparently false positives. The dependability of both positive and negative reactions obtained by a test of this delicacy, therefore, would appear to be practically nil.

Influence of Pregnancy on Incidence of Neurosyphilis.—Moore finds that the course of early syphilis is markedly altered by the simultaneous occurrence of pregnancy. In women with late syphilis (of more than one year's duration), the incidence of abnormal spinal fluids is twice as high in a group of sterile women as in a group in which one or more pregnancies have occurred since infection. Almost half of the women who are clinically neurosyphilitic have not been pregnant since infection. Multiparas seem to be less liable to late asymptomatic neurosyphilis than primiparas. It is suggested on the basis of this study that pregnancy is one factor which may partially account for the comparative freedom of women from neurosyphilis.

Specific Gravity of Urine.—The specific gravity of the urine of normal persons was measured by Addis and Foster under varying conditions designed to place a strain on the concentrating activity of the kidney. It was found that not even an approximate idea of the work of the kidney in the excretion of solids could be obtained from the results. It is therefore concluded that specific gravity determinations cannot form part of any method intended to measure the amount of secreting tissue in the kidney.

Test of Kidney Capacity.—A simple test of the capacity of the kidney to produce a urine of high specific gravity is described by Addis and Shevky. In normal persons, after restriction of fluids, the average specific gravity is 1.032 with a standard deviation of ± 0.00281.

Quinidin in Auricular Fibrillation.—Hart's report is based on a study of fifteen persistent and two paroxysmal cases of auricular fibrillation. These were unselected cases. The drug employed in all the studies has been quinidin sulphate administered in capsules, each containing 0.2 gm. Of the fifteen patients showing persistent auricular fibrillation, five recovered a normal rhythm after the administration of quinidin; in all fibrillation recurred after a longer or shorter period; in four of these quinidin was given again and in each instance the normal pacemaker assumed control of the rhythm. One of these patients still maintains a normal rhythm after an interval of five months; in the other three cases, a third period of quinidin was effective in one and ineffective in the remaining two cases. Flutter, as a transitional mechanism preceding a sinus rhythm, was recorded in two cases. In three other cases the administration of quinidin was followed by flutter (one case) and impure flutter (two cases) but in these cases the sinus never regained its control as a pacemaker. In both paroxysmal cases, sinus rhythm promptly followed small doses of quinidin. In Hart's experience, if quinidin was effective in producing sinus rhythm, this occurred within a few hours, or, at least, not longer than sixty hours after beginning the use of the drug. In none of the cases in which it was effective was more than 3 gm. given. In the cases which did not resume a normal rhythm, quinidin, 1.2 gm. a day, was continued from one to three weeks, but the prolonged administration seemed to have little or no effect.

Alkali Reserve in Roentgen-Ray Sickness.—No evidence that the constitutional reaction following irradiation with roentgen ray is associated with a lowered alkali reserve was found by Golden in several determinations of the plasma carbon dioxid combining power of four patients and in repeated determinations of the plasma carbon dioxid content of three dogs.

Archives of Ophthalmology, New Rochelle, N. Y.

November, 1922, **51**, No. 6

Early Development of Corneal Tubercle (Study in Slit Lamp Microscopy). B. T. Haessler and F. H. Haessler, Philadelphia.—p. 523.
Ocular Sporotrichosis. S. R. Gifford, Omaha.—p. 540.
New Method of Removing Lens in Its Capsule. G. L. Johnson, Durban, Natal.—p. 548.
Blepharochalasis. F. H. Verhoeff and J. S. Friedenwald, Boston.—p. 554.
Therapeutic Use of Uveal Pigment in Sympathetic Ophthalmia. A. C. Woods, Baltimore and A. Knapp, New York.—p. 560.
Place of Ophthalmology in Undergraduate Medical Curriculum. W. G. M. Byers, Montreal.—p. 566.
Simple Operation for Pterygium. L. W. Crigler, New York.—p. 577.
Case of Neuritic Optic Atrophy in Tabetic, with Discussion of Value of Differential Pupiloscope in Such Case. A. S. Tenner, New York.—p. 581.
Bilateral Detachment of Retina in Nephritis of Pregnancy. Reattachment of Retina. E. M. Blake, New Haven, Conn.—p. 586.

Boston Medical and Surgical Journal

Nov. 23, 1922, **187**, No. 21

*Some Problems of Readjustment in Medical Practice. W. B. Cannon, Boston.—p. 715.
*Failing Heart. P. D. White, Boston.—p. 721.
*Treatment of Carcinoma of Esophagus with Colloidal Selenium. E. B. Freeman, Baltimore.—p. 727.
*Pregnancy without Demonstrable Cervix or Cervical Canal. C. J. Kickham, Boston.—p. 732.
Vein Puncture and Intravenous Medication in Infants. W. H. Waters, Boston.—p. 733.
*Case of Secondary Purpura Hemorrhagica with Remarkable Blood Changes. O. H. Standsfield, Worcester, Mass.—p. 734.

Problems of Readjustment in Medical Practice.—Cannon discusses the widening of professional interests; the importance of attacking disease producing conditions; public education as a means of disease prevention; the doctor as a promoter of personal health; the doctor as an interpreter of conditions affecting public welfare and the medical problem in rural communities.

Treatment of Heart Failure.—Speaking of the treatment of heart failure of the congestive type, White says it is essential that, after bringing the heart of a patient with auricular fibrillation under the control of digitalis, it be maintained under that control, giving daily about the amount which is excreted. This is about 1½ grains (0.1 gm.) of the leaf in the average adult, who has been digitalized by about 22 grains (1.5 gm.) in divided doses in two or three days. By maintaining this digitalization a patient may keep at work for years and undoubtedly live longer. There is experimental evidence, and clinical, too, that even when the pulse is regular and fairly slow digitalis does help in failure of the congestive type. Apparently, in addition to its toxic effect to block off stimuli from auricles to ventricles, thereby resting the heart, there is also a direct stimulating action on the ventricular muscle. Such cases of congestive failure respond much less dramatically, however, to digitalis than do patients with auricular fibrillation. White has found that a good leaf in pill form by mouth is the most satisfactory therapeutic method. There is no virtue of the tincture or of the infusion or of various costly pharmaceutical preparations of digitalis over the leaf itself, provided the leaf is potent. In hospital use the ordinary leaf is one tenth to one fortieth as expensive as various trade preparations, and apparently just as effective. Other drugs of the digitalis series—strophanthus, squill, apocynum and convallaria—are dismissed with the statement that for heart failure of the congestive type they are inferior —all of them—to digitalis. Other drugs, such as strychnin, camphor, caffein, epinephrin, cactus and crataegus, are probably of no value as cardiac stimulants. White does not believe in giving a multitude of stimulants (so called) in infectious disease to "prevent the heart from failing." Besides the use of digitalis in congestive failure there are numerous other important measures: absolute rest in bed while there is failure; morphin if there is pain or great discomfort; barbital or bromids if sleeplessness; diuretics (caffein, diuretin, theocin, calomel) if there is obstinate edema not vanishing with rest in bed and digitalis; reduction in quantity and richness of food (sometimes the extreme limitation of the Karell diet is helpful); catharsis (but not enough to exhaust the patient) and venesection in rare cases.

Selenium in Treatment of Carcinoma.—Freeman merely relates his experiences with selenium without drawing any conclusions. He does feel justified in making the statement that in a certain group of cases this method of treatment may be useful as a palliative treatment.

Pregnancy Without Demonstrable Cervix.—In Kickham's case repeated careful palpation and inspection failed to show any uterine cervix or anything resembling it, or any cervical opening into the uterus even after labor had begun. The labor progressed in the normal way. Vaginal examination showed the uterine wall about ¼ inch in thickness entirely covering the presenting part, but no suggestion of a uterine opening anywhere. Cesarean section was performed. For fifteen hours following operation no sign of vaginal discharge or staining appeared, and then came a thin, serous fluid which gradually became blood stained; this serosanguineous discharge kept up intermittently until the patient left the hospital. About twenty-four hours after operation the temperature rose to 102.5 F., but examination showed nothing definite to account for it. This temperature subsided in about forty-eight hours, and the patient made a gradual recovery. Up to the fifteenth day the patient had an intermittent evening rise in temperature, which was due partly to a small necrosis at the lower end of the incision, with seropurulent discharge, and to a slight pyelonephritis. This case in Kickham's opinion proves that pregnancy can take place through a very small uterine opening; that nature can take care of the involution of the uterus without the usual large amount of lochia which is discharged externally with a normal cervical canal; it proves the value of early examination in all cases, for in this way abnormalities can be discovered and the condition made known to the family, who cannot thus criticize the attendant later if difficulties arise

Purpura Hemorrhagica with Only Lymphocytes in Blood.—Stansfield reports a case of streptococcic bacteremia, with secondary purpura hemorrhagica, remarkable for the apparent total disappearance of polymorphonuclear leukocytes and platelets from the blood. The only leukocytes present were small lymphocytes. The red cells seemed strictly normal. Blood oozed, for several hours, from the puncture made for examination.

Colorado Medicine, Denver

November, 1922, **19**, No. 11

Pathology and Clinical Medicine. A. G. Ellis, Colorado Springs.—p. 223.
First Care of Eye Accidents by General Practitioner. W. H. Crisp, Denver.—p. 226.
Experiments with Inhalation and Injections of Various Substances into Respiratory Tract. S. Simon, Denver.—p. 230.

Florida Medical Association Journal, St. Augustine and Jacksonville

September, 1922, **9**, No. 3

What Is Psychoanalysis? L. E. Bisch, Asheville, N. C.—p. 43.
Observations on Local Anesthesia. J. E. Boyd, Jacksonville.—p. 45.
Bladder Symptoms in Women. L. J. Efird, Tampa.—p. 51.

Johns Hopkins Hospital Bulletin, Baltimore

November, 1922, **33**, No. 381

*Influence of Treatment of Syphilitic Pregnant Women on Incidence of Congenital Syphilis. J. W. Williams.—p. 383.
*Use of Large Reverdin Grafts in Healing of Chronic Osteomyelitis. M. R. Reid, Cincinnati.—p. 386.
Morphologic Theory of Monochorionic Twins as Illustrated by Series of Supposed Early Twin Embryos of Pig. G. W. Corner.—p. 389.
Development and Growth of Metanephros or Permanent Kidney in Cick Embryos. W. F. Rienhoff, Jr.—p. 392.
*Biometric Studies in Pathology. II. Preliminary Account of Quantitative Method of Evaluating Pathologic Phenomena. R. Pearl.—p. 406.
Vasomotor Reactions. W. M. Bayliss.—p. 412.

Influence of Treatment of Syphilitic Women on Incidence of Congenital Syphilis.—For several years Williams has studied the effect of treatment on pregnant syphilitic women and the life of the child. Ninety-six of these women have passed through 113 pregnancies, and their cases are analyzed. Nine ended in abortion and six in premature labor. In the former, the children were not viable, while in the latter they were either born dead or died during the puerperium. While it cannot be stated that syphilis played no part in the production of any of the fifteen abortions or premature labors, it nevertheless seems permissible to assume that it did not. Of the ninety-eight children remaining, four died from accidents of labor—one premature separation of the placenta, one prolapse of the umbilical cord and two craniotomies. In each instance, necropsy showed no sign of syphilis. On the other hand, four other children were born dead or died during the puerperium and showed signs of congenital syphilis, thus leaving ninety living children which were discharged from the clinic in apparently good condition. Of the eighty-one children which could be traced, seventy-one were found to be living and well, manifested no signs of syphilis, presented a negative Wassermann, and were apparently in excellent condition. Of the remaining nine children, five were living and apparently well, but their mothers would not allow blood to be withdrawn for a Wassermann; while four others had died—three from pneumonia and one from gastro-enteritis. From these figures, it is apparent that of the ninety-four children who were born alive, five, or 5.3 per cent., showed demonstrable evidence of syphilis, while seventy-six were living and well, nine had been lost track of, and four had died. A review of the maternal data shows that almost ideal results follow anything like efficient treatment of syphilitic pregnant women, and that surprising results may sometimes follow what would ordinarily be regarded as altogether inefficient treatment in men or in nonpregnant women, which would seem to indicate that pregnant women are unusually amenable to antisyphilitic treatment. Furthermore, there must be something about the pregnant condition which mitigates the virulence of the disease and predisposes to spontaneous cure.

Use of Large Reverdin Grafts in Healing of Chronic Osteomyelitis.—The method advocated by Reid consists essentially of epithelializing the walls of bone cavities by the use of large Reverdin or pinch grafts. The bone cavity is treated with surgical solution of chlorinated soda until it becomes lined with clean firm granulations. Two hours after the last irrigation with this solution large thick pinch grafts, 0.5 cm. in diameter, are placed closely together on the surface of the cavity. The grafted wound is then exposed to the air for from six to eight hours. The grafts are then covered and held in place with a single layer of gauze which is firmly secured to the normal skin so that the moistening and changing of saline compresses during the next two days will not displace the grafts. After two days the grafts have taken and the use of surgical solution of chlorinated soda instead of salt solution is begun. This is applied by laying wet compresses directly against the wound (the thin layer of protecting gauze having been removed) every two hours during the day and every four hours at night. After about five days the solution is discontinued and the wound is dressed with rubber "protective" or old linen. Invariably, the grafts grow quickly and cover the granulation tissue with epithelium in from ten days to two weeks. Should the granulations become high (usually from the edema of infection), caustics should not be used; surgical solution of chlorinated soda reapplied for one or two days will reduce the swollen granulations to the level of the grafts, and will not injure the growth of new skin.

Quantitative Method of Evaluating Pathologic Phenomena.—Pearl presents a preliminary account of a pathometric index number, which has for its purpose the obtaining of a single numerical expression of the gravity of the whole pathologic picture disclosed by the lesions discovered at necropsy. The method of calculation is illustrated and the distribution of values of the index for 200 necropsies shown. The purpose of the paper is purely methodologic. Later Pearl hopes to apply the method to the solution of specific problems.

Journal of Immunology, Baltimore

November, 1922, **7**, No. 6

Study of Hemolytic Antibody-Antigen Combination. H. W. Cromwell, Baltimore.—p. 461.
*Studies on Toxicity of Human Blood Plasma for Guinea-Pigs. I. Relative Toxicity of Fetal and Maternal Plasma. S. A. Levinson, Chicago.—p. 497.
Id. II. Coagulation Toxicity. S. A. Levinson, Chicago.—p. 511.

Toxicity of Human Blood Plasma.—Levinson asserts that blood plasma obtained from pregnant women is more toxic for the guinea-pig on intravenous injection than plasma obtained from normal persons. Human placental plasma is practically nontoxic. Similar relations are found with dog plasma obtained from pregnant dogs and from full term fetuses. Plasma obtained during the menstrual cycle (before and after) is occasionally more toxic for guinea-pigs than normal female plasma. The cause of death in the guinea-pig is an intravascular clotting of the capillaries as well (brain, liver, etc.). Death can be prevented if the animal is hirudinized, or if the amount of citrate simultaneously injected, is increased.

Journal of Radiology, Omaha

November, 1922, **3**, No. 11

Inheritability of Spontaneous Cancer in Mice and Its Application to Cancer in Man. M. Slye, Chicago.—p. 453.
Oxycephaly—Steeple or Tower Head; Turmschaedel; Spitzkopf; Turricephaly; Acrocephaly; Hypsicephaly. C. G. Sutherland, Rochester, Minn.—p. 465.
Effect of Heavy Radiation on Pleura and Lungs. A. F. Tyler and J. R. Blackman, Omaha.—p. 469.
Does Radiation Enhance Postoperative Recurrence of Carcinoma of Breast? M. J. Sittenfield, New York.—p. 476.
Practical Dosage of Roentgen Rays. A. Bachem, Chicago.—p. 478.
Ultraviolet Radiation. A. J. Pacini, Chicago.—p. 481.

Kansas Medical Society Journal, Topeka

November, 1922, **22**, No. 11

Ileus. W. E. Mowery, Salina.—p. 319.
Recurring Tonsil. L. B. Spake, Kansas City, Kan.—p. 321.
Glaucoma. W. J. Grove, Eureka.—p. 323.
Stricture of Ureter. R. B. Stewart, Topeka.—p. 327.
Food Sensitization in Infancy. H. L. Dwyer, Kansas City, Mo.—p. 328.

Maine Medical Association Journal, Portland

November, 1922, **13**, No. 4

*Infant Feeding as Seen in Boston Floating Hospital in 1921. C. N. Standhope, Dover.—p. 93.
Medical Reserve Corps. Major Mitchell.—p. 101.

Plea for Floating Hospitals.—Standhope pleads for the establishment by Maine of floating hospitals the same as the Boston Floating Hospital. From out the poorly ventilated, poorly lighted tenements, sweltering in humid air, the sick baby is taken into an ideal environment, to say nothing of the expert care to be found there. Boats destined to be scrapped should be used for this purpose.

Military Surgeon, Washington, D. C.

November, 1922, **51**, No. 5

Plan for Correlation of Three Federal Medical Services in Preparation for War, During Continuance of Hostilities, and Through Subsequent Period of Reconstruction. M. Ashford.—p. 473.
Influences of World War on Development of Civil Practice. E. F. Butler.—p. 494.
Tuberculosis Epidemiology in World War. G. E. Bushnell.—p. 508.
Story of Military Surgeon of Battle of Borodino, 1812. A. Allemann.—p. 522.
Clinical Interpretation of Findings in Blood Chemistry. Z. E. Bolin.—p. 527.
Importance of Correct Diagnosis. J. J. O'Malley.—p. 540.
Penetrating Abdominal Wounds; Five Cases. H. W. Jones.—p. 543.
Delousing American Troops at Bordeaux, France, Prior to Their Embarkation for United States. L. H. Dunn.—p. 546.
Education First Step in Public Health Administration Among Peoples Practically Aboriginals. W. E. Eaton.—p. 560.
Brigade Surgeon with Tropical Expeditionary Force. J. J. Snyder.—p. 567.
Labyrinthine Reactions in Syphilis. W. F. Bonner.—p. 572.

Mental Hygiene, Albany, N. Y.

October, 1922, **6**, No. 4

Body and Mind: Origin of Dualism. F. Mott, London.—p. 673.
Mental Hygiene Needs Arising Subsequent to School Life. C. F. Haviland, New York.—p. 688.
Psychology in Medicine. F. L. Wells, Boston.—p. 700.
Importance of Special Educational Training for Mental Defect Dependent on Organic Lesions. L. P. Clark, New York.—p. 708.
Results and Future Opportunities in Field of Clinics, Social Service and Parole. D. A. Thom, Boston.—p. 714.
Study in Constitutional Psychopathic Inferiority. J. W. Visher, Waukesha, Wis.—p. 729.
Child and Home. Extract from Survey of Mental Health Conditions in Metropolitan District. M. Taylor, Boston.—p. 746.
Child Mental Hygiene in Erie County, New York. A. J. Rosanoff, New York.—p. 773.
Social Service Department and Its Relation to Extensive Parole System. H. A. Steckel, Kings Park, N. Y.—p. 798.
Alcoholic Psychoses Before and After Prohibition. H. M. Pollock, New York.—p. 815.

Philippine Journal of Science, Manila

August, 1922, **21**, No. 2

Amboina Fungi Collected by C. B. Robinson. H. Sydow, Berlin, Ger.—p. 131.
Philippine Mantids, or Praying Insects. F. Werner, Vienna, Aus.—p. 147.
Additions to Herpetological Fauna of Philippine Islands, I. E. H. Taylor, Manila.—p. 161.
Copelandosphaera, New Genus of Volvocaceae. W. R. Shaw, Manila.—p. 207.

September, 1922, **21**, No. 3

*Early Lesions and Development and Incidence of Leprosy in Children of Lepers. L. Gomez, J. A. Bassa and C. Nicolas, Manila.—p. 233.
Additions to Herpetologic Fauna of Philippine Islands. II. E. H. Taylor, Manila.—p. 257.
Correlation of Death Rates from Certain Diseases with Certain Economic and Housing Factors in Philippine Islands. R. Abriol.—p. 305.
Notes on Liopterinae with Descriptions of New Species from Oriental Region (Hymenoptera, Cynipidae). L. H. Weld.—p. 323.

Leprosy in Children in Philippines.—The results of the study of the records in the Culion Leper Colony, and repeated clinical and bacteriologic examinations made during the period between June, 1921, and March, 1922, of all children born up to Dec. 31, 1921, inclusive, and now residing in the colony are given by Gomez et al. In the colony, up to Dec. 31, 1921, there were 290 deaths, or 42 per cent., among children under 1 year of age out of a total of 689 births, excluding stillbirth. This is practically the same percentage of infantile deaths as occurs in a nonleper population. Infantile debility (including malnutrition, athrepsia, and marasmus) holds the first place among the causes of death (34 per cent.); then follow the gastro-intestinal disturbances and infantile convulsions. The children born of leper parents show about the same susceptibility to other morbid conditions as children of nonleper parentage. The mortality on account of congenital debility is higher than in children born in nonleper populations, but this greater mortality due to congenital debility is counterbalanced by the lesser mortality due to infantile beriberi, a disease that has practically disappeared in Culion on account of the exclusive use of unpolished rice as the staple article of diet. The most frequent recognizable site of the early lesion of leprosy is the skin, and the infection through this route is greatly favored, presumably, on account of the great prevalence of skin diseases among the children, which offer anatomic conditions favorable to the invasion of the lepra bacillus. The most frequent recognizable early lesion of leprosy is macular lesion of the skin. The white patches, macula alba, are either precursors of other cutaneous or nervous leprous manifestations, or they themselves develop into definite progressive and bacteriologically positive leprous lesions with concomitant thermal and tactile anesthesia and anhidrosis. Children that have lived in intimate contact with lepers for varying lengths of time may develop leprosy, several months or years after they were isolated from lepers. The shortest period in this series was four months, and so far the longest period was three years and three months after isolation. The survey made of 308 children of leper parents born and living at the time in Culion Island show twenty-four, or 7.79 per cent., positive lepers and seventy-eight, or 25 per cent., with suspicious or definite signs of leprosy though not bacteriologically positive. The leprosy in children affects both sexes about equally. The incidence of leprosy is in direct ratio to the age of the child: the older the child the greater the incidence. The youngest child found to be a positive leper was 3 years old, but suspicious blemishes have been found in children as young as 1 year of age.

Surgery, Gynecology and Obstetrics, Chicago

November, 1922, **35**, No. 5

*Some Errors in Development of Thyroid. J. N. J. Hartley, Edinburgh, Scotland.—p. 543.
Thyrotoxic Adenoma; Basal Metabolism in Diagnosis of Goiter. W. D. Haggard and F. B. Dunklin, Nashville, Tenn.—p. 553.
*Fractures of Tibial Spine Combined with Fractures of Tuberosities of Tibia. J. W. Sever, Boston.—p. 558.
*Tumors of Testicle; Analysis of One Hundred Original Cases. C. O. Tanner, San Diego.—p. 565.
*Ovarian Transplantation. F. H. Martin, Chicago.—p. 573.
Tripartite Cleft Palate and Double Harelip in "Identical" Twins. A. D. Davis, Omaha.—p. 586.
Pelvic Tumors with Sacral Attachments. A. A. Law, Minneapolis.—p. 593.
Supernumerary Kidney with Ureter Opening into Vagina. A. Samuels, H. Kern and L. Sachs, Baltimore.—p. 599.
Double Scrotum with Gangrene Following Strangulation. K. MacKenzie, Auckland, New Zealand.—p. 603.
Renal and Hepatic Insufficiency in Obstructive Jaundice. W. Walters and D. Parham, Rochester, Minn.—p. 605.
Syphilis of Uterus. J. C. Sosnowski, Charleston, S. C.—p. 610.
*Maternal Deaths Among Ten Thousand Parturient Women at Chicago Lying-In Hospital. J. P. Greenhill, Chicago.—p. 614.
*Report of Five Unusual Cases of Hypertension in Pregnancy. A. C. Williamson, Pittsburgh.—p. 619.
Radium Versus Operative Treatment of Fibroids. N. S. Heaney, Chicago.—p. 625.
Diagnostic and Clinical Aspects of Gonorrheal Salpingitis. H. Schmitz, Chicago.—p. 627.
Short Umbilical Cord. O. H. Rohrlack, Chicago.—p. 632.
Treatment of Undescended Testicle. J. R. Caulk, St. Louis.—p. 637.
Choice of Operations for Duodenal Ulcer. L. Guerry, Columbia, S. C.—p. 642.
Muscle Clamp to Be Used in Thyroidectomies. E. V. Mastin, Rochester, Minn.—p. 644.
New Bone Saw. M. Langworthy, Spokane, Wash.—p. 646.
Method of Locating and Blocking Nervous Cutaneous Colli. J. B. McNerthney, Tacoma, Wash.—p. 651.
*Benzyl Succinate in Dysmenorrhea. J. J. Mundell, Washington.—p. 652.
Prolonged and Profuse Postoperative Drainage of Pancreatic Cyst and Use of Radium. C. S. Hamilton, Columbus, Ohio.—p. 655.
Harmful Use of Cathartics After Abdominal Operations. L. Long, Oklahoma City, Okla.—p. 658.

Errors in Development of Thyroid.—Hartley cites cases of lingual thyroid, thyroglossal sinus and thyroglossal cyst. A lingual thyroid, he says, in many cases is a true ectopia thyroidis and and then represents the whole of the acting thyroid tissue of the body. This is clinical confirmation of the modern embryologic teaching that the thyroid derives no functionating tissue from the ultimobranchial body. The absence of a palpable isthmus in the pretracheal region is strong evidence of such a lingual swelling being an ectopic and not an accessory thyroid. When a lingual thyroid gives rise to symptoms demanding surgical intervention, a minimal amount of tissue should be removed, and the surgeon should be prepared to adopt thyroid therapy if the clinical symptoms or the basal metabolism rate indicate a state of hypothyroidism. The so-called "infrahyoid" type of thyroglossal cyst not infrequently has an epithelial prolongation upward, either through, behind or in front of the hyoid bone, and, to insure nonrecurrence, it is advisable, when the pedicle can be traced to this bone, to resect the middle portion and to search for a tract leading to the foramen cecum.

Fracture of Tibial Spine.—Eight cases are cited by Sever. They represent a fairly severe type of injury to the knee joint. The cases followed show very good ultimate function. The treatment has been nonoperative; generally long fixation in extension, followed by massage and baking, and passive and active motion. No operation to restore tibial spines or repair torn crucials has been done in this series. Sever believes that the operation should be reserved for those cases in which full and free extension of the knee joint is not obtained combined with pain and disability.

Tumors of Testicle.—The histories of 100 cases obtained from three sources were analyzed by Tanner. It appears that new growth of the testicle occurs about once in 2,000 male hospital admissions. The disease is practically always unilateral—involving both sides only as a metastatic growth from the skin, seminal vesicles, etc. Trauma as an etiologic factor in these tumors evidently has some foundation. Practically all cases occur between the ages of 18 and 50 years, the period of greatest sexual activity. Both testicles are involved with about equal frequency. Undescended testicles within the canal are more apt to become malignant than normally placed organs. Undescended testicles within the abdomen are relatively immune to malignant changes. The average mortality of these tumors taken from the literature is about 80 per cent. based on a four year postoperative period. In this series the mortality was found to be about 70 per cent. The so-called mixed type of tumor gives a much higher mortality than the carcinomatous type. In this series it was 90 per cent. in the former type and 60 per cent. in the latter. Tumors containing cartilage and squamous epithelium seem to have a decidedly unfavorable prognosis. The prognosis in abdominal tumors is also very bad—only 6 per cent. of a large series of patients being alive and well two years after operation. The radical operation should be performed in all cases in which the disease is apparently limited, i. e., in cases showing no abdominal metastases clinically. The ordinary castration operation, even when supplemented by Coley's serum, roentgen ray or radium, does not yield satisfactory results.

Ovarian Transplantation.—A brief abstract is presented by Martin of articles on ovarian transplantation published from 1917 to 1921, inclusive, and an exhaustive bibiliography is given. Clinically, Martin says, there is very little to encourage one to believe that transplantation of ovaries as practiced up to the present time has more than speculative value as a surgical procedure. There is some evidence that autotransplants are of some value in deferring the symptoms of the menopause and delaying the cessation of menstruation. It is difficult, however, not to attribute some of this evidence to suggestive therapeutics or to unattached ovarian tissue left in situ. There is practically no convincing evidence that homotransplants have been successful in the human female, nor that heterotransplants have been successful when the human female has been the recipient. The technic followed by the various operators on human females, in too many instances, seems unsurgical and too often is incompletely and loosely recorded, leaving the impression that the conclusions derived from such work must be unreliable.

Death Among Parturient Women.—The gross mortality among the 10,000 cases reviewed by Greenhill was 0.39 per cent. Twenty patients were primiparas and nineteen were multiparas. The cause of death for the thirty-nine patients was: puerperal sepsis, peritonitis and shock, six cases each; eclampsia, five cases; embolism and pneumonia, four cases each; cardiac decompensation and toxemia, three cases each; coronary thrombosis and status lymphaticus with pulmonary edema, one case each.

Hypertension in Pregnancy.—The five cases reported by Williamson all occurred in pregnant women under 30 years of age, with a minimum systolic pressure from 180 to 240 prenatally, and a pressure from 170 to 240 postpartum.

Benzyl Succinate Relieves Dysmenorrhea.—The conclusion reached by Mundell is that benzyl succinate will not cure dysmenorrhea, but that it relieves the pain and cramps equally as well and probably much better than any other drug or method of treatment that has been used.

Tennessee State Medical Association Journal, Nashville

November, 1922, **15**, No. 7

Certain Groups of Atypical Abdominal Symptoms with Relation to Essential Pathology. J. L. McGehee, Memphis.—p. 305.
Some Factors Influencing Etiology of Glycosuria. O. N. Bryan, Nashville.—p. 310.

Peritoneal Drainage. R. A. Barr, Nashville.—p. 314.
Preliminaries of Prostatectomy. W. A. Bryan, Nashville.—p. 318.
Practical Hints in Suprapubic Prostatectomy. G. R. Livermore, Memphis.—p. 321.
Semiradical Mastoid Operation. W. L. Simpson, Memphis.—p. 322.
Symptomatology of Mastoiditis. J. W. Moore, Nashville.—p. 328.

West Virginia Medical Journal, Huntington

November, 1922, **17**, No. 5

Value of Cystoscopy and Radiography Combined in Diagnosis of Diseases of Urinary Tract. O. P. Barker and R. H. Boice, Parkersburg.—p. 161.
Pollakiuria. W. S. Robertson, Charleston.—p. 165.
Some Aids to Diagnosis. C. E. Gabel, Charleston.—p. 172.
Acute Purulent Mastoiditis. T. R. Slayden, Williamson.—p. 177.
Mercuric Chlorid Poisoning from Use of Douche. C. J. Broeman, Cincinnati.—p. 180.

Wisconsin Medical Journal, Milwaukee

November, 1922, **21**, No. 6

*Effect of Antisyphilitic Treatment on Kidney. W. F. Lorenz and W. J. Bleckwenn, Madison.—p. 211.
Value of Transuterine and Transabdominal Gas Inflation of Female Pelvis with Carbon Dioxid. R. S. Cron, Ann Arbor, Mich.—p. 215.
*Traumatic Rupture of Femoral Artery with Hematoma. W. C. F. Witte and H. E. Zilisch, Milwaukee.—p. 218.
Relationship of Genito-Urinary Diseases to Chronic Patient. B. C. Corbus, Chicago.—p. 222.

Effect of Antisyphilitic Treatment on Kidney.—Lorenz and Bleckwenn's clinical experience leads them to believe that many syphilitics suffer from a nephritis which will clear up under antisyphilitic treatment, demonstrating probably the syphilitic origin of that nephritis. Kidney function tests have the apparent advantage of disclosing kidney embarrassment before the usual signs of albumin and casts are demonstrated in the urine. The authors advocate the use of the kidney functional tests, before, during and after drug administration. If it is found that the drug administration increases the renal abnormality it then becomes a matter of selecting the least irritating of the antisyphilitic measures. In a borderline case in which the renal mechanism might easily be injured by the larger doses of a drug generally employed, a careful study of the renal function will disclose the amount of drug that can be tolerated without such injury. Although the actual percentage of cases which develop kidney lesions resulting from antisyphilitic treatment is small, it is still very essential to avoid such disaster. The most important finding by Lorenz and Bleckwenn not observed before is that a kidney function test made immediately after drug administration cannot be accepted as evidence of kidney impairment.

Traumatic Rupture of Femoral Artery.—While riding a motorcycle for the first time, Witte and Zilisch's patient ran into a telephone pole and in falling from the machine hit his abdomen against one of the handle bars. He arose and walked about 10 feet unassisted, using both legs. Within a few hours he was unable to use the left leg at all. The abdomen presented an unusual spherical mass about 10 inches in diameter, located in the left inguinal region, extending up into the lower left quadrant and down over the left leg. This mass was apparently between the skin and muscles of the abdominal wall and was very firm, hard and nonpulsatile. The skin over this tumor was unbroken. The left side of the scrotum was swollen and the genitalia were slightly discolored on the left side. There was a flaccid paralysis of the left thigh and a spastic paralysis below the knee. On the inner side of the thigh there was marked hyperesthesia. Below the knee there was complete anesthesia. All voluntary control of the leg was apparently lost. The roentgen ray showed no fracture of the pelvis or femur. The pathology found at operation consisted of a hematoma below the skin, laceration of all abdominal muscles, exposing the femoral artery which was completely severed, and both proximal and distal ends of the artery contained a blood clot. There was no active hemorrhage. The nerve was evidently not lacerated. There was a laceration of the muscle and tissues between the bladder and the peritoneum. The left leg was paralyzed and there was a beginning gangrene of the foot. Later an atypical amputation was done about 5 inches below the knee joint.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

October, 1922, No. 267

Action of Constant Current with Special Reference to Its Action on Subcutaneous Tissues. W. J. Turrell.—p. 130.
Action of Constant Galvanic Current on Tissues in Health and Disease. Challiol and Laquerriere.—p. 135.
Estimation of Iodin Introduced and Eliminated in Ionization. G. Bourguignon.—p. 139.
Abdominal-Thyroid Galvanization in Treatment of Syndrome of Hyperthyroidism. Menard and Foubert.—p. 143.
Physiologic and Therapeutic Action of High-Frequency Currents. Ronneaux and Laquerriere.—p. 144.
Pyloric Spasm and Painful Abdominal Cases Treated by High-Frequency Thermo-Penetration. M. S. Nemours-Auguste.—p. 153.

British Journal of Surgery, Bristol

October, 1922, **10**, No. 38

Eponyms: VI. Sir James Paget. D. Power.—p. 161.
*Hydrocephalus. J. Fraser and N. M. Dott.—p. 165.
*Clinical Study of Phrenic Shoulder Pain; with Special Bearing on Diagnosis of Acute Abdominal Disease. Z. Cope.—p. 192.
*Solitary Fibromyxoma of Peripheral Nerve Trunks; Case of Cystic Fibromyxoma of Median Nerve. E. A. Linell.—p. 202.
*Congenital Diaphragmatic Hernia. J. B. Hume.—p. 207.
Resuture of Peripheral Nerves. J. B. Stopford.—p. 216.
*Results of Operative Treatment of Internal Derangement of Knee Joint. P. H. Mitchiner.—p. 221.
*Multiple Polypi of Stomach (Gastritis Polyposa): Report of Case. G. P. Mills.—p. 226.
Application of Wedge Principle in Fashioning of Tibial "Bridge" Graft. R. E. Kelly.—p. 232.
Carcinoma of Bone Marrow. Report of Four Cases. A. Piney.—p. 235.
*Some Surgical Aspects of Filarial Disease. F. P. Connor.—p. 253.
Ununited Fractures Due to War Injuries: with End-Results of Operative Treatment in One Hundred Cases. A. P. Mitchell.—p. 259.
*Metastatic Melanoma of Scapula. F. D. Cairns.—p. 290.
Case of Gummatous Pancreatitis with Physical Signs Resembling Acute Cholecystitis. P. H. Mitchiner.—p. 293.
*Case of Calcified Gland of Unusual Size Giving Rise to Dysphagia. C. P. G. Wakeley.—p. 295.
*Unusual Complications in Two Cases of Femoral Hernia. S. L. Ludbrook.—p. 297.
Ulceration of Rectum, with Perforation into Pelvic Cavity, and Prolapse of Four Feet of Ileum per Anum. C. H. Cuff.—p. 299.
Torsion of Gallbladder. C. H. S. Frankau.—p. 301.
Removal of Pin from Third Part of Duodenum. E. E. Hughes.—p. 302.
Pancreatic Fibrosis Obstructing Both Common Bile Duct and Duodenum. Five Years of Active Life After Cholecystduodenostomy and Gastrojejunostomy Before Death from Cancer. W. G. Spencer.—p. 303.
Two Cases of Rupture of Rectum Communicating with Peritoneal Cavity. W. G. Spencer.—p. 304.

Hydrocephalus.—This subject is discussed in all its phases by Fraser and Dott. Also a new classification is suggested. Hydrocephalus is divided into three groups: (1) congenital anomalies; (2) ventricular (obstruction); and (3) extraventricular (obstruction in the subarachnoid space). Group 2 is subdivided further as to site of obstruction: (1) between one lateral and the third ventricle; (2) between both lateral ventricles and the third ventricle; (3) between the third and fourth ventricles and in the roof of the fourth ventricle. The authors emphasize the importance of placing each case in its proper group so that an intelligent treatment may be planned. Efficient treatment must be carried out before the expansion of the head has become too marked. No definite limit can be fixed; but the authors have found that an increase in circumference measurement up to 3 inches above the normal is within the range of satisfactory postoperative recovery. Above this figure the probability of improvement diminishes with every degree of increase. If the hydrocephalus is of the ventricular variety—that is to say, if there is an obstruction at some portion of the ventricular system proximal to and including the roof of the fourth ventricle—the only efficient way of treating the hydrocephalus is by removing the obstruction, and so opening up the normal passage for the circulation of the cerebrospinal fluid. In the extraventricular variety the problem is more difficult. Fraser and Dott have treated all cases of extraventricular hydrocephalus by ligature of the common carotids, and the results have been sufficiently promising to warrant the continuation of this method. Out of thirteen cases of the ventricular type, in three the condition was so advanced as to preclude any prospect of success from operative intervention, five patients succumbed to the operation; in three cases the operative intervention has resulted in apparent arrest of the disease, but there has been no diminution in the bulk of the head, and the mental condition has remained permanently impaired. In two instances it would appear that a complete cure has been effected. One was a third degree case, the other a fourth degree case. Of the extraventricular type there were six cases; only five were submitted to operative intervention (ligature of carotids), one succumbing on admission to hospital. Of the remaining five cases, one patient succumbed within forty-eight hours of the first operation, as the result of hyperpyrexia, and four were operated on successfully. Of these, three have very definitely improved, and the hydrocephalus appears to have been arrested; in the fourth case no improvement followed the operation, and the hydrocephalus increased to a fatal issue.

Phrenic Shoulder Pain.—Cases are cited by Cope to illustrate that pain of a referred nature is frequently felt on the top of the shoulder as a consequence of stimulation of the sensory terminals of the phrenic nerve in or near the diaphragm. The pain is felt in some part of the segmental areas corresponding to the third and fourth and sometimes even the fifth cervical segments of the spinal cord. This referred pain is met with in many conditions which cause inflammation or irritation of the diaphragm or contiguous structures. There is an important localizing correspondence between the part of the diaphragm irritated and the position of the referred pain on the shoulder. The presence of supraspinous, supra-acromial, or supraclavicular or subclavicular pain is always of great value in diagnosis, as indicating an irritation of the diaphragm or its serous coverings.

Fibromyxoma of Peripheral Nerve.—The only symptom complained of by Linell's patient was that occasionally she had attacks of shooting pain from the site of the tumor down into the middle finger. She suffered no disability whatever, and had noticed no impairment either of muscular power or of sensation in the limb. The tumor was the size of a pigeon's egg, freely movable laterally, but not in the long axis of the limb. The essential connection of the tumor with the median nerve was not considered on account of the complete absence of motor or sensory symptoms. From the proximity of the tumor to the line of the nerve it seemed reasonable to ascribe the shooting pains in the median area to pressure, and a diagnosis was made of a soft fibroma arisin from the deep fascia. Exposure of the tumor revealed a dark blue fusiform swelling which appeared to interrupt completely the continuity of the median nerve. The swelling was definitely cystic, and incision allowed the escape of a considerable quantity of dark, fluid blood. After careful consideration and in view of potential malignancy, the median nerve was resected half an inch above and half an inch below the tumor. This was removed, and primary end to end suture of the resected ends of the nerve was performed. Histologic examination showed the cyst to be a fibromyxoma, the typical structure of the majority of innocent false neuromas. Hence, Linell believes, in the absence of more definite evidence of sarcoma, such as infiltration of the nerve above and below the lesion or adherence to surrounding structures, it would have been advisable in this case merely to puncture the cyst and remove as much as possible of its wall without interfering with the continuity of the nerve bundles, thus avoiding the risk of incomplete regeneration after resection and end to end suture.

Congenital Diaphragmatic Hernia.—Hume attempts to define, first, the various types from the standpoint of the pathologic anatomist, and to offer an explanation of their mode of origin; and secondly, to indicate the lines on which surgical treatment may be attempted. A complete report of one case is included, and reports are given of the examination of two other specimens of this condition. Four types are described: (1) hernia through the hiatus pleuroperitonealis; (2) hernia through the dome; (3) hernia through the esophageal orifice; (4) absence of the left half of the diaphragm. Hume has collected thirty-five cases of undoubted congenital diaphragmatic hernia occurring during the years 1910 to 1921. These cases were Type 1, one case; Type 2, eighteen cases; Type 3, twelve cases; Type 4, four cases. Surgical treatment is palliative only. Thoracotomy is the route of election.

Results of Operation for Internal Derangement of Knee Joint.—A reexamination of about eighty-five cases has convinced Mitchiner that as regards the actual route selected at operation, the transpatellar is the most satisfactory in all respects. No method of splinting is necessary or advisable to secure fixation of the knee after operation; early movement, combined with electrotherapeutic measures, is beneficial in promoting early absorption of effusions. The full benefit of the operation is not to be expected for from two and a half to three years after its performance. Those cases in which a definite lesion of the intra-articular structure is present give far more satisfactory results (76.6 per cent. in cases of damage to the semilunar cartilage, and 60.9 per cent. in those of loose body) after operation than when no definite lesions can be found (37.7 per cent. with synovial fringes, and only 27.7 per cent. in which no lesion is seen at operation). When nothing abnormal is found on the joint being opened, the best course to adopt is to close the joint without interfering with the intra-articular structures. Reviewing the whole of the facts set forth by Mitchiner, it would seem that operative intervention in cases of internal derangement of the knee is justifiable, if not desirable, in all cases in which a diagnosis of a definite lesion of any of the intra-articular structures can be hazarded with any degree of certainty, and where the consequent disability is sufficient to prevent the patients carrying out efficiently their daily avocation.

Multiple Polyps of Stomach.—Mills adds one case to the nineteen cases recorded in the literature by others, and suggests that these growths should be described as papillomas rather than as adenomas. He is convinced that they will eventually prove to be something in the nature of infective "warts" on the mucous membrane of the stomach.

Calcified Guinea Worms.—Connor cites a number of conditions which were simulated by the remains of calcified guinea worms in the tissues.

Metastatic Melanoma of Scapula.—The most striking feature of the case cited by Cairns is the long interval between the original incidence of the primary tumor and the subsequent metastasis. Eighteen years previously the patient, a man, aged 59, had an eye removed because it was the seat of a melanoma. No recurrence was noted for seventeen years and then there was also a metastasis to the scapula. Both macroscopically and microscopically the tumor displayed the characteristics of a melanotic sarcoma which clinically and pathologically was secondary to the recurrence in the eye.

Calcified Mesenteric Gland Causes Dysphagia.—In Wakeley's case a hard solid tumor was felt to the left side of the epigastrium. It was about the size of an orange, and could easily be moved about the abdomen. It could not be felt on examination per rectum. The patient complained only of difficulty in swallowing solid foods. On opening the abdomen through a left rectus incision, a large calcareous mass in the mesentery was delivered. The gland, which was almost calcified throughout, measured 3 inches across. The case is of interest because of the unusual size of the calcified gland, and its pressure effect on the stomach.

Inflamed Appendix and Meckel's Diverticulum in Hernia Sac.—One of Ludbrook's cases was an instance of an acutely inflamed appendix in the sac of a femoral hernia. The second case was one of right femoral hernia complicated by a Meckel's diverticulum adherent to the hernial sac.

Indian Journal of Medical Research, Calcutta

October, 1922, **10**, No. 2

Distribution and Control of Hookworm Disease in India. Prepared by International Health Board, Rockefeller Foundation, New York. —p. 295.

*Correlation Between Chemical Composition of Anthelmintics and Their Therapeutic Values in Connection with Hookworm Inquiry in Madras Presidency. J. F. Caius and K. S. Mhaskar.—p. 343.

Bacteriologic and Laboratory Technic. Section VII. W. F. Harvey. —p. 361.

*Advantages of Single and Fractional Dosage in Prophylactic Inoculation. W. F. Harvey and K. R. K. Iyengar.—p. 424.

Synopsis of Adult Oriental Culicine (Including Megarhinine and Sabethine) Mosquitoes. Part II. F. W. Edwards.—p. 430.

Reversion of Flagellate Form of Leishmania Donovani and Leishmania Tropica to Resistant Nonflagellate Torpedo and Body, in Culture Tubes and Its Bearing on Attempts at Search for Transmitter. R. Row.—p. 476.
General Bullinus and Physa in Mediterranean Basin (Mollusca Pulmonata). N. Annandale.—p. 482.
*Chemotherapy of Antimonial Compounds in Kala-Azar Infection. U. N. Brahmachari.—p. 492.
*New Flagellate Parasite in Human Intestinal Canal. G. C. Chatterjee.—p. 523.
Larva of Anopheles Annandalei, Prashad. M. O. T. Iyengar.—p. 526.
Development and Structure of Terminal Abdominal Segments and Hypopygium of Mosquito, with Observations on Homologies of Terminal Segments of Larva. S. R. Christophers.—p. 530.
Hypoderma Crossii Sp. Nov., Parasitic in Its Larval Stages in Cattle and Goats in Punjab. W. S. Patton and E. M. Patton.—p. 573.
Survey of Biting Insects of Assam with Reference to Kala-Azar for Whole Year from November, 1921, to October, 1922. P. R. Awati.—p. 579.
Possible Fallacy in "Thick-Film" Method of Examination for Malarial Parasites. J. A. Sinton.—p. 592.

Chemical Composition of Anthelmintics and Therapeutic Values.—Caius and Mhaskar have found that propenyl phenols have well marked anthelmintic properties. The anthelmintic power is not associated with the unsaturated side chain, but with the phenol group. Substances containing a free phenolic hydroxyl act both as vermicides and vermifuges, and much in the same way as thymol or betanaphthol. Esterification results in the formation of compounds with little or no anthelmintic value. Etherification weakens or even destroys the vermifugal power, and, in some cases, modified the vermicidal action. The vermicidal action of methyl ethers resembles that of thymol or betanaphthol. The vermicidal action of methylene ethers resembles that of chenopodium oil.

Single and Fractional Doses in Prophylactic Inoculation.—According to Harvey and Iyengar, two spaced doses of intravenous prophylactic antigen in pigeons afford better protection than a single dose and three doses better than two. The production of agglutinins, like the protection afforded, was greater with divided inoculation than with single inoculation of the same total quantity.

Toxicity of Antimonial Compounds.—The toxicity of some of the antimonyl tartrates and of some new aromatic antimonials is described by Brahmachari. After the administration of a toxic dose of an antimonyl tartrate, the pathologic changes are most markedly seen in the lungs, the kidneys, the liver, pituitary and suprarenals. These consists chiefly of hemorrhages into the substance of these organs and destruction of their cellular elements. Similar pathologic changes are also observed after toxic doses of the aromatic antimonial compounds. Ammonium antimonyl tartrate is the least toxic of all the antimonyl tartrates used. The toxicity of the antimony content of an antimonyl tartrate is least marked in the case of the ammonium salt. The presence of nitrogen in the basic radicle of an antimonyl tartrate diminishes the toxicity of some of them. Ammonium antimonyl tartrate is of marked therapeutic value in the treatment of kala-azar. The low toxicity of ammonium antimonyl tartrate and its high antimony content lead to the conclusion that of all the antimonyl tartrates dealt with in the present paper, ammonium antimonyl tartrate is the best for use in the treatment of kala-azar. A series of new organic aromatic antimonials have been discovered, the preparations of which are described. The toxicity of the following aromatic antimonials has been estimated: (1) phenyl stibinic acid; (2) acetyl-*p*-amino-phenyl stibinic acid; (3) stibamine; (4) urea stibamine; (5) stib-hectine. The acetyl derivative of *p*-aminophenyl stibinic acid is less toxic than stibamine. Urea stibamine is less toxic than stibamine. Urea stibamine has been found useful in the treatment of kala-azar. Urea stibamine is a much safer antimonial for use in the treatment of kala-azar than tartar emetic or other antimonyl tartrates. Symptoms, such as vomiting and purging, are much less marked after intravenous injection of an effective dose (= 0.25 gm.) of urea stibamine than that of tartar emetic or sodium antimonyl tartrate (= 0.12 gm.).

New Flagellate Intestinal Parasite.—In examining the blood and mucus containing stool of a child suffering from an acute attack of dysentery, Chatterjee found numerous actively motile, oval shaped flagellates. These, when stained by iron hemotoxylin stain, showed characters unlike those found in flagellates hitherto described. The organism stands unique in this respect that no organism has been found in man up to now which shows eight free flagella.

Journal of State Medicine, London

November, 1922, **30**, No. 11

War Wastage from Minor Ailments. A. B. Soltau.—p. 461.
Vitamins in Connection with Infant Feeding. E. A. Barton.—p. 470.
Building of Good Teeth and Their Preservation. H. Scurfield.—p. 480.
Physiologic Prevention of Dental Caries and Oral Sepsis. J. Wheatley.—p. 484.
Beginnings of Disease Stopped by Building and Preservation of Good Teeth. S. Barwise.—p. 486.
Some Causes of Irregular Teeth and Their Effects. A. E. Barnett.—p. 489.

Medical Journal of Australia, Sydney

Oct. 21, 1922, **2**, No. 17

Psychology: Its Basis and Application. J. W. Springthorpe.—p. 461.
Physical Basis of Insanity. W. A. T. Lind.—p. 465.
Therapeutic Value of Arsenobenzol Drugs. H. Rischbieth.—p. 472.

Medical Journal of South Africa, Johannesburg

Oct. 28, 1922, **2**, No. 3

Public Ill Health. J. A. Mitchell.—p. 59.
Auricular Fibrillation: Paroxysmal Type. L. I. Braun.—p. 63.
Then and Now. C. Porter.—p. 69.

Quarterly Journal of Medicine, Oxford

October, 1922, No. 61

*Contracted Kidney. S. C. Dyke.—p. 1.
*Respiratory Exchange in Cretinism and Mongolian Idiocy. G. B. Fleming.—p. 11.
*Relapsing Pyrexia in Lymphadenoma: Report of Case. A. J. Hall and J. S. C. Douglas.—p. 22.
*Arteriosclerosis in Children. G. Evans.—p. 33.
*Calcium and Phosphorus Metabolism. Part I. Excretion. S. V. Telfer.—p. 45.
*Id. Part II. In Rickets. S. V. Telfer.—p. 63.

Contracted Kidney.—Eight cases of nephritis associated with contracted kidney are considered by Dyke and one in which the kidneys were not contracted. One of the contracted kidneys showed changes associated with senile arteriosclerosis without evidence of inflammation; in this case biochemical tests performed during life showed no evidence of departure from normal. The remaining seven contracted kidneys all showed a combination of an inflammatory process with intimal hyperplasia and fatty change in the arterioles of the type associated with "diffuse hyperplastic sclerosis." The biochemical tests in these cases showed a progressive debasement of renal function. The one case of uncontracted kidney showed inflammatory changes without intimal hyperplasia of the arterioles. On neither histologic nor biochemical grounds was it possible to divide the seven kidneys into primary cardiovascular or secondary inflammatory types. It is suggested that both the inflammatory and the vascular changes of the type described as "diffuse hyperplastic sclerosis" are the common results of the action of one toxic agent. It is further suggested that the only true primary cardiovascular contracted kidney is that of the senile arteriosclerotic type.

Basal Metabolism in Cretinism and Mongolian Idiocy.—The basal metabolism was found by Fleming to be unduly low in the untreated cretin. Thyroid treatment raised the metabolism to about the normal level. The basal metabolism was normal in six Mongols. Thyroid treatment had no effect on their basal metabolism. Fever caused a rise in the metabolism. The results of these respiratory exchange experiments in cretins and Mongols are used by Fleming to test the suggestion that the basal metabolism rate referred to body weight gives a reliable index of nutrition.

Relapsing Pyrexia in Lymphadenoma.—In certain cases of lymphadenoma there is a type of relapsing pyrexia which differs in certain respects from that seen in any other disease. It resembles the pyrexia seen in that group of recurring fevers which includes malaria, relapsing fever, rat bite fever, and some others, in (*a*) regular periodicity; (*b*) gradual ascent by steppage and sometimes similar gradual descent and (*c*) very low temperatures with apparently complete recovery in the apyrexial periods. It differs from them in the greater length of span, which is usually from fifteen to twenty-five days, but may extend even to thirty-six days. It is usually fairly constant for each individual case. Hall and Douglas report one case.

Arteriosclerosis in Children.—Four cases form the basis of Evans' paper. Three cases belong to the type of chronic nephritis in childhood commonly named renal infantilism. The fourth case is different in some respects both clinically and pathologically, but in the similarity of the renal and cardiovascular affection it is sufficient for the present purpose to place it in the same group with the other three. The outstanding feature of these cases was the marked degree of cardiac hypertrophy and abnormally raised blood pressure (from 165 to 260 mm.). All the patients died. Histologic examination of the kidneys showed that diffuse hyperplastic sclerosis is identical in children and adults. Its association with chronic nephritis in children is more significant than in adults, because many of the causes of arteriosclerosis are excluded in children by reason of their age.

Calcium and Phosphorus Excretion.—The excretion of calcium, phosphorus, and fatty derivatives Telfer asserts are interdependent, calcium being eliminated chiefly as phosphate and to a lesser extent as insoluble soaps, the relative amounts of these varying with the conditions of the intestinal contents. The total amount of calcium and phosphorus eliminated is nearly proportional to the intake. In normal infants 40 per cent. of the total phosphorus excreted appeared in the urine, 60 per cent. in the feces. With acid formation in the intestine, less phosphorus is excreted by the feces, more by the urine. The influence of calcium soaps in controlling the bulk of feces is discussed. No evidence of absorption of calcium in excess of requirements with subsequent reexcretion into the bowel was obtained. On the other hand, all the observations made seemed to indicate that the greater part of the calcium in the intake is restricted to the intestine; and, except the small amount excreted in the urine, the amount absorbed is nearly equivalent to the amount retained. The excretion of calcium and phosphorus in relation to fats is discussed in certain pathologic cases in which an excessive soap formation was a feature common to all. It is suggested that in these the common causative factor was a persistence of free fatty acids in the intestine, possibly secondary to some degree of hepatic insufficiency.

Calcium Metabolism in Rickets.—The causes which might give rise to diminished retentions of the bone forming elements are discussed by Telfer. It is argued that defective absorption of calcium from the intestine, possibly the result of some alteration in the gastro-intestinal functions, cannot yet be excluded as a factor in the causation of bone 'softening' in rickets.

Annales de Médecine, Paris

October, 1922, **12**, No. 4

*Diffusibility as Factor in Pathology. A. Chauffard et al.—p. 257.
*Benzoin Test in Neurosyphilis. P. Marie et al.—p. 263.
*Tetrachlorethane Poisoning. N. Fiessinger and M. Wolf.—p. 269.
*Mumps Septicemia. F. Moutier.—p. 296.
Research on Antibodies in Tuberculosis. P. Armand-Delille et al.—p. 313.
*Actinomycosis of Spinal Cord. Lesné and Belloir.—p. 329.

Diffusibility of Urea, Sodium Chlorid, Uric Acid and Glucose.—Chauffard, Brodin and Grigaut found that the comparative liquid diffusion through a parchment membrane might be represented by 59 for glucose, 74 for sodium urate, 92 for sodium chlorid and 93 for urea. The comparative speed of the dialysis and the difference in the diffusibility explain certain physiologic phenomena, such as the fact that urea and sodium chlorid are found in the cerebrospinal fluid in about the same concentration as in the blood, while only 59 per cent. of the glucose in the blood can be found in the cerebrospinal fluid. This seems to indicate that this fluid is formed by dialysis, rather than by actual secretion. Uric acid, on the other hand, behaves quite differently. The living membrane involved seems to display a selective action against the passage of uric acid. Dialytic diffusion probably plays an important rôle in impregnation of the tissues, as with sugar in diabetics and uric acid in the gouty.

Benzoin Test in Neurosyphilis.—Marie, Bouttier and Iorgoulesco have been applying in 105 cases of various nervous affections the colloidal benzoin test introduced by Guillain and his co-workers. The flaking was distinct and durable when the spinal fluid had been derived from a case of neurosyphilis, general paresis or tabes (with the exception of 3 in the 5 cases of tabes), while the response was constantly negative in the 4 cases of brain tumor, 12 of epidemic encephalitis, 6 of epilepsy and 56 of neuralgia, headache, etc., in nonsyphilitics. They extol the simplicity and reliability of the method.

Industrial Tetrachlorethane Poisoning.—Fiessinger and Wolf remark that arsphenamin jaundice is so frequent nowadays that not a week passes in an active hospital practice without encountering it. They have recently been studying two cases of toxic jaundice, one fatal, for which tetrachlorethane, in the manufacture of artificial pearls, was manifestly responsible. In these and other cases cited, the first symptoms were fatigue, nausea, headache, constipation, sometimes vomiting. The jaundice did not appear till the third or fourth day. The necropsy findings in their case are compared with the result of experiments on white mice. They all testify to the highly toxic nature of tetrachlorethane, and that the liver suffers first and foremost. Since 1915, toxic jaundice has been on the list of diseases to be declared to the British factory inspection service. In France this chemical has been abandoned in the making of aeroplanes. Treatment of the toxic manifestations is said to consist in the early and prolonged use of liver organotherapy, with abundance of sweetened beverages. Wilcox has emphasized the importance of alkaline treatment, giving about 2 gm. each of sodium citrate and sodium carbonate in a little water every two or three hours. This was supplemented with small glucose or sodium bicarbonate enemas. This alkaline treatment cured even in a case of trinitrotoluene toxic jaundice.

Mumps Septicemia.—Moutier declares that the 600 cases of mumps he had in his charge during 1918 have convinced him that mumps is a septicemia with multiple localizations in the viscera. The general infection was accompanied with symptoms showing involvement of the testicles, pancreas, or suprarenals, meninges or brain, and sometimes of the pituitary or thyroid. Nine of the 600 men had a second attack of mumps two or three months later. In 11 cases there was recurrence after a brief interval. In 74 cases there was pancreatitis, quite severe in 25. The blood pressure varied in a baffling way. This long study of mumps concludes with the assertion that the entire history of the disease is that of an infection of the ductless glands. "It is the typical disease of the endocrine organs."

Actinomycosis.—Lesné and Belloir accepted by exclusion actinomycosis as responsible for the peculiar multiple abscesses, and this diagnosis was confirmed by the course of the case. There was nothing to suggest actinomycosis in the history of the case. The man of 44 lived in Paris. The diagnosis had been pulmonary tuberculosis at first, and the course seemed mild, but metastasis in the spinal cord soon proved fatal. Iodid treatment does not seem to have any influence on mycosis involving the central nervous system.

Archives des Maladies du Cœur, Paris

October, 1922, **15**, No. 10

*Aneurysm of the Aorta of Tuberculous Origin. E. Lenoble.—p. 677.
*Infectious Myocarditis and Cardiac Insufficiency. R. Lautier.—p. 686.

Aneurysm of the Aorta of Tuberculous Origin.—Lenoble reports a case of aneurysm of the aorta in a man of 43 in whom the tubercle bacillus was found in the sputum only after minute research. The case was diagnosed as a healed tuberculous aneurysm from a tuberculous lesion, relic of a histologic bacillary infection arrested in its evolution. It is an example of Gilbert's *tuberculose déshabitée*, "vacated by the tubercle bacilli."

Infectious Myocarditis and Cardiac Insufficiency.—Lautier states that the clinical type of cardiac insufficiency to which he desires to call attention is characterized by the following points: A rather sudden onset—in a healthy subject of any age, having had or not, consciously or unconsciously, a previous heart attack—of signs of cardiac insufficiency, occurring without having overworked the myocardium, and which may reach the complete asystolic syndrome, presenting a special evolution, often entailing death after periods of alternating improvement and aggravation, sometimes even real remissions, and peculiarly uninfluenced by heart tonics. The signs which reveal this grave type of cardiac insufficiency, are more or less marked anemia, leukocytosis of variable intensity, and rise in temperature. Auscultation reveals a peculiar vibration of the whole heart at each beat, and the rhythm may be irregular. From this symptomatic triad: anemia, leukocytosis and fever, we can conclude that an infection is responsible for this passive cardiac insufficiency. The involvement of the heart in infectious disease, especially rheumatism, when limited to the endocardium or pericardium, entails only a minimum of subjective signs and insignificant disturbance of the circulatory balance. On the contrary, when the infection affects the myocardium only, or both myocardium and pericardium, great circulatory disturbances immediately occur on account of the decrease of functional capacity of the heart muscle. With the total arrhythmia, auricular tachysystole and tachy-arrhythmia, quinin or quinidin should not be given as one may be tempted to do to combat the fever and arrhythmia. In such cases these drugs are harmful for the heart and often fatal. If the physician should be tempted to institute an antisyphilitic treatment to combat a possible specific infection, great caution is necessary in the use of arsphenamin and even of mercuric cyanid; they may be disastrous in this form of cardiac insufficiency. By following the signs described here, physicians will be able to ferret out these cases of asystolia rebellious to ordinary treatment, and early diagnosis is important to enable prompt and adequate treatment.

Archives de Médecine des Enfants, Paris

November, 1922, **25**, No. 11

*Nephritis in Inherited Syphilis. V. Hutinel.—p. 641. Conc'n.
*Diphtheria Epidemics. J. Camescasse.—p. 671. Conc'n.
*Pink Disease: Acrodynia. J. Comby.—p. 680.

Nephritis in Inherited Syphilis.—The preceding instalment of Hutinel's article was summarized on page 1960. He emphasizes that nephritis from inherited syphilis may not differ from ordinary nephritis from common infections. In fact, the nephritis is actually the work of the common infection; the syphilis is merely a predisposing cause, but it may magnify the damage from the ordinary infection. This leaves the kidney doubly sensitized. Treatment of nephritis in syphilitic children should be the same as for any nephritis, and treatment of the syphilis should not be neglected. It is difficult, however, as the main emunctories are not working properly. The drugs selected should be those the kidneys stand best, tentatively testing the tolerance. He has had cases in which hematuria or a tendency to anuria followed simple mercury rubs. He prefers arsphenamin, in small doses far apart. Iodid can be given also, but children do not bear too much of it. Treatment has to be so cautious that not much hope can be based on it. Encouraging improvement may be observed, but in subacute or chronic cases, a cure cannot be promised.

Some Epidemics of Diphtheria.—Camescasse remarks in the course of this study of the management of school epidemics of diphtheria, "Hygiene is the diplomacy of medicine." He quotes that the only laws which can be enforced are those which codify already established customs. Those for which public opinion is not prepared are usually totally ineffectual.

Acrodynia or Epidemic Erythema.—Comby has been able to compile quite a number of reports of cases of the disease not yet described in the textbooks, but called variously "raw beef hands and feet," "pink disease," erythredema and pellagra-acrodynia. In 88 cases compiled in Australia, the children affected were from 4 months to 3½ years old. The disease terminated fatally in 5 of 91 cases, and in some of the 25 American cases he cites. In Parkes Weber's recent case, the clinical picture was an actual dermatopolyneuritis in the boy of 2½, a chronic mutilating acrodermatitis of hands and feet.

Bulletin de l'Académie de Médecine, Paris

Oct. 24, 1922, **88**, No. 34

*Insanity in Egypt. A. Marie.—p. 154.
*Alkaline Treatment of Gastric Ulcer. Le Noir.—p. 157.
*Endocarditis with Effusion Elsewhere. E. de Massary.—p. 160.

Insanity in Egypt.—Marie's analysis of the data for thirty years in respect to the care of the insane in Egypt, shows that the Arabs are subject to all the mental diseases known to Europe, and that general paresis was encountered in 0.55 per thousand population, a total of 1,000 cases during the thirty years to a population of 12,664,009. Neurosyphilis is common, and cases of precocious general paresis from inherited syphilis have been seen, and also pluriconjugal neurosyphilis from polygamy. Pellagra and hashish are also responsible for a large proportion of the insanity, more than compensating for the rarity of alcoholism as a factor in insanity.

Sodium Bicarbonate in Treatment of Gastric and Duodenal Ulcer.—Le Noir expatiates on the multiple actions of sodium bicarbonate in cases of ulcer, and the absence of by-effects when the drug is given by rectal drip, 500 gm. of a 15 per thousand solution instilled by proctoclysis, instead of being taken by the mouth. The drug thus reaches the liver without being modified beforehand by the gastric juice. It passes directly into the blood, and thus combats insufficiency of the liver and acidosis, besides its sedative action on the ulcer. This latter he found in some cases fully as pronounced as when the drug was given by the mouth.

Endocarditis with Vegetations and Effusion Elsewhere.—De Massary reports three cases in which the endocarditis was completely masked by an effusion in the peritoneum, pleura or meninges, the disease thus sailing under the false flag of peritonitis, pleurisy or meningitis. In the first case, the retrospective diagnosis from the necropsy findings was that an acute attack of endocarditis with vegetations had developed on an old mitral valvular affection; an infarct in the spleen had followed, and then subacute peritonitis proved fatal. The peritonitis had deceptively dominated the clinical picture; as likewise the pleurisy in the second case and the meningitis in the third. The endocarditis was not recognized during life.

Bulletin Médical, Paris

Oct. 21, 1922, **36**, No. 43

*Diffuse Scleroderma After Vaccination. J. Nicolas and J. Gaté.—p. 843.
Sodium Salicylate in Treatment of Acute Articular Rheumatism. R. Lutembacher.—p. 844.

Diffuse Scleroderma After Vaccination Against Typhoid.—Nicolas and Gaté report a case of diffuse scleroderma in a man of 44 without morbid antecedents. It developed in an acute form three weeks after the course of antityphoid vaccination. No similar case was found in the literature for the last twenty years. It seems, in this case, that the vaccination must be incriminated for the affection, three weeks after the last injection. Two years before, an A and B antiparatyphoid vaccination had entailed disturbances, which tends to show the peculiar susceptibility of the patient. On the other hand, it is now generally admitted that typhoid fever can usually be found in the remote or recent antecedents of certain patients with scleroderma. They query whether the typhoid antiserum acted like a typhoid fever in this case, or if it constituted, on the contrary, merely a disturbing intoxication in a predisposed subject. One single case, however, does not allow any conclusive answer to these questions.

Oct. 28, 1922, **36**, No. 44

The Physiology, Etiology and General Treatment of Hemorrhages. P. Emile-Weil.—p. 861.
Treatment of Visceral Hemorrhages. G. Boyé.—p. 866.
*Constitutional Tendency to Hemorrhagic Conditions. P. Chevallier.—p. 869.

Nov. 4, 1922, **36**, No. 45

Chronic Hypertrophy of the Lymphoid Tissue of the Pharynx. H. Stévenin.—p. 887.

Constitutional Hemorrhagic Tendencies.—Chevallier states that it is not always easy to proclaim the constitutional character of a hemorrhagic syndrome. Blood analysis is useless. Infections, intoxications and dyscrasias can realize all sorts of blood and blood vessel disturbances. The hemophilia type of hemorrhage is rare, but the purpura and cholemia types are frequent. Troubles of coagulation are often of complex origin. In certain acute postarsphenamin purpura cases, the incoagulability of the blood, complete at first, may decrease and disappear while the purpura remains. In acute diseases, the hemorrhagic tendency may upset the diagnosis, even of a disease as easily diagnosed as smallpox, or it may intensify an intoxication, as from benzene. Sometimes the hemorrhagic tendency is of slow evolution, as in leukemia, pernicious anemia and infectious endocarditis, and their difficult diagnosis may require careful clinical analysis and all the resources of the laboratory.

Bulletins de la Société Médicale des Hôpitaux, Paris

Oct. 20, 1922, **46**, No. 28

*Heterotherapy. G. Milian.—p. 1339.
*The Soil in Eczema. M. Pinard.—p. 1340.
Venous Murmurs with Cirrhosis. A. Florand.—p. 1342.
*Calcium Chlorid in Night Sweats. A. Pellé.—p. 1346.
*Paradoxes of Pleural Adhesion. P. Ameuille.—p. 1349.
*Meninges Permeability Index. R. Targowla and E. Peyre.—p. 1353.
Treatment of Nodular Leprosy. J. Hasson.—p. 1356.
Case of Syphilis Refractory to Bismuth. L. Lortat-Jacob and J. Roberti. —p. 1361.
Case of Acanthosis Nigricans. Caussade et al.—p. 1363.
*Meningitis of Helminth Origin. R. Lancelin.—p. 1369.
Epidemic of Malta Fever. Dargein and Plazy.—p. 1373.

Heterotherapy.—Milian has coined this term to express the treatment of one affection by the specific for a second, casually coincident disease. This is the explanation of the cases in which mercury or arsenicals cured psoriasis, eczema, typhoid fever or other affection. Such cases have been reported as instances of "desensitization" or the like, when the mystery is merely that the patient happened to be syphilitic.

Treatment of Eczema.—Pinard asserts that eczema must be regarded as a reaction to the elimination through the skin of toxic substances. The skin is already suffering, usually from the action of some constitutional taint, tuberculosis, or inherited syphilis, and some accidental intoxication proves the last straw. Treatment of eczema, consequently, must be entirely different from the usual routine. The skin should be protected against irritants, especially water. Cleansing should be done with petrolatum and oil of sweet almonds, and the skin protected with pastes that allow respiration of the skin. The main efforts in treatment should be addressed to the underlying constitutional disease, to modify the soil and increase the resisting powers.

Calcium Chlorid in Treatment of Night Sweats.—Pellé declares that calcium chlorid by the vein is the heroic remedy for exhausting sweats. The most profuse and inveterate night sweats always subsided, in his experience, after 2 or 3 intravenous injections of 2 c.c. of a 50 per cent. solution of calcium chlorid. In 18 mild cases of tuberculous night sweats, a single injection banished the sweats for three or four months. In 12 more serious cases, 2 injections were required in 5, and in one case a third injection to complete the cure. In 6 cases of inveterate and extremely exhausting night sweats, 2 or 3 injections answered the purpose in 4, but 2 others required a second course, three or four weeks after the first. A sensation of heat is a constant reaction, but is harmless. An eschar is liable to form if the fluid is injected around, instead of strictly within the vein.

Adhesion of the Layers of the Pleura.—Ameuille remarks that it is practically impossible to say whether the layers of the pleura are adherent or not. The only way to be certain is to try to inject air. This is simple and harmless, and seems to be the only way to tell whether pneumothorax is practicable.

Index of the Permeability of the Meninges.—The weakest dilution of the spinal fluid allowing the hemolytic reaction, divided by the same for the blood serum, gives a quotient which Dujardin calls the index of permeability of the meninges. Targowla tabulates the serial findings with this index, parallel with the colloidal benzoin test, in twenty-five cases of syphilis. The benzoin test was found much simpler and more instructive.

Meningitis Traceable to Helminths.—The clinical picture in the young man suggested tuberculous meningitis for three weeks. Then the casual discovery of an ascarid, and santonin treatment, were followed by prompt and complete recovery.

Journal d'Urologie, Paris

September, 1922, **14**, No. 3

*Diversion of Urine in Penitis. L. Thévenot and de Rougemont. —p. 177.
Pyelonephritis. Treatment with Silver Salts. H. Kummer.—p. 187.
*Healing After Prostatectomy. R. Bonneau.—p. 223.
*Diffuse Papillomatosis of Ureter. G. Marion.—p. 227.

Diversion of Urine with Rebellious Suppuration in Penis.—A case is described which testifies to the advantage of diverting the urine to allow the abscess in the corpus cavernosus or gland to have a chance to heal, when once thoroughly drained. In five other cases cited, the reliance was on a plastic operation or retention catheter, but this exposes to mishaps. In these cases the abscess had followed a gonorrheal stricture, but in the first mentioned case the sound urethra was damaged in extracting an impacted calculus, and the recurring suppuration through two years had entailed finally seven rebellious fistulas in the penis. They were curetted and the urine was diverted through the perineum, and by the thirty-fifth day the penis had healed completely. The perineal fistula was excised a few months later, after the cure of the pyuria.

Healing After Prostatectomy.—Bonneau refers to the fistula after the suprapubic incision when the tissues of the bladder and abdominal wall have been weakened by the preliminary cystostomy, weeks or months before the prostate was actually removed. The preliminary cystostomy should not be near the neck or pubis, as conditions here are less favorable for healing. It is futile to try to draw the tissues together under a tight dressing. The tissues tend to macerate, and there is no healing. Better open up the fistula, curet, disinfect with stick silver nitrate, and drain with nitrate wicks. He likes to keep the suprapubic incision open until certain that the bed of the prostate is healing nicely.

Diffuse Papillomatosis of the Ureter.—The entire ureter was removed as it was lined throughout with confluent papillomas. All were about the same size, and not a scrap of sound ureter wall could be discovered between them. The patient was a man of 45 who had had the kidney on that side removed in 1917 on account of recurring hematuria. Multiple polyps were found in the kidney pelvis, and some were seen in the ureter. Recurring polyps in the bladder were cauterized later, and the ureter was resected, hoping thus to remove the perennial source of polyp production.

Presse Médicale, Paris

Oct. 28, 1922, **30**, No. 86

*Intraspinal General Anesthesia. T. Jonnesco.—p. 929.
The Benzoin Reaction in General Paresis. R. Targowla.—p. 931.
Focal Dental Infection in General Medicine. F. Nidergang.—p. 933.
*Sugar to Ward Off By-Effects of Arsphenamin. L. Cheinisse.—p. 933.

High Intraspinal Anesthesia.—Jonnesco expatiates on the advantages of injecting the anesthetic in the vicinity of the nerve centers, instead of giving it by inhalation, which forces it to traverse almost the entire organism before reaching the nerve centers, giving it a chance to exert its toxic action on the way. He deplores the general distrust of this method of high intraspinal injection, from fear of paralyzing the centers in the medulla. He says he never had any serious mishaps with it in fourteen years and 5,016 applications, including 1,136 high and 3,880 low intraspinal injections. It has been used likewise by other Roumanian surgeons to a total of 11,324 cases, with two fatalities. By mixing caffein (50 cg.) with the stovain (2 to 5 or 10 cg.), the caffein stimulates the bulbar centers and thus corrects any tendency to a depressing action. It is thus almost a local anesthesia, and it has the special advantages of leaving the throat reflexes intact, while the abdomen is absolutely still, and the muscles of the limbs and perineum are completely relaxed. He used to give strychnin with the anesthetic, but has replaced it with caffein since last March, and the result has been marvelous, he asserts. Not only are there no by-effects, but he has witnessed actual resurrections under it, the patient rousing from shock or the toxic action of infections. He makes the injection between the twelfth dorsal and first lumbar vertebrae or between the fourth and fifth lumbar.

Sugar to Ward Off Shock in Arsphenamin Treatment.—Cheinisse reviews some recent reports on the intravenous injection of 25 or 50 per cent. solution of glucose, before or associated with some drug, digitalis, morphin, ether or arsphenamin. Pranter has given arsphenamin in a strong solution of glucose, and Planner has recently reported applying this technic in 100 cases during the last year. The latter mentions that in one case there was a typical neurorecurrence of the syphilis, showing that the association of arsphenamin and hypertonic sugar solution does not guarantee against neurorecurrence. Duhot of Brussels has recently emphasized the efficacy of the sugar in warding off shock and other untoward by-effects with arsphenamin treatment. By combining the drug with a 50 per cent. solution of sugar, he was able to carry through the course of treatment in five patients who previously had been totally unable to tolerate the arsphenamin. The sugar, he says, allows larger doses to be given safely. Since he has made a practice of this, jaundice has become very rare in his syphilis service and eruptions absolutely exceptional.

Nov. 1, 1922, **30**, No. 87

*Nontuberculous Hip Joint Disease. A. Broca.—p. 941.
*Obesity and High Blood Pressure. F. Pedrazzini.—p. 943.

Nontuberculous Hip Joint Disease.—Broca warns against the tuberculin test in hip joint disease, as a positive response does not tell whether the hip joint is the seat of the tuberculous lesion responsible for the reaction, while, on the other hand, the reaction may do harm in the joint. He remarks that very little is known certainly in regard to syphilitic disease of the hip joint. His review of the whole field of nontuberculous arthritis of the hip is mainly for the purpose of stating the problems pressing for solution. There is so much that has to be left uncertain, and the pathologist as he gathers experience grows less and less sure of his classification, and the clinician more modest in affirming the diagnosis.

Obesity and High Blood Pressure.—Pedrazzini explains the anatomic and physiologic conditions regulating the normal elastic play of the spinal dura mater. This is what makes possible the entrance of the blood into the skull already packed full of tissue and fluid. When accumulations of fat prevent this elastic play of the spinal dura, which is in close connection with the circulation in chest and abdomen, there is liable to be serious disturbance. Hence he urges systematic respiratory massage of the abdomen in the obese and in all persons of the apoplectic type. He directs the patient to breathe deep and, during expiration, press on the abdomen, then releasing it and making an effort to distend it during inspiration. The aim is to vary the pressure in the abdominal cavity within as wide a range as possible, striving thus to render more active the venous circulation in the spinal plexuses, etc.

Progres Médical, Paris

Oct. 14, 1922, **37**, No. 41

*Research on Dyshydrosis and Pompholyx. P. Legrain.—p. 477.
The Liver in Acute Infectious Diseases of Children. P. Lereboullet.—p. 479.

Oct. 21, 1922, **37**, No. 42

*Diphtheric Paralysis. Lereboullet.—p. 489.
Mussulman Customs Favor the Fight Against Venereal Disease in Morocco. Carle.—p. 493.

Oct. 28, 1922, **37**, No. 43

Mechanism of the Fixation of Complement Test. E. Peyre.—p. 501.
Cancer of the Uterus Cervix. H. P. Achard.—p. 503.

Nov. 4, 1922, **37**, No. 44

Symptoms and Diagnosis of Inherited Syphilis in the New-Born. G. L. Hallez.—p. 513.

Origin of Dyshydrosis or Pompholyx.—Legrain made a minute laboratory research on the mycotic origin of dyshydrosis eruption on the hands and feet of thirty-two patients. True recurring dyshydrosis, or Fox' disease, is of short duration, disappearing as a rule without treatment and is not due to parasites. The pompholyx eruptions are traceable to various causes. One variety is due to general disturbances or intoxications, and the other to micro-organisms. He emphasizes that in all cases of persisting dyshydrosis eruptions, without the characteristics of true or typical dyshydrosis, it is of the utmost importance to look for micro-organisms.

Revue de Chirurgie, Paris

1922, **60**, No. 6

*Repeated Operations on Gastric Cancer. X. Delore and C. Dunet.—p. 359.
*Bone Grafts. R. Simon.—p. 368. Conc'n.

Repeated Operations on Gastric Cancer.—Delore and Dunet describe the features which distinguish the clinical picture by extension of the malignant disease after an operation, from the clinical picture caused by some accidental obstruction which might be obviated or removed by another intervention. This should be restricted to the minimum, and for this reason they advise measures requiring the least manipulations, anterior precolic gastro-enterostomy, suturing with catgut without a button, rinsing out the stomach daily if there is vomiting. This clears out clots and septic products. In one of the four cases described the patient survived for a year in good condition after the second gastro-enterostomy. The stomach had been resected in this case; in the others merely a palliative gastro-enterostomy had been done, and the second gastro-enterostomy was required from six to nine months later. Two are still in fair condition since the second operation, last May or June. The other patient died from hemorrhage from the cancer four days later.

Bone Grafts.—Simon gives nearly twenty pages of bibliographic references which he had consulted for this biologic study of bone grafts. There are thirty-eight illustrations, and his conclusions from his research confirm the general experience that a fresh bone autotransplant, although it is doomed to almost total mortification, still may entail a rapid and complete restoration of the bone. Transplantation of a fresh homoplastic fragment of bone has some chances of success, but a fragment from another species, and a fragment of dead bone generally fail completely. These two last mentioned procedures should never be used except for a temporary support. Special pains are necessary to ward off fracture of the graft as the bone tissue is absorbed.

1922, **60**, No. 7

*The Cleavage Zones of the Peritoneum. P. Descomps.—p. 451.

The Cleavage Zones of the Peritoneum.—Descomps' 102 illustrations and diagrams show the zones in the peritoneum tributary to the different organs and parts of organs, and the cleavage throughout, which leaves intact the circulation and innervation. His pictorial analysis traces the way in which the digestive tube and its annexes bend and twist and overlap, in the course of their growth, to accommodate themselves to the comparatively more and more restricted dimensions of the abdominal cavity. The visceral peritoneum following them overlaps, and sticks together in certain regions; the coalescence being sometimes with the parietal peritoneum and sometimes with itself, the visceral peritoneum. These stuck-together portions of the peritoneum can be pried apart when the zone of cleavage is perfectly understood. These zones of cleavage enable us to understand certain atypical arrangements, to distinguish between curious, but insignificant, anomalies, and relics of pathologic processes. On the other hand, we can recognize the anatomic origin of certain arrangements that we have been ascribing to disease. A knowledge of the embryogeny, morphology and topography of these *zones accolées* of the peritoneum, suggests to the surgeon new ways and means to utilize the resources of this cleavage, particularly in the concluding peritonization, the effort to reconstruct the operative focus. The restoration may be according to the primitive arrangement, or some logical plan designed to meet the new postoperative conditions, conceived and executed from both the anatomic and physiologic standpoints. Of the forty-seven pages of this article, only two are text reading matter.

Revue Médicale de la Suisse Romande, Geneva

October, 1922, **42**, No. 10

*Antianaphylaxis. P. Abrami.—p. 625.
Oscillotonograph Record of Systolic Blood Pressure. M. Brot.—p. 632.
Oscillometry of Blood Pressure. Bonjour.—p. 636.
Revision of Liquor Laws in Switzerland. V. Demole.—p. 652.
Case of Primary Tuberculous Peritonitis. E. Grasset.—p. 658.

Antianaphylaxis.—Abrami has taken a leading part in research in this line, and he describes the phenomena involved in anaphylaxis of respiratory, alimentary and other origin. The sympathetic system is the one mainly involved in the phenomena of experimental anaphylaxis, which suggests that treatment for man should include measures to act on the sympathetic. A special predisposition is also evident in man, and this predisposition should be combated likewise. This predisposition explains the recurrences after an apparently complete cure. Desensitization does not always have to be specific. All kinds of substances have been used for this, and almost any of them are liable to prove successful. More remarkable still, certain cases rebellious to all other measures have been cured by inducing a shock similar to the anaphylactic shock. "Miraculous cures of typhoid have been reported after inoculating the typhoid patient with a little of his own serum. The typhoid bacilli disappeared completely within a few hours. This promising method is unfortunately fraught with certain dangers. It is impossible to gage the violence of the shock." In a case of extensive Quincke's edema, recurring frequently and rebellious to the whole range of treatment, Abrami made a cautious intravenous injection of peptone. An intense shock followed, but the man was cured at once after seven years of the affection. There was a slight recurrence nine months later, but it yielded promptly—and without reaction—to another injection of peptone. Abrami adds that it is too early yet to deduce general laws; all we can do at present is to record scattered facts. Time will show their connection. We know already that thyroid insufficiency may be a factor in the anaphylaxis. One patient with "rose cold" was freed from his sensitization by taking 0.2 gm. of thyroid extract. As long as he kept this up he could sniff roses with impunity, but never otherwise.

Siglo Médico, Madrid

July 29, 1922, **70**, No. 3581

*Glucose in Treatment of Sinusitis. J. M. Barajas y de Vilches.—p. 101.
Diagnosis of Active Tuberculosis. Ramón Villegas.—p. 104.
Case of Parkinsonism After Epidemic Encephalitis. F. Cuesta Urcelay.—p. 105.
Pharmacology of Galenic Preparations from Vegetable Kingdom. M. Alvarez Ude.—p. 106. Conc'n in No. 3587.
Post Mortem Diagnosis. J. de la Guardia.—p. 110.

Treatment of Sinusitis.—Barajas reports disappointing results from intravenous injections of a hypertonic solution of glucose in treatment of suppuration in the accessory sinuses. Wiethe has reported excellent results in chronic cases of sinusitis, but Barajas' experience failed to confirm this.

Aug. 12, 1922, **70**, No. 3583

Cajal. C. M. Cortezo.—p. 149. Cont'n.
*The Acquisitions of Surgery in the War. Forgue.—p. 152. Conc'n No. 3584.
Autogenous Vaccines to Supplement Operations for Cataract. Márquez.—p. 154.

The Surgical Acquisitions from the War.—This is an address delivered by Forgue of Montpellier in the Academia de Medicina at Madrid. He regards the venturing on primary suture after severe injuries as the most important achievement of surgery in the war, and this, he said, was introduced by the French. The improvement in the treatment of fractures amounted almost to a revolution; the Americans and the English were the pioneers here. The principle of intervention as early as possible in wounds of the abdomen and chest established its value beyond question, the war experiences banishing forever the fear of operative pneumothorax. He said that the special feature distinguishing the present era of surgery is the ever closer collaboration between the physician and the surgeon. This is especially important in emergency cases. The physician must not judge surgery by its failures; too often the physician's procrastination is solely responsible for them, or his purge in intestinal disease, his leeches in mastoiditis, or his morphin, which silences the cry of the organs for help. Forgue reiterates that the mental effort of the diagnosis is as difficult and as entitled to gratitude as the manual act of the operation. Surgery has receded in recent years from certain fields: There is less confidence in the Talma operation for ascites, and in laparotomy as treatment for tuberculous peritonitis. Radiotherapy promises to restrict its field still more, but as it retires from some fields it is advancing farther in others.

Aug. 19, 1922, **70**, No. 3584

Roentgen-Ray Treatment of Mammary Cancer. B. Navarro Cánovas.—p. 173.
Vaccine Therapy by the Vein. Barrio de Medina.—p. 175.

Aug. 26, 1922, **70**, No. 3585

*Ophthalmoplegic Migraine Neuralgia. M. Marín Amat.—p. 197. Conc'n No. 3586, p. 224.
Association of Morphin and Magnesium Sulphate. R. Saenz de Santa Maria.—p. 200.
Present Status of Acidosis. M. Labbé.—p. 202.

Recurring Painful Paralysis of the Ocular Muscles.—Marín Amat here reports three new cases of migraine with ophthalmoplegia followed by persisting sensory-motor disturbances in the ocular muscles on that side and atrophy of the optic nerve on the other side. In his first case, published in 1919, the pain returned three times in the course of five years, finally becoming so severe that the woman of 29 became imbecile, and died. In the second case, this ophthalmoplegic migraine of a month's standing seemed to be arrested by protein therapy. The woman of 56 has had no recurrence during the year or two since the course of three parenteral injections of 4 c.c. of milk. She seems now entirely well. The third patient seemed to be doing well under the course of protein therapy; the pain had subsided, but the ophthalmoplegia persisted, and the woman died suddenly five days after the last parenteral injection. The fourth patient was a man of 55, and the intense pain in the left side of the head and brow had first appeared, with the total oculomotor paralysis, a month before. Protein therapy and other measures gave no relief in this case. Marín Amat says that about 100 cases of this recurring painful paralysis of the ocular muscles had been published by 1920. It progresses from a recurring affection to become continuous, with periodical exacerbations. He never found any evidence of syphilis in his four cases, but the patients had all been subjected to privations. Many of the cases on record terminated fatally. Protein therapy seemed to be responsible for the cure in one or two of his cases but displayed no efficacy in the others. The extreme intensity of the pain and the absolute failure of all measures for relief might justify a palliative operation on the nerves involved, or injection of alcohol.

Sept. 2, 1922, **70**, No. 3586

The Mechanical Factor in Chronic Constipation. J. Blanc Fortacín.—p. 221.
Rare Varieties of Abdominal Cysts. Idem.—p. 223.

Sept. 9, 1922, **70**, No. 3587

Case of Diffuse Glomerular Nephritis. A. M. Vallejo de Simón.—p. 245.
Extraction of Cataract in a Case of Ozena. C. Jiménez López and V. Ribón.—p. 249.
*Pharmacology of Active Galenic preparations from the Vegetable Kingdom. M. Alvarez Ude.—p. 250. Begun in No. 3581, p. 106.

Pharmacology of Galenic Preparations from the Vegetable Kingdom.—This long technical article was presented by Alvarez Ude on his election to membership in the Academia Nacional de Medicina, in the section on pharmacy.

Sept. 16, 1922, **70**, No. 3588

*Contracted Pelves. I. Pedriani.—p. 269. Conc'n No. 3593, p. 399.
Education for Life of the Crippled. D. Joaquin Decref.—p. 272. Cont'd.
"History of a Diagnostic Blunder." T. Cobo Martínez.—p. 275.

Contracted Pelvis.—Pedriani relates that only forty-seven of the 105 parturients he has been studying had a diagonal conjugate of 11 cm. He thinks that we fail to appreciate the frequency of abnormally shaped pelves. His experience has confirmed, however, that delivery may be normal even with a quite contracted pelvis. If spontaneous delivery is out of the question, he says, cesarean section is preferable for many reasons, but if conditions render this impracticable, pubiotomy should be considered next.

Deutsche medizinische Wochenschrift, Berlin

Sept. 29, 1922, **48**, No. 39

*Experimental Research on Syphilis. W. Kolle.—p. 1301.
The Technic of Blood Transfusion. H. F. Höst.—p. 1302.
Normomastix Reaction of Cerebrospinal Fluid. V. Kafka.—p. 1305.
Cerebrospinal Fluid in Neurosyphilis as Guide for Treatment. W. Weigeldt.—p. 1305.
"Serodiagnosis of Syphilis." W. Gaehtgens.—p. 1307.
Experiences with Neo-Silver-Arsphenamin. R. Schiller.—p. 1307.
Food as a Stimulant for Purin Metabolism. E. Joel.—p. 1309.
Is Yeast Therapy in Diabetes Well Founded? Lenné.—p. 1310.
Hemolysis by Phenolphthalein. K. Schilinsky.—p. 1311.
Treatment of Abortion. E. Engel.—p. 1311.
"Milking" Manipulations Force Broken Catheter from Urethra. F. Franke.—p. 1312.
Intrascrotal Injection of Sodium Chlorid in Gonorrheal Epididymitis. W. Richter.—p. 1313.
*Protein Therapy in Recent Gonorrhea. Schreiber.—p. 1313.
The Use of Incandescent Vacuum Tubes in Roentgenographic Diagnosis. J. Schütze.—p. 1314.
Ponndorf's Scarification Reaction in Tuberculosis. Ickert.—p. 1315.
Hairy Nevus Covering Nearly Whole Body. Helle.—p. 1316.
Appendicitis and Gonorrhea Most Frequent Causes of Chronic Salpingitis and Ovaritis. A. Mueller.—p. 1316.
Can a Subject Be Hypnotized Against His Will? Levy-Suhl.—p. 1317.
Improvised Manometer for Riva-Rocci-Recklinghausen Tonometer. Goldscheider.—p. 1317.
Bronchial Asthma. Goldscheider.—p. 1317.
The Technic of Otoscopy. H. Haike.—p. 1319.

Experimental Researches on the "Abortive Cure" of Syphilis.—Kolle refers to Ehrlich having recognized soon after the discovery of arsphenamin that its chief field of application lay in the early treatment of syphilis. Carrying out this idea, Kolle has endeavored by experiments on rabbits to decide these questions: (1) Whether, and if so, to what extent, it is possible to cure (that is to sterilize), with the aid of arsphenamin, rabbits infected experimentally with syphilis, and (2) more particularly, up to how long after the infection is such sterilization possible. By extensive researches on syphilitic rabbits, during recent years, he has confirmed the findings of Finger, Landsteiner and Uhlenhuth that rabbits that have been infected with the Frankfort Truffi strain of syphilis and have been given no antisyphilitic treatment, cannot be infected again with syphilis, appearing under a typical primary lesion, provided the second inoculation occurs after the lapse of ninety days after the first infection. In connection with several hundred reinfections of syphilitic animals, he secured in only a very few cases infiltrations or ulcerations, together with spirochete findings, but never typical primary lesions. In the period extending up to sixty days after the first infection, reinfections occur in 60 per cent. up to fifty days; occasionally between sixty and ninety days, but typical chancre never occurs after ninety days. A rabbit infected with syphilis reacts, then, in the same manner as a human being whose syphilis is not cured—in whom the sirochetes have not been radically eliminated. Never again throughout his whole life does he present a syphilitic reinfection with a typical primary lesion. However, if the equilibrium of immunity is disturbed, syphilitics may nevertheless become reinfected, as it were, by the spirochetes still remaining in their organism, as is proved by aortitis, gummata, paralysis, etc., which develop without reinfection. Kolle claims to have shown by his animal experiments in just what percentage of cases a sterilization of persons infected with syphilis can be effected with arsphenamin, and up to how long after the primary infection such sterilization can be attained without fail. Kolle's recent experiments show that up to forty-five days after the infection the sterilization of rabbits was possible in a large percentage of cases, although, in general, only three injections of large doses of arsphenamin (two thirds of the tolerated dose) were given. However, after the forty-fifth day, the conditions change, and it is rarely possible to sterilize a rabbit with arsphenamin. Attempted reinfection proves unsuccessful, for no primary lesions develop. After ninety days from the primary infection, he was never able to produce *de novo* primary lesions in rabbits. Kolle is now conducting a series of researches to discover whether or not it is possible by long continued treatment, for a year or more; that is, by intermittent serial treatments, either with or without mercury, to sterilize animals, infected with syphilis, after the lapse of more than forty-five days from the primary infection.

Protein Therapy in Recent Gonorrhea.—The symptoms of acute gonococcus infection of the urethra did not develop till fifteen days after the contamination. An intercurrent tonsillitis with abscess in the tonsil and high fever may have been influential in thus delaying the onset of the gonorrhea. This assumption is sustained by the prompt curative action of intragluteal injection of 10 c.c. of milk. The protein shock thus induced seemed to cure the gonorrhea once and for all.

Deutsche Zeitschrift für Chirurgie, Leipzig

September, 1922, **174**, No. 1-4

*Web Fingers. H. Römer.—p. 1.
*Operative Treatment of Sciatica. Heile.—p. 10.
*Syphilitic Disease of the Stomach. T. Aoyama.—p. 34.
*Complications of Gastro-Enterostomy. E. A. Delfino.—p. 69.
*Compensatory Splenoid Structures After Splenectomy. H. Eggers.—p. 81.
*Epithelial New Growths in Kidney Pelvis. M. Grauhan.—p. 152.
Significance of Nodules in Thyroid. H. Hueck.—p. 185.
Friedmann Treatment of Surgical Tuberculosis in Children. G. Frommolt.—p. 218.
*Fracture of Humerus. E. Sattler.—p. 268.
*Conservative Treatment of Pseudarthrosis. H. Meyer.—p. 278.
Factitious Abscess from Metallic Mercury. Serdjukoff.—p. 281.

Unilateral Symbrachydactylia.—The left hand alone was affected, and only in one of the ten children.

Operative Treatment of Sciatica.—Heile has found in cases of rebellious sciatica that the pains are sometimes due to local pressure on the nerve which can be corrected. This pressure may be from an abnormal network of veins on the trunk of the sciatic nerve, as in a case illustrated, or from intraneural adhesion of fibers, or to some anomaly of the nerve itself, as in one case in which the pyriform muscle passed directly through it, the nerve fibers forking around the muscle. The epineurium may be sclerotic or there may be ascending neuritis. Severe anatomic changes may be found even with the symptoms of pure neuralgia. In some cases, relieving the nerve from external pressure as it passed through the sciatic foramen, cured the sciatica. In others, an intraneural injection mechanically separated adherent fibers or adhesion of the epineurium, and started the resorption of relics of inflammation. Merely slitting the nerve sheath may release the nerve from pressure. With actual pathologic conditions in the nerve root, resection of posterior roots may be what is needed. In a case of pathologic conditions in the calf accompanied by symptoms of typical sciatica, mere resection of the gastrocnemius cured the pain. He warns that while acute and chronic affections of the epineurium are responsible for the sciatica in many cases, the epineurium must not be removed. It can be delicately lifted up with fine pincers and adhesions broken up between it and the single nerve cables or between the epineurium and the perineurium, but the anastomoses between nerve cables must not be molested. The intraneural injections were made with 30 to 50 c.c. of a 0.5 per cent. solution of procain, followed by injection of 100 to 200 c.c. of saline, distending the nerve trunk to the utmost, thus prying the cables apart, and detaching the epineurium if it is adherent. Sciatica very rarely follows a gunshot wound of the sciatic nerve, and he ascribes this to the gap made in the nerve by the projectile. This allows secretions to drain away, instead of backing up and pressing on the nerve.

Syphilitic Disease of the Stomach.—Aoyama describes four operative cases with illustrations of the resected stomachs. There was no characteristic clinical picture, and even when the abdomen was opened, there were no pathognomonic findings except possibly the edematous aspect of the whitish thickened serous membrane in connection with the signs of inflammation. The ulcers did not extend into the submucosa. There was a history of syphilis in the two men but not in the two women, and in none were any other manifestations of syphilis to be discovered beyond the positive Wassermann reaction. A colored plate shows the photomicrograms, and the literature on syphilitic disease of the stomach is reviewed.

Complications of Posterior Gastro-Enterostomy.—In the two cases described, the walls of the stomach were unusually thin and flabby while the mesocolon was short and thick.

The resulting traction from the posterior gastro-enterostomy paralyzed the stomach, and there was invagination into the stomach. With this combination, anterior gastro-enterostomy is safer.

After Splenectomy.—Eggers reports in detail the results of experimental research on transplantation of spleen tissue, and the new-formed structure which resembles spleen tissue and is sometimes found in the peritoneum after splenectomy. He accepts the possibility of this being a compensatory formation, to take the place of the missing spleen. The erythrocytes displayed greater resisting powers after the splenectomy, but they were less resistant in the animals after transplantation of spleen tissue, and were least resistant to hypotonic saline in the dog in which one of these spleenlike new growths was found.

Epithelial Growths in Kidney Pelvis.—Grauhan comments on the lesser tendency to metastasis by the blood or lymph vessels of epithelial growths in the kidney pelvis, in comparison to those elsewhere. The great danger is from the ureter stump, when the tumor had been removed before it had broken through the kidney capsule. The ureter therefore should be excised down to its mouth in the bladder, regardless of whether the tumor is a papilloma or epithelioma. The bladder should be inspected often afterward to detect and cauterize any appearance of tumor tissue.

Extension Treatment of Fracture of Humerus.—Sattler refers to fracture just above the condyle, and gives an illustration of his arrangement for applying weight extension in four different directions. The patient reclines, the arm at a right angle to the trunk, the elbow bent at a right angle. Traction is applied to the forearm in three directions, the band in the bend of the elbow at a right angle to the up and down traction bands. Counter traction is with a band under the axilla, slanting to the other shoulder and beyond.

Conservative Treatment of Pseudarthrosis.—Meyer applies a plaster cast to trunk and arm, in case of pseudarthrosis of the upper arm. A wide gap encircling the upper arm is left in the plaster, and this is bridged and drawn up with three screw clamps. These are adjusted afresh each day. The stimulus to bone regeneration from the pressure thus applied renders a plastic operation unnecessary, and healing is soon complete.

Medizinische Klinik, Berlin

Sept. 3, 1922, **18.** No. 36

Physiology of Secretion of Pancreatic Juice. F. Reach.—p. 1137.
*The Blood Count in General Practice. H. W. Wollenberg.—p. 1139.
*Treatment of Pernicious Anemia. P. Haggeney.—p. 1141.
Unusual Manifestations of Epidemic Encephalitis. E. Adler.—p. 1142. Conc'n No. 37, p. 1179.
*Tetany After Unilateral Goiter Operation. F. Sacki.—p. 1145.
*Cerebrospinal Fluid After Inflation of Air. G. Herrmann.—p. 1146.
*Vacuum Glass Treatment of Cervicitis. G. Loewenstein and B. Schapiro.—p. 1147.
Compression of Iliac Vein by Cecum. S. Lieben.—p. 1148.
*Tobacco and Neurasthenia. K. Keller.—p. 1149.
Roentgenography in Anacidity. E. Egan.—p. 1152.
Durability of Desiccated Vaccines. F. v. Gutfeld.—p. 1153.
*Research on Typhus. H. Sparrow.—p. 1155.
Consent to Marriage After Gonorrhea. E. Portner.—p. 1155.
Recent Literature on Endocrine Glands. F. Schlesinger.—p. 1156.

Importance of the Differential Blood Count in General Practice.—Wollenberg urges the necessity for including the differential blood count in the practitioner's routine examinations. He relates a number of instances when this alone gave the clue to the clinical picture. It is particularly instructive when it is a question whether the disturbances are functional or organic, and to substantiate or refute the patient's complaints. He tabulates ten cases of functional disturbances of different kinds; in all, the nucleated neutrophils numbered only from 1 to 3.5 per cent. while the lymphocytes ranged from 22 to 41. In a corresponding group of 10 with ulcer or cancer, the nucleated neutrophils ranged from 5 to 8 and the lymphocytes from 18 to 33.5. Pronounced eosinophilia may suggest helminthiasis in puzzling cases, and polychromasia may warn of chronic minute bleeding from hemorrhoids which was not heeded before as the explanation of weakness and anemia. In pulmonary tuberculosis, the nucleated neutrophils keep at the characteristic figure of 6 or 8 per cent. Arneth's statement that any shifting to the left, as recorded in his table—that is, the appearance of larger proportions of younger forms of neutrophils—is pathologic, has been amply confirmed in practice.

Roentgen-Ray Treatment of Pernicious Anemia.—Haggeney reports two cases of typical pernicious anemia in a woman of 48 and a man of 62 in which a remarkable turn for the better followed a few days after a single exposure of the spleen to a stimulating dose of roentgen rays, ¼ H. E. D. = 60 F., with 3 mm. aluminum filter. The hemoglobin increased in a week from 27 to 30 per cent. the erythrocytes from 2,500,000 to 2,950,000 in the man, the color index from 0.5 to 0.9. In the woman the erythrocytes increased from 1,600,000 to 2,800,000 and the hemoglobin from 22 to 45 per cent. There was a relapse in this case five months later.

Tetany After Unilateral Thyroidectomy.—Sacki reports that a large robust man developed tetany twelve years after removal of the right half of the enlarged thyroid. He has been under great emotional strain and worry of late, and tests showed gastric achylia. The severe paroxysms returned three times in all during the five weeks' course of treatment with calcium. This seemed to overcome the tendency to tetany. The man is a photographer. No other morbid antecedents are known.

The Cerebrospinal Fluid After Encephalography.—Herrmann reports that in two cases of general paresis the number of cells in the fluid, drawn before Dandy's intraspinal inflation with air, averaged 14 but fourteen hours afterward the number was 2,231; four days later it was 167, and two weeks later 19. After a second inflation nearly three weeks later the number ran up to 754. In a case of dementia praecox the cells numbered 2 before and 11,400 thirty hours afterward, almost all polymorphonuclear leukocytes, and the albumin content of the fluid was high. There were also symptoms suggesting meningitis, headache, vomiting and slight Kernig sign. The meninges in the general paresis cases seemed to bear the inflation better. He suggests therapeutic utilization of the Dandy method. It might be possible to exert a favorable influence in this way on tuberculous meningitis, like the action of a laparotomy on tuberculous peritonitis. Or a healing gas or a narcotic might be thus insufflated. He adds that he is contemplating cautious trials of such procedures.

Vacuum Glass Treatment of Gonorrhea in the Female.—The suction glass was applied over the vaginal portion of the cervix to induce passive hyperemia, and this was supplemented with vaccine therapy in treatment of gonococcus cervicitis. It apparently answered the purpose, but the microscope showed the gonococci persisting still numerous. Although a failure so far as the infection was concerned, the mechanical cleansing and renovating effect was ideal.

Effect on Neurasthenics of Smoking.—Keller has been studying in the last fifteen years a number of neurasthenic subjects who repeatedly break off smoking for a time and then resume it again, the effect of the long period of suspension throwing light on the nature of disturbances for which the tobacco is responsible. He refers in particular to the sudden sharp pain in the interior of the skull, like that from horseradish fumes. This is one of the earliest symptoms in young neurasthenics, and it generally puts an end to the smoking habit. The headache from the remote action of the tobacco appears only after smoking has been given up, and it may persist up to two months. Dizziness may be another remote symptom from the action of the tobacco on the neurasthenic; scarcely appearing during the smoking period, it develops first when tobacco has been given up. Young neurasthenic smokers may have peculiar attacks of pain in the heart or stomach region, like a muscular cramp. The attacks may be brought on by the slightest noise, even the buzzing of flies. The attacks may return several times a day, but stop at once or at most in a few days when tobacco is dropped. The attacks may be worse at night; the striking of a clock may bring one on, the subject waking in fright and finding it difficult to go to sleep again. It is evidently a reflex phenomenon. The sounds thus rousing from sleep seem to be magnified, the striking of the clock sounding like an explosion. The prompt subsidence of the attacks when smoking is discontinued, testifies to the cause. The nicotin affects the peculiarly predisposed neurasthenic brain stem, irritating it, but not enough to exhaust and paralyze it.

Research on Typhus.—Sparrow found that guinea-pigs developed actual typhus when inoculated with human virus. The virus at the twenty-second passage through guinea-pigs proved pathogenic for man. She inoculated herself with it, a year after the first guinea-pig had received it, and she developed the disease in a mild form the tenth day. Two monkeys, however, inoculated at the seventeenth passage through the guinea-pigs, failed to develop typhus. The monkeys seemed to have been immunized by the inoculation, bearing without harm, afterward, inoculation of human typhus virus.

Sept. 10, 1922, **18**, No. 37

The Family Physician and Tuberculosis. W. Neumann.—p. 1169.
Growth of Bones in Health and in Rickets. H. Maass.—p. 1171.
Aberrant Pancreas Cells. F. Kazda.—p. 1174.
Pathogenesis of Catarrhal Jaundice. A. Lippmann.—p. 1176.
*Epidemic Encephalitis. E. Adler.—p. 1179. Begun No. 36, p. 1142.
*Epinephrin Mydriasis in Diagnosis. E. Baráth.—p. 1182.
*White Asphyxia of the New-Born. E. Lauer.—p. 1183.
Treatment of Congenital Hydrocele Testis. S. Lieben.—p. 1184.
*Malaria in Children. J. Falk.—p. 1184.
Paralysis of the Diaphragm. W. Sieben.—p. 1185.
Bacteriology at Influenza Necropsies. K. Klein.—p. 1186.
Urethritis. E. Portner.—p. 1187.
Physiotherapy. A. Laqueur.—p. 1188.

Epidemic Encephalitis.—Adler reviews his experiences with 77 cases at Prague, omitting those seen only at the dispensary. Only 12.9 per cent. seem to have recovered more or less completely. Two men and 5 women died in the acute stage, and one man and 5 women in the chronic phase. The mortality was 16.9 per cent. while 70.2 per cent. seem to be more or less permanently disabled. Only 7.9 per cent. of these are capable of any self-support. Fully 65 per cent. developed the parkinsonian set of symptoms. He was impressed with the aggravating influence of emotional stress, especially in children. In only 2 cases were there notable sensory symptoms; one complained of frontal headache and the other of lancinating pains for a time. Two young people presented peculiar ticlike disturbances, which throws light on the nature of tics. The terrible sleeplessness during the chronic phase often led to actual delirium in the night; nothing but scopolamin gave any relief, and this only by injection. By the mouth it was futile. Protein therapy was followed more often by an aggravation than by improvement. One case in a man of 55 began with a month of severe general symptoms with delirium, followed by severe tetany; then came a week of the characteristic lethargy, extremely profound, which cleared up the diagnosis; there had been no suspicion of it before. Notwithstanding this severe clinical picture, complete recovery followed.

Epinephrin Test in Internal Disease.—Baráth instilled an epinephrin preparation in the conjunctival sac in 210 cases and obtained the positive mydriasis response in all cases of pathologic conditions in the vicinity of the cervical sympathetic. It may thus prove instructive with lung and bronchial gland processes, tumors, aneurysm of the aorta, and deep tumors and abscesses in the neck, spinal meningitis, etc. The response was positive in twelve of eighteen cases of pleuritic adhesions.

White Asphyxia of the New-Born.—Lauer declares that even in the most hopeless cases it is usually possible to resuscitate the child by the methods he describes. The child is covered with warm cloths to the neck, as it lies on a table, the air passages are cleared out and the back of the neck supported by a rolled up towel. The physician seated at the left side of the child holds its head firm with his right hand on the median line while the left hand is placed on its chest. He then blows air into the child's mouth at each regular expiration, taking the child's mouth in his mouth each time. At each interval he presses the air out of the child's chest. In a few minutes the pulse grows better, and by keeping up the rhythmic insufflation the skin in the sternal region grows pink and the child begins to gasp. As the skin elsewhere grows pink, the palms and soles should be gently brushed by an assistant, and cold water sprinkled on the skin. Muscle tonus and reflexes appear and a shallow breathing is evident between the gasps. With cautious insufflation the surplus air escapes through the nose, so there is no danger of emphysema. Only at the very first insufflations should the nose be held to insure the air getting into the lungs. He has applied this treatment with success in three absolutely hopeless cases.

Malaria in Children.—In Falk's case tonsillitis roused unsuspected latent malaria, the two inducing a most puzzling clinical picture.

Münchener medizinische Wochenschrift, Munich

Sept. 29, 1922, **69**, No. 39

Pathogenesis and Prognosis of Epilepsy. Binswanger.—p. 1395. Cont'd.
An Apparatus to Register Movements of a Person Sleeping. W. Gerber.—p. 1399.
Estimation of Total Blood Volume in Cryptogenic Pernicious Anemia. V. Stark and A. Sonnenfeld.—p. 1401.
Ferment Action by Nonferments. W. Biedermann.—p. 1402.
Yeast Extract and Meat Extract. J. W. Schonger.—p. 1405.
Clinical Aspects of Xerostomia. K. F. Schmidhuber.—p. 1406.
*Early Diagnosis of Intussusception. L. Zschau.—p. 1408.
*Treatment of Pleural Empyema. A. Henrichsen.—p. 1409.
Bismuth in Treatment of Syphilis. Felke.—p. 1411.
Chronic Pseudomembranous Bronchitis in Pregnant Woman. H. Wörner.—p. 1412.
Aneurysm of Abdominal Aorta with Symptoms of Ileus. A. Menter.—p. 1412.
Rectal, Anal or Perineal Cramp. K. Elsner.—p. 1413.
Differential Diagnosis of Incipient Tuberculous Spondylitis and Chronic Rheumatism of the Back Muscles. C. Mau.—p. 1413.
Suit Brought by Specialist to Secure Payment of Bill for Medical Services. IV. A. Döderlein.—p. 1414.
Early Diagnosis of Tuberculosis of Joints. A. Krecke.—p. 1415.

Early Diagnosis of Intussusception.—Zschau has found that intussusception, as affecting chiefly children and, more particularly, infants, is still insufficiently understood and appreciated by some general practitioners. In the Cnopf Children's Hospital in Nürnberg there were nineteen cases in the period between 1906-1921, which was less then one tenth of 1 per cent. of the total number admitted. Strong, healthy children, many of them breast-fed, were suddenly seized with vomiting and severe paroxysmal abdominal pains. After a time diarrhea sets in and the stools become bloody. The child grows continually worse and the facies abdominalis becomes marked. The attacks of colic are especially significant. A child that has been lying quiet will suddenly cry out and writhe with pain. The abdomen becomes flatulent and the intestine becomes hard. Finally, a roller-like, only slightly movable swelling, usually above the umbilicus and extending in an oblique direction, can be felt. The temperature is only slightly elevated; the pulse is small and accelerated. Conservative treatment can be tried but usually avails little. In only one of the 19 cases was disinvagination brought about without laparotomy. In 12 of the cases the invagination was ileocolic; in 4 in the colon and in 2 in the ileum. In 2 cases resection of the intestine was necessary. The earlier the operation, the easier it was. Recovery took place in all but one case when the operation was performed within ninety-six hours. The mortality was about 30 per cent. The most frequent false diagnosis was dysentery or hemorrhagic enteritis. The false diagnoses were confined mainly to infants; hence the 4 deaths in 11 cases. Zschau is convinced that in infants the invagination often fails to be recognized, intestinal catarrh being then given as the cause of death. In older children the diagnosis is more accurate, doubtless because they can state where the pain is.

Treatment of Pleural Empyema with Differential Pressure.—Henrichsen regards differential pressure in the treatment of pleural empyema as a physiologic procedure that fulfils all the requirements for an ideal cure. With the reexpansion of the lung, it effects the functional restoration of the diseased side of the thorax and relieves us of the necessity of radical and dangerous plastic secondary operations. Under this treatment he found that very large recent empyema cavities, which contained several liters of pus, became completely closed, usually, in from two to three weeks. The gas he injects is pure oxygen, which is conducted into the respiratory passages through an air-tight mask applied to the mouth and nose. In this manner the intrabronchial overpressure can be regulated whereby, at the moment the pleural cavity is opened, the lung is expanded, and by this overpressure is kept inflated and pneumothorax prevented.

Wiener Archiv für innere Medizin, Vienna

Oct. 15, 1922, **5,** No. 1

*Mussy's Point with Abdominal Disease. F. Högler and K. Klenkhart. —p. 1.
*Periodic Partial Heart Block. R. Maron and H. Winterberg.—p. 7.
*Avian Tuberculosis in Man. K. Lederer.—p. 23.
*Oidium in Gastric Ulcer. P. S. Frank.—p. 39.
*Intermittent Treatment of Malaria. K. Glaessner.—p. 43.
*Duodenal Ulcer. H. Finsterer.—p. 51.
The Dynamics of the Pulse. E. Münzer.—p. 107.
*The Senile Kidney. W. Nyiri.—p. 147.
*Kidney Functioning in Anemia. H. Essen and O. Porges.—p. 195.
*The Cheyne-Stokes Cycle. S. Wassermann.—p. 221.
*Cheyne-Stokes Respiration. L. Hess and W. Rosenbaum.—p. 263.

Mussy's Point with Abdominal Disease.—Högler and Klenkhart discuss the discovery of de Mussy's point in connection with disease of the abdominal viscera. This exceedingly painful point is on the line of the left border of the sternum, at the level of the end of the tenth rib. It has been regarded as pathognomonic for diaphragmatic pleurisy, but their tests on more than 200 subjects have demonstrated that this sign of irritation of the phrenic nerve may be encountered with disease in the right abdominal viscera. When the Mussy point on the right side is pronounced, especially when the pleura and lung findings are negative, an inflammatory process in the gallbladder region should be suggested. In their 35 gallstone cases, the Mussy point was extremely painful in 32 and there was no further tenderness after cholecystectomy. In 50 cases of gastric ulcer, 10 of cancer and 58 of other gastrointestinal affections, appendicitis, etc., the Mussy sign was constantly negative, except in one instance in which the gallbladder was probably involved secondarily. In 5 gallstone cases, this tenderness of the phrenic nerve at this point was the only symptom during the intervals of the colics. In 3 cases of obstructing gallstones there was no Mussy point, and the operation confirmed the absence of an inflammatory process.

Variations in Partial Heart Block.—Maron and Winterberg report a case of mitral insufficiency and stenosis with variations in the time of transmission of the impulse, a periodic form of skipped ventricle systole, but fluctuating at different times. They discuss the explanation.

Avian Tuberculosis in Man.—The diagnosis had been polycythemia during life, but necropsy revealed an atypical tuberculosis in the lungs of the woman of 49. The first symptoms —fever, and pain in the spleen—had been noted ten weeks before death, and tubercle bacilli of the avian type were found in various organs and were responsible for the almost acute affection. The bacterial toxins evidently caused a polycythemia at first, with final exhaustion and fibrous transformation of the bone marrow.

The Oidium in Relation to Gastric Ulcer.—Frank's research sustains the common presence of the thrush fungus in ulcerating stomachs, but fails to connect it with the ulcer in any way.

Intermittent Quinin Treatment of Malaria.—Glaessner reports exceptionally good results in seventy-seven cases of malaria in which he gave quinin by the Ochsner method: small doses at two hour intervals for two days, then suspension for eight days, and then resumption of the 0.15 gm. every two hours for two days. The quinin was preceded each time by a castor oil purge, and only a light diet allowed during the two days. In the intervals no dietetic restrictions were imposed.

Duodenal Ulcer.—Finsterer analyzes his 225 operative cases in recent years, with 39 cases of cicatricial stenosis of the pylorus. Resection of the duodenum resulted in a complete cure in 94 per cent. of the 118 cases, and the others have no serious disturbances. His total mortality was 4.2 per cent. but in recent years it has not been over 1.4 per cent.

The Senile Kidney.—Nyiri summarizes the clinical or necropsy findings or both in fifty-six cases of senile kidney. The kidney functioning was approximately normal in 33 per cent., and even in the others none of the symptoms were pathognomonic.

The Kidney Functioning in Anemia.—The tabulated findings in 12 cases of pernicious or secondary anemia show severe renal disturbance when the hemoglobin is down to 30 per cent. or below. Both the power of concentrating and diluting the urine seem to be impaired. With oxygen deficit, the kidneys work with the minimum of effort. The hydremia and edema with pernicious anemia is thus analogous to the similar phenomena with chronic nephritis.

The Cheyne-Stokes Set of Symptoms.—Wassermann studies this subject from the standpoints of the symptoms, pathologic physiology, its place in the ranks of cardiovascular disease, and its treatment. There seem to be two sets of alternating visceral phenomena, as also two sets of sensory and consciousness phenomena, an active set and a passive set. All are the result of asphyxia of the respiratory center, the adjoining bulbar centers and of the whole central nervous system. The one effectual treatment is with an ample supply of oxygen. Hess and Rosenbaum assert that the Cheyne-Stokes respiration has a deeper significance than has been hitherto credited to it. It represents an upset of the connection between the cortex and the lower segments of the brain. The resulting insufficiency of the cortex causes pathologic forms of breathing, of blood pressure, and of muscle movements. This assumption links the Cheyne-Stokes respiration and various forms of tremor with the Mayer and Traube-Hering waves of blood pressure.

Sei-I-Kwai Medical Journal, Tokyo, Japan

October, 1922, **41,** No. 5

Action of Diphtheria Toxin on Labyrinth. T. Sato.—p. 1.
*Human and Bovine Tubercle Bacilli. S. Otabe.—p. 13.

Study of Human and Bovine Tubercle Bacilli.—Otabe found a great difference between human and bovine tubercle bacilli. Tubercle bacillus from a child, as a whole, belongs to the human tubercle bacillus, and swine tubercle bacillus seems to belong to bovine tubercle bacillus. Human tubercle bacillus may be altered, to some degree, by passing through the bodies of children for many years, and may take some type of growth like bovine tubercle bacillus on culture mediums. Milk infection may not be as dangerous as house infection from the point of bovine tuberculosis. Human and bovine tubercle bacilli may be different from each other as bovine and avian tubercle bacilli are. The latter bacillus does not infect pigs and other animals under natural conditions, as would be the case with the bovine tubercle bacillus in the human subject. His experimental results strengthen Otabe's belief that the bovine tubercle bacillus, under natural conditions, does not infect the human subject, and that the human tubercle bacillus does not infect cattle.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

Sept. 16, 1922, **2,** No. 12

*Waking Dreams. G. Jelgersma.—p. 1250.
*Urea in Blood. J. J. H. Meuwissen and R. L. J. van Ruyven.—p. 1264.
*Paroxysmal Tachycardia. J. Lankhout.—p. 1268
*Amount of Blood to Transfuse. T. Halbertsma.—p. 1272.
Case of Accidental Vaccinia. J. Broers.—p. 1276.

Waking Dreams.—Jelgersma applies this term to dreams in which the action of the dream centers around some actual sound or sensation perceived by the dreamer. He appealed through the *Tijdschrift* for examples of such dreaming, and has thus collected 120 authentic instances. Analysis of the actual happening, in connection with the dream, as well as analysis of dreams in general seem to show that a dream can occur and run its course all in a moment. It is a short-circuiting, as he explains, and he queries whether in waking hours we may not sometimes experience in the same way a massing of ideas and remembrances in a brief moment, as when persons think they are drowning. This seems to be the counterpart of the dream. It is an incredibly brief short-circuiting between the conscious and the subconscious.

Microtest for Urea in Blood.—This communication from the Utrecht university laboratory reports success with the Folin and Wu method. Even with as little as 0.4 c.c. of blood, the urea content could be determined with satisfactory accuracy. The Bahlmann method also proved reliable, using 0.2 c.c. of blood. Urea was added to blood and recovered by both these methods with surprising accuracy. The urease technic is a great improvement.

The Prognosis with Paroxysmal Tachycardia.—The retrospective diagnosis in the case described is that emotional stress from an accident had exaggerated an old tendency to brief and mild paroxysmal tachycardia, with an organically sound heart. The young woman was reassured that the periods of tachycardia would probably grow briefer and less pronounced in time, which has proved to be the case.

Amount of Blood Needed and Used in Transfusion.—Halbertsma tabulates the findings in twenty children treated with transfusion of blood. They demonstrated, he asserts, that in order to increase the erythrocytes by 1 million per cubic mm. we must introduce 15 c.c. of blood per kilogram of body weight. He thinks we can safely take this rule for our guide in the amount of blood needed and which we can safely infuse.

Acta Chirurgica Scandinavica, Stockholm

Oct. 11, 1922, **55**, No. 3

*Substitute for Thumb. S. Orell.—p. 223.
*Intracranial Pressure with Fat Embolism. S. Lundberg.—p. 237.
*Acute Tendovaginitis. G. Vidfelt.—p. 242.
*Gastric and Duodenal Ulcers. E. Perman.—p. 286.

Substitute for Thumb.—Orell's study of normal and dissected thumbs has shown the principles for reconstruction of the thumb. His illustrations confirm his success in a case in which he made a hard rubber artificial terminal phalanx for the thumb. This was fitted on the stump of the thumb and held in place and controlled with stout wire passing through the front edge of the prosthesis and around the wrist, under a leather strap. The rubber thumb is colored to match the leather.

Fat Embolism.—The robust man of 35, after a comminuted fracture of the leg and long ride to the hospital, became unconscious the next day. He died on the fourth day, with typical symptoms and findings of fat embolism in the brain. The cerebrospinal fluid showed high pressure, up to 400 mm. water on three occasions. The hyperemia, edema and bleeding, consequences of the fat embolism, amply explain this high pressure, and the possible benefit from repeated lumbar puncture. It is a question whether improving the circulation will benefit by allowing the fat emboli to be swept along, or do harm by sweeping more emboli to the brain. We are justified in making the attempt, however, in these otherwise doomed cases, relieving high intracranial pressure by lumbar drainage.

Acute Tendovaginitis.—Vidfelt's long article (in English) presents his experience with the Carrel treatment applied in 55 cases of acute tendovaginitis. The tendon was completely restored to normal in 31 and there was partial necrosis in 3 and total in 9 of the 43 treated with rubber drains and sheet rubber alone, no gauze. In the 13 cases in which there was complicating bursitis, the outcome was excellent in 9; the outcome is not known in one case and in 2, function is poor. One in this group died from sepsis. In 12 other cases, the tendovaginitis was treated conservatively and normal function was restored. Two Cramer bands were often used for the elastic tension applied to avert contracture. When the operative wound is quite healed, the mass of the scar is still soft and yielding, and under constant medical supervision the function of the finger can be regained. In the outpatient department this can be entrusted only to the most energetic patients. It is better to take them into the hospital for this mechanical treatment. If it is neglected or done ineffectually, contracture will flex the finger, and this, once settled, cannot afterward be satisfactorily corrected. In 9 cases he performed a secondary plastic operation; after excision of scar tissue the finger could be flexed better.

Healing Processes in Gastric and Duodenal Ulcers.—Perman discusses the histology and course of healing, with three colored plates. In 8 of the total 36 cases the gastric or duodenal ulcer had perforated. All the ulcers could be classed in two groups, those with and those without granulation. In those gastric ulcers with a granulation layer, healing seemed to be proceeding in an entirely normal manner, and this allowed a relatively favorable view of the ability of such ulcers to heal. High hydrochloric acid was found with the Ewald test breakfast in the majority of the cases with well defined granulation in the bottom of the ulcer. In one case, the entire bottom of the ulcer was covered with vigorous granulations, and yet the free and total acidity was not less than 70 and 94. Hyperchlorhydria is thus not an obstacle to the development of young cells in the ulcer. In 3 of his cases there seemed to be a recent ulcer on an old, more or less healed ulcer, and these patients had had periods of symptoms from the stomach, recurring at irregular intervals. The ulcer may heal during these intervals or merely lie latent. No healing zone was found in 3 of the 5 duodenal ulcers, and only a few traces in the others. Otherwise the four layers of tissues encircling the ulcer presented the same picture as with gastric ulcer: the exudation layer, the necrosis layer or the granulation layer, and the cicatricial zone. No granulation zone was found in the perforated cases. In 2, the recent ulcer seemed to have developed at the site of an old ulcer. The perforated ulcers seemed to be usually a new and acutely developing ulceration or a relatively sudden flaring up of an old one. A table gives the findings in the gastric ulcer cases compared with the clinical course. The granulation layer was found in 13 and in all but one in this group there had been periodical symptoms for from seven to forty years in 6, and for six months to several years in the others.

Hospitalstidende, Copenhagen

Oct. 4, 1922, **65**, No. 40

*Protein Therapy Cures Purpura. H. C. Gram.—p. 649.

Protein Therapy Cures Werlhof's Disease.—Gram has only one case to report, but the complete cure, with the transformation of the blood from the hemorrhagic purpura type to practically normal, and subsidence of all subjective and objective symptoms, was undoubtedly, he asserts, the direct consequence of the repeated parenteral injections of milk. The patient was a woman of 59, and the first outbreak of petechiae had been four months before the protein therapy was applied. Fever, hematemesis and hematuria soon followed, with neuralgic pains. A small cut in the ear bled for an hour. An intragluteal injection of 8 c.c. of milk was followed two weeks later with 2 c.c. of milk and two more injections of 4 c.c. each in the following month. The temperature returned permanently to normal three days after the first protein injection, and the bleeding time dropped from over an hour to normal after the second injection. By this date the coagulation time had also become normal, from the over fifteen minutes at first. The blood platelets increased regularly from 4,000 to 234,000. The differential blood count and other findings are tabulated, all testifying to the parallel improvement in all lines. A colon bacillus affection of the urinary passages was treated with a colon bacillus vaccine, during the course of the protein therapy. This infection may have been the primary cause of the thrombopenia, as a constant source of generation of toxins.

Oct. 11, 1922, **65**, No. 41

*The Festival of the Copenhagen Medical Society. V. Scheel.—p. 666.

The Copenhagen Medical Society's Celebration.—Scheel reviewed the history of the society since its foundation 150 years ago. The congratulations received from far and near coming from scientific societies and individuals, are reproduced also, and the list of honorary members elected, the cantata written for the occasion, and Rovsing's address at the reception in the city hall. The celebration was described in the News department, Nov. 25, page 1858.

Ugeskrift for Læger, Copenhagen

Oct. 5, 1922, **84**, No. 40

*Roentgen-Ray Treatment of Mammary Cancer. S. Nordentoft.—p. 1300.

Roentgen-Ray Treatment of Mammary Cancer.—The forty-two cases treated in 1915-1919 by the late Dr. Nordentoft are tabulated, with full details for comparison, and three cases are illustrated. The interval since has been over six to eight years in five operable cases treated with the rays alone or plus a partial operation. The interval has been three and four years in two other in this group, and has been from two and a half to three and a half years in two others treated for recurrence after a radical operation.

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CLINICAL OBSERVATIONS ON CERTAIN CONSTITUENTS OF THE BILE *

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In 1919, Lyon[1] described a relatively simple clinical method for the diagnosis and treatment of diseases of the gallbladder and biliary ducts. This, in brief, consisted in the drainage of the biliary tract through a duodenal tube after relaxation of the sphincter of Oddi by the local application to the duodenum of a concentrated solution of magnesium sulphate. The method was based on a suggestion from Meltzer[2] that magnesium sulphate might relax the sphincter of the common duct and permit the ejection of bile into the duodenum. By making use of this procedure, Lyon believed that he could collect separately bile from the common duct, the gallbladder and the hepatic ducts, and could study each sample chemically, bacteriologically and cytologically. The potential importance of Lyon's work was immediately recognized, and already a large and somewhat conflicting literature on the so-called Meltzer-Lyon test has accumulated. Certain observers, notably Brown,[3] Smithies[4] and Sachs,[5] confirm Lyon's observations and believe that the method is of great practical value both in diagnosis and in treatment, while others, such as Dunn and Connell,[6] Bassler, Luckett and Lutz,[7] Cutler and Newton,[8] and Hartman,[9] are less enthusiastic concerning its efficacy. Despite the varying results that have been reported, two facts with regard to the method remain outstanding: It affords a means for the clinical study of the excretion of the biliary passages, and it allows the study of liver function from a fresh point of view.

In a recent review of the origin and significance of the constituents of bile, Whipple[10] has pointed out the need for critical analysis of the data obtained by Lyon's method in order to guard against too free interpretation of results. With this warning in mind, it has seemed of interest to compare the reported characteristics of bile obtained through the duodenal tube by Lyon's method under various conditions with analyses of specimens of bile which were obtained directly from a known source in the biliary tract under known pathologic conditions.

For this purpose we have obtained samples of bile from the gallbladders removed at operation in a series of cases of gallbladder disease at the Mayo Clinic. We have noted the color and turbidity of the bile, estimated its specific gravity and viscosity, determined the concentration in cholesterol, nitrogen and urea nitrogen, examined the sediment microscopically, and finally attempted to correlate the results obtained from such analyses with the clinical and operative findings. These constituents of bile were selected for study because most workers with the Meltzer-Lyon test have drawn conclusions of clinical importance from changes in the specific gravity, viscosity and color of the various bile specimens, and have placed considerable emphasis on the bile sediments and cholesterol content. The urea nitrogen and total nitrogen were estimated, with the hope that the findings might reveal information of interest.

The material at our disposal consisted of seventy-two specimens of gallbladder bile from thirty-six cases of chronic catarrhal cholecystitis without stones; from twenty-three cases of chronic cholecystitis with one or more stones; from one case of papillomatous cholecystitis; from one case of sarcoma of the gallbladder complicated by chronic catarrhal cholecystitis and stones; from six cases of acute or subacute purulent cholecystitis without stones, and from six cases of biliary obstruction in which the contents of the gallbladder consisted of so-called white bile. The plan of the work was as follows: The bile obtained at operation was sent to our laboratory as soon as possible. The color and turbidity were noted; the specific gravity was determined by weight; the viscosity was measured in a Hess[11] viscosimeter, with distilled water used as a control; the total nitrogen was obtained by Kjeldahl's method, the urea nitrogen by Van Slyke and Cullen's[12] blood urea method, the cholesterol by Autenrieth and

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* From the Section on Medicine, Mayo Clinic.

* Read before the New York Academy of Medicine, Oct. 17, 1922.

[1] Lyon, B. B. V.: Diagnosis and Treatment of Diseases of the Gallbladder and Biliary Ducts, J. A. M. A. **73:** 980-982 (Sept. 27) 1919.

[2] Meltzer, S. J.: The Disturbance of the Law of Contrary Innervation as a Pathogenetic Factor of the Diseases of the Bile Ducts and the Gallbladder, Am. J. M. Sc. **153:** 469-477 (April) 1917.

[3] Brown, G. E.: The Meltzer-Lyon Method in the Diagnosis of Infections of the Biliary Tract, J. A. M. A. **75:** 1414-1416 (Nov. 20) 1920.

[4] Smithies, Frank; Karshner, C. F., and Oleson, R. B.: Nonsurgical Drainage of the Biliary Tract, J. A. M. A. **77:** 2036-2042 (Dec. 24) 1921.

[5] Sachs, A.: Lyon-Meltzer Gallbladder Drainage, Nebraska M. J. **6:** 225-233 (Aug.) 1921.

[6] Dunn, A. D., and Connell, Karl: Report of a Case of Hepatoduodenostomy, with Some Observations on the Lyon-Meltzer Method of Biliary Drainage, J. A. M. A. **77:** 1093-1096 (Oct. 1) 1921.

[7] Bassler, Anthony; Luckett, W. H., and Lutz, J. R.: Some Experiences with the Meltzer-Lyon Method of Draining the Biliary System, Am. J. M. Sc. **162:** 674-687 (Nov.) 1921.

[8] Cutler, E. C., and Newton, F. C.: Some Experiences with the "Meltzer-Lyon" Test in Gallbladder Disease, Surg., Gynec. & Obst. **35:** 146-161 (Aug.) 1921.

[9] Hartman, H. R.: Diagnostic and Therapeutic Aspects of Biliary Drainage, Minnesota Med. **5:** 545-546 (Sept.) 1922.

[10] Whipple, G. H.: The Origin and Significance of the Constituents of the Bile, Physiol. Rev. **2:** 440-459 (July) 1922.

[11] Hess, W. R., quoted by Bircher, M. E., and McFarland, A. R.: The Globulin Content of the Blood Serum in Syphilis, Arch. Dermat. & Syph. **5:** 215-233 (Feb.) 1922.

[12] Van Slyke, D. D., and Cullen, G. E.: A Permanent Preparation of Urease and Its Use in the Determination of Urea, J. Biol. Chem. **19:** 211-228, 1914.

Funk's[13] method, and unstained centrifuged bile sediments were examined microscopically. Because of the scarcity of material in certain instances and because of technical difficulties in the handling of bile which had to be overcome by experimentation, all tests were not made on all the samples of bile received. Such analyses as were made in each case, however, and the important features of the individual case histories and operative findings were tabulated in an effort to correlate the clinical and laboratory findings. The results of this study are reported.

TABLE 1.—SPECIFIC GRAVITY OF GALLBLADDER BILE IN CASES OF CHRONIC CHOLECYSTITIS WITH AND WITHOUT CHOLELITHIASIS

Chronic Cholecystitis With Cholelithiasis		Chronic Cholecystitis Without Cholelithiasis	
Sample Number	Specific Gravity	Sample Number	Specific Gravity
1	1.002	1	1.014
2	1.005	2	1.015
3	1.005	3	1.015
4	1.007	4	1.017
5	1.009	5	1.018
6	1.011	6	1.018
7	1.013	7	1.020
8	1.014	8	1.021
9	1.014	9	1.024
10	1.015	10	1.024
11	1.015	11	1.025
12	1.016	12	1.027
13	1.018	13	1.030
14	1.019	14	1.031
15	1.020	15	1.032
16	1.022	16	1.033
17	1.023	17	1.037
18	1.031	18	1.038
Maximum	1.031	Maximum	1.038
Minimum	1.002	Minimum	1.014
Average	1.014	Average	1.024

The color and consistency of gallbladder bile is remarkably variable. It may be colorless or so dark as to be nearly black; it may be clear or very cloudy. We attempted to devise a rough method for comparing the color of various samples of bile by measuring the dilution necessary to bring individual samples to a standard color of an arbitrary mixture of potassium dichromate and Bismarck brown in water. This method was inaccurate, and at best of qualitative value. In a general way, however, the samples of bile from the cases of chronic cholecystitis with stones tended to be somewhat lighter in color than those from chronic cholecystitis without stones. Cloudy bile was usually associated with a more active inflammatory condition of the gallbladder than was clear bile.

Undoubtedly, a far better method for studying the color of bile is that used by Jones[14] in his work on blood pigment metabolism. Jones, using the spectroscopic method of analysis, found that increased blood destruction was accompanied by an increase of pigments in the bile, that alterations in liver function due to infection or new growth were also accompanied by marked increases in bile pigment, and that the bile pigments in the duodenal contents from cases of gallbladder disease were abnormally high, although the bile pigments in cases of cholelithiasis were less concentrated than in cases of uncomplicated cholecystitis.

From the foregoing evidence it seems, on the whole, justifiable to believe that increased bile pigment, in samples of bile obtained by Lyon's method, is of definite clinical significance, signifying either increased blood destruction or disease at some point in the biliary tract, and that turbid, cloudy bile is more likely to be associated with acute cholecystitis than with chronic.

The specific gravity of thirty-six of the samples of bile analyzed in this series is recorded in Table 1. As may be seen, great variations were encountered, although on the whole in the cases of chronic gallbladder disease without stones there was a tendency for the specific gravity to be higher than in cases complicated by stones. This variation in specific gravity may be of certain clinical importance in connection with the Meltzer-Lyon test. One must remember, however, that small amounts of concentrated magnesium sulphate in bile will increase the specific gravity, so that great importance cannot be attached to the finding unless a given sample is proved to be free of the salt.

In Table 2 are recorded the observations on the viscosity of bile. This table is not striking. The viscosity in the two groups of cases which were compared varied within wide limits, and the average of the two groups was nearly similar. The viscosity of the bile from other cases showed equal variability. It appears doubtful from these data whether changes in the viscosity of bile have any particular clinical significance except when extreme values are encountered.

The possible variations in the cholesterol content of bile are demonstrated in Table 3. It appears that bile may contain relatively small or very large amounts of cholesterol. From our evidence it was impossible to make clinical use of the bile cholesterol findings, as they varied so markedly in all cases of chronic gallbladder disease. These findings confirm the earlier observations of Peirce[15] and Nathan,[16] who found no uniform relationship between the cholesterol content of bile and disease. Therefore, it seems reasonable to conclude that the bile cholesterol findings, alone, are of no clinical significance in connection with Lyon's method, although it is possible, as Medak and Pri-

TABLE 2.—VISCOSITY OF GALLBLADDER BILE IN CASES OF CHRONIC CHOLECYSTITIS WITH AND WITHOUT CHOLELITHIASIS

Chronic Cholecystitis With Cholelithiasis		Chronic Cholecystitis Without Cholelithiasis	
Sample Number	Viscosity	Sample Number	Viscosity
1	1.4	1	1.4
2	1.5	2	1.6
3	1.8	3	1.6
4	2.0	4	1.7
5	2.0	5	1.8
6	2.0	6	1.8
7	3.0	7	2.0
8	3.0	8	2.4
9	4.8	9	2.4
10	7.0	10	2.6
11	Could not be estimated	11	2.6
		12	2.8
		13	3.0
		14	3.0
		15	3.6
		16	3.7
		17	3.8
		18	4.1
		19	4.1
		20	4.4
		21	4.6
		22	4.8
		23	5.2
		24	5.4
		25	5.4
		26	6.0
Maximum	Could not be estimated	Maximum	6.0
Minimum	1.4	Minimum	1.4
Average	2.8	Average	3.3

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[13] Autenrieth, W., and Funk, A.: Ueber kolorimetrische Bestimmungsmethoden: Die Bestimmung des Gesamtcholesterins im Blut und in Organen, München. med. Wchnschr. **60**: 1243-1248, 1913.

[14] Jones, C. M.: Blood Pigment Metabolism and Its Relation to Liver Function, Arch. Int. Med. **29**: 643-668 (May) 1922.

[15] Peirce, S. J. S.: Der Gehalt der menschlichen Galle am Cholesterin und Cholesterinestern, Deutsch. Arch. f. klin. Med. **106**: 337-346, 1912.

[16] Nathan, M.: Untersuchungen über den Cholesteringehalt von menschlichen Gallen, Arch. f. path. Anat. **228**: 51-57, 1920.

bram[17] have suggested, that a comparison between the blood cholesterol and the cholesterol content of liver bile may yield information of greater clinical interest.

The total nitrogen content of gallbladder bile in the cases studied was variable (Table 4). The results from those of chronic cholecystitis, with and without stones, are tabulated. On the whole, the bile from the cases without stones tended to be more concentrated in nitrogen than that from the cases with stones. No information of clinical importance, however, was obtained from this analysis.

TABLE 3.—CHOLESTEROL OF GALLBLADDER BILE IN CASES OF CHRONIC CHOLECYSTITIS WITH AND WITHOUT CHOLELITHIASIS

Chronic Cholecystitis With Cholelithiasis		Chronic Cholecystitis Without Cholelithiasis	
Sample Number	Cholesterol, Mg. for Each 100 C.c. of Bile	Sample Number	Cholesterol, Mg. for Each 100 C.c. of Bile
1	278	1	184
2	333	2	208
3	425	3	263
4	562	4	310
5	575	5	313
6	575	6	332
7	600	7	344
8	1,085	8	344
9	1,250	9	473
Maximum	1,250	10	484
Minimum	278	11	532
Average	631	12	532
		13	543
		14	560
		15	560
		16	625
		17	635
		18	645
		19	666
		20	715
		21	725
		22	835
		23	846
		24	1,000
		25	1,100
		Maximum	1,100
		Minimum	184
		Average	551

The urea content of bile was less variable and was essentially the same in the cases of chronic cholecystitis, with and without stones, as well as in the other cases studied (Table 5). This finding probably depends on the fact, which Marshall and Davis[18] have demonstrated, that urea is uniformly distributed throughout all the body protoplasm, and is found in all body fluids in approximately the same concentration as it occurs in blood. The truth of this statement is further demonstrated by the findings at necropsy in two cases of chronic nephritis, in which the gallbladder bile had a very high urea concentration. Moreover, the bile draining from the liver of a patient with a biliary fistula, who eventually died of nephritis, had a very rapid increase in urea concentration during the four days before death, this increase coinciding with a rapid increase in the urea concentration of the blood, and the development of signs and symptoms suggesting renal insufficiency. The urea of bile normally, therefore, is of about the same concentration as of blood, and is notably increased by circumstances increasing the urea in the blood.

Since the liver and kidneys are the two chief excretory organs of the body, and since the bile urea excretion rises when urea accumulates in the blood because of nephritis, the question of a possible interrelationship between certain of the excretory functions of the liver and kidney naturally arises. Becher[19] has attacked this problem experimentally, comparing the nonprotein nitrogen and urea nitrogen of the blood and gallbladder bile in nephrectomized dogs. He concluded that while the excretion of nitrogenous substances in the bile increases in the absence of the kidneys, yet the increase is of little importance when the total amount of nitrogen excreted in bile is compared with that excreted in the urine over similar periods of time. He showed, furthermore, that the urea nitrogen fraction of the bile rose more rapidly than the total nonprotein nitrogen after nephrectomy, a circumstance which he attributed to the easy diffusion of urea. He was unable to produce evidence of any vicarious excretion on the part of the liver in the absence of the kidney. Our data do not justify conclusions on this point.

The microscopic examination of gallbladder bile sediments gave inconsistent results and was of little clinical significance in our hands. We were able to identify leukocytes in the sediments of bile from the cases of acute purulent cholecystitis, and often found epithelium or an occasional blood corpuscle in the cases of chronic cholecystitis, with and without stones. We found considerable granular and crystalline débris which we failed to identify satisfactorily in almost all cases. Perhaps our results would have been more striking had we stained the sediments, or used some method of fixation.

In the six cases of white bile studied, the bile almost uniformly was of low specific gravity, contained small amounts of nitrogen and urea nitrogen in about the concentration of normal blood, and was free of cholesterol. This suggests, as Rous and McMaster[20] have shown experimentally, that white bile in the gallbladder represents the secretion of the organ, and is not bile in the ordinary sense of the word. Moreover, since white bile is cholesterol free, it appears doubtful whether, according to Naunyn, cholesterol secreted by the gallbladder wall can be an etiologic factor in the production of gallstones.

TABLE 4.—TOTAL NITROGEN OF GALLBLADDER BILE IN CASES OF CHRONIC CHOLECYSTITIS WITH AND WITHOUT CHOLELITHIASIS

Chronic Cholecystitis With Cholelithiasis		Chronic Cholecystitis Without Cholelithiasis	
Sample Number	Nitrogen, Mg. for Each 100 C.c. of Bile	Sample Number	Nitrogen, Mg. for Each 100 C.c. of Bile
1	77	1	119
2	77	2	185
3	140	3	252
4	151	4	308
5	168	5	308
6	182	6	322
7	196	7	325
8	224	8	336
9	238	9	413
10	266	10	434
11	266	11	442
12	266	12	448
13	308	13	463
14	370	14	504
15	392	15	507
16	392	16	518
17	413	17	525
18	420	18	532
19	448	19	546
Maximum	448	Maximum	546
Minimum	77	Minimum	119
Average	263	Average	394

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[17] Medak, E., and Pribram, B. O.: Klinisch-pathologische Bewertung von Gallenuntersuchungen am Krankenbett, Berl. klin. Wchnschr. **52**: 706-709, 740-743, 1915.

[18] Marshall, E. K., Jr., and Davis, D. M.: Urea: Its Distribution in and Elimination from the Body, J. Biol. Chem. **18**: 53-80, 1914.

[19] Becher, E.: Ueber den Gehalt der Blasengalle an Reststickstoff und Harnstoff bei nephrektomierten Hunden, Deutsch. Arch. f. klin. Med. **128**: 13-19, 1919.

[20] Rous, Peyton, and McMaster, P. D.: Physiological Causes for the Varied Character of Stasis Bile, J. Exper. Med. **34**: 75-96 (July) 1921.

CONCLUSIONS

On the whole, the attempt to obtain information of clinical value from the results of the analyses of bile reported was disappointing. It is true that gallbladder bile from cases of cholecystitis with gallstones tended to be less pigmented, of lower specific gravity and less rich in nitrogen than the bile from cases of cholecystitis without stones; that cloudy bile was often present in acutely inflamed gallbladders; that an isolated bile cholesterol analysis or viscosity determination was without clinical significance; that the bile urea concentration was approximately the same as that of blood under various conditions, and that unstained bile sediments in cases of acute cholecystitis usually contained numerous leukocytes. We were unable, however, on account of the great variation encountered in the composition of the individual specimens of bile studied, to arrive at any but these very general conclusions, and failed to correlate satisfactorily our data with the clinical and operative findings. These analyses were made on bile obtained from a known source in the biliary tract under known pathologic conditions. It seems doubtful, therefore, whether much diagnostic significance can be attached in the clinical study of cases to similar analyses of bile, the specimens of which are collected through the duodenal tube by Lyon's method, and at best by an indirect route from an undetermined source in the biliary tract.

TABLE 5.—UREA NITROGEN OF GALLBLADDER BILE IN CASES OF CHRONIC CHOLECYSTITIS WITH AND WITHOUT CHOLELITHIASIS

Chronic Cholecystitis With Cholelithiasis		Chronic Cholecystitis Without Cholelithiasis	
Sample Number	Urea Nitrogen, Mg. for Each 100 C.c. of Bile	Sample Number	Urea Nitrogen, Mg. for Each 100 C.c. of Bile
1	6	1	7
2	9	2	10
3	10	3	10
4	10	4	12
5	11	5	13
6	14	6	13
7	14	7	15
8	15	8	15
9	16	9	18
10	16	10	18
11	17	11	18
12	18	12	20
13	19	13	20
14	19	14	21
15	20	15	24
16	44	16	39
Maximum	44	Maximum	39
Minimum	6	Minimum	7
Average	16	Average	16

Explanation for Uncontrollable Vomiting of Pregnancy.—M. von David suggests that not the pregnancy itself is responsible for the toxic action manifested by the vomiting, etc., but the fact that the fetus is from its father's side an alien. Its blood is alien blood. She noticed that when the pigmentation during pregnancy corresponded to that of the husband rather than of the woman herself, the child when born showed the father's coloring. This was particularly noticeable in one blonde woman with a creole husband. In a second pregnancy the pigmentation was slight, and the second child was a blonde. She observed that the offspring resulting from pregnancies during the course of which there is vomiting closely resemble the father. In her communication on the subject, published in the *Zentralblatt für Gynäkologie* **46**:1067, 1922, she relates the successful treatment of the incoercible vomiting of pregnancy by the systematic active immunization of the woman with blood taken from the husband. The vomiting stopped after one or two injections of the husband's blood.

AN AMINO-ACID DEFICIENCY AS THE PRIMARY ETIOLOGIC FACTOR IN PELLAGRA

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The evidence now available abundantly demonstrates that pellagra is a manifestation of dietary deficiency. Exactly what dietary factor or factors are concerned, however, is not so clear, although the indications have for some time increasingly pointed to the protein,[1] that is, to some amino-acid deficiency, as the essential primary factor concerned in the causation of the disease.

In support of this interpretation, we reported [2] last spring the recurrence of pellagra in five patients in spite of a daily consumption, during periods of not less than two and one-half months before the appearance of the distinctive eruption, of a diet presumably adequately supplied with both minerals and known vitamins, thus tending to exclude these and pointing to amino-acid deficiency as the essential factor. Since that report was written, we have been able to make some additional observations that point even more strongly to amino-acid deficiency as the primary etiologic factor in pellagra. Recurrences of the disease have again been observed in several members of a group on a diet even more liberally supplied with vitamin-rich foods and minerals than in the cases previously reported.[2] Of these cases, six are particularly significant because they were in persons who were good eaters and who were known to have almost or quite completely consumed the enriched diet offered.

The basic institutional diet of this group of patients included daily, among other items, fully 4 ounces (113 gm.) of whole maize meal (white) in the form of corn bread; 1 ounce (28 gm.) of cowpeas (California black eye); one-half ounce (14 gm.) of butter (locally produced); four or five times a week, a moderate helping of green leafy vegetables (such as turnip greens, young cabbage or collards), and two or three times a week some sweet potatoes. This diet was enriched with respect to vitamins and inorganic minerals by the daily addition, furnished by us with the hope that recurrence of the disease might thus be prevented, of cod liver oil, 9 fluidrams (32 c.c.); canned tomato juice, 3¼ fluidounces (100 c.c); bakers' yeast, one-half ounce (14 gm.), and a dose of two mineral solu-

COMPOSITION OF MINERAL SOLUTIONS

Solution AA:	
Calcium acetate, $Ca(C_2H_3O_2)H_2O$	5.274 gm.
Magnesium chlorid, $Mg.Cl_2$	.470 gm.
Ferric chlorid, FCl_3	.040 gm.
Solution BB:	
Sodium sulphate, Na_2SO_4	1.510 gm.
Potassium phosphate, KH_2PO_4	4.983 gm.

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[1] Goldberger, Joseph; Wheeler, G. A., and Sydenstricker, Edgar: A Study of the Relation of Diet to Pellagra Incidence in Seven Textile Mill Communities of South Carolina in 1916, Pub. Health Rep. **35**: 648-713 (March 19) 1920. Wilson: The Diet Factor in Pellagra, J. Hyg. **20**: 1-59 (July) 1921.

[2] Goldberger, Joseph, and Tanner, W. F.: Amino-Acid Deficiency Probably the Primary Etiological Factor in Pellagra, Pub. Health Rep. **37**: 462-486 (March 13) 1922. Goldberger, Joseph: The Relation of Diet to Pellagra, J. A. M. A. **78**: 1676-1680 (June 3) 1922.

tions yielding approximately the elements of the ash of a liter of milk.

These solutions differ from those we previously used in that these yield slightly more phosphorus, considerably more iron and much less sodium and chlorin.[3] The latter elements, however, were liberally supplied by the table salt used in cooking and by a daily ration of 90 drops of dilute hydrochloric acid, U. S. P. In addition, each patient was given at supper 2 drops of syrup of ferrous iodid, U. S. P.

The supplement of cod liver oil, tomato juice, yeast and hydrochloric acid was separately administered; the mineral solutions were stirred into the food, BB at breakfast and AA at the midday dinner. In measuring out the mineral solutions, an increase of 10 per cent. over that shown in the table was actually given so that patients, such as those we are about to report on, who cleaned their plates, actually consumed somewhat more than the quantities stated above.

The significant points in the histories of two fully representative cases of the group of six are, briefly, as follows:

Case 1.—A white woman, aged 39, weighing 49.6 kg., who had pellagra in 1917, in 1918 and in March, 1921, began taking the enriched diet described above, Jan. 3, 1922, at which time she was without recognizable evidence of pellagra. April 5, there was noted the beginning of a pellagrous dermatitis on the hands, forearms and forehead. Throughout the interval of three months her food consumption was excellent. During January she took all food offered; during February she left uneaten the equivalent of but half a dinner meal; during March she refused dinner on the 21st and again on the 24th, breakfast and breakfast supplements on the 29th, and about three fourths of her supper on the 31st; during the period from April 1 to April 5 she ate all food offered. Thus it may be said that she consumed virtually all the food and supplements offered during the period of three months before the beginning of the erythema marking the onset of the recurrence.

Case 2.—A white woman, aged 31, weighing 44.5 kg., who had pellagra in 1914, 1918 and 1920, began taking the enriched diet, Jan. 3, 1922, at which time she was without recognizable evidence of pellagra. Between May 3 and May 10, a pellagrous dermatitis made its appearance on her feet, marking the beginning of a recurrence, although throughout the preceding four months she had regularly cleaned her plate, consuming all the food and supplements offered.

The occurrence of these cases of pellagra in spite of the consumption of a diet which included a considerable variety, representing almost every known class, of vitamin-rich foods that in the aggregate must, it would seem, have yielded an abundance of all such complexes, and which had its mineral elements liberally enriched by the additions described, would seem definitely to exclude deficiency of all known vitamins and minerals as essential factors in the development of the disease, thus leaving, of the known dietary essentials, protein alone for consideration. If it were established that the dietary essentials at present known were all that are required in the nutrition of man, it would manifestly be permissible definitely to conclude that the protein factor is the one primarily concerned in the prevention and causation of pellagra. Since this cannot be regarded as fully established, it follows that this evidence does not exclude, although its nature would appear to render improbable, some as yet unknown or unappreciated factor.

This improbability would seem materially heightened by the indications afforded by another case of pellagra recently observed by us, the significant points in connection with which are as follows:

Case 3.—A colored woman, aged 25, on admission to the Georgia State Sanitarium in August, 1920, was in a state of catatonia with marked stupor and would take no food. There was no history of pellagra nor signs of the disease on admission. She remained in a deep stupor until August, 1921, at which time she passed into a state of marked excitement in which she has, in varying degree, continued. Nothing of interest in her physical condition that is relevant was noted until May 20, 1922, when dermal lesions were observed on her hands which must have first appeared within the preceding day or two and which, in the course of the subsequent fortnight, developed so as to be recognized as pellagrous. During the last week of this month the bowels became quite loose, and the mouth sore. June 5, the tongue was quite red, and a diagnosis of pellagra was then made.

The record of her diet, which had been carefully kept as that of one of several patients under special observation in a study of the preventability of pellagra, reveals the following facts of interest in the present connection:

By reason of her refusal to take food at the time of her admission, it was necessary soon after to begin administering food by tube. The feeding by tube had to be continued without a break until September, 1921, at which time she began to cooperate and from time to time drank her ration voluntarily. The composition of her diet varied somewhat at different periods, but, beginning February 18 and up to May 16, 1922, she consumed daily 24 ounces (700 c.c.) of fresh milk, 1 ounce (28 gm.) of pork fat, 2 ounces (60 c.c.) of cod liver oil, 1½ ounces (43 gm.) of lactose, 4 ounces (113 gm.) of sucrose, 4 ounces of canned tomato juice, a dose of the mineral solutions described above, and 2 drops of syrup of ferrous iodid, representing in all about 1,900 calories. Between April 11 and May 16, the vitamin B content of this ration was fortified by a daily dose of 5 gm. of an "activated solid" preparation, the potency of which for pigeons was such that it was calculated that an adult man's needs for vitamin B would be satisfied by a daily dose of 10 gm. of this preparation, for which we are indebted to Dr. Atherton Seidell of the Hygienic Laboratory. During the period of six or seven months immediately preceding Feb. 18, 1922, her daily diet differed from that here summarized for the period after February 18 only in that it included about 8 ounces (240 c.c.) more of fresh milk and 1½ ounces (43 gm.) less of lactose.

May 16, four days before the beginning of the dermal lesions was detected, which, as stated, later proved to be pellagrous, this ration was modified in order to increase the calories, the patient not having shown any tendency to gain in weight. Incidentally, the quantity of milk was slightly reduced, the sugar and tomato juice increased, and the "activated solid" vitamin B preparation discontinued so that between this date and June 5 or 6 she took daily 20 ounces (600 c.c.) of fresh milk, 1 ounce (30 c.c.) of a vegetable cooking oil, 2 ounces (60 c.c.) of cod liver oil, 8 ounces (227 gm.) of sucrose, 6 ounces (178 c.c.) of tomato juice, a dose of the mineral solutions, 2 drops of syrup of ferrous iodid and 5 gm. of table salt, in all yielding 2,100 calories, or about 200 more than she had been taking up to May 16.

Since it seemed to us that the definite onset of this attack of pellagra had to be assigned at the earliest to about the middle of May, the diet to be considered in relation to the onset of this attack was that of the immediately preceding period (ending May 15), a complete record for three months of which is summarized above. A consideration of the composition of the diet of that period suggested that, if it was faulty, the fault most probably lay in too low a yield of protein—approximately 24 gm. of milk protein a day. (The patient, it may be noted, weighed between 45 and 46 kg.) This seemed all the more probable by reason of the fact that the diet during the immediately preceding period of seven months had included 8 ounces (236 c.c.) more of fresh milk, and because the modification in diet—made just when, as later developments proved, the distinctive objective evidence of the onset first began to appear—involved a slight reduction in the protein incidental to the slightly reduced intake of milk. Accordingly, as soon as it was realized that the patient was progressively developing symptoms of pellagra, it was decided to change her diet so as to alter its composition significantly only with respect to the protein. June 6, therefore, she began to take daily 2 ounces (57 gm.) of skim milk powder (Merrell-Soule), that is, the equivalent of 20 or 21 ounces of liquid skim milk; 2 ounces of larosan (a calcium casein, a sample of which was analyzed by the chemical division of the Hygienic Laboratory and found to contain: protein, 81.26 per cent.; fat, 0.36 per cent., and ash, 5.15 per cent.); 2 ounces (59 c.c.) of cod liver oil; 1 ounce (30 c.c.) of a vegetable cooking oil; 8 ounces (227 gm.) of sucrose; 6 ounces (178 c.c.) of canned tomato juice; a dose of the mineral solutions; 2 drops of syrup of ferrous iodid, and 5 gm. of table salt. July 7, the 2 ounces of the calcium casein preparation was replaced by 2 ounces of a casein of good quality (Harris' "vitamin B free").

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[3] The quantities of the elements yielded by a dose of these solutions are: calcium, 1.20 gm.; phosphorus, 1.13 gm.; iron, 0.0138 gm.; potassium, 1.43 gm.; sulphur, 0.34 gm.; magnesium, 0.12; sodium, 0.24 gm., and chlorin, 0.14 gm.

So far as it is possible for us to judge, this ration differed from the one of the period from May 16 to June 5—which it replaced, and associated with which, be it noted, there was a progressive development and accentuation of symptoms—in a reduced yield of vitamins[4] to the extent of the difference between the quantity of those in 20 ounces (592 c.c.) of fresh whole milk and those in 2 ounces of skim milk powder and 2 ounces of larosan (or casein), and in an increase in the supply of protein represented by the difference between, on the one hand, the amount in 20 ounces of fresh milk and, on the other, that in 2 ounces of skim milk powder and 2 ounces of larosan, a difference computed by us to be not less than 45 gm.

Following the return to a higher protein diet brought about by this change, there was a prompt clinical improvement. Within three weeks the soreness and redness of the mouth and looseness of the bowels had disappeared, and of the dermatitis there were left only some fringes marking some of the limits of the skin lesions. At the end of two months, no evidence of the attack was recognizable and a slight gain in weight had occurred.

We have here, then, a case of pellagra that developed following a reduction in milk consumption, the progress of which was promptly arrested and the symptoms of which rapidly cleared up after a change in diet which, so far as we are able to judge, involved significantly a modification in only one factor; namely, a marked increase in protein. Since our experience with some other similar cases has convinced us that, had the diet associated with the progressive development and accentuation of symptoms of the period from May 16 to June 4 or 5 been continued, no arrest in the progress of the attack could have been expected, we feel warranted in concluding that the favorable course following the change in diet was the direct result of this change; that is, of the notable increase in the protein (with, if anything, reduction in vitamins).

The further conclusion would therefore seem to be suggested that the fault in the diet with which the development of the attack in this case was associated lay in the protein or, in view of the present-day conception of protein as a complex of amino-acids, in some fault in the amino-acid supply.

COMMENT

This is but one case,[5] even though a closely observed one; nevertheless, when considered in connection with the indications afforded by the other cases herein recorded and with those of our other similar previously reported observations,[2] the conclusion would seem strongly suggested that the essential primary etiologic dietary factor in pellagra is a faulty protein, that is, a faulty amino-acid supply.

It may be pointed out that this case is of interest in two or three other respects. In the first place, the disease developed in a patient subsisting on a diet containing no maize or any product of maize, nor, it may be added, had the patient eaten anything containing this cereal while under our observation during a period of fully seventeen months. It is of interest, in the second place, in that it suggests that of the explanations offered of the occurrence of the rare cases in nursing infants, that one attributing it to an inadequate supply of breast milk (or a faulty utilization of an otherwise adequate supply) resulting in amino-acid deficiency is probably the correct one.

Finally, it is of interest because of its seemingly paradoxical occurrence in a patient while on a diet containing milk, a food that we have ample reason to believe is efficient in prevention and treatment. It emphasizes what experience had already taught us, what, indeed, might naturally be anticipated but is quite frequently overlooked, namely, that the mere inclusion of milk (or other "preventive" food) in a diet is not in itself all sufficient. It must be included in adequate amounts. What the effective minimum is probably varies, depending doubtless on such variable intrinsic factors as individual digestive (and absorptive) efficiency under normal and pathologic conditions of the digestive tract, and on such extrinsic factors as whether the particular food is the sole source of protein in the diet, as in the case under discussion, or serves to supplement other proteins or protein mixtures. In this connection we wish to state that in a study still in progress we have found 40 ounces (1,183 c.c.) of buttermilk (approximately 36 gm. of milk proteins) as a supplement to a diet the protein mixture of which is otherwise derived principally from maize, and in less degree from wheat, rice and cowpeas, ample to prevent recurrence of the disease in any of a group of about eighteen pellagrins during a period now of fully ten months. The effective minimum may vary also, there is reason to think, with the make-up of the diet in other respects, such as vitamin content; and, in this sense, a vitamin or vitamins may play an important rôle by minimizing or accentuating the effects of the protein fault.

SUMMARY

1. Some additional recurrent cases of pellagra were observed in persons who, during periods as long as three and four months immediately preceding the onset, had consumed a diet which included a considerable variety, representing almost every known class, of vitamin-rich foods that in the aggregate must, it would seem, have yielded an abundance of the known complexes of this class, and which had its mineral elements enriched by a supplement of solutions yielding approximately the elements of the ash of a liter of milk.

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[4] This is, of course, simply a judgment based on the fact that skim milk powder is much poorer in vitamins than fresh whole milk, and in the belief that, while probably not entirely free of vitamins, the amount of these carried by the larosan and the casein was so very small as to be relatively negligible. A ration containing 18 per cent. of this casein was found too poor in vitamin B to permit young rats to grow or long to survive. We did not test it for vitamin A but we had in mind our experience with butter, which indicates that the vitamins of this milk product in fairly liberal quantities are apparently inadequate to prevent pellagra, since we have seen recurrences in individuals who had eaten considerable butter, in two instances as much as 3 ounces (85 gm.) daily for three or four months.

[5] The indications afforded by the results of treatment in three or four other cases developing in patients on a diet virtually identical with that on which this one developed are of little or no significance in the present connection, because the treatment adopted involved an increase in more than one dietary factor.

2. Patient 3, during a period of three months immediately preceding the onset of what appears to have been an initial attack, subsisted on a diet of about 1,900 calories in which virtually all the protein was derived from 24 ounces (710 c.c.) of fresh milk. During a further period of nearly three weeks on a diet yielding about 2,100 calories in which the protein was from only 20 ounces (592 c.c.) of fresh milk, the symptoms of the attack became progressively more marked; but following a change in the diet of this period which involved, so far as can be judged, significantly a modification in only one factor, namely, a marked increase in protein, there was a prompt clinical improvement.

3. The indications afforded by these observations, confirming and strengthening the indications of those previously reported, strongly point to the conclusion that the essential primary etiologic factor in pellagra is an amino-acid deficiency.

4. The case associated with a diet in which the sole source of protein was milk developed in a patient whose diet had included no maize nor any product of this cereal for at least seventeen months.

5. This case suggests that those rare cases in breast-fed infants are probably to be explained on the basis of an inadequate supply (or a faulty utilization of an adequate supply) of breast milk.

6. It emphasizes that the mere inclusion of a food believed to have preventive value is not itself all-sufficient: that a quantitative factor must be taken into account.

HEMATURIA AND APPENDICITIS *

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It is more common for an attack of colic, due to stones in the right ureter, to be mistaken for an attack of acute appendicitis, and for the appendix to be mistakenly removed, than it is for an attack of appendicitis to be diagnosed as stone in the ureter, and operation postponed. That there may occasionally be justification for the latter course is apparent from the following case history, which is given as related by the patient himself.

REPORT OF AUTHOR'S CASE

History.—L. G. W., Jr., aged 26, whose father had renal colic in his early thirties and passed stones, but has had no trouble since, whose brother died in 1904 from tuberculous meningitis, and whose sister had a thyroid gland removed two months previously, gave an otherwise excellent family history. The patient was said to have had a patulous foramen ovale for the first three months of life. His general health had been excellent. He had measles, pertussis, varicella and mumps in early childhood, but no other illnesses until 1917, when his feet were frozen while he was snow-shoeing in Canada. At this time, he developed a right basal pleurisy. He was tapped, and clear fluid obtained. The condition was thought to be tuberculous. The patient was in bed one month with this condition, and at that time his weight dropped from 145 to 125 pounds (65 to 56 kg.). Subsequent recovery was perfect. One year before, he had neuralgia of the left side of the face affecting the superior maxillary division of the fifth nerve. The left antrum was tapped at the time, and irrigated with physiologic sodium chlorid solution. There was no subsequent trouble.

The patient entered the Episcopal Hospital, Philadelphia, as resident physician in August, 1920, and at that time the weight was 145 pounds (65.75 kg.). The present weight was 195 pounds (88.43 kg.). The appetite was excellent and the bowels were regular. He had had a slight irritatibility of the bladder for the last two years, at times very evident and accompanied by frequency of urination. At other times, the bladder symptoms were entirely absent. There were occasional attacks of indigestion, flatulence, heartburn, feeling of fulness in the epigastrium and belching of gas. The attacks were accompanied by a very sour disposition. They had been much less frequent since his gain in weight.

The patient used tobacco moderately, in the form of pipe smoking. There was no gonorrheal or syphilitic infection. The Wassermann test made just before the present illness was negative.

Present Illness.—The chief complaint was pain in the right side. On the morning of admission (April 26, 1922), the patient had frequency of urination, with slight burning, passing rather scanty amounts. Several hours later, he developed pain in the head of the penis and in the right testicle. He felt a constant desire to urinate even when the bladder was empty. The pain was not severe in character. Immediately after eating dinner, at 6:15 p. m., he had a copious bowel movement, accompanied by great strain. At this time, he had slight intermittent pains, lasting thirty seconds and occurring about once every minute. The pains, which were in the lower right side, became longer, more frequent and more severe, until, in the course of an hour, the patient was unable to lie quietly in bed, but tossed about from side to side in each paroxysm. By this time, the pain was almost continuous. It was very severe and seemed to radiate from the lower right abdominal fossa downward and inward, at times extending to the head of the penis. Shortly after 7:30 p. m., he vomited rather copiously, and for five minutes felt relieved. Paroxysms of pain then again developed.

Examination and Course.—On admission, the patient was covered with a profuse cold and clammy sweat, and was very restless. Examination of the abdomen revealed no spasm of the recti, no masses palpable, slight tenderness in the right kidney region, very slight, hardly perceptible, tenderness in the lower right abdominal quadrant on deep pressure, and no superficial tenderness. The extremities were negative, and the reflexes negative. White blood cells numbered 9,800. The temperature was subnormal.

The patient was given a soapsuds enema as soon as he was admitted. He was very restless at this time and had difficulty in lying still. The pains seemed to be augmented immediately after the enema, but five minutes later the pain stopped with great suddenness. A specimen of urine obtained at this time and sent to the laboratory proved to be loaded with red blood cells. The patient was seen by Dr. Ashhurst at 9:30 p. m. Local examination was entirely negative excepting for tenderness on deep pressure low down in the right iliac fossa. Rectal examination was negative. On account of the slightly subnormal temperature, normal white blood cell count, blood in the urine and sudden cessation of pain, a diagnosis of stone in the right ureter was made.

April 27: The patient passed a good night, but at 10 a. m. developed an attack entirely similar to that described above. He was given morphin sulphate, one-fourth grain (0.016 gm.), and atropin, one one-hundredth grain, at 10:30 a. m. The symptoms abated shortly afterward. Roentgen-ray examination of the right kidney and ureter regions gave two shadows in the clear space of the sacro-iliac joint just below the pelvic brim, resembling ureteral calculi. The urine showed blood in microscopic amounts.

April 28: There was slight pain in the right side, but little tenderness. The patient was nauseated at times. Roentgen-ray examination failed to give shadows characteristic of calculi in the region of the ureter or bladder. There was still microscopic blood in the urine.

April 30: There was no pain, and the patient was up and about.

May 1: The patient was discharged in good condition.

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* Read before the College of Physicians of Philadelphia, Oct. 4, 1922.

Second Admission.—The patient was readmitted, May 7, complaining of pain in the right side. He had gone down to New Jersey, May 5, to spend a week-end. May 6, he had a hearty midday meal. At 5 p. m. the same afternoon, he had very slight pain in the lower right abdominal quadrant. He hesitated to speak of this, so ate his evening meal at 6 p. m., after which the pain became very much more severe, and shifted to the epigastrium. The bowels moved freely, and the pain became so severe that he had to lie down. Shortly after 7 p. m., the patient vomited slightly, and experienced a feeling of relief; but in ten minutes the pain returned, and in twenty minutes he vomited again, quite profusely. About 1 dram of bright red blood was vomited in the first retching before the second vomiting spell. The pain was continuous throughout the night, and was interrupted now and then by vomiting spells. It was somewhat relieved by the application of heat in the form of an electric pad. Throughout the evening of the attack, there was no rigidity of either rectus, the pain was entirely epigastric and steady in character, and there was no tenderness in the lower right abdominal quadrant. The epigastric pain was accompanied by a decided feeling of fulness in the same region. There was no radiation of the pain to the right testicle or to the head of the penis, and no frequency of urination. The temperature was not taken. By morning, May 7, the pain had shifted to the lower right abdominal quadrant, and there was distinct tenderness over McBurney's point, with slight spasm of the right rectus. The pain was now a dull ache.

The patient returned to Philadelphia; he was admitted to the Episcopal Hospital, and was operated on at 12 noon May 7.

May 7: A notation (Dr. Ashhurst) reads: "The patient says this attack is entirely different in character from the former, in which the diagnosis was ureteral calculus. The slight fever, the leukocytosis (16,200), and the local signs indicate acute appendicitis. He now has no pain referred to the genito-urinary tract."

Operation.—Appendectomy was performed under gas and ether, 40 c.c., anesthesia. A transverse incision of 10 cm. was made. The cecum prolapsed when the peritoneum was opened. The appendix was adherent in the right lumbar region, lateral to the ascending colon. The tip was gangrenous. The meso-appendix was ligated in sections and the stump crushed, ligated and buried. No stones were palpable in the ureter at or below the brim of the pelvis. The wound was closed in layers without drainage. Silkworm-gut was employed for the skin.

The appendix contained two coproliths and fecal pus under tension.

Laboratory Report (Dr. C. Y. White): "Acute suppurative appendicitis in a chronic fibroid appendix."

Course.—May 8: The urine showed no blood.

May 9: The postoperative condition was fair. There was slight nausea. Severe pain was felt at night, with tenderness in the right testicle. Practically no sleep was obtained at night. The patient tossed about with severe pain, beginning each night about 10 p. m. and lasting until morning. The urine showed no blood.

May 11: The patient complained of pain paroxysmal in type and radiating down the right testicle. The temperature was slightly elevated.

May 12: The patient had had no sleep since the operation. At 9 p. m., he was given 1 grain of codein, by hypodermic injection; at 10:30 p. m., the dose was repeated, but the patient did not sleep. At 1 a. m., he was given one-fourth grain of morphin sulphate by hypodermic injection.

May 13: The patient slept after 2 p. m., and continued to sleep nearly all day. There was no pain. The urine showed microscopic amounts of blood.

May 14: The patient had a fine night, with no pain.

May 15: The stitches were removed, some fat and serum draining from the outer end of the incision. The temperature was down to normal.

May 18: The patient's condition was good; he was able to sit up.

May 19: The patient walked a little; there was no blood in the urine.

May 20: The condition continued good; the patient complained of a slight discharge of fat and serum from the lateral end of the incision. He was transferred to the resident physician's quarters from the private floor.

June 9: Cystoscopic examination by Dr. Pelouze revealed no stones in the bladder or right ureter. A catheter was passed with ease to the right kidney. Low-grade cystitis was present. The patient was not aware of having passed any stones at any time.

October, 1922: He has had no further abdominal or urinary symptoms.

COMMENT

The attack of April 26 certainly was sufficiently characteristic of ureteral colic to justify the clinical diagnosis. There was the colicky character of the pain, its reference to the genito-urinary tract, the premonitory vesical tenesmus, and the very sudden cessation of the pain at the conclusion of the attack. There was the absence of fever and leukocytosis, and only negligible tenderness even on deep pressure over the right iliac fossa. Added to these clinical facts, there was the confirmation derived from the finding of blood in the urine, and shadows resembling calculi in the pelvic portion of the ureter, as shown by the roentgenograms.

The fact that a subsequent roentgen-ray examination, two days after the acute attack, failed to give the same shadows, was believed to indicate that the calculi had passed into the bladder, where they were not easily detected. It was the intention to have a cystoscopic examination made as soon as convalescence was established; but the sudden onset of the typical attack of appendicitis necessitated its further postponement. It is probable that the shadows mistaken for two ureteral calculi were caused by the coproliths in the appendix,[1] though at operation (May 7), ten days after the roentgenograms were made (April 27), the appendix was found adherent in the right lumbar region on the lateral side of the ascending colon, and not hanging over the brim of the pelvis where the roentgenographic shadows were seen. But if the appendix was not adherent to the ureter below the pelvic brim at the time of the first attack, it is difficult to account for the hematuria and referred pain; and if it was adherent even then in the right lumbar region, where it was found at operation, it is difficult to believe that it would not have caused a repetition of the genito-urinary symptoms during the second attack, if its being adherent in that situation had caused them during the first attack. However, there seems no good reason to think that the patient ever did have ureteral calculi, as none were ever passed, and the skilful examinations of Dr. Pelouze disclosed that none were present in the bladder or ureter.

The following somewhat similar case was recently reported by von der Becke.[2]

A woman, aged 48, who was emaciated and anemic, had had colic in the right side of the abdomen for three or four years. Then, in February, 1921, she developed dysuria and frequency, with urine cloudy and very bloody. The kidneys were both palpable, and there was tenderness beneath the right costal margin. Cystoscopy revealed an inflamed bladder mucosa and slight ulceration around the right ureteral opening. The color test for the left kidney was normal, but much less than normal on the right. A ureteral catheter gave normal urine from the left, bloody and purulent urine from the right kidney. Roentgenograms gave three shadows in the right kidney region, taken for calculi. The diagnosis was pyonephrosis, right, with calculi. Right nephrectomy was performed, April 14, the kidney appearing practically normal at operation. The patient recovered and did well, for one week. Then there was a recurrence of symptoms, with fever, and a tumor the size of a child's fist was palpable in the gallbladder region. Since it was thought to be a phlegmon from the stump of the ureter, the kidney wound was reopened; but nothing abnormal was found. (Pathologic examination of the kidney revealed no lesions of note.) Fever continued, and the tumor in the region of the gallbladder was still palpable. It was believed that the shadows taken for kidney stones might be gallstones. Fifty-two days after nephrectomy, the abdomen was opened over the gallbladder, which was buried in adhesions, but was normal. However, on its under side, the appendix was found, running directly behind the right lobe of the liver. It was removed, and was found to be very long and chronically inflamed. Uneventful recovery followed.

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[1] These cast roentgenographic shadows.

[2] Von der Becke: Ztschr. f. Urol. **16**: 50, 1922.

Casper remarked, in the discussion that followed the presentation of the case just quoted, that, if there is only blood in the urine, the diagnosis between appendicitis and ureteral or renal calculus is difficult; if pus as well as blood comes from the right ureter, the renal affection is the true diagnosis. But the urine from the right ureter in von der Becke's patient was reported as purulent, so even this sign may prove unreliable.

CONCLUSION

In the present state of our knowledge, we can only speculate as to the method by which disease of the appendix may cause hematuria. Is it from direct irritation of the kidney or ureter by an adherent inflamed appendix, or is it possibly the result of toxins carried by the blood and excreted by the kidneys? The former seems the more probable, at least in those cases in which the urine from the left kidney is normal.

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MEDICOLEGAL APPLICATION OF HUMAN BLOOD GROUPING

THIRD COMMUNICATION: SOURCES OF ERROR IN BLOOD GROUP TESTS, AND CRITERIA OF RELIABILITY IN INVESTIGATIONS ON HEREDITY OF BLOOD GROUPS

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Since 1907, when I did the first transfusion recorded in which tests for blood compatibility were made,[1] I have performed many thousand blood group tests. Occasionally I have had to correct my own errors as well as those of others. Experience with successive generations of hospital interns has taught me that, in spite of the simplicity of the test, most beginners will make mistakes in grouping unless specifically taught about certain sources of error.

The subject is particularly important at present because: (1) Blood transfusion is being increasingly used; (2) the group test will probably be employed in the near future in medicolegal work, and (3) Buchanan's recent articles[2] denying the correctness of all the preceding work on the heredity of the blood groups make it necessary for some other person to do an extensive piece of investigation.

WHAT IS THE BEST TECHNIC?

A number of different methods are in use. Any of them will give correct results in the hands of an expert who is acquainted with all the sources of error.

1. The test tube method is the oldest. It has the disadvantages that it is wasteful of serum and that readings are more difficult to make than with other methods, so that weak agglutination can be overlooked.

2. The modified Wright capillary pipet method has the disadvantage of requiring too much glassware and too much expertness.

3. The hanging drop method and the use of hollow ground slides are "to be avoided, since the red corpuscles may sink to the bottom of the depression and simulate a massive agglutination where none is present"—an opinion which I have held for a long time and which was independently reached by Learmouth.[3]

4. The open slide method of Vincent[4] is the method of choice. The technic is extremely simple. One drop of serum is placed on a slide, and into it is allowed to fall one drop of the cell emulsion. (This is better than platinum loopfuls of serum and cells, because with the latter the amount is rather too small.) The slide is tilted and rotated gently, so that the cells are uniformly distributed; this is repeated every couple of minutes. Agglutination is easily seen with the naked eye in from one to ten minutes at room temperature. The microscope is not needed and should not be used. Genuine agglutination is always visible to the naked eye. The observations should never be extended for longer than fifteen minutes.

The method has the added advantage that the dried tests can be kept, according to the suggestion of Culpepper and Ableson,[5] as permanent records. If the slides are not moved after the first ten or fifteen minutes, the artefact of agglutination due to drying does not occur. To prevent their chipping off, the dried specimens should be painted with a layer of collodion.[6]

SOURCES OF ERROR IN THE TESTS

Deteriorated Serums.—The agglutinative power of serums gradully diminishes, no matter how they are kept. Different specimens vary, some deteriorating very rapidly, others hardly at all. Sealed samples kept on the ice retain their strength for long periods. None of the known methods of preserving serums is entirely satisfactory.

These facts suggest two essential precautions which can be demanded in all authentic work: (1) Every test must be done in duplicate with two different serums of each test group (II and III). (2) Test serums must be shown to be active at the time of the tests. This must be controlled by using them against known Group II and Group III cells within at most a few days of the tests.

The Use of Serums Originally Weak.—Agglutinative serums vary greatly in strength. A test serum must be shown not only to be of the correct group, but also to be highly potent before it is accepted for use.

Hemolysis.—Hemolysin never occurs in serum without the corresponding agglutinin. Complete hemolysis can hardly be overlooked and may usually be regarded as the equivalent of agglutination in assigning the group. When hemolysis occurs, agglutination can nevertheless be demonstrated, either by first inactivating the serum and washing the red cells or by keeping the test from the start at icebox temperature.

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[1] Ottenberg, Reuben: Ann. Surg., April, 1908, p. 506.

[2] Buchanan, J. A.: Medicolegal Application of the Blood Group, J. A. M. A. **78**: 89 (Jan. 14) 1922; **79**: 180 (July 15) 1922.

[3] Learmouth: J. Genetics **10**: 141, 1920.

[4] Vincent, Beth: A Rapid Macroscopic Agglutination Test for Blood Groups, and Its Value in Testing Donors for Transfusion, J. A. M. A. **70**: 1219 (April 27) 1918.

[5] Culpepper, W. L., and Ableson, M.: J. Lab. & Clin. Med. **6**: 276 (Feb.) 1921.

[6] I showed the dried records of the last twenty families examined in my recent heredity study (Medicolegal Application of Human Blood Grouping, J. A. M. A. **78**: 873 [March 25] 1922), all mounted on cardboard, to bring out the family relationships, at the meeting of the American Association of Immunologists in Washington, May 1, 1922. These are now deposited with Prof. T. H. Morgan in the department of zoology at Columbia University.

The chief danger is partial hemolysis combined with weak agglutination, in which case the two can obscure each other.

Incubation at 37 C.—Because it favors hemolysis, incubation in a warm atmosphere should not be practiced.

Drying.—Nonspecific agglutination, due probably to increased salt concentration, can occur if the mixture is allowed to become partly dried. This is easily avoided by ending the observations in ten, or at most fifteen, minutes.

It is possible, although I have not seen it happen, that, if test serums are kept in open tubes, they may in time become sufficiently concentrated to produce this false agglutination. As Karsner and Koeckert [7] have shown, the use of dried and then redissolved serum is to be condemned.

Settling of Cells.—This is one of the commonest sources of mistakes. It can occur with any method. The cells settle to the bottom in a compact sheet, which, if only slightly stirred, looks like massive agglutination. The remedy is thorough mixing before results are read; this will make a smooth emulsion of merely settled cells, while it will accentuate real agglutination.

Use of the Microscope.—The microscope is, in my opinion, a source of error. Rouleaux formation is sometimes hard to distinguish from fine agglutination. In every instance in which the doubt has been raised by microscopic examination and settled by examination of the person's serum as well as cells, the naked eye observation has proved correct, the microscopic, confusing.

Too Thick a Cell Emulsion.—The red cells do not need to be washed for agglutination tests (unless hemolysis is also to be tested for). Unless blood is drawn from a vein in order to get serum, the emulsion is most easily obtained by pricking the finger and expressing about 5 drops of blood into a cubic centimeter of 3 per cent. sodium citrate. The emulsion should be diluted with 0.9 per cent. saline solution to about 2.5 per cent. strength, i. e., about half as dense as the sheep-cell emulsion ordinarily used in the Wassermann test. If the emulsion is much too dense, some of the cells may remain unagglutinated and mask the agglutination of the others. I pointed this out in 1911,[8] and I have seen actual mistakes in transfusion cases due to this fact.

Undeveloped Group Characters.—The group characteristics are not fully developed in all young infants. Occasionally they are imperfectly developed in older children. (This has no relation to the so-called "subgroups" which have been claimed to exist on the basis of posttransfusion reactions, but for whose existence there is no real evidence.)

On account of this possibility of undeveloped group characters, the serum as well as the cells must be examined in children and, in all cases of doubt, in adults. It is also on this account that it is so essential to repeat the tests if a second or third transfusion is done in a child.

Auto-Agglutination.—This is an exceedingly rare phenomenon. It occurs only at a low temperature. It is easily detected and ruled out as a source of error if only the possibility of its occurrence is kept in mind. It is on account of this that the control test of a drop of cell emulsion with saline solution, or, if possible, with a drop of the patient's own serum, should always be examined.

HOW TO AVOID INCLUDING CASES OF ILLEGITIMACY WHEN COLLECTING DATA ON HUMAN HEREDITY

No one knows how common or rare secret illegitimacy is. There is no absolute method of preventing the accidental inclusion of an illegitimate child or even of a family of such children in statistics on heredity. This is one of the difficulties of the study of human heredity. The best resource which I can suggest is the following rule: No family should be examined until the mother fully understands the object of the examination. If she then makes any objection, no matter on what grounds, the examination should not be made, or the results should not be considered.

LITERATURE OF THE QUESTION OF HEREDITY

The present communication is written as the result of the recent articles of Buchanan.[2] In these articles, Buchanan, aside from his claims as to his own work, makes so many misleading statements concerning the literature that it would be unfair to readers if I omitted to correct him.

Thus, he tries to convey the impression that authors other than himself have failed to confirm the hereditary nature of the blood group. He says:

> The interesting studies of Learmouth show that the old theory of the two specific substances for the blood group and the mendelian inheritance of the blood are at variance. The blood group is either not hereditary or the laboratory experiments concernings the specific substances responsible for the blood groups are being misinterpreted.

Actually Learmouth,[3] both in general and in specific detail, comes to exactly the opposite conclusion, agreeing precisely with me—or rather I with him, since his article preceded my recent one.

Learmouth had forty families with 101 children, 181 persons in all. There was only one exception, a Group II child from Group I parents; and he himself suggests illegitimacy as the explanation.

Regarding this exception, I cannot do better than quote Keynes,[9] who says, with regard to it:

> There are three possible explanations of this: (1) The observations were at fault; (2) the putative father was not the real father; (3) the mendelian theory of inheritance is wrong. The mendelian theory is established on so firm a basis that, in the absence of more numerous exceptions, (3) may be rejected. There is no reason for supposing that the observations were inaccurate; and we are therefore brought to the conclusion that in such a case the child is illegitimate.

Keynes himself contributes another family of fifty-nine persons in four generations. It does not show any variation from the results that were to be anticipated. As the family is the largest yet recorded, I reproduce the pedigree in the accompanying chart (reversing the I's and IV's to correspond to the Jansky terminology).

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[7] Karsner, H. T., and Koeckert, H. L.: Influence of Desiccation on Human Normal Isohemagglutinins, J. A. M. A. **73**: 1207 (Oct. 18) 1919.

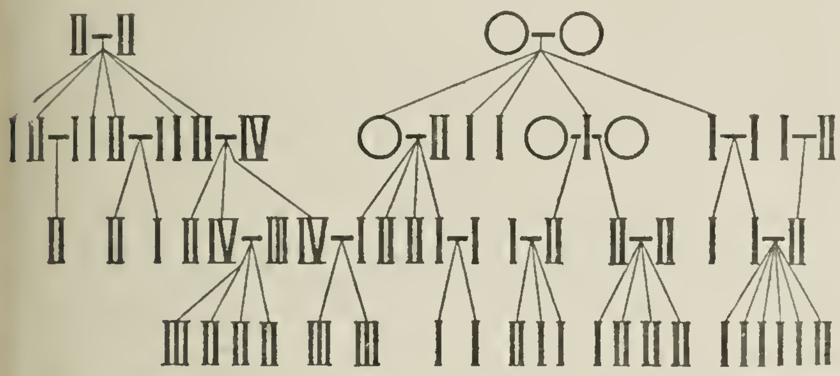
[8] Ottenberg, Reuben: J. Exper. Med. **13**: 425 (April) 1911.

[9] Keynes, Geoffrey: Blood Transfusion, Oxford Medical Publications, 1921, p. 90.

Buchanan says further:

> My findings are in accordance with the results of studies of the blood group in families that have been published.

Far from this being true, Buchanan's findings flatly contradict those of every other author who has written on the subject—of von Dungern and Hirschfeld,[10] in Heidelberg; Jervell,[11] in Christiania; Learmouth,[3] in Liverpool; Keynes,[8] in Oxford; Weszecsky,[12] in Czeckoslovakia; Tebbutt and McConnel,[13] in Australia, and myself,[6] in New York.



Keyne's family, fifty-nine individuals, tested in four generations. Circles represent persons who could not be examined.

As it is incredible that a law of heredity which holds true in almost a thousand cases and in such diverse places should not hold in Minnesota, and improbable that Buchanan should have encountered so large a number of illegitimacies, it follows that his wrong conclusions must rest on his own mistakes.

One other misleading statement of Buchanan's must be mentioned. He says:

> The incorrectness of the statement of Ottenberg that he could foretell the parents by studying the children resulting from unions of Groups IV and I is shown in the seventy-second family of von Dungern and Hirschfeld, the twenty-ninth and thirty-eighth families of Learmouth, and the Tink family of my own investigation.

Of course, I never made any such statement. The one instance in which I foretold—and correctly—the group of the father after knowing that of mother and children is described in my recent article clearly enough that anyone should understand it. Buchanan's choice of instances from Learmouth and from von Dungern and Hirschfeld is peculiarly unfortunate, since by coupling their cases with his own Tink family he suggests that their families, like his, are anomalous. This is not the case. Learmouth's twenty-ninth family consists of parents in Groups I and IV and six children in Group IV, his thirty-eighth family, of parents also in Groups I and IV and four children in Group IV. Von Dungern and Hirschfeld's seventy-second family consists of parents in Groups I and IV, three children in Group IV and one in Group I. These all conform to the laws of heredity as first fully described by von Dungern and Hirschfeld.

Buchanan fails to understand that, from the nature of the case, it is never possible to say from the children alone what the parents must be; but, knowing the children and one parent, one can sometimes state what the other parent must be.

The instances in which it is possible to predict the remaining parent, (the children and one parent being known), are implied, but not tabulated, in my previous papers. They are presented in the accompanying table.

In making such predictions, children of Group I are disregarded since, showing only recessive qualities, they can arise from any combination of parents. Thus, if additional children of Group I occurred in any of the foregoing families, the prediction as to the remaining parent would not be altered. If the reader wishes to amuse himself by studying the appended family of Keynes, he will find that there are eight cases in which the one parent being suitably chosen as known, and the children being known, it would have been possible to make a correct prediction as to the other parent. The same is true of the two families of Learmouth and the one of von Dungern and Hirschfeld cited above.

SUMMARY

1. The best technic for the tests is the open slide method.

2. The sources of error are: (1) deteriorated serums; (2) weak serums; (3) hemolysis; (4) incubation at 37 C.; (5) drying; (6) settling of cells; (7) microscope observation; (8) dense cell emulsions; (9) undeveloped group characters, and (10) autoagglutination.

3. On account of these, the following precautions must be observed: (*a*) Every test must be done in duplicate, using different sets of test serums. (*b*) Test serums must be shown to be active at the time of the tests. (*c*) Wherever there is the possibility of doubt, both serum and cells of the individual must be tested. (*d*) The cell emulsion without addition of test serum must also be examined.

PREDICTION OF REMAINING PARENT GROUP

Known Children in Group	One Parent Known to Be in Group	The Other Parent Must Be in Group
II	I	II or IV
II	III	II or IV
III	I	III or IV
III	II	III or IV
IV	I	IV
IV	II	III or IV
IV	III	II or IV
II and III	I	IV
II and III	II	III or IV
II and III	III	II or IV
II and IV	I	IV
II and IV	II	III or IV
II and IV	III	II or IV
III and IV	I	IV
III and IV	II	III or IV
III and IV	III	II or IV
II, III and IV*	I	IV
II, III and IV	II	III or IV
II, III and IV	III	II or IV

* This combination of children (II, III and IV) has not yet been described in the literature. Its occurrence would depend on occasional "crossing" in the chromosomes, as was pointed out to me by Dr. M. Gichner of Baltimore.

4. In studies of human heredity, the accidental inclusion of cases of illegitimacy can best be avoided if the mother of each family fully understands the object of the examinations and consents to them.

5. Buchanan's failure to confirm the hereditary nature of the blood groups is apparently the result of errors of observation. He disagrees with all other authors, who are unanimous in their findings and have recorded almost a thousand cases.

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[10] Von Dungern and Hirschfeld: Ztschr. f. Immunitätsforsch. u. exper. Therap. **6**: 284, 1910.

[11] Helsingfors Letter, J. A. M. A. **77**: 1668 (Nov. 19) 1921.

[12] Weszecsky: Biochem. Ztschr. **107**: 159, 1920. The author concludes that the mendelian inheritance described by von Dungern and Hirschfeld holds, but his charts present two anomalous cases.

[13] Tebbutt, A. H., and McConnel, S. V.: M. J. Australia **1**: 201 (Feb. 25) 1922.

ESSENTIAL VASCULAR HYPERTENSION

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Vascular hypertension, according to our present day conception, is found in one group of individuals who have demonstrable pathologic lesions. These lesions when discovered are usually of the atherosclerotic type. The greatest damage caused by these lesions occurs in the brain, in the heart and in the kidneys.

Vascular hypertension occurs in another group of individuals in whom all the diagnostic methods of today fail to reveal which organ is at fault. This type of case has been designated essential vascular hypertension.

Since the etiology of hypertension is an unsolved problem, it is our duty to continue its discussion. This paper deals with some etiologic factors in the life history of these patients, and above all is an attempt to show there is a continuity in this disease, from the early to the later life of the individual. Essential vascular hypertension is not a spontaneous occurrence. During the last three years, a number of illuminating and interesting discussions from the standpoint of the clinician and pathologist have appeared in the American literature. Among them is that of Moschcowitz,[1] Ringer,[2] Hopkins,[3] Riesman,[4] Piersol [5] and Mosenthal.[6]

Moschcowitz, in 1919, after a complete review of the literature and his own careful studies, concludes, first of all, that essential vascular hypertension is not the result of arteriosclerosis or nephritis; and, secondly, that arteriosclerosis itself may be the product of a persistent hypertension or of the same cause which brings on hypertension. In adopting these views, he accepts the position of Clifford Allbutt.[7] Ringer,[2] in 1921, stated his belief that every case of hypertension is potentially nephritic. Allbutt, in 1903, described the group in which hypertension is the primary disease and nephritis secondary. Hopkins,[3] in 1919, described a type of hypertension developing in women at the time of menopause. Riesman,[4] in the same year, described a type of hypertension occurring in women, based on some endocrine disturbance, not improbably arising in the ovary and occurring about the time of menopause. Pawinski,[8] in 1905, described the hypertension as well as the hypotension which occurs in women at the menopause.

We may well say, then, that the best views of today are also the views of from fifteen to twenty years ago. This standstill in the knowledge of a disease, the etiology of which is admittedly unknown, is, to say the least, not satisfactory. It is of interest to note that, so far as the ultimate etiologic factors are concerned, Ringer,[2] in a discussion of nephritis, adopts the views of Professor Stockard of Cornell that every person dies from the disease with which he is born. Having a predisposition which plays the greater rôle, infections and exposure are but the precipitating factors of the disease.

Moschcowitz [9] considers the direct etiology of hypertension unknown; and he gives a vivid description of a type of individual in whom hypertension is likely to occur. Christian [10] considers essential hyptertension as having probably a variety of causes: remote infections, endocrine disturbance, disturbances due to the menopause, ovarian activity, thyroid activity, arteriosclerosis, nephritis, nervous disturbance, overeating and poisons.

Surveying the present day knowledge of this disease, which is based on a large number of accurate observations, I believe that we are nearer a satisfactory explanation of the development of hypertension than we seem to be at first glance. The fact that our views of today are not contradictory to those of fifteen to twenty years ago is in reality not so much an evidence of failure of a better understanding as it is an evidence of the accuracy of observation by the workers of those days. The work done since then becomes in a large measure corroborative evidence.

The observations to be detailed here deal with a combination of three factors which I believe play an important part in the etiology of essential vascular hypertension. These factors are hereditary tendency, the infections, and disturbances in the endocrine functions, as we know them today.

While I would not minimize the importance of other factors in the production of hypertension, this discussion will be limited to that group in which the triad mentioned is predominant.

HEREDITY

The factor of heredity is perhaps the predominant one in the hypertension group. In going over a list of forty patients in this group whom I have had under observation for a long time and whose records are complete in this respect, there were two instances only in which a positive history of cardiovascular disease was lacking in the immediate family. By immediate family, I mean brother, sister, parent and offspring.

In about half of these forty cases, my observations were made on brothers and sisters, and in the others on parent and offspring.

In some instances, the observations were made on three generations, all showing distinct cardiovascular inferiority. We may well look on heredity as the dominant predisposing factor.

ACUTE INFECTIONS

In surveying the preceding history of all cases in this group, the infections both acute and chronic occupy a prominent place. The parts played by infection and by hereditary influence are not easily differentiated. One frequently observes a greater susceptibility to infection in children of parents who suffered from chronic infections. Such children develop the throat infections and show a lowered vasomotor tone. When one is careful as to the anamnesis of his patients, he will be much impressed by the fact that, while some individuals have suffered nearly all of the acute infections, there are many who have escaped most of them, this being due not to mere chance but to an inherited immunity.

Table 1 corroborates the findings of many observers as to the occurrence of previous infections. It is based on the history of sixty-eight cases of vascular hypertension. The etiologic importance of infections in that class of cases in which hypertension occurs has been pointed out for many years by Allbutt,[11] Ophüls,[12] Jores,[13] Thayer,[14] Adami,[15], Klotz [16] and others. While those convalescent from acute infectious diseases seem to recover without visible after-effects, their subsequent history indicates that these diseases are not without remote sequelae. In a previous communication,[17] on the etiology of cardiovascular affections, a definite relationship was established between cardiac involvement and a preexisting typhoid fever, tonsillitis, diphtheria, pneumonia and rheumatism. It is perfectly obvious that a similar relationship can exist here.

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[1] Moschcowitz, Eli: Am. J. M. Sc. **158**: 668 (Nov.) 1919; Hypertension with Minimal Renal Lesions, J. A. M. A. **77**: 1075 (Oct. 1) 1921.

[2] Ringer, A. I.: Am. J. M. Sc. **161**: 798 (June) 1921.

[3] Hopkins, A. H.: Am. J. M. Sc. **157**: 826 (June) 1919.

[4] Riesman, David: Hypertension in Women, J. A. M. A. **73**: 330 (Aug. 2) 1919.

[5] Piersol, G. M.: M. Clin. N. A. **5**: 705 (Nov.) 1921.

[6] Mosenthal, H. O.: M. Clin. N. A. **5**: 1139-1160 (Jan.) 1922.

[7] Allbutt, Clifford: Med. & Chir. Soc. **86**: 1903; Brit. M. J., Oct. 20, 1906; Diseases of the Arteries Including Ongina Pectoris, London, 1915.

[8] Pawinski, J.: Rev. de méd. **25**: 125-219, 1905.

[9] Moschcowitz, Eli: Footnote 1, first reference.

[10] Christian, H. A., and Mackenzie, James: The Oxford Medicine, 1920.

TABLE 1.—HISTORY IN SIXTY-EIGHT CASES OF VASCULAR HYPERTENSION

	No. of Cases
Typhoid	28
Tonsillitis (recurring)	16
Scarlet fever	9
Diphtheria	8
Rheumatic fever	5
Malaria	5
Syphilis	3

CHRONIC INFECTIONS

The long-continued infections surmounted by acute exacerbations are without a doubt also responsible for remote effects. In discussing the effects of chronic infection, I shall bring evidences to bear showing a continuity in the disease process, which begins early and continues through life, going through the period of childhood, adolescence and middle life, and altering the individual both physically and mentally.

TABLE 2.—SYMPTOMS IN TONSIL-THYROID SYNDROME (ARRANGED ACCORDING TO FREQUENCY)

Chronic tonsillitis (hypertropic)
Tonsillar node
Thyroid gland enlarged (colloid or adenomatous goiter)
Leukopenia, lymphocytosis
Complexion pasty and sallow
Low basal metabolism
Skin dry, hair dry
Breast, excessive development
Menstrual function disturbed
Subcutaneous tissue thickened
Obesity
Tendency to sterility
Hands moist, cold, cyanotic
Hypersensitive to cold
Blood pressure low, pulse slow
Tongue thickened and tooth marked
Speech thick and voice coarse
Puffiness of eyes, eyelids swollen in morning
Alopecia, nails brittle
Neuralgias

ENDOCRINE DISTURBANCES

On account of involvement of the endocrines, the clinical picture manifests itself differently in the sexes. I shall, therefore, discuss them under the headings of female and male.

In the Female.—Up to Middle Life: In a previous communication,[18], there were reported a series of twenty-five cases of chronic tonsillar and throat infections, with large thyroid glands and typical manifestations of dysthyroidism. The patients ranged from 15 to 35 years of age. All had large diseased tonsils and infected cervical glands; nearly all had large thyroids (colloid or adenomatous goiter), obesity, menstrual disorders, subnormal basal metabolism and such physical and mental disturbances as characterize definitely the state of hypothyroidism. They presented a picture of chronic infection associated with endocrine disturbances.

How this is manifested clinically is illustrated by the following case:

> Mrs. A., who had a fatal case of hyperthyroidism, and whose sister had exophthalmic goiter, had two daughters: one, now 20, had diseased tonsils removed at the age of 3, and at the present time was in normal good health; the other, aged 16, had large tonsils, enlarged cervical lymphatic glands, a very large colloid or adenomatous goiter, low basal metabolism, leukopenia and low blood pressure and pulse.

Whether chronic infection impoverishes the organism of iodin, and this leads to colloid or adenomatous goiter, cannot be answered to the satisfaction of all at this time. Marine believes that this is precisely what does occur. That chronic infection and dysthyroidism is capable of and does set up profound constitutional disturbances is to be seen in the life history of these individuals. Of twenty-nine patients in the tonsil-thyroid series, twenty-two were married. Of these, eight were sterile, ten had but one child, four had two, and none had more than two children.

TABLE 3.—REPRODUCTION IN TONSIL-THYROID CASES

Total number of patients	29
Married	22
No children	8
1 child	10
2 children	4
3 children or more	0
7 unmarried past the age of 30	

After Middle Life: On reviewing the history of a series of thirty-five cases of essential hypertension in women after middle life, I was much impressed with the reproductive history. After all, the ability to reproduce is a strong evidence of the normality of the female. In these thirty-five cases, as is shown in Table 4, reproduction is at a very low level, indicating a constitutional disturbance.

These thirty-five cases of vascular hypertension presented distinct evidences of what we recognize clinically as dysthyroidism. About half of them presented evidences of hypothyroidism; while the other half showed some indications of hyperthyroidism. The observations in this class of cases have not extended over a sufficient length of time to justify one in saying that they go through both stages of thyroid activity. I have at present quite a number of female patients who received prolonged courses of medical treatment for goiter, ten or twenty years ago, and who now suffer from vascular hypertension. Plummer estimates that it is seventeen and one-half years from the time of the colloid goiter to the hyperthyroidism.

TABLE 4.—REPRODUCTION IN THIRTY-FIVE WOMEN WITH VASCULAR HYPERTENSION

Married	30
No children	12
Premature births	2*
One child	5
Two children	6
Three children	3
More than three	2
	30

* Nonsyphilitic.

In comparing the two groups described above, the married women of the tonsil-thyroid group and the married ones in the essential vascular hypertension group, we find points of striking similarity. In the first group, there is a history of chronic infection followed by evidences of dysthyroidism and disturbances of other endocrine functions sufficient to cause a reduction in fertility. In the second, we find the history of a severe acute infectious disease or a chronic infection. In this group, evidences of dysthyroidism are also present; half of them have symptoms suggesting hypothyroidism, while the other half shows evidences of hyperthyroidism. Both groups have in common the history of a preceding infection, endocrine disturbances and a tendency to sterility. In the younger group, it is not manifest; in the patients beyond middle life, essential vascular hypertension is present. Perhaps when more is known about the involuntary nervous system, we may be better able to classify some of the bizarre endocrine disturbances.

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[11] Allbutt, Clifford: Footnote 7, first reference.

[12] Ophüls, William: Subacute and Chronic Nephritis as Found in One Thousand Unselected Necropsies, Arch. Int. Med. **9**: 156 (Feb.) 1912; Etiology and Development of Nephritis, J. A. M. A. **69**: 1223 (Oct. 13) 1917.

[13] Jores, L.: Deutsch. Arch. f. klin. Med. **94**: 1, 1908.

[14] Thayer, W. S.: Southern M. J. **10**: 367 (May) 1917.

[15] Adami: Brit. M. J., Dec. 22, 1906.

[16] Klotz: Am. J. Med., December, 1919.

[17] Barach, J. H.: Etiology of Cardiovascular Affections, J. A. M. A. **76**: 1211 (April 30) 1921.

[18] Barach, J. H.: Tonsil-Thyroid Syndrome in the Female, New York M. J. **114**: 648 (Dec. 7) 1921.

TABLE 5.—NEUROCIRCULATORY ASTHENIA (EFFORT SYNDROME)

- Delicacy in childhood
- Weakness
- Fatigue
- Early exhaustion
- Precordial pain
- Palpitation
- Pulse acceleration
- Extrasystole
- Fainting, giddiness
- Headache
- Tremor of hands and legs
- Sweating of hands, axilla, feet
- Cyanosis of extremities
- Blood pressure elevation, temporary
- Preference for light work

In the Male.—Whereas, in the female, chronic tonsillar and upper respiratory infections as described produce a picture of dysthyroidism, in the male, as indicated in a previous communication,[18] the result is entirely different.

Chronic tonsillar and upper respiratory infection in the male is found associated with the clinical picture of neurocirculatory asthenia, or effort syndrome. I was much impressed by this fact when I found a brother and sister of nearly the same age having diseased tonsils. In that case, the girl will show dysthyroidism of the type described, while the boy will present a typical case of neurocirculatory asthenia. This divergence in the pathologic physiology of a disease is of great interest. Here, it accounts for the fact that in goiter clinics there are ten times as many female as male patients.

Neurocirculatory asthenia, or effort syndrome, is essentially a disease of civillian life. Its discovery by the army officer was for one purpose only; to insure such an individual against exposure to physical or nervous strain. The individual with this syndrome is a constitutional inferior. As seen in these cases, neurocirculatory asthenia occurs in a person who is the product of a bad heredity plus severe or oft-repeated infection. This type of patient finds his way to the cardiac clinics and, in their present nomenclature, his case is classified as "potential cardiovascular," which is entirely correct. The syndrome in these male patients is unmistakable. When they are not exposed to undue strain, the symptoms complained of are mainly subjective, and of varying degrees of severity. They show an inability to perform arduous labor, and they are breathless after sustained physical effort. The most frequent symptoms are precordial pain, dizziness, profuse perspiration, cyanosis, and sweating of the extremities, and there are other evidences of an inefficient circulatory system.

For a time, this class of patients was considered as suffering from hyperthyroidism; but this seems to have been disproved. Nevertheless, they do show evidences of some endocrine or autonomic disturbance.

That infection plays a prominent antecedent rôle in neurocirculatory asthenia is believed by many observers. Swan,[19] in a series of ninety cases, found a demonstrable infection present in 87 per cent.

Thomas Lewis,[20] whose studies of effort syndrome (neurocirculatory asthenia) in recent years were the first and also the most complete, places infection of one kind or another as the dominant factor. Of 558 patients, about 80 per cent. had suffered from severe infection.

In youth and early adult life, vascular tension in persons with neurocirculatory asthenia is about normal. There is a constant tendency, however, for the blood pressure to go high under physical and nervous stimuli. This was pointed out by Sir James McKenzie and R. M. Wilson.

Patients giving a history of neurocirculatory asthenia when young and of hypertension in middle life constitute, in my experience, the larger proportion of the essential vascular hypertension group. This group of cases serves as a connecting link between the infections of early life, which are followed by neurocirculatory asthenia, and the hypertension of later life, which is preceded by neurocirculatory asthenia.

Neurocirculatory asthenia occurs most typically in the first three decades. During middle life, when the patient's nutrition and general well-being is at its height, the neurocirculatory asthenia as a whole may be masked.

During this phase, we find the man who, although very delicate in youth, has put on considerable weight, has to all appearances improved in health, and has taken a great hold on his occupation working at it with vigor and force. The work of his choice is seldom physical. It is mental energy that he expends so lavishly. He avoids effort and exertion, not because of a perverted mental attitude but because of a physical incapacity for that effort. This is the type of person whom we find with essential vascular hypertension after middle life. As I see him, he is the type whom Moschcowitz[9] describes as the candidate for hypertension:

> The patients are overweight, sometimes obese. Physically, these people are tense and irritable. Their interest outside their business is desultory. In their leisure hours, they play cards, sit in the theater, read the newspaper, or rehearse the business activities of the day. It is the picture of the tired business man. He eats well, drinks alcohol and takes no exercise. He is successful, he may be said to die of success. He has an incapacity for play, he is physically old.

TABLE 6.—ARTERIAL HYPERTENSION (100 CASES)

	Females	Males
Essential hypertension	33	25
Nephritis with hypertension	14	16
Cardiovascular lesion with hypertension	3	9
	50	50

A careful study of the life history of this individual reveals the fact that he suffered from neurocirculatory asthenia in his youth. Because of his effort syndrome, he finds escape from the physical hardships of life by using his brain. He submerges himself in work. The particular type described by Moschcowitz is the product of a metropolis. The same person, with local coloring, is seen in the provincial atmospheres and in the country.

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[19] Swan, J. M.: Analysis of Ninety Cases of Functional Disease in Soldiers, Arch. Int. Med. **28**: 586 (Nov.) 1921.

[20] Lewis, Thomas: The Soldier's Heart and the Effort Syndrome, New York, Paul B. Hoeber, 1919, p. 33.

Occasionally, we find him taking exercise for his health. Once he discovers the stimulation and exhilaration which comes with exercise, and overcomes to a certain extent his innate dislike for it, he frequently becomes a "nut" on his hobby. In a little while, however, he will have applied so much of his mental intensity to the sport that he defeats the very object of it, thus reestablishing the former vicious circle, and hurrying on the vascular hypertension, which is awaiting him.

Such is the road leading to essential vascular hypertension in the male: heredity, severe acute or chronic infection, and disturbance in the endocrines or autonomic vascular control producing that circulatory disturbance known as neurocirculatory asthenia.

DIFFERENTIAL DIAGNOSIS

The relative frequency of this type of hypertension is well illustrated in Table 6, which is based on the last 100 unselected cases in my private practice.

The predominance of essential hypertension among women and of the vascular type in men is noteworthy. Of the thirty-three females, all but three belong distinctly to the dysthyroid group. Among the males, of twenty-five cases of essential hypertension, all but six belonged definitely to the neurocirculatory asthenia type.

The grouping of these patients cannot be accurately made without a complete survey of the life history, as well as a careful consideration of all the clinical evidences in the case. Of the fifty-eight cases of essential vascular hypertension, forty-nine conformed completely to the course of the disease as described.

In the segregation of nephritis and essential hypertension it is of great importance that it be carefully done, with clinical acumen and judgment. The mere presence of albuminuria is no criterion; nor is cylindruria or nocturnal polyuria. Many times I have seen these three disappear after hypertension was reduced and a normal circulation reestablished. Fixation of specific gravity, of urea and salt elimination, permanent nocturnal polyuria, low phenolsulphonepthalein elimination and such clinical evidences as edema are decisive. Biochemical examination of the blood, one or more times in almost every one of these cases, was the least helpful toward a reasonably early diagnosis of nephritis. Aside from the blood pressure readings, the diagnosis of nephritis depends on positive findings; while the diagnosis of essential vascular hypertension depends more on the absence of those findings.

COURSE AND SEQUELAE OF ESSENTIAL HYPERTENSION

Essential vascular hypertension is not a spontaneous occurrence. It may be discovered unexpectedly, but it does not come on suddenly. Vascular hypertension occurs for brief periods as a physiologic response, for many years before it becomes permanently established. Once arterial hypertension is permanently established, it continues for a variable time. Prognosis in essential vascular hypertension is a hazardous undertaking on the part of the physician. The life of the individual with vascular hypertension does not depend on the degree of hypertension: it will be determined by the organ inferiority of that individual. This organ inferiority manifests itself by a decompensation or "break" in the heart, in the kidneys, or in the brain. Which organ will suffer decompensation first is determined by an inherited tendency and by the remote effects of previous infections[17] and injury. A person who has suffered a severe course of typhoid fever or meningitis with severe delirium, or has undergone a terrific mental strain, will show cerebral decompensation. A person who has had pneumonia, rheumatic fever or diphtheria, during which the myocardium was injured, will have a cardiac decompensation. The one who has had severe scarlet fever, repeated tonsillar infections or exposure with renal complications will, when the time comes, show renal failure, with all of its manifestations.

SUMMARY

1. The conception of some of the early writers as to the etiology of essential vascular hypertension is corroborated by the evidences of today.

2. There are three prominent factors in the etiology of most of the cases of essential vascular hypertension: heredity, infection and endocrine disturbance.

3. These factors affect the male and the female differently. In the male, cases of essential hypertension give a history of an inherited tendency, systemic infection, neurocirculatory asthenia and vascular hypertension after middle life. In the female, there is a history of heredity, infection and endocrine disturbances involving the thyroid and generative system; and there is a tendency to dysthyroidism, sterility and vascular hypertension at the menopause and thereafter.

4. The course and sequelae of essential vascular hypertension will be determined by the organ inferiority of the individual. The organ inferiority is determined by heredity, previous infection and strain.

Jenkins Building.

A BIOLOGIC MECHANISM OF HUMAN ISOHEMAGGLUTINATION

THE CONSTITUTION OF THE BLOOD GROUPS AND THE INHERITANCE OF THE AGGLUTINOGENS

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In his two communications on the medicolegal application of the blood groups, Buchanan[1] casts serious doubt on the present structure of knowledge concerning the mechanism of human isohemagglutination and the transmission in heredity of this function of the blood, and questions hypotheses that have long stood unchallenged. We are therefore called on to reexamine these hypotheses and to test their validity against observable phenomena.

CONSTITUTION OF THE BLOOD GROUPS

It is generally admitted, certainly by all the parties to the present controversy, that human individuals, classified with reference to the agglutinating power of their blood serum toward human red blood cells and the agglutinability of their red blood cells by human serums, fall into four groups. The following classification and description of the groups, adopted by the joint committee reporting in The Journal,[2] will be followed in the present discussion:

> Group I. The serum agglutinates the cells of Groups II, III and IV. The cells are agglutinated by no serum.
>
> Group II. The serum agglutinates the cells of Groups III and IV. The cells are agglutinated by the serums of Groups I and III.

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[1] Buchanan, J. A.: Medicolegal Application of the Blood Group, J. A. M. A. **78**: 89 (Jan. 14) 1922; **79**: 180 (July 15) 1922.

[2] Isohemagglutination, J. A. M. A. **76**: 130 (Jan. 8) 1921.

Group III. The serum agglutinates the cells of Groups II and IV. The cells are agglutinated by the serums of Groups I and II.

Group IV. The serum agglutinates no cells. The cells are agglutinated by the serums of Groups I, II and III.

In recorded blood examinations of more than 20,000 cases, no exceptions to this grouping have appeared. The only source of error is the existence of Group III bloods in which the agglutinating power of the serum is so weak that unusual care must be used to demonstrate it.

In 1920, Koeckert [3] published these observations:

(*a*) If the serum of Group I is treated with the cells of Group II, the mixture centrifuged, the supernatant fluid drawn off and the process repeated, a point will be reached at which the serum will be found to have lost the property of agglutinating Group II cells. This serum will still agglutinate the cells of Group III and of Group IV. If now this serum is treated with the cells of Group III, a point will be reached at which the serum will be found to have lost the power of agglutinating not only Group II and Group III cells, but also Group IV cells.

(*b*) All the agglutinating power of Group I serum may be removed by treating it, as in *a*, with first Group III and then Group II cells; by treating it with a mixture of Group II and Group III cells, or by treating it with Group IV cells.

(*c*) All the agglutinating power of Group II serum may be removed by treating it, as in *a*, with Group III or with Group IV cells. All the agglutinating power of Group III serum may be removed by treating it with Group II or with Group IV cells.

(*d*) If the cells of Group IV are treated with the serum of Group II, the resulting mixture centrifuged, the cells separated by shaking and resuspended in salt solution and the process repeated, a point will be reached at which the cells will be found to have lost the power of being agglutinated by Group II serum (i. e., the power of removing the agglutinating power from Group II serum). These cells will still be agglutinated by Group III and by Group I serum. If now these cells are treated with Group III serum, a point will be reached at which the cells will be found to have lost the power of being agglutinated not only by Group II and Group III serum, but also by Group I serum.

(*e*) All the power of Group IV cells to be agglutinated by human serums may be removed by treating them, as in *d*, with first Group III and then Group II serum; by treating them with a mixture of Group II and Group III serums, or by treating them with Group I serum.

(*f*) All the power of Group II cells to be agglutinated by human serums may be removed by treating them, as in *d*, with Group III or with Group I serum. All the power of Group III cells to be agglutinated by human serums may be removed by treating them with Group II or with Group I serum.

These findings have since been confirmed in detail by Hooker and Anderson.[4] But one need not go to the literature for confirmation. The experiments here described have formed the material of countless lecture demonstrations and laboratory exercises in courses on serology and immunology in our medical schools. They are easy to perform, and the necessary materials are not far to seek. I have myself repeated all of these experiments, and have obtained identical results.

We thus observe a power in human red blood cells to be agglutinated by appropriate human serums, and a power in human serums to agglutinate appropriate human red blood cells. This power we observe to be specific (only appropriate cells and appropriate serums reacting), and to be quantitatively limited. To this power of the serum we give the name of "agglutinin," to this power of the cells the name of "agglutinogen." Whether agglutinin and agglutinogen are actual demonstrable substances is, for the purposes of the present discussion, beside the point.

To explain the mechanism of human isohemagglutination, we must assume the existence either of two agglutinins and two agglutinogens, or of three agglutinins and three agglutinogens. If we assume three of each, there are three possible ways in which they may be distributed among the several groups; if we assume two of each, there is only one possible distribution.

TABLE 1.—DISTRIBUTION OF AGGLUTINOGENS AND AGGLUTININS*

Hypothesis 1			Hypothesis 2		
Group	Cells	Serum	Group	Cells	Serum
I	—	abc	I	—	a
II	A	bc	II	AC	b
III	B	ac	III	AB	c
IV	C	—	IV	ABC	—

Hypothesis 3			Hypothesis 4		
Group	Cells	Serum	Group	Cells	Serum
I	—	abc	I	—	ab
II	A	b	II	A	b
III	B	a	III	B	a
IV	ABC	—	IV	AB	—

* Any combination of cells and serum wherein the same symbols, capital and small, come together, will result in agglutination. Example: In Hypothesis 1, Group I serum is represented by the symbols abc, Group IV cells by the symbol C. Group I serum agglutinates Group IV cells; the combination Cc occurs. Hypotheses 1 and 2 were advanced by Moss (Bull. Johns Hopkins Hosp. **21**: 63 [March] 1910).

These are charted in Table 1. The specific agglutinogens are here represented by capital, the specific agglutinins by small letters.[5] It will be apparent that these diagrams represent all the possibilities; any further elaboration would result only in a useless reduplication of symbols.

In examining these diagrams (Table 1), it will be seen that if Hypothesis 1 were true, the treatment of Group I serum with Group II and Group III cells, as in *a* and *b* of Koeckert's experiments, would leave the resulting serum still capable of agglutinating Group IV cells. This we know is not the case. Similarly, Hypothesis 1 fails to agree with the facts presented in *c*; Hypothesis 2 fails to agree with the facts presented in *d*, *e* and *f*, and Hypothesis 3 fails to agree with the facts presented in *a*, *b*, *d* and *e*. But Hypothesis 4 is in complete agreement with all the facts presented by Koeckert. Since of all the possibilities only one remains, and since this one satisfies all the facts, we can, I think, write Q. E. D. under the proposition that there are in human bloods two agglutinins and two agglutinogens, whereof Group I blood contains both agglutinins, Group IV blood both agglutinogens, and Group II and Group III blood one of each.

Buchanan [6] refuses to accept the hypothesis advocated above. Until he offers some alternative hypothesis consonant with all the facts, this refusal can have but little weight.

INHERITANCE OF THE AGGLUTINOGENS

The studies of von Dungren and Hirschfeld,[7] Ottenberg,[8] Learmouth,[9] Keynes [10] and Tebbutt and McConnel[11] on the heredity of the blood groups lead them to the conclusion that the specific agglutinogens never appear in the offspring unless they are present in the blood of one of the parents. They further find that agglutinins may appear in the offspring that are absent from the blood of both parents. Moreover, inspection of the classification and description of the blood groups appearing above will reveal that the absence of either agglutinogen always coincides with the presence of the corresponding agglutinin. Thus, what is really inherited is the presence or absence of the several agglutinogens; this presence is "dominant" and this absence "recessive," as defined by Mendel.[12] We have here two sets of unit characters; and man, in relation to his iso-agglutinogens and iso-agglutinins, is a dihybrid.

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[3] Koeckert, H. L.: J. Immunol. **5**: 529 (Nov.) 1920.

[4] Hooker, S. B., and Anderson, L.: J. Immunol. **6**: 419 (Nov.) 1921.

[5] In the interests of uniformity, the A B a b terminology used by von Dungern and Hirschfeld and by Ottenberg and others is here followed.

[6] Buchanan, J. A.: (Footnote 1, first reference).

[7] Von Dungern and Hirschfeld, L.: Ztschr. f. Immunitätsforsch. u. exper. Therap., Orig. **4**: 284, 1910.

[8] Ottenberg, Rueben: Medicolegal Application of Human Blood Grouping, J. A. M. A. **78**: 873 (March 25) 1922.

[9] Learmouth, J. R.: J. Genetics **10**: 141 (Aug.) 1920.

[10] Keynes, G.: Blood Transfusion, New York, Oxford University Press, 1922.

It is not easy, unless one cultivates a special facility for such work, to recall all the elements of a mendelian "pattern" of heredity, particularly of the heredity of two sets of unit characters. The accompanying two tables, Table 2, a diagram made on the checkerboard plan of Punnett,[13] and Table 3, a table of the phenotypes, or constitution of the somatoplasm, and genotypes, or constitution of the germ plasm, as defined by Johannsen[14] should be found helpful for keeping in mind what will happen if the iso-agglutinogens and iso-agglutinins of human blood follow a dihybrid mendelian formula.

A review of the tables published by von Dungern and Hirschfeld[7] and of those published by Ottenberg[8] shows the occurrence of all the genotypes predicated,[15] in the numerical proportion expected. These calculations of the expected occurrence of the several groups the German investigators published and relied on to form an important part of their proof. Ottenberg, to whose results a similar test can be applied, has not published these mathematical studies, apparently judging that the case is sufficiently strong without them, and that for the reader untrained in biometry such evidence would have little pertinence.

TABLE 2.—POSSIBLE COMBINATIONS OF THE UNIT CHARACTERS A, B (AGGLUTINOGENS) AND a, b (AGGLUTININS)*

		Sperm Gametes			
		AB	Ab	aB	ab
Egg Gametes	AB	AB AB (IV)	Ab AB (IV)	aB AB (IV)	ab AB (IV)
	Ab	AB Ab (IV)	Ab Ab (II)	aB Ab (IV)	ab Ab (II)
	aB	AB aB (IV)	Ab aB (IV)	aB aB (III)	ab aB (III)
	ab	AB ab (IV)	Ab ab (II)	aB ab (III)	ab ab (I)

* The blood group of the individual resulting from each type of mating is given in parentheses.

It is on the foregoing facts that the hypothesis of the mendelian heredity of the iso-agglutinogens according to a dihybrid formula rests. Buchanan presents no facts out of agreement with this hypothesis, save in the case of the as yet unreported Tink family.[16] In his first paper, Buchanan speaks of one group as being "dominant" to another. Such a position could arise only from a complete failure to grasp the real significance of the work that has preceded his own entry into the field.

TABLE 3.—CONSTITUTION OF THE PHENOTYPES AND GENOTYPES *

	Phenotype; the Constitution of the Subject's Somatoplasm, as Determined by the Reaction of His Blood	Genotype; the Constitution of the Subject's Germ Plasm, as Determined by the Reaction of the Blood of His Offspring
Group I........	ab	ab ab
Group II.......	Ab	Ab Ab Ab (a)b
Group III......	aB	aB aB aB a(b)
Group IV......	AB	AB AB AB (a)B AB A(b) A(b) (a)B

* Parentheses are used to distinguish those characters in the heterozygotes which are present in the germ plasm but are not to be found on examination of the blood.

SUMMARY

1. The hypothesis that there are two agglutinogens and two agglutinins responsible for the serologic behavior of the four groups of human blood is in complete agreement with the results of the absorption of agglutinin from the serum of the several groups, and of the saturation of the agglutinogen of the cells of the several groups, as demonstrated by Koeckert.

2. The hypothesis that the presence of the agglutinogens is always dominant and their absence always recessive rests on observations on 885 individuals constituting 191 families.

3. The hypothesis that the inheritance of the human iso-agglutinogens follows the mendelian formula for a dihybrid rests on:

(*a*) The existence of two different unit characters.

(*b*) The occurrence in nature of all the genotypes to be expected from a dihybrid mating.

(*c*) The occurrence of the phenotypes (blood groups) in the numerical proportion expected for the matings of the several genotypes.

4. The position of Buchanan arises from his failure to interpret properly the facts in relation to the mechanism of human isohemagglutination and the inheritance of the iso-agglutinogens.

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[11] Tebbutt, A. H., and McConnel, S.: M. J. Australia **1**: 201 (Feb. 25) 1922.

[12] Mendel, G. J.: Verhandl. Naturforsch. Verein in Brünn, **42**, 1865.

[13] Punnett, R. C.: Mendelism, New York, Macmillan Company, 1911.

[14] Johannsen, W.: Elemente der exacten Erblichkeitslehre, Jena, Fischer, 1909.

[15] If two parents of the phenotype Ab (Group II) have offspring of the phenotype ab (Group I), the genotype of the parents must be Ab(a)b. Thus, from a study of two generations of a dihybrid mating, one can determine the genotype of the parents, if it is known which characters are dominant, and which recessive. Buchanan dissents from this view.

[16] Buchanan, J. A.: (Footnote 1, second reference).

Early Medicine in Peru.—The first Peruvian protophysician was Dr. Hernando de Cepeda (1537), who resided at Ciudad de los Reyes. The Royal Office of the Protophysician was next established at Lima in 1569, its first president being Dr. A. Sánchez de Renedo. The first two chairs of medicine in the University of San Marcos in the early part of the sixteenth century were created through the efforts of Count de Chinchón, the viceroy, whose wife introduced quinin in Europe. Count de la Monclova created a chair of galenic medicine in 1691, and a chair of anatomy was founded in 1711. The protophysicians' office granted all licenses to practice. Physicians were divided into two classes, namely, classice surgeons, and practical surgeons. Some authors claim the existence of another group, bleeding surgeons.

SEASONAL HAY-FEVER

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AND
ANNETTE BLACK
DALLAS, TEXAS

The amount of work which has been done on the subject of hay-fever, and the voluminous literature which has accumulated so rapidly in the last few years, have done much to place the care of this disease on a satisfactory basis and to permit hay-fever to be classed, at last, as a curable disease. Those who have had most to do with this work are the first to admit that there is much yet to be learned and that the methods employed are not yet entirely perfected. Since no reports on this work have appeared from this locality, and because our findings do not in every particular parallel those reported by some observers, we are venturing to present the observations of the last two years, covering a series of ninety patients.

These patients have all been resident in northern Texas and, with one exception, within a radius of 100 miles of Dallas. Eighteen, or 20 per cent., of them developed the disease in other states, but all have had one or more attacks in this vicinity, and all have been under observation during their hay-fever season.

The percentage of the local population affected is not definitely known, but from our observation we believe that the number is certainly not less than 1 per cent.—the figure obtained by the American Hay-Fever Prevention Association. The summer temperature ranges high, warm weather persisting well into September. Summer humidity is variable, but rarely high. The winters are mild, freezing temperatures being infrequent. "Killing frosts" rarely occur until November. The growth and pollination of plants, therefore, extend over the greater part of the year, and, save from late October until early February, some pollen may always be found.[1] In spite of this fact, there have been found in this series only six vernal cases, and three combined vernal and autumnal; the other eighty-one (90 per cent.) have been of the typical autumnal type. This is far in excess of the percentage reported by Scheppegrell.[2] In 1,000 cases, he found 38 per cent. of the autumnal type and 42 per cent. of the combined vernal and autumnal. We are at a loss to account for this difference. That our figures actually represent, approximately, the relative frequence of vernal and autumnal cases in this locality, we do believe, for observation over a period of two years has shown surprisingly few cases during the spring months, a striking contrast to the large number seen in the fall.

The sexes have been fairly equally represented, there being 44 per cent. male and 56 per cent. female.

The age at onset has varied from infancy to 45 years. Grouped by decades, the percentage found in each decade is: from 1 to 10 years, 10; 10 to 20, 20; 20 to 30, 45; 30 to 40, 20, and 40 to 50, 5.

The duration of the disease has varied from one to twenty-eight years. No tendency to spontaneous recovery can be seen in the fact that 40 per cent. of this series had had the disease fifteen or more years.

Thirty patients (33⅓ per cent.) stated that father or mother, sister or brother had either hay-fever or asthma. In seventeen instances, the familial disease was hay-fever; in the remaining thirteen, asthma.

ETIOLOGY AND SYMPTOMS

As predisposing causes, three patients date the onset of their hay-fever to a summer in which they did much swimming, the first diagnosis being, in each instance, a nasal infection. Two relate their first attack directly to the ingestion of honey. In no others could any causal relationship be established. One patient states that he has a marked exacerbation of symptoms on eating watermelon during the hay-fever season. It can be eaten at other times without ill effect. One vernal case presents a similar condition, save that the offending material is, in this instance, wheat. This patient gave, in addition to the positive pollen reaction, a slight reaction to wheat proteose. Pollen injections given as a preseasonal prophylactic did not secure relief from symptoms until wheat was removed from the diet. The symptoms then immediately subsided. This patient takes wheat without restriction and without ill effect at all other times. This phenomenon has been mentioned by Walker.[3]

Thirty two per cent. of this series of patients stated that at some time during the season they had asthmatic breathing. Of these, 18 per cent. had only nocturnal dyspnea, while 14 per cent. claimed that difficult breathing occurred both day and night during at least part of the season. In two instances, the dyspnea was so severe as to justify the diagnosis of asthma. The pollen relationship had been entirely overlooked.

Of the nine patients showing vernal symptoms, five gave reactions to corn pollen, one to elm (*Ulmus americana*), one to white ash (*Fraximus americana*) and two to cottonwood (*Populus angustifolia*). All those reacting to corn pollen gave histories of intimate exposure and of relief from symptoms by removal a very short distance from the flowering corn. A child who gave a typical cutaneous reaction to ash pollen secured relief in the subsequent season after the cutting down of a large ash tree in the yard. The symptoms in the four cases due to tree pollens fell within the period limited by the latter part of February and the early part of April. Three of the patients who were sensitive to corn reacted also to ragweed, and presented pictures of combined vernal and autumnal hay fever. Although this series is entirely too small to justify any conclusion, the entire absence of any grass pollen cases, save those due to corn, is interesting. The figures are also in decided contrast to the figures reported from other localities. We have seen no cases due to winter cedar, such as have been reported about Austin.

The autumnal cases, with striking uniformity, begin about August 20, and continue until early October. Three patients asserted that they had no symptoms until September 1. They gave only slight cutaneous reactions and were possibly only slightly sensitive, and reacted to atmospheric pollen only in relatively large amounts. Because of climatic conditions which caused late pollination in 1921, all patients were free of symptoms until September 1, following which they pursued their usual course. Three patients stated that their symptoms developed before August 15. These gave a history of exposure to dust or other respiratory irritant, which apparently produced a rhinitis, which, in turn, ushered in the hay fever. The symptoms from the two conditions were not differentiated. Eight patients stated that they had, following their hay-fever season, a continued sneezing, with rhinorrhea, which persisted a variable length of time. In one instance, the first attack experienced had been preceded by much swimming and diving and, instead of clearing up early in October, it persisted until the following spring, with practically no interruption. The diagnosis of hay-fever was not made until subsequent seasons, when typical seasonal onset and duration made the diagnosis apparent. It is evident that these patients had an infection of the upper respiratory tract complicating their hay-fever. Fifteen patients stated that they developed sneezing, lacrimation and rhinorrhea at any time of the year on exposure to dust or other respiratory irritant. This exaggerated sensitiveness of the nasal mucosa appears to be a result of repeated attacks of hay-fever, and requires, often, careful differentiation from true, perennial hay-fever.

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[1] The flora of this locality is described by Scheppegrell: Hay Fever and Asthma, Philadelphia, Lea & Febiger, 1922.

[2] Scheppegrell (Footnote 1), p. 126.

[3] Walker, I. C.: Frequent Causes and Treatment of Seasonal Hay-Fever, Arch. Int. Med. 28: 71 (July) 1921.

It has been an interesting observation that of all the ninety patients in this series, only twelve had escaped intranasal operative measures of one kind or another; and one patient had been operated on six different times. Many of these operations were undoubtedly indicated for the relief of obstruction or to promote drainage, but none was followed by any improvement in the hay-fever.

Two patients gave histories of bronchial asthma at other than the hay-fever season. In one of these, all attacks of asthma had ceased on the development of the pollen sensitization, and during the last five years—the duration of the pollen sensitization—there have been no asthmatic attacks at any time, and no cutaneous reaction other than that to the pollen can be elicited. In the other patient, the asthma and hay-fever were apparently independent, the one being due to casein, the other to ragweed pollen.

One patient had also a chronic eczema, and one an urticaria; and one stated that wheat flour precipitated an attack when it reached her nasal mucosa, as it did when she was engaged in making bread. All three of these gave negative cutaneous reactions, except to ragweed pollen.

It is probably worth mentioning that in two patients, not included in this series, who suffered from typical bronchial asthma, their attacks were ushered in by a brief period of sneezing, lacrimation and rhinorrhea, which disappeared at the onset of the dyspnea. They did not react to any pollens.

The eighty-one autumnal cases were all positive to ragweed pollen. Their onset and duration corresponded to the flowering of ragweed in this locality, and treatment with ragweed pollen has given the only satisfactory results obtained. Giant ragweed grows luxuriantly here. It reaches a height of from 8 to 10 feet, produces a great amount of pollen, and, because of general indifference to the growth of weeds, is found generally distributed.

Of these eighty-one autumnal cases, fifty-four, or 60 per cent., of the total series showed multiple sensitization. Forty-four of the patients were sensitive to one or more *Compositae,* the most frequent reactions being to goldenrod, yellow daisy and sunflower. Eight were sensitive to pollens of other botanical groups, in addition to several *Compositae;* while two gave reactions to ragweed alone of the *Compositae,* plus members of another botanical group. These were the combined vernal and autumnal cases. These figures are in general accord with those of other observers who have found multiple sensitization the rule rather than the exception.

TREATMENT

Because of the striking relation of the onset and duration of symptoms to the pollinating period of ragweed, and because of the wide dissemination of ragweed pollen by air currents, while goldenrod, daisy, sunflower and other similar pollens are not wind borne, treatment has been conducted in all patients under our control with ragweed pollen alone. In two instances in which the cutaneous reactions to sunflower were marked, treatment with this pollen was instituted by the attending physician, with no improvement.

Our first work was done using the scratch method, according to the technic adopted by Walker,[4] in which a number of small cuts were made on the flexor surface of the forearm, avoiding the drawing of blood. On each cut, we placed a pollen solution, and the reactions were read at the end of thirty minutes. In the majority of instances, this method was satisfactory; but it was soon found that occasionally an individual who gave a typical history of autumnal hay-fever gave no reactions to any pollens used by the cutaneous method. These patients were then given approximately 0.01 c.c. of pollen solution, intradermally. In our series, there were nine giving typical reactions following the intradermal injection who gave absolutely negative reactions to the pollen applied to scratches. Five others gave typical reactions to the intradermal pollen and only slight reactions to the scratch method. In several instances, 1 : 100 pollen solution gave a typical reaction when used intradermally; while a 1 : 50 pollen solution was followed by a negative reaction by the scratch test. In three instances, there were well marked reactions to other *Compositae,* with none to ragweed, when the scratch method was used; while, with intradermal injection, the reaction to ragweed was pronounced. Treatment of these patients with ragweed pollen has given fully as satisfactory results as with those whose cutaneous reactions to ragweed were quite typical.

The question naturally arises as to whether these patients have a less marked sensitization, which accounts for their more feeble skin reaction. Our series is too small for definite conclusions, but we have been unable to note any better response to treatment in these than in others, who gave well pronounced reactions to the scratch method. We are inclined to believe that the difference is one of skin sensitiveness rather than a constitutional variance. In any event, we have been forced to conclude that we cannot rely entirely on a negative scratch test. In one instance, a patient gave a history of hay-fever which occurred irrespective of season. Questioning elicited the fact that the condition was worse during August and September. Scratch tests were negative. Intradermal injection of ragweed pollen, however, gave a typical reaction. Treatment with ragweed pollen plus an autogenous vaccine gave a most gratifying result. Dependence on the scratch tests alone would, in this instance, have led us far astray.

We have observed one asthmatic who was desensitized by her attacks, and the reaction, which was typical before the attack, was entirely absent for a brief and variable period after the attack.[5] This phenomenon has not been seen in any hay-fever patients.

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[4] Walker, I. C., and Adkinson, J.: J. M. Res. **37**: 287 (Nov.) 1917.

[5] Schloss, O. M.: Allergy in Infants and Children, Am. J. Dis. Child. **19**: 433 (June) 1920.

A condition which is fairly frequent in this locality and which must be differentiated from true hay-fever is the so-called vasomotor rhinitis. These cases may present the symptoms and the intranasal appearance of true hay-fever. They are, however, perennial in type, or, at least, quite irregular in their time of onset and duration; they are not improved by rainy weather, and they are usually more severe and more frequent in the winter months. Twenty-six patients fall into this class. Eight of these showed a sensitization to some food protein, and were relieved by its elimination from the diet. The remaining eighteen gave no typical reactions to any cutaneous tests. Because many of them gave slight reactions to bacterial proteins and a few of them related their condition to a "cold" which immediately preceded it, autogenous vaccines were used. The results have not been brilliant. Nine, or 50 per cent., of them showed no improvement; five were completely relieved; while the remaining four received moderate degrees of relief.

We desired to start treatment from two to two and one-half months before the onset of the season, so that treatment might be completed before the season began. An interval of at least five days between injections was considered advisable. During the season just past, treatment of the first patient was begun, June 1, and of the last, July 26. Those who were taken late were treated under protest, and little improvement was expected.

The time of the first injection determined the interval between doses. In those beginning late, the treatment was given every forty-eight hours. The longest interval in any case was five days. Much to our surprise, those who began treatment late (sixteen began after July 10) obtained almost as satisfactory results as those starting earlier. From our limited observation, we are not convinced that the long interval between doses is necessary. Results are shown in Table 1.

TABLE 1.—RESULTS OBTAINED WITH DIFFERENT INTERVALS BETWEEN DOSES

	IMPROVEMENT			
	75%	50%	25%	None
5 days	3	16	5	5
4 days	6	16	5	0
3 days	0	4	3	0
2 days	3	4	9	0

CONSIDERATION OF RESULTS

We have become thoroughly convinced that the best results are obtained when the largest dosage is reached just at the onset of the season. Those whose treatment we directed were carried through to the actual beginning of the season, but, among those treated by others, eight were hurried through, and treatment was completed at periods varying from one month to two weeks before seasonal onset. These, without exception, showed little or no improvement. We are convinced that the desensitization secured is extremely fugitive, and that cessation of treatment sometime before pollination begins permits the patient again to become sensitive and to react as usual to pollen.

With this in mind, we have, with three patients whose treatment had been carried up to August 20, continued treatment through the season, using one-half the largest preseasonal dose. Two of these patients had been treated the previous year without seasonal treatment and had secured only fair results. With seasonal treatment, this year, they were approximately 90 per cent. improved. The third patient obtained equally satisfactory results.

We have not been able this year to determine any difference in results in the eighteen who had been treated the previous season, except in the two just mentioned, who, this year, received treatment throughout the season. Of the other sixteen, twelve were improved approximately 50 per cent. each year, while the other four claimed 75 per cent. improvement.

A year ago, we felt that the dosage recommended and supplied by those engaged in the preparation of pollen for use in treatment was not carried to a sufficiently high point. In that year, two patients were given, for their last three injections, 1 : 100 pollen solution in 0.1, 0.2 and 0.3 c.c. doses, respectively. We felt that the results obtained were better than in the others who received less pollen; we have used 1 : 100 pollen this year in fifty-one cases. The largest dose used has been 0.3 c.c. Nine of the patients showed an improvement of 75 per cent. or more; twenty-eight were more than 50 per cent. improved; twelve claimed no more than 25 per cent. improvement, and two secured no relief at all. Of those whose largest dose was 0.4 c.c. of a 1 : 500 solution, only three received 75 per cent. or more improvement; twelve between 50 and 75 per cent.; ten between 25 and 50 per cent., and three were not improved at all. Results are presented in Table 2.

TABLE 2.—RESULTS OBTAINED BY THE USE OF 1 : 100 POLLEN COMPARED WITH RESULTS WHEN LESS WAS USED

	75%	50%	25%	0%
1 : 100 pollen	9	28	12	2
1 : 500 pollen	3	12	10	3

Of the entire series, only one patient gave any reaction to the pollen injections. She developed local edema and hyperemia, together with a sharp attack of hay-fever and dyspnea after a dose of 0.3 c.c. of 1 : 1,000 ragweed pollen. The dosage was carried only slightly further, and her improvement was approximately 50 per cent. Through a misunderstanding of instructions, one physician administered at the first injection 0.9 c.c. of 1 : 10,000 ragweed pollen. Three days later, he gave the same amount of 1 : 5,000, then 1 : 1,000; and, on the ninth day after the first dose, she was given 0.8 c.c. of 1 : 500 dilution. Strange to say, she showed neither local nor general reaction at any time.

Of the seventy-nine patients treated with ragweed pollen, fifty-two, or 65.8 per cent., received more than 50 per cent. improvement. Not one was completely cured, if we understand cure to mean an absolute absence of any symptom. While the failure to secure complete cures is disappointing, the value of pollen treatment as an ameliorating agent is proved. When it is remembered that treatment was begun on sixteen patients after July 10 (two as late as July 26); that eight completed their treatment from two to four weeks before the season began, and that twenty-eight received less pollen than we feel should be given, the results justify the work. We believe these results could be much improved if the patients were under constant supervision of one giving attention to this work.

Treatment was not begun during the season in any instance. We have felt that the relief to be expected was slight and that failures from this method would militate against the use of the preseasonal treatment. We have preferred thus to limit our work until more definite information is available.

SUMMARY

1. Autumnal hay-fever is quite common in northern Texas; while vernal cases are rare.
2. In autumnal cases studied, the patients, without exception, have reacted to ragweed.
3. No case due to grass pollens (except corn) has been seen.
4. Onset and duration of autumnal attacks corresponds to pollination time of ragweed, extending from about August 20 to October 10.
5. Sixty per cent. of all cases seen showed multiple sensitization; 49 per cent., were sensitive only to members of the same botanical group.
6. No patients were treated with combined pollens. When multiple sensitization was found in autumnal cases, ragweed pollen was used.
7. The intradermal method of testing proved more dependable than the scratch method.
8. Best results were obtained from treatment when doses were given at a four-day interval.
9. Treatment should not be discontinued before the beginning of the season. Better results probably follow when treatment is continued through the season.
10. Patients given 1:100 pollen obtained somewhat better results than those stopping with smaller dosage.
11. Reactions, local or general, are infrequent if the dosage is carefully graduated.
12. Seasonal treatment alone was not used.
13. In 65.8 per cent. of all autumnal cases, there was more than 50 per cent. improvement; and in 15.2 per cent. more than 75 per cent. relief from symptoms was claimed. No complete cure was obtained.

710 Wilson Building.

A STUDY OF ONE HUNDRED CASES DIAGNOSED AS HYPERTHYROIDISM

WITH PARTICULAR REFERENCE TO DIFFERENTIATION, SYMPTOMATOLOGY, THE VEGETATIVE NERVOUS SYSTEM, BASAL METABOLISM, AND THE SUGAR TOLERANCE AND KOTTMANN TESTS *

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A special opportunity was afforded at U. S. Veterans' Hospital No. 76 for this study on account of the large amount of material found in the neuropsychiatric and tuberculosis sections, and the excellent laboratory facilities offered. Our patients were, for the most part, from the Great Lakes districts, and it was significant that all of them presented a palpable and noticeable enlargement of the thyroid gland. This enlargement, with some symptoms and signs of hyperthyroidism, suggested the diagnosis of hyperthyroidism until further investigation disclosed otherwise. The ages of the patients ranged between 22 and 32 years, with an average of 25 years.

All patients referred to our department underwent an additional physical examination in which special note was made of eye signs, vegetative nervous system manifestations, thyroid enlargement and pulsations, heart rate at rest and after exercise, and blood pressures. Mental and neurologic studies were made. A careful inquiry into the subjective symptoms with previous history was always an essential part of the investigation. Basal metabolic determinations by means of the Sanborn-Benedict apparatus, two ten minute tests being made; blood sugar estimations before and after the ingestion of 100 gm. of glucose, according to the method of Folin and Wu;[1] and the Kottmann reaction[2] as outlined personally by Drs. Petersen and Levinson, were carried out as routine procedures in each case. A series of Goetsch and thyroid feeding tests also was made.

TABLE 1.—FINAL DIAGNOSES

		Number
1.	Hyperthyroidism	30
2.	Hypothyroidism	6
3.	Neurasthenia	33
4.	Neurocirculatory asthenia	4
5.	Hysteria	3
6.	Chronic war neurosis	10
7.	Interstitial pneumonia following gassing	5
8.	Chronic active pulmonary tuberculosis	1
9.	Valvular heart disease, aortic regurgitation	1
10.	Cardiac arrythmia, extrasystoles	1
11.	Chronic myocarditis	1
12.	Dementia praecox	3
13.	Manic-depressive psychosis	1
14.	Mental deficiency	1

It was possible to keep under observation for a prolonged period of time a majority of the patients, thus giving an opportunity to study them further, to obtain accurate pulse and temperature records, and to repeat whatever tests were deemed necessary.

The final diagnoses grouped themselves as in Table 1.

From this table it is seen that the number of hyperthyroid cases, determined as such, approximated only about a third of the total number, whereas the psychoneurosis and neurosis group made up 50 per cent. Two of the interstitial pneumonia cases, three of the hypothyroid and five of the hyperthyroid were definitely complicated by a psychoneurosis of the neurasthenia type.

The subjective symptoms are given in Table 2.

The complaints of the hyperthyroid patients impressed one more definitely, and were usually clear cut, while those of the psychoneurotic patients abounded in vagueness, were quite numerous, and were frequently irrelevant to any ascribable pathologic condition. The psychoneurotic patient was usually introspective and circumstantial in his detail of affairs. Apprehension was frequently a noteworthy feature of the former group, which showed itself to one at first glance possibly on account of the stare of the eyes so common to these patients.

The nervousness which was by far the most common complaint was often ill defined and inexplainable by the patient. By twenty-two patients it was explained as being easily excited; by six, as trembling of the hands, and by eight as a fear reaction. These definite subdivisions were more frequent in the hyperthyroid group.

Fatigability was pronounced in both groups, but here again it appeared much more real in the toxic thyroid subject, in whom it was also more apparent.

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* From U. S. Veterans' Hospital No. 76.

[1] Folin, O., and Wu, H.: J. Biol. Chem. **41**: 367 (March) 1920.

[2] Petersen, W. F.; H'Doubler, F. T.; Levinson, S. A., and Laibe, J. E.: The Kottmann Reaction for Thyroid Activity, J. A. M. A. **78**: 1022 (April 8) 1922.

The neurotic and neurasthenic complained of weakness and becoming easily tired. They were seemingly in a perpetual state of tiredness and lacking the mental power to carry out any sustained effort.

Palpitation of the heart was common to the two sets, while precordial pain was distinctly more common in the psychoneurotic.

Without further comparative analysis, it can be stated that the hyperthyroid patients presented a symptomatology decidedly more definite than the majority of others studied, revealed more of a disease insight, and were less introspective and self pitying.

OBJECTIVE SYMPTOMS

The most helpful single objective symptom in the differentiation was the sustained increase of the pulse rate taken in the recumbent position after the patients had been in this position for half an hour or so. There were many instances, however, when it was necessary to keep them under observation after the excitement attendant on an examination disappeared, for only then was it possible to obtain the true rate. The many other features of a hyperirritable vegetative nervous system common to these patients and brought on through mental excitation disappeared when they were at rest and quiet, and the profuse local hyperhidrosis, flushing, pounding heart, tachycardia and tremors vanished.

TABLE 2.—INCIDENCE OF SUBJECTIVE SYMPTOMS

COMMON TO ALL CASES	Per Cent.
1. Nervousness	90
2. Fatigability	85
3. Palpitation of the heart	65
4. Shortness of breath	45
5. Precordial pain	55
6. Loss of weight	30
7. Dizziness	25
8. Sweating, both local and general	25
9. Weakness	20
10. Pains in various parts of the body	20
11. Flushing	15
12. Cough	15
13. Pains in the chest	15
14. Stomach trouble	15
15. Constipation	15
16. Rapid heart action	10
17. Headache	10
18. Diarrhea	6
19. Insomnia	6
20. Smothering sensation at night	5
21. Frequent urination	4
22. Anginoid pains	3
23. Excessive salivation	3
24. Pruritus, general	2
25. Urticaria	1

COMMON TO HYPERTHYROID CASES	Per Cent.
1. Nervousness	100
2. Fatigability	90
3. Palpitation of the heart	80
4. Loss of weight	80
5. Shortness of breath	50
6. Precordial pains	40
7. Flushing	40
8. Dizziness	40
9. Sweating	30
10. Insomnia	20
11. Stomach trouble	20
12. Diarrhea	20
13. Cough	10

The eye signs proved most helpful. Mention may again be made of the stare of varying degrees frequently present without the other signs, or when those were slight.

The enlargements of the thyroid gland, except when accompanied by abnormal pulsations, bruits and flushing, were more often misdirecting.

The tremor of the outstretched digits often misled. That of the psychoneurotic as a rule, however, was not well sustained, being present intermittently and subsiding often after rest. The quality of the tremors was not found very helpful.

A decided increase in the pulse pressure, when properly obtained, was found in all our hyperthyroid cases.

VEGETATIVE NERVOUS SYSTEM

The great majority of the patients gave reactions of a hypertonic vegetative nervous system, as determined by clinical signs and symptoms and by pharmacologic tests with epinephrin, 1 : 1,000 solution, 0.75 c.c.; pilocarpin hydrochlorid, 0.0065 gm., and atropin sulphate 0.00086 gm., hypodermically. Both vagotonia and sympathicotonia were found to some degree, and in no instance was the one present without the other; but the signs were often predominant in one over the other.

The white adrenal line (Sergent[3]) was elicited in 80 per cent. of these young men. The so called dermographia obtained by firmer pressure of an object than that required for the production of the white line was usually of the mixed type, an admixture of red and white. As a rule, whenever there was not this admixture and only a red line, Sergent's white line could not be produced. In such patients the vagotonic symptoms were most decided. One was led to the conception of Eppinger and Hess that the white line is a manifestation of sympathicotonia, whereas the red line is due to vagotonia.

From the list of varied diagnoses given in Table 1, one is impressed with the uncertainty of taking symptoms and signs of a hypertonic vegetative nervous system as pointing to any one disease entity. They merely indicate some underlying disturbed condition of a variable nature.

Careful study of the social history disclosed, in the psychoneurotic group, a hereditary inheritance of a body and nervous system which was capable of standing only so much strain, beyond which certain capacities and limitations it usually gave way. It seemed that the weakness lay primarily in an abnormal functioning of the nervous system—more often of the hyperirritable type—and disturbed mental reactions. The reflexes of these patients were abnormally active; vasomotor instability was pronounced; they were emotionally unstable, and scrutiny into their past disclosed a more or less characteristic trail of difficulties physical and mental. Many of them disclosed also a make-up of endocrine dyscrasias which proved in many instances to be congenital, on investigation of the family.

LABORATORY PROCEDURES

The laboratory procedures proved themselves valuable as directly outlined. A persistent metabolic rate greater than plus 10 per cent. was taken as indicative of hyperthyroidism, and less than minus 10 per cent., as hypothyroidism. On such a basis, careful clinical findings checked with the basal metabolism in 90 per cent. of the cases; the sugar tolerance test in 77 per cent., and the Kottmann reaction in 75 per cent. In the hyperthyroid group, the sugar tolerance corresponded in 80 per cent. and the Kottmann in 90 per cent.

The clinical findings and basal metabolism checked in all but one of the hyperthyroid subjects in which both blood glucose and Kottmann reactions revealed a hyperthyroidism, and which corresponded with clinical investigation. The patient had been under prolonged medical treatment for exophthalmic goiter. The hypothyroid states were the most difficult of diagnosis, both clinically and by the laboratory methods, with the exception of the basal metabolism, which in most cases made a diagnosis.

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[3] Kay, W. E., and Brock, S.: Am. J. M. Sc. **161**: 555 (April) 1921.

There was no direct relation disclosed between the extent of the delayed sugar curve and the hyperthyroidism, some of the most marked cases revealing only a slightly or moderately delayed utilization; but, on the contrary, the Kottmann reaction was markedly retarded in all our pronounced cases.

The sugar tolerance curve as a diagnostic procedure test for hyperthyroidism did not prove very satisfactory in our hands, as it was found to be subject to too many factors, was a hardship on the patient, and required a specially trained laboratory worker. The Kottmann reaction, on the other hand, seemed more promising, was fairly easy to perform, and was much easier for the patient. It failed, in the majority of hypothyroid patients and several psychoneurotics, to give us the correct information. In the latter there was a variable degree of retardation from slight to moderate, indicating a hyperthyroidism which clinically or by basal metabolic determinations we could not substantiate. More work, however, is needed in such cases to determine whether or not a possible explanation is a mild hyperthyroidism or a greater amount of secretion outpouring at various times through nervous influence or what not.

A NEW METHOD OF TESTING LIVER FUNCTION WITH PHENOLTETRACHLORPHTHALEIN

III. CLINICAL REPORT *

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Since the pharmacology of phenoltetrachlorphthalein was studied in 1910 by Abel and Rowntree,[1] who found that this dye, under normal conditions, was excreted entirely by the liver, numerous efforts have been made to use it for testing hepatic function. Previous methods have depended on the determination of the excretion of this dye in the stools or duodenal contents. The fallacies and impracticabilities of these procedures, which have prevented their wide clinical usage, have been previously pointed out.[2] In an attempt to avoid the drawbacks attendant on estimating the excretion of tetrachlorphthalein, I devised a method based on the ability of the liver to remove the dye from the blood stream. I have studied this method experimentally,[2] and have shown that after the intravenous injection of a given dose per body weight, the dye normally leaves the plasma very rapidly and with remarkable uniformity. Striking degrees of retention of this dye in the blood were found to exist when liver damage was produced experimentally by chloroform and phosphorus poisoning. When the dye was injected during the stage of jaundice and toxemia, large amounts remained in the blood over a prolonged period; after convalescence was established, curves of disappearance approaching normal were obtained. In the early jaundice due to mechanical obstruction, before there had resulted any extensive damage to the liver cells, it was shown experimentally that the dye could be removed from the blood stream in practically normal time, except that a trace remains in the plasma for twenty-four hours or longer.

PRINCIPLE OF THE METHOD

Five mg. of phenoltetrachlorphthalein per kilogram (2.2 pounds) of body weight is injected intravenously. This dosage is normally removed from the blood stream very rapidly: in normal human beings (Chart 1) from 2 to 6 per cent. is present in the plasma fifteen minutes after injection, and practically complete disappearance takes place within from forty to sixty minutes. In cases of liver disease, high percentages may be found in the plasma for many hours after injection.

TECHNIC

According to the technic that I have found convenient and easy to perform, the patient is weighed, and under sterile precautions the calculated dose of tetrachlorphthalein is measured by drawing it up into a 30 c.c. syringe. A short connection of rubber tubing with a clamp or a three way valve is then attached to the syringe, and physiologic sodium chlorid solution is drawn up to the 25 or 30 c.c. mark. With a needle of moderate bore, shaken free from water, a superficial vein of the arm is entered, and about 8 c.c. of blood is allowed to run into a clean, dry test tube. Through the same needle the diluted dye is injected, and the time of completion is noted. From 20 to 30 c.c. of physiologic sodium chlorid solution is then drawn into the syringe and injected through the same needle, in order to wash the vein wall free of dye.

With a small needle (a large hypodermic size may be used), and syringe which has been washed in physiologic sodium chlorid solution, from 2 to 4 c.c. of blood is withdrawn from a vein of the opposite arm at fifteen minutes after injection, and again at one hour. Later samples may be taken if indicated by the findings in the hour sample. Special care must be taken not to use salt solution or needles that have been in contact with the dye, as it is easily decolorized, and, in the colorless state, may contaminate the bloods in which the dye is to be determined.

DETERMINATION OF PERCENTAGE OF DYE IN PLASMA

The bloods drawn are allowed to clot in the test tubes and then centrifuged. Anticoagulants have not been used because they occasionally cause hemolysis, and this procedure has been found equally accurate. The plasma is pipetted off into separate small test tubes of uniform size, and one drop of 5 per cent. sodium hydroxid for every cubic centimeter of plasma is added to each tube. Ten milligrams of phenoltetrachlorphthalein is now added to 100 c.c. of water. This strength has been arbitrarily chosen as a standard for comparison because it represents the approximate concentration that would be reached if all the injected dye remained in the plasma. Therefore the percentages express how much of the total amount of phenoltetrachlorphthalein injected is present in the blood stream. The milligrams of dye for each hundred cubic centimeters of plasma may be derived by dividing the percentages by 10. With the sample of plasma obtained before the injection of dye, which should, of course, be clear, a series of standards is prepared in small test tubes of similar size, as in the accompanying table.

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* From the Medical Clinic, Boston City Hospital.

[1] Abel, J. J., and Rowntree, L. G.: J. Pharmacol. & Exper. Therap. **1**: 231, 1909.

[2] Rosenthal, S. M.: J. Pharmacol. & Exper. Therap. **19**: 385 (June) 1922; Bull. Johns Hopkins Hosp., to be published.

The plasma in which the amount of dye is to be determined is now matched with these standards, using naked eye comparison in a good light. Artificial light is less satisfactory than daylight.

PREPARATION OF SERIES OF STANDARDS *

0.2 C.c. 100% Standard Solution	0.2 C.c. 80% Standard Solution	0.2 C.c. 60% Standard Solution	0.2 C.c. 40% Standard Solution	0.2 C.c. 20% Standard Solution	0.2 C.c. 12% Standard Solution
0.6 C.c. Plasma	0.6 C.c. Plasma	0.6 C.c. Plasma	0.6 C.c. Plasma	0.6 C.c. Plasma	0.6 C.c. Plasma
25%	20%	15%	10%	5%	3%

* The amount of dye in the unknown plasma is determined by direct comparison with these standards. The 100 per cent. standard solution contains 10 mg. of tetrachlorphthalein to 100 c.c. of water. The percentages thus derived indicate approximately what part of the total amount of dye injected remains in the plasma.

NORMAL AND CONTROL CASES

The test has been carried out on ten persons who were normal physically (Chart 1 *A*). Eight were patients between 20 and 30 years of age who presented various types of psychoneurosis. One was a woman of 55, whose liver and gallbladder were found normal at operation; one was a man of 35, who had recovered from a monarticular arthritis. Ten cases of extrahepatic disease have been studied to make sure that organs other than the liver are not involved in the removal of this dye from the blood. These cases, whose curves are charted from above down in Chart 1 *B*, are as follows:

Case 11.—*Hookworm* (treated). A Chinese man, aged 19.

Case 12.—*Obesity*. Lost 50 pounds (23 kg.) on obesity diet. Weight, 172 pounds (77 kg.); age, 49.

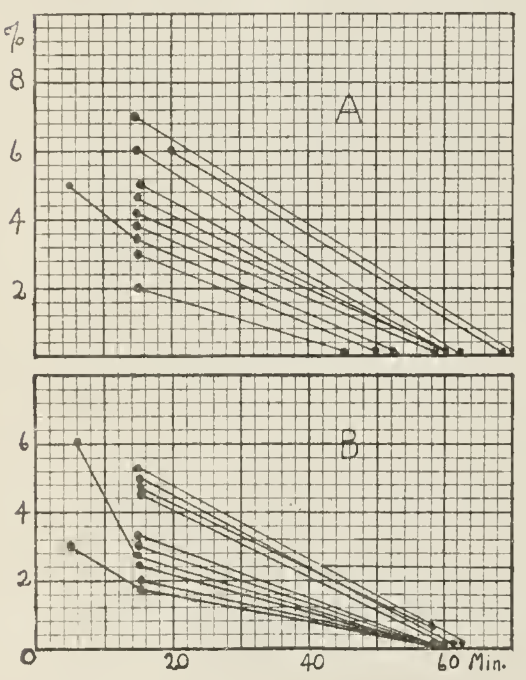

Chart 1.—Normal and control cases: *A*, curves obtained on ten physically normal persons; *B*, curves on ten patients with extrahepatic disease. Time markings indicate the time after injection of dye that the samples of blood were drawn. Percentages are determined by comparing the plasma of these samples with series of standards.

Case 13.—*Syphilis of stomach* (pathologic diagnosis on excised section). Liver normal at operation. Positive Wassermann. Febrile. Age, 38.

Case 14.—*Acute nephritis, of eight months' duration.* Chyliform ascites and edema. Age, 3½.

Case 15.—*Transitory shifting edema, probably of nephritic origin.* Duration, two months. Age, 28.

Case 16.—*Pernicious anemia; hypoplastic bone marrow.* Symptoms for seven months. Age, 39.

Case 17. — *Severe chronic nephritis; hypertension; hereditary syphilis.* Wassermann negative for three years. Age, 24.

Case 18.—*Pernicious anemia, severe.* Duration, nine years. Age, 48.

Case 19.—*Chronic vascular nephritis; hypertension.* Symptoms for ten years.

Case 20.—*Pernicious anemia.* Duration, one and one-half years. Febrile. Age, 64.

In these twenty cases, although the curves are slightly higher than those obtained in normal dogs, the same striking uniformity is seen. From a moderate trace (2 per cent.) to 6 per cent. is present at the fifteen minute interval, and there is practically complete disappearance within from forty to sixty minutes. The "ring test" that I devised [3] for qualitative detection of the dye consists of layering a specimen of plasma acidified with 3 per cent. hydrochloric acid over a 5 per cent. solution of sodium hydroxid. A color ring appears at the point of contact. This test is more sensitive than gross appearance, and it was positive on the hour specimen (where no dye could be detected visibly in the alkalized plasma) in 50 per cent. of the normal cases and in 40 per cent. of the control cases.

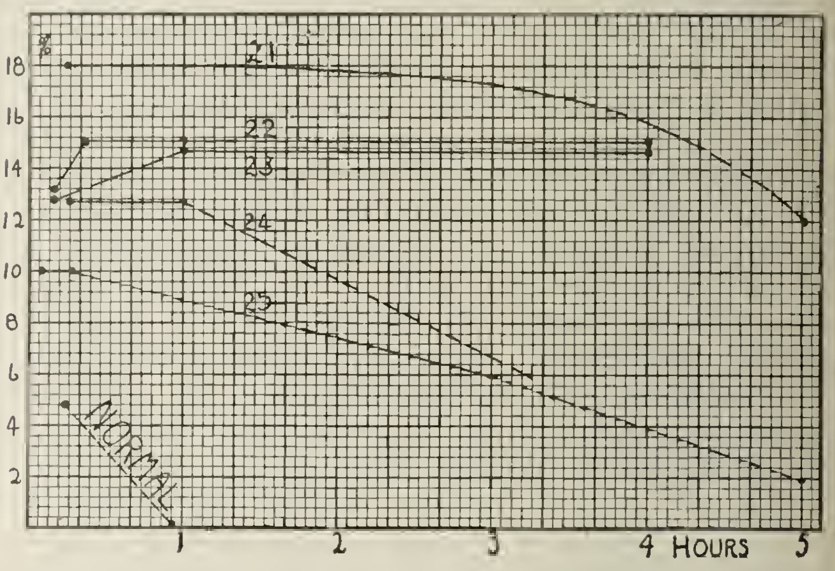

Chart 2.—Curves obtained in five cases of carcinoma of the liver. Later samples revealed, in Case 21, dye absent grossly, ring test faintly positive on plasma twenty-four hours after injection; Case 22, 5 per cent. in twenty-four hour sample; Case 23, 3 per cent. in twenty-four hour sample; Case 24, faint trace in twenty-one hour sample. The normal curve is a composite drawn from Chart 1 *A*.

Because of greater quantitative accuracy, gross findings alone have been adhered to in charting the time of disappearance. The ring test can be carried out on sufficiently small amounts of plasma to permit of blood collection from the ear or finger in Wright's blood capsules. It can be used to determine the ultimate time required for the dye to disappear, but the earlier readings should be estimated quantitatively.

CARCINOMA OF LIVER

Five cases of carcinoma of the liver have been studied. Marked degrees of retention of the dye in the blood were present in all of them (Chart 2). It is of interest to note that the height of the curves (degree of impairment of function) did not parallel the depth of jaundice. Case 24, chronic biliary obstruction due to malignancy, with no gross evidence of intrahepatic metastasis, showed intense jaundice, while icterus was very faint in Case 21.

Case 21.—*Carcinoma of liver; gastric carcinoma.* Age, 53. Gastric symptoms with right upper quadrant pain for two months, with loss of 38 pounds (17 kg.). Subicteroid tinge to skin and scelerotics. Very hard, nodular liver extended 8 cm. below the costal margin. Bismuth series: gastric carcinoma.

Case 22.—*Carcinoma of Liver.* Age, 62. Pain and bulging in right upper quadrant for ten weeks; slight icterus for three weeks; emaciation and asthenia. Hard, irregular liver, edge 2 cm. above the umbilicus; edema of the legs. No ascites.

Case 23.—*Carcinoma; obstructive jaundice.* Age, 60. Painless jaundice for seven weeks. Clay-colored stools; generalized pruritus; weakness. Jaundice very deep. Liver extended 3 cm. below the costal margin. No palpable nodules. Bismuth series showed extragastric mass.

Case 24.—*Carcinoma of gallbladder; obstructive jaundice.* Age, 40. Deep painless jaundice for eleven weeks. Clay-colored stools. Patient lost 30 pounds (13.6 kg.). The liver, smooth and slightly tender, extended to 1 cm. above the umbilicus. Operation revealed carcinoma of the gallbladder, completely obstructing the common and hepatic ducts. No intrahepatic metastasis was detected.

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[3] Rosenthal, S. M. (Footnote 2, second reference).

Case 25.—*Carcinoma of liver.* Age, 41. Occasional upper abdominal pain for five years; frequent and severe for two months. Slight jaundice, choluria. Hard, irregular liver, extended 8 cm. below the costal margin. Death one week following laparotomy. Necropsy revealed carcinoma involving the liver, mesentery, omentum and lungs; acute fibrinous peritonitis; acute vegetative endocarditis; cholelithiasis. The liver weighed 2,010 gm.; about one fourth of its substance consisted of malignant areas from 0.3 to 2 cm. in diameter.

CIRRHOSIS

Four tests were done in three cases of cirrhosis (Chart 3). Case 26, in which the liver was small, gave a higher curve than the others in which the liver was enlarged. The cases are as follows:

Case 26.—*Atrophic cirrhosis.* Age, 53. Epigastric discomfort and ascites of three weeks' duration. Slight jaundice for one week. Liver and spleen not felt; upper abdominal veins slightly dilated. Marked ascites. Bismuth series and all other examinations negative. Patient tapped three times during one month in the hospital. One, four and five liters of straw-colored fluid of low gravity obtained. Jaundice cleared up.

Case 27.—*Cirrhosis, probably Hanot type.* Age, 4. Patient in South Department because of pertussis. Admitted to children's hospital two and one-half years before with yellowish skin; at that time, liver 8.5 cm. and spleen 3.5 cm. below the costal margin. Many attacks of transitory jaundice since. Present attack had lasted three months. Liver now 12 cm. and spleen 9 cm. below the costal margin. Both organs smooth and firm; clubbed fingers. Blood picture normal, and Wassermann test negative, at several examinations. Choluria. Stools at times clay colored.

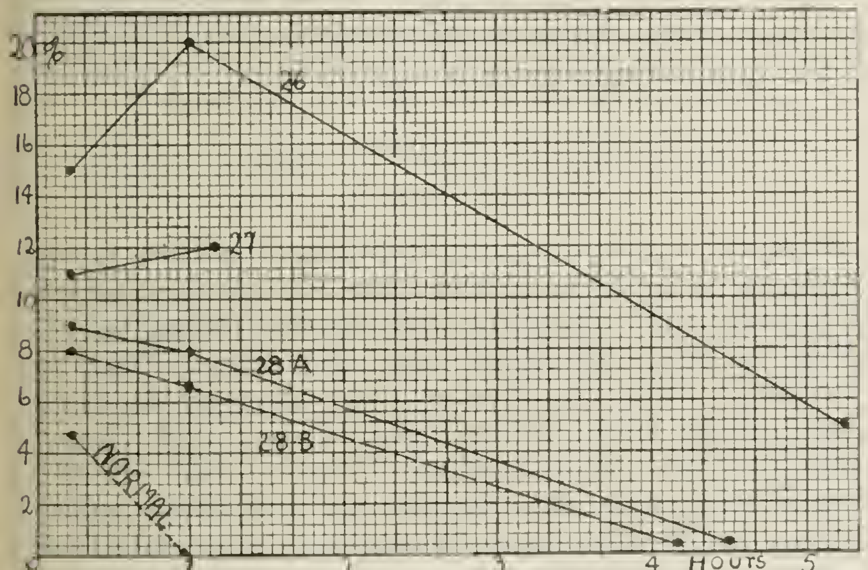

Chart 3.—Curves obtained in cirrhosis of the liver: Case 26, atrophic cirrhosis; no dye present in a twenty-four hour sample; Case 27, cirrhosis in child, probably Hanot type; Case 28, hypertrophic cirrhosis; Curve *B* obtained three weeks after Curve *A*.

Case 28.—*Alcoholic cirrhosis.* ' Age, 50. Frequent epigastric pain and dyspnea for nine years. Ascites for one year. Patient tapped eight times in six months. From 6 to 8 liters of straw-colored fluid at each tapping. Test done on admission, and again three weeks later. Rest in bed and two tappings in interval. Liver was 5 cm. below the costal margin nine years before; was now 8 cm. below. It was firm and not nodular. Hepatic facies. Sclerotics subicteroid. Skin not jaundiced. Marked ascites. No edema of extremities.

MISCELLANEOUS CASES

Among the following, several cases confirm the value of the test from a standpoint of measuring the degree of liver damage, and also demonstrate its worth in the diagnosis of liver disease. Two cases of acute hepatitis (Cases 29 and 30) presented the highest curves that were obtained in this series (Chart 4). In one of them (Case 29) the remarkably high curve was obtained before confirmatory clinical evidence of hepatitis had manifested itself. Patient 31 showed at operation several stones in the gallbladder, with chronic cholecystitis and biliary infection resulting from them. Cholangeitis was suspected preoperatively because of the high curve obtained. One case of chronic passive congestion with slight jaundice has been studied (Case 33).

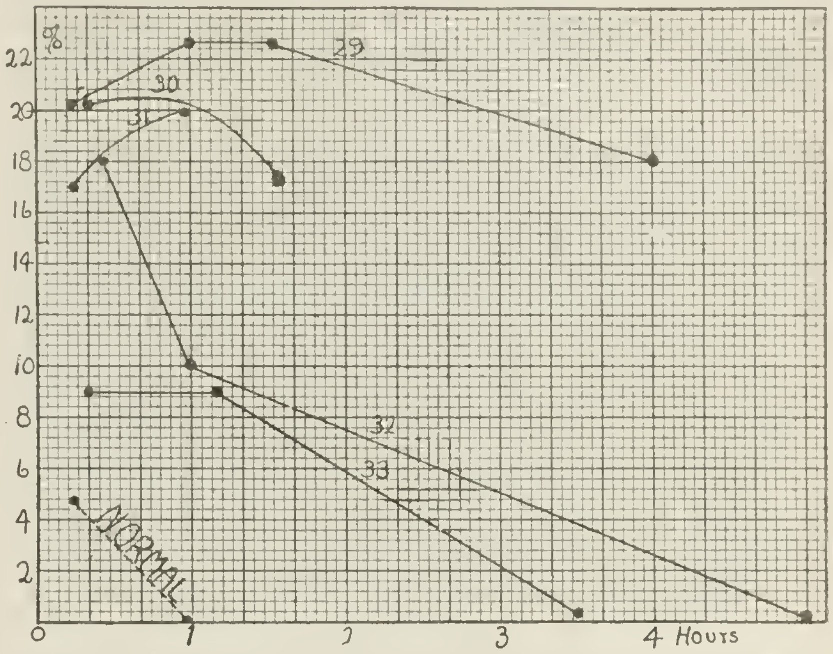

Chart 4.—Miscellaneous liver diseases: Case 29, acute hepatitis, etiology unknown; Case 30, acute hepatitis following arsphenamin; Case 31, cholangeitis, probably acute hepatitis (faint trace of dye present in twelve hour sample); Case 32, solitary liver abscess; Case 33, chronic passive congestion; degenerative changes in liver.

Case 34 (Chart 5) was a moderately severe toxemia of pregnancy with slight jaundice. Case 35 was an excessive vomiting of early pregnancy in which the symptoms later cleared up. Case 36 was an acute cholecystitis with probable cystic duct obstruction complicating convalescence from typhoid. In this and in the preceding case, with very slight disturbance of liver function, one showed an increased percentage of dye only in the fifteen minute sample, while the other showed a slightly higher reading at the hour period. Case 37 is extremely interesting in that it represents a case of chronic jaundice of the acquired hemolytic type, in which a normal curve was obtained.

Case 29.—*Acute hepatitis; probably acute cholangeitis, etiology unknown.* Age, 30. Frequent irregular chills and high fever for ten days. Moderate jaundice, deepening; liver felt on admission, not palpable later; severe toxemia. Blood cultures, and Widal and Wassermann tests, negative. No leukocytosis.

Case 30.—*Acute yellow atrophy* (Boston Lying-In Hospital). Age, 33. Eight months' pregnant. Three weeks ago, shortly after fifth injection of arsphenamin, jaundice, severe toxemia, and slight fever began. Hepatic dulness diminished. Patient extremely ill. Death in one week. Necropsy revealed acute hepatitis with multiple hemorrhages in the liver; acute tubular nephritis; acute splenitis. The liver weighed 1,850 gm.

Case 31.—*Cholelithiasis; chronic cholecystitis; subacute cholangeitis; probable hepatitis.* Pyrosis and epigastric distention for several years. Dull right upper quadrant pain for three weeks. Moderate icterus. No hepatic enlargement or tenderness. Operation revealed thickened, scarred, contracted gallbladder containing three stones. The liver surface presented a mottled appearance. No duct obstruction. Pathologic report on gallbladder, "chronic cholecystitis."

Case 32.—*Solitary liver abscess.* Age, 34. Septic fever and leukocytosis for one month. No hepatic enlargement or jaundice. Thoracic paracentesis yielded pus. Operation (transpleural): Abscess about 8 cm. in diameter in right lobe of the liver, 3 cm. beneath the surface.

Case 33.—*Adherent pericardium; chronic passive congestion.* Age, 12. Symptoms of cardiac decompensation with palpable liver for one and one-half years. Liver 6 cm. below the costal margin. Spleen not felt. Slight ascites and edema of the ankles. Sclerotics jaundiced. Skin subicteroid. Patient desperately ill; death three weeks after present admission. Necropsy revealed: adherent pericardium; acute vegetative endocarditis; cardiac hypertrophy and dilatation; chronic passive congestion. The liver weighed 1,200 gm.; marked chronic passive congestion, with central necrosis, was present.

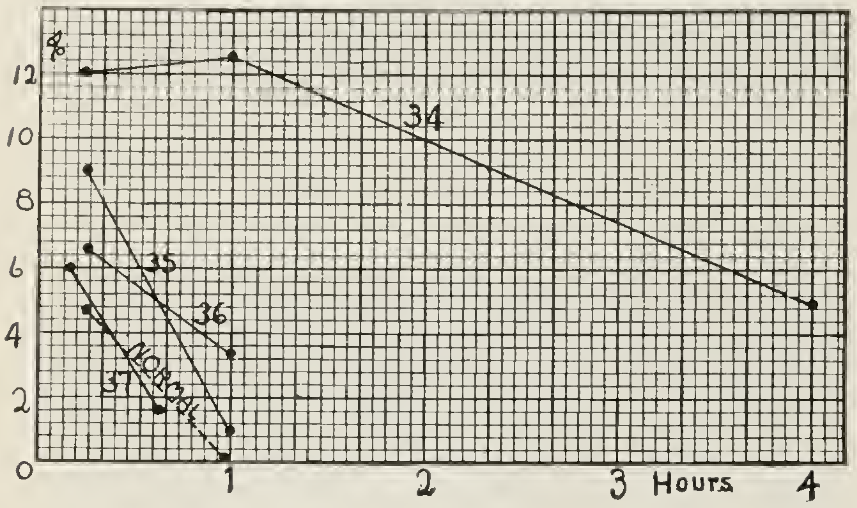

Chart 5.—Case 34, toxemia of pregnancy, with slight jaundice; Case 35, excessive vomiting of pregnancy, with rapid recovery; Case 36, acute cholecystitis; Case 37, hemolytic jaundice, acquired type, of four years' duration.

Case 34.—*Toxemia of pregnancy.* Age, 36. Three months' pregnant. Intractable vomiting for five weeks. Therapeutic abortion performed a week before admission. Slight jaundice. Moderately toxic appearance. Albumin, acetone and diacetic acid in urine. Curettage done because of persistance of symptoms; postoperative death. No necropsy.

Case 35.—*Hyperemesis gravidarum.* Age, 27, Three months' pregnant. Severe vomiting for three weeks. Examination negative except for enlarged uterus. No cholemia or choluria. Vomiting cleared up within one week after test.

Case 36.—*Acute cholecystitis.* Age, 51. Third week of convalescence (ambulatory) from typhoid. Sudden pain and tenderness in right upper quadrant. Orange sized gallbladder palpable. Temperature 101 F. for two days, then returned to normal. No icterus.

Case 37.—*Hemolytic icterus, acquired type.* Age, 27. Asymptomatic icterus of four years' duration; general health good. No pruritus. Physical examination negative except for jaundice and anemia. Erythrocytes, 2,500,000; leukocytes, 4,400. Hemoglobin, 55 per cent. Reticulated corpuscles, 1.8 per cent. Stools contained bile. No choluria. Afebrile.

COMMENT

The normal liver removes phenoltetrachlorphthalein from the blood stream with rapidity and uniformity. The damaged liver takes up the dye much more slowly; large amounts may remain for a prolonged period in the plasma, where the dye can be accurately and quantitatively estimated. Experiments have shown that practically none of the dye is taken up by the red blood cells. In this series of cases of liver disease the abnormal results have not paralleled the degree of jaundice or hepatic enlargement. The highest degrees of retention have been present in acute hepatitis, in a case of cirrhosis in which there was a small liver, and in advanced cases of hepatic carcinoma. A fixed dosage of tetrachlorphthalein according to the body weight is used, so that a unit of work is imposed on each unit, by weight, of liver tissue. The normal curves show the time required for the entire liver to perform this task. For these reasons, borne out by clinical and experimental observation, it seems probable that the test gives an index of the total amount of functioning liver tissue.

No reactions or untoward effects, following the injection of tetrachlorphthalein, occurred in any of these cases. Transitory induration of the vein wall at the site of injection was frequent, and in two cases localized thrombosis developed and persisted for several days.

No dye appeared in the urine in the normal and control cases. In the series of hepatic diseases, from a trace to 4 per cent. was usually present, but the amount of dye in the urine did not parallel the degree of retention in the blood, and in these cases the dye in the urine could not be taken as an index of the severity of liver damage. No dye appeared in the urine in four of these cases that showed retention in the blood.

SUMMARY AND CONCLUSIONS

The method of testing liver function described in the foregoing depends on the ability of the liver to remove phenoltetrachlorphthalein from the blood stream.

The simplified technic worked out is not time consuming or difficult to perform.

Clinical results have fully borne out experimental work. Following the intravenous injection of the dye, strikingly high degrees of retention in the plasma have been found to occur in cases of hepatic disease.

Results by this method are quantitative, and it is believed that they give an index of the functional capacity of the liver.

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POSTOPERATIVE PNEUMONIA *

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In recent years, the subject of postoperative pneumonia has received more and more the attention which it deserves. Especially important among the communications on this subject are those by Whipple[1] and by Cleveland,[2] from the Presbyterian Hospital in New York; Cutler and Morton,[3] and Cutler and Hunt,[4] from the Peter Bent Brigham Hospital, and Mandl[5] from Hochenegg's clinic in Vienna. All these papers review the literature, and the one by Cutler and Hunt gives a complete bibliography.

These papers are interesting not only for their presentation of the statistical incidence of postoperative pneumonia, but also for the ideas which the authors express as to the cause of this complication. Whipple found ninety-seven cases of postoperative pneumonia, or 2.3 per cent., following 3,719 operations; Cleveland, sixty-five cases, or 3.3 per cent. of 1,940 cases; Cutler and Hunt, sixty-three cases of pulmonary complications, or 3.92 per cent., following 1,604 operations. Of the cases reported by Cutler and Hunt, only eight were classified as pneumonia; the others were pulmonary infarction, pulmonary embolism, pleurisy, empyema, bronchitis and exacerbations of tuberculosis. Mandl reports fifty-seven cases of pneumonia, or 4.44 per cent., in a total of 1,283 operations under general anesthesia, and forty-six cases, or 4.39 per cent., following 910 operations under local anesthesia.

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* This paper is based on the investigation made at the Mount Sinai Hospital, New York, at the request of a committee appointed to consider postoperative pulmonary complications.

[1] Whipple, A. O.: Surg., Gynec. & Obst. **26**: 29 (Jan.) 1918.

[2] Cleveland, M.: Surg., Gynec. & Obst. **28**: 282 (March) 1919.

[3] Cutler, E. C., and Morton, J. J.: Surg., Gynec. & Obst. **25**: 621 (Dec.) 1917.

[4] Cutler, E. C., and Hunt, A. M.: Postoperative Pulmonary Complication, Arch. Surg. **1**: 114 (July) 1920; Arch. Int. Med. **29**: 449 (April) 1922.

[5] Mandl, F.: Deutsch. Ztschr. f. Chir. **165**: 67 (July) 1921.

TABLE 1.—INCIDENCE OF PNEUMONIA FOLLOWING OPERATIONS UNDER GENERAL ANESTHESIA AND THE ORGANS OR REGIONS OF THE BODY INVOLVED

	No. of Operations	No. of Cases of Pneumonia	Incidence, Per Cent.
Appendix	401	22	5.4
Hernia	290	16	5.5
Stomach	94	13	13.8
Gallbladder and ducts	154	7	4.5
Small intestine	20	1	5.0
Colon and rectum	55	5	9.09
Exploratory laparotomy	66	4	6.06
Pelvic-gynecologic operations	565	5	0.88
Hemorrhoids	48	1	2.08
Kidney and ureters	91	2	2.19
Prostate	43	2	4.6
Testicles	14	1	7.1
Breasts	66	1	1.5
Subphrenic abscess	9	1	11.1

In looking for the cause of postoperative pneumonia, various views have been developed by writers on this subject. These views may be thus summarized:

1. The pneumonia is due to the aspiration into the bronchi of the contents of the mouth, such as mucus, saliva, or regurgitated fluid from the stomach. Aspiration undoubtedly occurs occasionally during general anesthesia. This is probably responsible for the formation of lung abscess. Wessler[6] has shown that such abscesses give definite signs of their presence from thirteen to fourteen days after operation, and are probably due to anaerobic organisms. Aspiration, however, does not explain the occurrence of a pneumonia within one or two days after operation, and of a pneumonia which promptly disappears within from three to seven days without any evidence of pus formation. Nor does it explain the occurrence of pneumonia following local anesthesia.

TABLE 2.—ORGANS OR REGIONS OF THE BODY INVOLVED IN OPERATIONS UNDER LOCAL ANESTHESIA FOLLOWED BY PNEUMONIA

	No. Cases of Pneumonia
Appendix	1
Hernia	3
Stomach	1
Bladder	2
Exploratory laparotomy	1

2. The pneumonia is due to a hypostatic congestion. This is probably the cause of the pneumonia in weakened individuals and in the very old, and in those suffering from myocardial insufficiency. It does not explain the pneumonia occurring in young and vigorous individuals.

3. The pneumonia is due to the irritating effect of the anesthetic itself on the mucous membrane of the respiratory tract. This accounts for the mild or even the severe forms of bronchitis which one sees after ether anesthesia. It is quite possible that, in the hands of the inexperienced, this may also be responsible for some cases of pneumonia. It does not explain, as Cutler and Hunt remark, why these complications occur even when the anesthetic is given by an expert. Neither does it not explain the pneumonia occurring after local anesthesia.

4. The pneumonia is due to emboli from the operative field. Cutler and Hunt make a strong plea for this mode of origin of postoperative pneumonia. They conclude that the majority of postoperative pulmonary complications are due to such emboli.

5. The pneumonia is due to chilling of the body surface. This is possibly a factor in an occasional case. But in an institution in which conditions are uniform, this does not explain why pneumonia occurs in one case and not in the next one in which operation was performed under the same conditions. It also does not account for the fact, demonstrated further on in our statistical study, that the greater incidence of pneumonia occurs after abdominal operations.

Other etiologic factors have been mentioned, such as retention of secretion in the bronchi, due to lack of cough because of fear of pain; lowered immunity due to weakened state, and previous inflammation of the upper respiratory tract. All of these factors may possibly play a rôle in the causation of postoperative pneumonia.

TABLE 3.—LOBES INVOLVED IN ALL CASES OF PNEUMONIA FOLLOWING OPERATIONS PERFORMED UNDER GENERAL AND LOCAL ANESTHESIA

	No. of Cases
Right upper lobe	1
Right lower lobe	41
Left lower lobe	21
Both lower lobes	24
Right upper and right lower lobe	1
Right upper and both lower lobes	1
Total	89

In this paper are given the results of an investigation undertaken at the Mount Sinai Hospital with the object, first, to ascertain the incidence of postoperative pneumonia following the administration of a general anesthetic; and, secondly, to determine, if possible, the etiologic factors which play a rôle in the production of the pneumonia.

STATISTICS

From March 8, 1921, until Sept. 1, 1922, there were altogether 2,932 patients to whom a general anesthetic was administered, either ether, nitrous oxid and ether, or nitrous oxid and oxygen, administration being of variable duration. Of these patients, eighty-one developed a postoperative pneumonia, an incidence of 2.76 per cent. There were also eight cases of pneumonia following operations under local anesthesia.

TABLE 4.—DURATION OF PNEUMONIA

Duration	No. of Cases
2 days	1
3 days	2
4 days	11
5 days	27
6 days	14
7 days	7
8 days	1
9 days	1
14 days	1

In the accompanying tables will be found all the important statistical data concerning our cases of postoperative pneumonia. The rest of the cases were indefinite in duration, owing to the fact that the physical signs of pneumonia disappeared very slowly.

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[6] Wessler, Harry: Suppuration and Gangrene of the Lung, J. A. M. A. **73**: 1918 (Dec. 27) 1919.

About 25 per cent. of the patients with postoperative pneumonia gave a history of recent respiratory affection, or were suffering from bronchitis previous to the operation.

The forms of anesthesia used were: nitrous oxid and ether, in seventy-three cases; nitrous oxid and oxygen, seven cases; local anesthesia, eight cases, and local anesthesia followed by nitrous oxid and oxygen, one case.

In the eighty-nine pneumonia cases, the complications noted were: serofibrinous pleural effusion, four cases; empyema, two cases, and abscess of the lung, two cases.

In the eighty-nine cases of pneumonia, there were twenty deaths. An analysis of the cases shows that pneumonia was responsible for only a small number of these.

Of the twenty deaths, five occurred long after the traces of pneumonia had disappeared. Causes of death in the cases are: gradually increasing weakness following a Pólya operation for carcinoma of the stomach; perigastric abscess following a subtotal gastrectomy for carcinoma; hemorrhage after a second operation; liver abscess; pelvic abscess, and peritonitis, one instance of each.

Of the remaining fifteen deaths, six were due to the original disease, or to a surgical complication; but death was possibly hastened by the pneumonia. In addition to the pneumonia, the findings at death in four of these cases were: Case 1, general peritonitis; Case 2, pyelonephritis, and necrotic areas in the prostatic bed; Case 3, besides a small area of bronchopneumonia in the left lower lobe, a carcinoma of the pylorus with extension into the head of the pancreas, and metastatic carcinoma of the liver, in a case in which death occurred on the day following operation; Case 4, tumor of the right kidney invading the liver and tuberculosis of the apex of the right lung.

In the other two cases, in which there were no necropsies, but which we place in this category, there was found, in Case 5 at the exploratory laparotomy, an inoperable carcinoma of the head of the pancreas. The patient died eight days after the operation. In Case 6, ileosigmoidostomy was performed for inoperable carcinoma of the hepatic flexure. At operation, a large tumor of the hepatic flexure was found extending into the mesocolon. There were also found tumor masses along the root of the mesocolon and along the abdominal aorta. The patient died four days after the operation.

Of the remaining nine deaths, there were two instances in which old age was a great factor. In Case 7, in which the patient was 73 years of age, cecostomy for carcinoma of the rectosigmoidal junction was performed under nitrous oxid and ether anesthesia. Signs of bronchopneumonia developed in both lower lobes. There was no necropsy.

In Case 8, the patient, aged 76 years, underwent suprapubic cystotomy under local anesthesia for a hypertrophied prostate. Necropsy revealed bronchopneumonia in both lower lobes.

In the remaining seven cases, four deaths were due to postoperative pneumonia, two cases to an empyema secondary to the pneumonia, and one case to an abscess of the lung following pneumonia.

COMMENT

As I have said, the object of this investigation was twofold: first, to learn the incidence of postoperative pneumonia, and, second, to determine, if possible, the etiologic factors concerned in its production.

Incidence.—It can be seen from the foregoing data that the incidence of pneumonia among all operations is comparatively small; in our cases, 2.76 per cent. This corresponds well with Whipple's figure of 2.3 per cent. and with Cleveland's figure of 3.3 per cent. It was somewhat below Mandl's figure of 4.44 per cent. A study of the figures from the standpoint of the regions of the body involved gives data of great importance. The figures in Table 1 show the high incidence following operations on the stomach; namely, 13.8 per cent. The operations on the stomach, appendix, hernias, gallbladder and ducts, the small intestine and the large intestine, and the exploratory laparotomies, a total of 1,080, have an incidence of 6.29 per cent. There remain 1,852 operations, performed under general anesthesia, on other regoins of the body, with thirteen cases of pneumonia, an incidence of 0.70 per cent.

It is interesting in this connection to examine Mandl's figures. In 208 operations on the stomach under general anesthesia, there were twenty-two cases of pneumonia, or 10.57 per cent. This corresponds well with our figures. In 354 operations on the stomach under local anesthesia, Mandl had twenty-four cases of pneumonia, or 6.77 per cent. In 738 operations under general anesthesia, on the head, neck, mouth, thyroids and the extremities, he reports twenty cases of pneumonia, or 2.7 per cent.

The lesson to be drawn from these figures is that, except in operations on the abdomen, postoperative pneumonia is a rare complication; and, of abdominal operations, it is especially those performed on the stomach which are liable to be followed by pneumonia.

Factors Concerned in the Causation of Postoperative Pneumonia.—We have enumerated the various views held as to the causation of postoperative pneumonia. Among our cases, there are some which may be placed in each of these categories. There were two cases, which, in all probability, were due to aspiration into the bronchi of the contents of the mouth:

Case 9.—H. A. underwent pylorotomy and cauterization of a duodenal ulcer, with button gastro-enterostomy. Nitrous oxid and ether anesthesia was employed. Two days later, there were signs of consolidation in the right lower lobe. Ten days later, empyema developed, with foul smelling pus. Lung abscess was suspected. Death ensued. Necropsy was not performed.

Case 10.—J. G. underwent Quénu's operation for carcinoma of the rectum, under nitrous oxid and ether anesthesia. Two days later, there were signs of consolidation, and death ensued. Necropsy revealed a bilateral, fetid, purulent bronchopneumonia, with cavity formation. Spirilla and fusiform bacilli were found in large numbers in the lesions.

There were five cases in weakened and old persons, in which, in all probability, the pneumonia was secondary to hypostatic congestion. Their ages were 68, 70, 73 and 76 years. Two of the cases were suprapubic cystotomies under local anesthesia; one case was a second stage prostectomy under nitrous oxid and oxygen anesthesia; one, a cecostomy for carcinoma of the rectosigmoidal junction under nitrous oxid and ether anesthesia; and one, a hernioplasty for a strangulated direct inguinal hernia, under local anesthesia. Four of the patients had emphysema and chronic bronchitis.

Among all the cases, there was mention of only one case in which lobar pneumonia involved the upper lobe alone:

Case 11.—E. S. underwent curettage for incomplete abortion, under nitrous oxid and ether anesthesia. The next day, the patient had a chill and the temperature rose to 103.6 F. Two days later, there were definite signs of consolidation of the right upper lobe. The temperature continued high, from 104 to 105 F., and came down by crisis on the ninth day.

The high temperature, the initial chill, the rusty sputum, the involvement of the upper lobe and the crisis make this case different from all the other cases of postoperative pneumonia. It must be considered a case of accidental lobar pneumonia of the usual type, and not of the same origin as the others.

There are none among our cases which can definitely be said to have been caused by emboli from the operative field. We have occasionally observed pulmonary infarction following operations not included in the present series, but these were definitely recognized as such.

There remain, then, the greater bulk of our series, for which an explanation is greatly to be desired. With the exception of a few, these cases occurred within two days after operation. The average duration was from four to seven days. There was no chill. The beginning was usually attended by cough and purulent expectoration. There was usually no pain in the chest. The temperature seldom rose as high as 103 F., and often did not rise above 100 F. On the first day, there was diminished breathing over the areas involved, followed the next day by signs of consolidation. Resolution was prompt in the patients who recovered. In only a few cases was there delayed resolution; and two patients developed an abscess of the lung. In most cases, the patient was not very ill from the pneumonia. There were only seven deaths which could be definitely ascribed to pneumonia.

In looking for an explanation for the occurrence of postoperative pneumonia, we were at first totally at a loss. True, about 25 per cent. of the cases showed, previous to the operation, some respiratory affection. Undoubtedly, this forms a predisposing factor, and operations should be delayed, whenever possible, until any inflammation of the respiratory tract has subsided. We consider too deep an anesthesia another factor in the production of pneumonia. But, in looking over our material, there are these points which stand out: 1. Most of the cases of pneumonia were of a mild character. 2. Excepting abdominal operations, postoperative pneumonia occurs only in 0.70 per cent. of the cases. 3. In abdominal operations, it is especially those on the stomach which are followed by pneumonia. It seemed strange to us that the ordinary factors of exposure, previous respiratory affection, anesthetic, etc., should only work in favor of the development of pneumonia after abdominal operations. There was evidently another element which we had not discovered.

A clue to this was given us by the postmortem examination in four cases, not included in our series, which had incorrectly been diagnosed as postoperative pneumonia. Following is a survey of these cases:

Case 12.—J. K. underwent panhysterectomy and bilateral salpingo-oophorectomy for carcinoma of the uterus, under nitrous oxid and ether anesthesia. There had been no previous respiratory affection. Two days later, signs of consolidation developed over the left lower lobe, and the patient died, six days later. Necropsy revealed angulation of a loop of the small intestine. The lower part of both lower lobes were collapsed and airless, but there was no pneumonia.

Case 13.—S. S. underwent hysterectomy for fibroid and bilateral salpingo-oophorectomy for diseased adnexa, under nitrous oxid and ether anesthesia. The following day, there was a rise in temperature, with diminished breathing over the right lower lobe. Two days later, there seemed to be complete consolidation of the right lower lobe, and the patient died, five days after operation. Necropsy revealed an infection of the operative wound. There was no pneumonia, but both lower lobes were completely collapsed.

Case 14.—D. L. had an incision in the left axillary fold for cellulitis, under nitrous oxid and oxygen anesthesia. The same day, there were signs of complete consolidation of the right lower lobe; and streptococcus bacteremia was demonstrated. The patient died, two days later. Necropsy revealed no evidence of pneumonia, but the right lower lobe was completely collapsed and edematous.

Case 15.—E. S. underwent cholecystectomy for acute cholecystitis and cholelithiasis, under nitrous oxid and ether anesthesia. The following day, there was a rise in temperature, with signs of complete consolidation of the left lower lobe. The patient died, three days after operation. Necropsy revealed no evidence of pneumonia, but massive collapse of the left lower lobe.

Here, then, are four cases which clinically presented the symptoms and signs of pneumonia, but which, on postmortem examination, revealed a partial collapse of the lung instead of pneumonia. Collapse of the lung following operation was first reported by Pasteur [7] in 1908, who termed the condition massive collapse of the lung. It is interesting that his sixteen cases of massive collapse of the lung reported in 1914 occurred after operations on abdominal organs. The subject has further been studied by Bradford,[8] Crymble,[9] Scrimger [10] and Briscoe.[11] Recently, St. John [12] has reported two cases, and Girsdansky and Elwyn,[13] one case. It is often not recognized; and, in our four cases, pneumonia was suspected. In its classic form, massive collapse of a whole lung is characterized by signs of consolidation or of fluid, or of both, on the affected side, with displacement of the heart and mediastinum to the same side.

Bradford and others mention collapse of one lobe or part of a lobe; and, in cases of suspected pneumonia on the day following operation, we have often found that a portion of one lower lobe or of both lower lobes showed dulness and diminished breathing. These signs either disappear the next day or are succeeded by the signs of pneumonia. Especially was this the case in operations on the stomach. We have gradually become more and more convinced that collapse of a small portion of the lung following abdominal operations is a not uncommon occurrence, but that it usually disappears within from twenty-four to forty-eight hours. To realize what part this plays in the production of pneumonia after operation, one must consider what happens in cases of hypostatic congestion in weakened and old people, or in prolonged and exhausting disease. Here, too, the basal portions of the lungs are airless and congested. If they do not expand after a certain length of time, and there is present an infection of the bronchi, the infection has a great tendency to spread to the hypostatic lung, and pneumonia is the result.

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[7] Pasteur, W.: Lancet **2**: 1351, 1908; Brit. J. Surg. **1**: 1305, 1914.
[8] Bradford, J. R.: Quart. J. Med. **12**: 127 (Oct. 18) 1919.
[9] Crymble, P. T.: Brit. J. Surg. **5**: 363 (Jan.) 1918.
[10] Scrimger, F. A. C.: Surg., Gynec. & Obst. **32**: 486 (June) 1921.
[11] Briscoe, J. C.: Quart. J. Med. **13**: 293 (April) 1920.
[12] St. John, F. B.: Ann. Surg., to be published.
[13] Elwyn, Herman, and Girsdansky, Joseph: Postoperative Massive Collapse of Lung, J. A. M. A. **79**: 718 (Aug. 26) 1922.

This, in our opinion, is what happens in postoperative pneumonia: There is first a collapse of a portion or of the whole of a lower lobe, or of both lower lobes. If the collapsed portion of the lung does not reexpand within a certain limit of time, perhaps from twenty-four to forty-eight hours, then it depends mainly on the presence or absence of any bronchial inflammation and on its extent and severity whether pneumonia results or not. Inflammation of the bronchi may have been present before the operation, or it may be, and often is, the result of irritation by the anesthetic.

There is no doubt that every inhalation anesthesia produces some irritation of the mucous membrane of the bronchial tree; and a mild bronchitis is a common sequel of the anesthesia in cases which never develop any pneumonia. That the bronchitis can be reduced to a minimum in the hands of a trained expert is undoubtedly also true. When, in the presence of a bronchitis, there occurs a partial collapse of a lung which persists more than from twenty-four to forty-eight hours, pneumonia may result. If the bronchitis is severe and anaerobic organisms are present, putrid pneumonia with cavitation may likewise result.

This explanation does not entirely solve the problem, but merely puts it back a step further. The question is, how does the collapse of the lung arise? At present, we have no answer. Pasteur thought that the collapse was the result of reflex inhibition of the movements of the diaphragm. Briscoe also assumes a reflex inhibition of the movements of the diaphragm and of its synergic and antagonistic muscles. He thought that this might be the result of an inflammation of the diaphragm or the pleural membrane covering it. These explanations are not at all satisfactory.

Prevention of Postoperative Pneumonia.—If we assume that the mode of origin of postoperative pneumonia is as outlined above, it is at once evident that, no matter how we try to prevent it, a certain number of cases are bound to occur. This is especially so in abdominal operations, as the collapse of the lung, which is the chief factor in the production of the pneumonia, is as yet unexplained and cannot be prevented. Of the other factors, the most important ones are: (1) previous acute or chronic inflammatory condition of the respiratory tract; (2) irritation of the respiratory tract by the anesthetic, and (3) hypostatic congestion in weakened and old persons.

As regards the first, operation should be postponed whenever possible, until the inflammation has subsided or disappeared. The second factor can be reduced to a minimum in the hands of the experienced and expert anesthetist. An attempt to prevent the third factor may be made by the use of digitalis. Mandl has used digitan as a prophylactic measure and states that he has obtained a smaller number of postoperative complications with its use. In weakened and old persons, and for the purpose of preventing hypostatic congestion as a result of circulatory failure, we believe that the use of digitalis is indicated as a prophylactic measure.

SUMMARY

1. This study was undertaken to determine (1) the incidence of pneumonia following operations under general anesthesia, and (2) the etiologic factors concerned in its production.

2. Of 2,932 operations under general anesthesia, eighty-one, or 2.76 per cent., were followed by postoperative pneumonia. Of these, there were 1,080 operations on the stomach, gallbladder and ducts, appendix, hernias, small intestine and large intestine, and exploratory laparotomies, with 6.29 per cent. of postoperative pneumonia; and 1,852 operations on other parts of the body, with 0.70 per cent. of postoperative pneumonia.

3. Operations on the stomach were followed by pneumonia in 13.8 per cent. of the cases.

4. There was only one case in which an upper lobe alone was involved, and only two cases in which an upper lobe was involved in addition to a lower lobe; in all the rest, there was involvement of one or of both lower lobes.

5. Twenty-five per cent. of the patients with postoperative pneumonia had some infection of the respiratory tract previous to the operation.

6. Bronchitis may result from the irritation of a healthy mucous membrane if the anesthetic is used in a large dose. Similarly, a mild tracheitis or bronchitis may be converted into a severe one.

7. Collapse of the lower lobe of the lung or of a portion of one is a not uncommon occurrence after abdominal operations. When this persists for a certain length of time, any infection of the bronchi has a great tendency to extend into the collapsed lung, resulting in pneumonia.

8. Hypostatic congestion predisposes to pneumonia in the same manner as postoperative collapse of the lung; in the presence of bronchitis, pneumonia may result.

9. Postoperative collapse of some portion of the lung may also occur after abdominal operations under local anesthesia. In the presence of bronchitis, pneumonia may result.

10. Prevention of pneumonia may be aided (1) by postponing the operation, whenever possible, until any respiratory inflammation has subsided; (2) by a minimum use of the anesthetic, administered preferably by an expert, and (3) by the use of digitalis whenever there is a suspicion that circulatory failure may occur. However, as long as massive collapse of the lung is not preventable, according to our present knowledge, a certain number of cases of postoperative pneumonia are bound to occur after abdominal operations.

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Uric Acid Eliminated in the Bile.—T. Brugsch and J. Rother announce that their research has demonstrated that a large proportion of the uric acid is eliminated in the bile. In their communication in the *Klinische Wochenschrift* **1**:1495, 1922, they emphasize that we must admit an enterotropic uric acid as well as a urotropic, and that the amount eliminated is the sum of the two, not the uric acid in the urine alone. The low uric acid output in gout may be explained by the diversion to the bile of a larger proportion of what is normally eliminated in the urine. This throws light on the benefit from measures to promote the flow of bile in treatment of gout. This enterotropic uric acid explains also the uric acid found in the stools; it comes from the bile. The functional tests of the exogenous purin metabolism are tottering. The necessity for fasting as a preliminary to estimation of the uric acid output is emphasized.

CHEST MEASUREMENT AS A GAGE OF BODY WEIGHT *

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Weight can be judged from body measurements most accurately by the use of standards that take notice of the thickness of the chest, for instance, the chest girth.[1] Furthermore, it has been shown by modern biometric methods that in normal men weight is more nearly correlated with chest girth than with height.[2] Then, evidence has been presented that the girth is more reliably measured by taking the arithmetical average of the inspiratory and expiratory girths than by taking the resting girth.

To certain further questions regarding the best method of chest measurement, this paper offers answers.

Is the weight as closely correlated with the girth at the xiphoid level as with the girth at the nipple level? If so, the former may be preferable, since it is clearly a more nearly bony measurement, and therefore probably a sounder gage in obese or emaciated persons. Besides, there is some evidence in the literature that at the xiphoid level the girth in the living approaches the girth on the denuded, i. e., bony frame, more closely than is the case at the nipple or at the axillary level.

Our evidence is derived from 100 candidates for the varsity crew at Harvard, measured by one of us (D. C. P.). These men were of the usual college age group of 18 to 22. They were all of better than average physique, and were organically sound. Mention is made of these facts with the idea that measurements on a group of almost supernormal young adults of this single type should perhaps produce a more accurate coefficient of correlation than the same measurements made on a hundred adults of different types as to physique, age and environment taken at random.

The coefficient of correlation of weight to chest-girth at the nipple level in the selected group was + 0.837 with a probable error of 0.0202 versus 0.831 ± 0.0210 at the xiphoid level. The difference in these two coefficients, in the light of their probable errors, is insignificant; hence the answer to the question is yes.

Is weight correlated with the girth as closely at expiration as at the calculated midrespiratory phase used in all our previous papers? This question is suggested by the preference for the former by army examiners in order to compensate approximately noticeable stoutness. The latter wrote: "I noticed that the measurement of the chest girth (which varies with the state of nutrition) taken when the patient was first seen in the state of obesity or undernutrition gave a different value from that noted after the patient had been brought to a normal state of nutrition. Differences of five or more centimeters are not rare."

Our evidence at complete expiration is a correlation coefficient between weight and girth at the nipple level of 0.818 ± 0.0223 versus 0.806 ± 0.0236 at the xiphoid. Again the difference is inconsiderable, and the answer to the question is yes.

Should the girth be replaced by a caliper diameter? We have hitherto persisted in studying the tape perimeter, because it has seemed much more practical, and hence much likelier to be serviceable generally. However, all our attempts to refine the chest girth fall short of the precision we could wish, and recently Root and Miles[3] have noted emaciated diabetics whose weight for chest-girth was apparently normal. This and their other observations incline us to amend our insistence on girth to insistence on some measure of chest thickness, probably a caliper diameter. Accordingly, we now propose to study the correlation coefficient between the weight and sundry thoracic diameters.

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* From the Department of Hygiene, Harvard University.

[1] Gray, Horace, and Edmunds, G. H.: Indices of the State of Nutrition in Children, Am. J. Dis. Child. **23**: 226 (March) 1922. This includes a summary of earlier papers.

[2] Gray, Horace: The Relation of Weight to Chest-Girth, Stature and Stem-Length, Am. J. Physical Anthrop., to be published; Against Measuring the Chest Girth at Rest, J. A. M. A. **79**: 349 (July 29) 1922.

[3] Root, H. F., and Miles, W. R.: Physical Measurements of Diabetic Patients, with a Discussion of Present Weight Standards, to be published.

HOMOPLASTIC AND HETEROPLASTIC TUMOR GRAFTS IN THE BRAIN *

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Recently, Shirai[1] of Tokyo reported the interesting observation that heteroplastic tumors grow readily when inoculated into the brain, this being the first example of successful transplanting of heteroplastic tissues to normal adult animals. Previous to this, the tissues of one species had been transplanted to another only in the embryo[2] and in adult animals after exposure to roentgen rays.[3] Certain deductions had been made from these earlier experiments, which led to the conclusion that the lymphoid cell was an active and probably necessary part of the defensive mechanism against such tissue grafts. The basis for this conclusion was as follows: (*a*) Lymphocytes occur in large numbers about a heteroplastic graft. (*b*) Foreign tissues growing in the chick embryo called out no cellular reaction until after the eighteenth day of incubation, a time which corresponds with the limit of growth of the foreign tissue. After the appearance of the reaction, there is a rapid and complete disappearance of the graft.[4] (*c*) A graft of adult chicken spleen renders the embryo resistant to heteroplastic tissues during the early stages of incubation.[5] (*d*) Adult animals deprived of the major portion of this lymphoid tissue are deprived of their ability to destroy foreign tissue, and such grafts will grow actively; and the foreign tumors may be carried through several generations in irradiated animals.

EXPERIMENTAL DATA

The experiments to be reported here were undertaken with the idea of ascertaining whether the same factors are involved in determining the fate of tissue inoculated into the brain.

Fate of Heteroplastic Grafts in the Brain.—The site of inoculation selected for our first extensive experiment was the lateral posterior region of the cerebrum of rats, and the material used for grafting was a transplantable mouse sarcoma. The results of inoculation in this region were extremely irregular. An occasional excellent growth was obtained, but more often the graft remains were found embedded in a mass of reaction tissue. A careful histologic study revealed the fact that the grafts which came in contact with the ventricle induced a reaction similar to that which takes place about a foreign graft in the subcutaneous tissue, followed by necrosis of the introduced cells. As the ventricle is quite near the surface in this part of the brain, it was only rarely that the inoculated material failed to come in contact with the ventricle at some point. As a result of this observation, another site was selected for the inoculations; namely, the frontal lobe, where the ventricle is much deeper and considerably thinned out. Grafts in this location grew in from 80 to 100 per cent. of the animals inoculated, with no cellular reaction taking place about them. In practically every case of failure, it could be shown that the graft had come in contact with the ventricle.

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* From the Rockefeller Institute for Medical Research.

[1] Shirai, Y.: Japan M. World **1**: 14 (June) 1921; **1**: 15 (Oct.) 1921.

[2] Murphy, James B.: J. Exper. Med. **17**: 482, 1913.

[3] Murphy, James B.: Heteroplastic Tissue Grafting Effected Through Roentgen-Ray Lymphoid Destruction, J. A. M. A. **62**: 1459 (May 9) 1914.

[4] Murphy, James B.: J. Exper. Med. **19**: 181, 1914.

[5] Murphy, James B.: J. Exper. Med. **19**: 513, 1914.

By selecting this site, a mouse sarcoma was successfully grown in the brains of rats, guinea-pigs and pigeons, and a mouse carcinoma was likewise transplanted into the brain of foreign species, but with the latter tumor the rate of growth was less rapid.

Influence of the Spleen on Heteroplastic Grafts in the Brain.—The tip of the spleen of a rat was removed and together with a bit of mouse sarcoma was inoculated into the frontal lobe of the same rat's brain. As a control, a piece of the same tumor was implanted in the same region of the brain of another rat without the addition of spleen tissue. In fifty rats inoculated with spleen and tumor, there was complete inhibition of growth of the tumor in 84 per cent. of the animals inoculated; while, in the remaining 16 per cent., only an occasional small group of tumor cells was found, and in only one or two instances did sizable tumors occur. Of the forty-eight control rats inoculated with the sarcoma alone, 83 per cent. developed tumors, some of which replaced almost the entire frontal lobe.

Spleen tissue derived from rats other than the individual to be inoculated failed to exercise any inhibitory effect on the growth of the foreign tumor in the brain.

Fate of Homoplastic Grafts in Resistant Animals.—Previous observations indicated that the mechanism involved in the resistance to homoplastic grafts was similar to that which controls heteroplastic implants. If this is true, animals with either natural or induced resistance to tumors of their own species should give no evidence of this resistance when the tumor is inoculated in the brain.

Mice immunized to the transplanted tumors by the usual method were inoculated ten days later with grafts of mouse carcinoma, inoculation being made both into the subcutaneous tissues and into the brain. The subcutaneous inoculation produced tumors in only 21 per cent of the sixty-five animals, while the grafts in the brain produced tumors in 89 per cent. Control nonimmunized mice inoculated with the same material developed brain tumors in 91.9 per cent. and subcutaneous tumors in 82.2 per cent of the sixty-three mice inoculated.

Thus, it is evident that the brain gives no manifestation of the induced resistance to homotransplants of tumors.

SUMMARY

Heteroplastic tumor tissue will grow readily when inoculated into the cerebrum, provided the graft does not come in contact with the ventricle. The tumors grow rapidly in the brain substance, with no cellular reaction taking place about them. However, when such grafts come in contact with the ventricle, a cellular reaction results, similar to that observed about a subcutaneous heteroplastic graft.

A bit of the animal's own spleen inoculated into the brain, along with the heteroplastic tumor tissue, prevents the growth of the foreign cells. This action is absent when the spleen is derived from another animal, even of the same species.

Mice highly resistant to subcutaneous transplants of mouse tumor give no evidence of this resistance when the tumor is inoculated into the brain.

Clinical Notes, Suggestions, and New Instruments

SUBMUCOUS SPHINCTOTOMY

PRELIMINARY REPORT *

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Presumably the earliest treatment for anal ulcer consisted of the local application of various caustics, stimulants and sedatives; it is a rather interesting observation that most of the treatment prescribed by other than proctologists today consists of the same early methods. The next step in advance, namely, dilation of the sphincter, was a marked step forward toward securing rapid recovery, but has within the last few years been supplanted among the more experienced by the actual open incision into the sphincter muscle to put it at rest. This method has proved satisfactory both in the immediate relief of pain and in the more certain healing of the ulcer. It has, however, one definite objection—the open incision at times has been rather prolonged in final healing, especially at the anal margin.

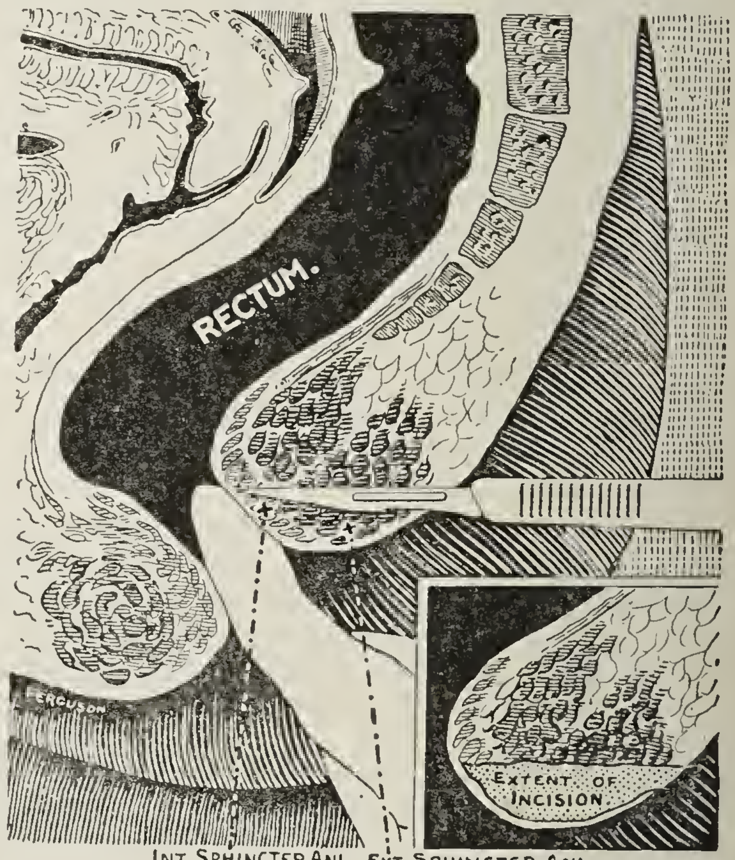

Fig. 1.—Technic of submucous sphinctotomy.

In the effort to avoid this open incision and its subsequent infection, I have attempted what I have chosen to call a submucous sphinctotomy, the name being my own contraction of the word sphincterotomy.

Submucous sphinctotomy consists in plunging a knife through an iodized area of skin, well posterior to the anus, passing diagonally in and upward through the inner third of the external and through the internal sphincter, about one half of the distance back through the anal canal. With the index finger in the anus as a guide, the incision upward is completed, care being taken to avoid cutting through into the anus. The few fibers just under the anal lining, remaining in continuity, are cared for at the finish of the operation by a gentle bivalve dilation. Before or after the sphinctotomy is performed, all anal diseased tissue is treated, such as excision of indurated areas of the ulcer and cauterization with silver in 5 per cent. solution. Acute or recent fissures require no local repair other than application of silver, and the sphinctotomy. Through the puncture wound in the skin any blood may drain away, and if careful asepsis has been preserved there need be no fear of infection; but if infection should ensue, by simply opening down through the area, the abscess is drained with healing expected as in the open operation. In my own experience I have had no infection in more than fifty of these cases.

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* Read before the American Proctological Society, St. Louis, May 23, 1922.

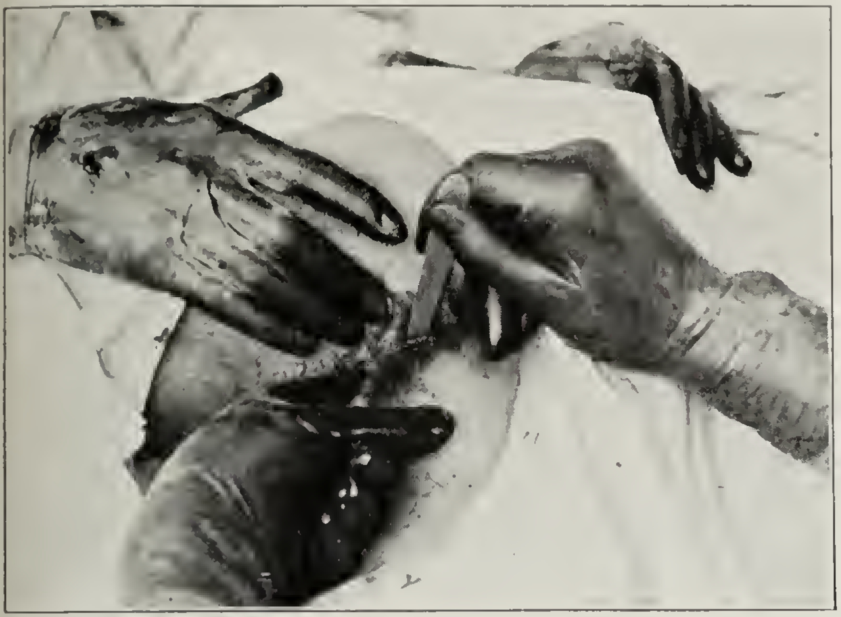

Fig. 2.—Right lateral position, point of entrance, and knife control with left index finger.

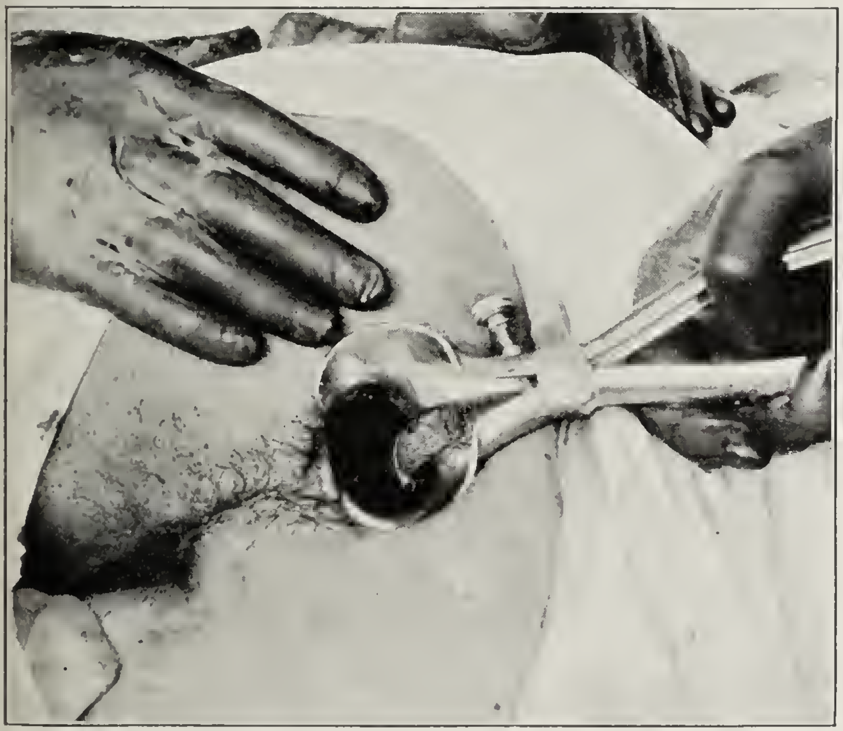

Fig. 3.—Gentle bivalve dilation following sphinctotomy; extent of dilation determined by direct vision; posterior anal lining should not be torn.

CONCLUSIONS

Sphinctotomy is an aseptic procedure. It is easily and quickly done. It demonstrates the possibility of improving the aseptic technic in rectal surgery. The results have been satisfactory so far, and warrant a further trial of the method.

1447 David Whitney Building.

A HYPODERMIC NEEDLE STERILIZER AND SOLUTION BOILER

John P. Fletcher, M.D., Carlisle Barracks, Pa.
Major, Medical Corps, U. S. Army

This device, for the rapid sterilization of hypodermic syringes, hypodermic needles and the water in which hypodermic tablets may be dissolved, also provides a sterile, noncorrosive receptacle in which solutions of hypodermic tablets may be made. It consists of a metal case in which a silver trough 1¾ inches long of 5 c.c. capacity is permanently mounted at the top immediately above the burner of a removable alcohol lamp. The burner is so constructed that the fuel chamber is perfectly vented, and instead of overflowing when it becomes heated, the alcohol vapor is passed into the flame and consumed. The device is 2⅝ inches high, 2 inches wide and 1 inch thick, and weighs 5 ounces. The lamp holds 15 c.c. of denatured alcohol, and will burn for one hour. The heat is so intense that it will bring the 5 c.c. of water in the trough, including a hypodermic needle, to the boiling point in one minute. The flame is protected from drafts by the container.

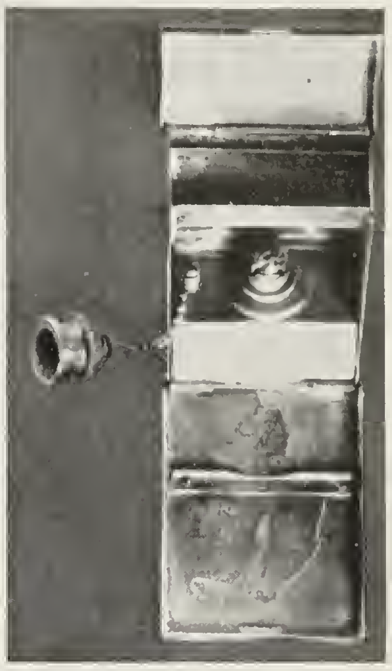

Fig. 1.—Hypodermic needle sterilizer and solution boiler.

The hypodermic needle is placed in the trough filled with water and the lamp is lighted. As soon as the water boils, the barrel of the hypodermic syringe may be sterilized by repeatedly rinsing it with boiling water from the trough. The sterile needle is then attached to the syringe by means of dressing forceps. The syringe is then filled with boiling water, the lamp extinguished, and the remaining water in the trough discarded.

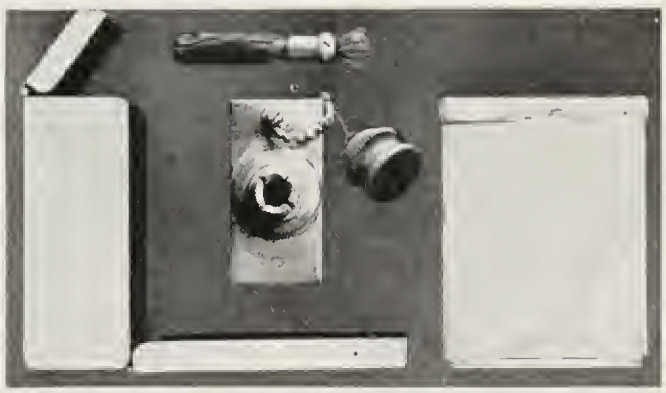

Fig. 2.—Various parts of apparatus.

The hypodermic tablet is then placed in the sterile silver trough and the hot water expelled from the syringe to dissolve the tablet, after which the solution is picked up by the syringe.

A Case of Vitiligo Treated with Pituitary Gland Substance.—Dr. Royce B. Josselyn, Portland, Maine, writes: A robust man, aged 40, referred to me in August, 1921, had always been well, except for a nervous breakdown several years previously. Physical examination was negative. Irregular areas of vitiligo were present on the backs of both forearms and wrists, and the back and side of the neck. The patient said that these areas first appeared about two years before and were growing larger and more noticeable. Pituitary gland (entire), desiccated, was prescribed in tablet form. The patient was again seen recently after more than a year's interval, and the areas of vitiligo had entirely disappeared. No abnormality of the thyroid could be demonstrated in this case, although mild exophthalmic goiter frequently coexists.

THE JOURNAL OF THE
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SATURDAY, DECEMBER 23, 1922

LOUIS PASTEUR—BORN DECEMBER 27, 1822

The hundredth anniversary of Pasteur's birth is an appropriate occasion for recalling briefly his services to medicine and to humanity. The descendant of old families of working country people, he received through the sacrifices of his parents and sisters a thorough education, became a deep student of chemistry, and while still a young man solved the problem of the different rotatory effects on light by tartrate crystals of the same chemical composition. This achievement in crystallography and molecular arrangement became, so to speak, the bridge over which he passed into an intensive study of various fermentations, as he soon learned that the tartrates developed in fermenting organic materials. In the course of these studies, he observed that in the fermentation by *Penicillium glaucum* of ammonium paratartrate, the dextrorotatory acid alone putrefied, that is, fermented, and for the reason, he says, that "the ferments of that fermentation feed more easily on the right than on the left molecules." As indicated by these words, he saw in fermentations and putrefactions the specific effects of living things, and had learned to produce particular fermentations by introducing the "pure seed" into suitable infusions or juices. This is the real starting point of bacteriology, industrial as well as pathogenic, and the first practical results were improvements directed by Pasteur in the making of wines and vinegars. He showed how to secure the proper ferments and how to exclude or destroy undesirable ferments that caused the so-called diseases of wines and similar products. Heating to destroy ferments or micro-organisms, soon called pasteurization, was introduced by Pasteur and applied first to wines.

The thought soon came to him that it would be "desirable to push these studies far enough to prepare the road for a serious research in the origin of various diseases" (1860) ; a little later he said that all his ambition was to arrive at the knowledge of putrid and contagious diseases. Perhaps the idea was prompted by this remarkable statement of Robert Boyle (1627-1691) :

> He that thoroughly understands the nature of ferments and fermentation shall be much better able than he that ignores them to give a fair account of divers phenomena of several diseases (fevers as well as others), which will perhaps be never properly understood without an insight into the doctrine of fermentation.

Before long, Pasteur's results were given practical application of a far wider significance; for in 1867 Joseph Lister began to work out the antiseptic method in surgery on their basis. In 1874, Lister in a letter to Pasteur said:

> Allow me to take this opportunity to tender you my most cordial thanks for having, by your brilliant researches, demonstrated to me the truth of the germ theory of putrefaction, and thus furnished me with the principle upon which alone the antiseptic system can be carried out.

But Pasteur's views on fermentation did not go unchallenged, and he was soon in the midst of that long controversy about spontaneous generation that he felt must be settled before the idea of the spontaneity of infectious diseases would vanish forever so that men would be free to think clearly about infection. The experiments by which he showed that albuminous infusions remained sterile indefinitely in flasks provided with long and tortuous necks, so that the bacteria in the air were deposited on the walls of the glass as the air entered the flask, finally silenced for good the advocates of spontaneous generation. In the meantime, he was sent to study the silkworm disease that was threatening the silk industry of France, and after five years of work, interrupted by a stroke of apoplexy in 1868 when he was 46, a method was perfected of breeding from selected healthy eggs, of separating the well from the infected, that solved the problem of prevention in this case and led him to hope that measures might be found to control epidemic diseases in general.

Overcoming by great effort the depression caused by the Franco-Prussian War, and firmly determined to exalt France through his discoveries, in the sixth decade of his life he demonstrated by celebrated experiments with anthrax and chicken cholera that specific immunity can be produced by the introduction of living pathogenic microbes in attenuated form, and vaccination with known virus was established for the first time. He said, "I have lent to the expression vaccination an extension that I hope science will consecrate, as an homage to the merit and immense services rendered to humanity by one of the greatest of Englishmen—Jenner."

In 1873, Pasteur became an associate member of the Academy of Medicine in Paris, and took an active part in discussions, mostly controversial, on infectious problems. In a discussion [1] in 1879 on puerperal fever, which then was epidemic in Paris hospitals, with a frightful death rate, he drew unexpectedly on the blackboard an organism in small chains of spherical grains and said, "There, that is the cause of puerperal fever"; but of this discovery he never made a formal report and in the books his name is not associated as it should be with the streptococcus. At this time he stated also that the physician and his assistants carry the microbe from the sick woman to the well, and urged the use of boric acid and water heated to 115 C. He described, too, the presence of heaps of cocci in boils and in osteomyelitis, which he called a boil in bone. His outline, in 1877, of the principles of what we call aseptic surgery merits repetition:

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[1] Bull. de l'Acad. de méd. **8**: 238, 1879.

> If I had the honor of being a surgeon, convinced as I am of the dangers caused by the germs of microbes scattered on the surface of every object, particularly in the hospitals, not only would I use absolutely clean instruments, but, after cleansing my hands with the greatest care and putting them quickly through a flame (an easy thing to do with a little practice), I would only make use of charpie, bandages, and sponges which had previously been raised to a heat of 130 to 150 C.; I would employ only water which had been heated to a temperature of 110 to 120 C. All that is easy in practice, and in that way, I should still have to fear the germs suspended in the atmosphere surrounding the bed of the patient; but observation shows us every day that the number of those germs is almost insignificant compared to that of those which lie scattered on the surface of objects, or in the clearest ordinary water.

These references reveal what an insight he had attained into human infections, a phase of his achievements that is frequently overlooked.

The last masterstroke, which carried his name all over the world and led to the establishment by international subscription of the Pasteur Institute in 1888, was the discovery of a method of preventing rabies after the bite. The long period of incubation in rabies led to the idea of "attempting to establish, during the interval before the first symptom, a refractory state in the bitten subject." This discovery, by which the death rate of rabies has been reduced from at least 16 to less than 1 per cent., the recondite experiments to standardize properly in different strengths the unknown virus, the repeated trial on dogs before and after infection, the treatment of the Meister boy and the other early patients, are unequaled in interest in experimental medicine. It recalls Jenner's experiment of inoculation of cowpox, because, in both, the first subjects were young boys.

That germs cause disease was an ancient conception. Pasteur, more than any one else, by incontrovertible experiments, showed us the truth and the power to control infectious diseases in man, animals and plants. The benefit of this demonstration is incalculable. He was fortunate in that, while still living, his work was accepted and his name praised on all sides. He was a gentle soul, deeply religious, wholly unselfish, unspoiled to the end, but fearless and tireless in the defense of truth as he saw it. "If I have sometimes disturbed the calm of our academies by somewhat violent discussions, it was because I was passionately defending the truth."

Louis Pasteur, 1822-1895

ILLITERACY AND MORTALITY

A successful campaign in the interest of public health must be based on something more than a knowledge of the mode of transmission of communicable disease. This, without doubt, is one of the foremost considerations in any program for the promotion of the public health, as it also is in relation to personal prophylaxis. But the problems of preventive medicine involve factors of widely different origin and significance, each of which must be evaluated and assigned a corresponding responsibility. Premature breakdown and premature death, for example, have been attributed to a diversity of causes, such as heredity, infections, poisons, mental strain, physical strain, mental inactivity, physical inactivity, accidents and improper diet. Obviously, each of these categories of alleged influences demands special and somewhat unlike consideration in any effort to control or modify the mortality of a group. As Chief Justice Taft has remarked, "while it is true that to the public mind there is a more lurid and spectacular menace in such diseases as smallpox, yellow fever and plague, medical men and public health workers are beginning to realize that, with the warfare against such maladies well organized, it is now time to give attention to the heavy loss from lowered physical efficiency and chronic preventable disease, a loss exceeding in magnitude that sustained from the more widely feared communicable diseases."

No one will question that ignorance acts as a stumbling block in the path to progress in matters of health as in other fields of human welfare. Pearl[1] has expressed the conviction that one of the greatest difficulties with which the health officer has to contend, in his efforts to ameliorate the conditions which make for morbidity and mortality, must surely be the ignorance of great masses of the population with which he has to deal. So much of effective public health work goes back, on final analysis, to a basis of personal hygiene, he adds, that the dense ignorance and, what is worse, sheer stupidity of a not negligible fraction of our population must be a limiting factor.

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[1] Pearl, Raymond: The Vitality of the Peoples of America, Am. J. Hyg. 1: 592, 1921.

According to the census of 1910, about five and a half million persons in this country were illiterate. More than a third of all illiterates at that time were country dwellers. The rural illiteracy problem, according to the available statistics, lies with the negroes and native whites, and the urban with the foreign born. Pearl and Ilsley[2] of the Johns Hopkins University School of Hygiene and Public Health have attempted to evaluate statistically the possible correlation of mortality in American cities and illiteracy, which must inevitably contribute to detrimental ignorance. Their study indicates that the percentage of illiteracy in an urban community in this country is a significant factor in influencing unfavorably the death rate of the community from all causes, and under certain particular causes, notably diarrhea and enteritis, pneumonia, diphtheria and measles. The typhoid fever, whooping cough and puerperal fever death rates are apparently not significantly correlated with the percentage of illiteracy, for probably quite different reasons in the different cases. Furthermore, there is apparently no significant net correlation between the death rates from either tuberculosis of the lungs or nephritis with the percentage of illiteracy, presumably for the reason that in these diseases the innate constitution of the individual is an etiologic fact of great importance. If the ignorance which illiteracy postulates can seriously affect the equipment of our population for "meeting the battle of existence," the tentative conclusions just reviewed present a strong argument in favor of certain types of elementary education as a public health measure.

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[2] Pearl, Raymond, and Ilsley, M. L.: Preliminary Discussion of the Correlation Between Illiteracy and Mortality in American Cities, Am. J. Hyg. **2**: 587 (Sept.) 1922.

THE FATE OF ALCOHOL IN THE BODY

To any one who follows the widely debated question of prohibition, it is evident that a variety of unlike considerations enter into the various arguments advanced. Some of them are essentially legal in character and deal with the constitutional question of so-called "personal freedom"; others are economic in bearing; and much of the discussion centers in sociological problems of admittedly great importance. It is doubtful, however, whether in ultimate analysis any aspect of the subject assumes greater significance in the responsibility for a rational treatment of the issues involved than does the physiologic evidence that can be brought to bear upon it. For example, as a recent writer[1] on this topic has frankly admitted, to interpret correctly the mortality statistics relating to moderate drinkers and total abstainers, one must have some knowledge of the physiologic effects of alcohol in so-called moderate doses, a knowledge often lacking in those who assume to interpret such statistics. If it could be shown, he adds, that small doses of alcohol produce no ascertainable ill effects on the human organism, the higher mortality among the moderate drinkers, as compared to total abstainers, might have to be explained as being due to some as yet unrecognized cause or causes other than alcohol.

This is essentially a challenge, first of all, to get the physiologic and pharmacologic facts about alcohol—and perhaps one might add, in the light of scientific history, the psychologic facts. There will be no dispute that ethyl alcohol introduced into the stomach begins quickly to be absorbed and to be utilized to some extent in the metabolism, and that, if given in sufficient amount, it soon produces characteristic subjective effects. It has not always been so generally recognized that after its ingestion alcohol is found in the blood and also in other body fluids and tissues, particularly at or following the time in which it appears maximally in the blood. The extreme readiness with which alcohol can be distributed in the body is illustrated, first of all, by its behavior in the stomach. Water is absorbed only slowly, if at all, through the gastric mucosa; alcohol promptly penetrates the stomach lining, and is absorbed even when there is no escape for it through the pylorus into the more permeable region of the small intestine. Accordingly, there is every reason to assume that few substances surpass alcohol, when once it reaches the blood, in the readiness and rapidity with which they can diffuse to every part of the body.

The concentration of alcohol in the circulating medium, therefore, must be of great significance in the distribution and consequent fate or effects of this substance. Its content in the blood, obviously, might be determined by the total amount and concentration of the alcoholic fluid available for absorption from the alimentary tract, for this represents the total available supply; again, the capacity of the organism to excrete, destroy or store alcohol must represent an equally important feature in the adjustment of the alcohol balance sheet. If it is true that the objectionable effects of alcohol, whether they are designated as intoxication or incoordination or merely by the more euphonious expression, mild inebriation, parallel the rising and sinking of the alcohol content of the blood,[2] the factors that modify the latter need to be established with great precision.

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[1] Fisher, Irving, and Fisk, E. L.: How to Live, New York, 1919, pp. 307-308.

[2] Gréhant: Compt. rend. Soc. de biol. **55**: 1264, 1903. Schweisheimer: Deutsch. Arch. f. klin. Med. **109**: 271, 1913.

Obvious difficulties present themselves in any attempt to secure numerous samples of blood from human subjects for analysis after ingestion of alcohol. Consequently, it has been proposed, in view of the ready distribution of the substance, that the urine might contain alcohol in comparable proportions as a result of its diffusion through the kidneys. In that event, the changing content of alcohol in the excretions would afford an indication of its level in the blood. In the elaborate studies of Miles,[3] he has actually found that, after an intake of alcohol, the blood and the urine reach their maximal alcohol concentration at about the same time; and, while not identical, still the urine-alcohol curve is very useful for comparison with the time relations of the objective measurements of the alcohol effect on the central nervous system. Herein lies a method of great promise in the investigation of the physiologic effects of alcohol, now that the urine can be depended on to furnish a fairly reliable index of the condition of the blood.

The relative danger or merits—the choice of the vocabulary seems to be modified by personal points of view—of potable fluid of respectively high and low alcoholic strength, such as are contrasted in the distilled liquors and the fermented beverages, has attained controversial prominence. Miles' studies on man show that the same weight of alcohol taken in a concentrated solution produces a definitely higher alcohol concentration in both blood and urine than when taken in a much more dilute solution. Subjects thoroughly habituated to alcohol absorb the 2.75 per cent. dose about the same as nonhabituated individuals. Changes in the amount of urine per minute do not perceptibly influence the concentration of alcohol in the urine. According to Miles, the alcohol concentration in the venous blood and in the urine after the ingestion of 27.5 gm. of absolute ethyl alcohol diluted in 1,000 c.c. or 100 c.c., respectively, of fluid is not identical and does not run parallel in the first two hours. Taken as 2.75 per cent., the concentrations in the venous blood at twenty, forty, seventy and 120 minutes after ingestion are 18, 24, 30 and 30 mg. of alcohol for each hundred cubic centimeters. The corresponding urine values are 15, 37, 47 and 43 mg. The urine concentration is from 40 to 50 per cent. higher than the blood at from forty minutes to two hours after ingestion, and it is also higher than that of the plasma by from 20 to 25 per cent. The alcohol taken as 27.5 per cent. solution gave, at the intervals specified, 28, 42, 43 and 36 mg. in the blood, and 24, 51, 65 and 49 mg. in the urine.

It should not be erroneously concluded, from what has been stated, that most of the alcohol ingested by man is eliminated again like common salt or other mineral nutrients, and many drugs. It is the parallelism of the momentary content in blood and urine, rather than the absolute output, that requires emphasis. The amount of ingested alcohol that is excreted by the urine rarely exceeds 3 per cent. In the classic experiments of Atwater and Benedict in which human subjects took 72 gm. of absolute alcohol diluted and divided into six doses two or three hours apart, the total elimination through the kidneys was scarcely 0.2 per cent. Miles points out that such a variety of results may be expected, since the elimination will be influenced by the amount and dilution of the alcohol taken, the presence of food in the stomach, the amount of muscular exercise following ingestion, and the frequency of urination. Alcohol does not burn well in more than small amounts in the body, nor is it eliminated readily in large amounts. These are among the foremost physiologic objections to its sojourn in any considerable concentration in the blood and the tissues.

FATIGUE AND RESISTANCE TO DISEASE

The study of industrial efficiency in connection with the prosecution of the World War tended to accentuate certain aspects of human welfare that had until then attracted little consideration. Environmental conditions, such as temperature, humidity, ventilation and food resources, long believed to play a part in the determination of human comfort and physical well-being as well as muscular efficiency, were subjected to new examinations and evaluation with respect to their possible bearing on fatigue or overfatigue. The avoidance of excessive fatigue became the keynote of various preventive measures in which human health and activity were concerned. Incidentally, the conviction gained ground that fatigue plays a significant part in the causation of disease; thus, Sir James Paget is quoted as writing: "You will find that fatigue has a larger share in the promotion or transmission of disease than any other single causal condition you can name." [1]

In preventive medicine, mere "guesses" as to the cause of illness have often proved to be singularly illusory. With respect to fatigue, reference is frequently made to the studies of Abbott and Gildersleeve,[2] who found that when rabbits were inoculated with pathogenic bacteria and were then fatigued by running several hours each day in a wheel, they died; while other rabbits, inoculated but not fatigued, survived. With the fatigued rabbits the opsonic index, which may be interpreted to the layman as that condition of the blood which signifies the degree of susceptibility of the organism to bacterial infection, was gradually reduced as the fatigue progressed. Cessation of the fatiguing process for even a day resulted in a partial recovery of depression in the opsonic index.

Realizing that the experimental evidence of the relation between acute fatigue or physical exhaustion and susceptibility to infection has been exceedingly meager, Oppenheimer and Spaeth[3] have undertaken a new investigation of the problem in the School of Hygiene and Public Health at the Johns Hopkins University. The outcome of observations on rats in which fatigue was artificially induced by enforced muscular exercise showed quite unexpectedly a definite increase rather than decrease of resistance in these animals to lethal doses of pneumococci. Subsequently the question has been reinvestigated on guinea-pigs by the Baltimore physiologists.[4] The same increased resistance to the infections was observed in this species, too. Perhaps hereafter when sickness is reported to "arise from the factory," fatigue alone cannot be held clearly responsible, so far, at least, as infectious disease is concerned. More proofs must now be forthcoming before work is made too largely chargeable in public health programs for reform.

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[3] Miles, W. R.: The Comparative Concentrations of Alcohol in Human Blood and Urine at Intervals After Ingestion, J. Pharmacol. & Exper. Therap. **20**: 265 (Nov.) 1922.

[1] Lee, F. S.: The Human Machine and Industrial Efficiency, New York, 1918, p. 79.

[2] Abbott and Gildersleeve: The Influence of Muscular Fatigue and of Alcohol upon Certain of the Normal Defenses, Univ. Pennsylvania M. Bull. **23**: 169, 1910.

Current Comment

THE REGENERATION OF RED BLOOD CELLS

Despite the comparative fixity in the numbers of red blood corpuscles circulating in a unit of blood plasma—a fixity so marked that even small deviations in the erythrocyte "count" are looked on as signs of a pathologic condition in the organism—students of hematology realize that the blood cells are always in a state of flux. The older ones are disintegrated, and newer ones enter the blood stream to take their place. The details of these changes are not yet clearly established, although it is taught that hematopoiesis, or the formation of red corpuscles, goes on continually, the process being accelerated after hemorrhages and in certain pathologic conditions. Sometimes, when the increase in production is marked, red corpuscles or normoblasts, still retaining their nuclei, are forced into the circulation. In a recent study of the sizes of the erythrocytes in man under a variety of conditions, Price-Jones[5] observed that the mean diameter of the red cells in pernicious anemia is larger, and in anemia following hemorrhage is smaller, than in health. In both of these conditions the range of size and variability of the red cell diameters is greater than in health. The conclusion seems justified that this outcome is due to the fact that the blood contains mixtures of different kinds of cells. It is known that abnormally large cells may arise from some abnormal excitation of the bone marrow, possibly in only small portions of it. This has been regarded by some as the "pernicious" feature. On the other hand, it has also often been noted that after hemorrhage the overstimulation of the bone marrow as the result of the attendant anemia may lead to an output of small cells among those of more nearly normal size. From such complicated conditions one can well understand Sabin's[6] contention that "we are at the present time in the beginning of the experimental phase of hematology," and that blood must be considered as only a part of a larger subject. The organism must not only replace blood cells that have been lost or destroyed, but also produce erythrocytes of physiologically proper sorts.

HYGEIA: A JOURNAL OF INDIVIDUAL AND COMMUNITY HEALTH

The response of physicians to the announcements of the publication of *Hygeia* has been most gratifying. Many physicians have written enthusiastic letters endorsing and encouraging the undertaking, and some have offered to cooperate actively in promoting circulation of the new magazine. One county medical society is considering the giving of complimentary subscriptions to each public health agency and each grade school superintendent in the county. This week, further information regarding the new publication is given on a colored insert sheet. Physicians are now offered the privilege of ordering several subscriptions for lay friends or patients at the special introductory rate of eight months for one dollar. A coupon is attached to the insert, and may be used for this purpose. Each person for whom a subscription is ordered will receive an attractive card stating that the publication will come to him as a gift from the donor whose name will be inserted. Those physicians who are eager to see this publication properly introduced to the general public will not hesitate to avail themselves of this opportunity.

YAWS IN THE UNITED STATES

The fact that, in a country as near to the United States as is Santo Domingo, a disease may be sufficiently prevalent to permit observers to report a study of more than a thousand cases, with an incidence of from 100 to 300 each day,[7] whereas the discovery of a single case of the same malady in this country excites evident interest among scientific clinicians because of its rarity,[8] furnishes food for reflection. We refer to yaws, or frambesia tropica, a disease due to a spirochetal micro-organism, *Spirochaeta pertenuis,* and easily communicable and disabling. Despite its great prevalence in certain parts of the West Indies, American dermatologists seem to be agreed that yaws is rare in the United States. This conclusion is justified by the recent review of Fox,[8] in consultation with many American colleagues, of recorded instances in the literature. Yaws often simulates syphilis, both clinically and pathologically. The etiologic microorganisms can be distinguished only by skilful technic in the hands of trained workers. Yaws, however, is a much less serious disease, as it does not attack the central nervous system or viscera and is not transmitted by heredity. Furthermore, it is much more easily eradicated by arsphenamin than is syphilis. It might be supposed that, because of the resemblances between syphilis and yaws, the latter has often escaped recognition as such and has been falsely diagnosed. This seems unlikely to Fox, in view of the large number of well trained dermatologists scattered over different sections of the United States. He ventures the belief, therefore, that yaws would probably not thrive in the northern part of this country, as it is strictly a tropical disease. The majority of the cases reported in northern seaports have evidently been imported from foreign countries. Why climate should be the decisive factor is not easy to conjecture. As Pusey[9] has pointed out, communication between gulf ports and the West Indies has been very intimate since the settlement of the country; the conditions among the negroes in the subtropical districts along the gulf are closely similar to those in the West Indies, and it is remarkable that the disease has not obtained a foothold there. Preventive medicine is obviously interested in ascertaining precisely why yaws either cannot or has not thrived in the United States.

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[3] Oppenheimer, E. H., and Spaeth, R. A.: Am. J. Hyg. **2**: 51, 1922.

[4] Oppenheimer, E. H., and Spaeth, R. A.: The Relation Between Fatigue and the Susceptibility of Guinea-Pigs to Infections of Type I Pneumococcus, Am. J. Hyg. **2**: 527 (Sept.) 1922.

[5] Price-Jones, C.: The Diameters of Red Cells in Pernicious Anaemia and in Anaemia Following Hemorrhage, J. Path. & Bacteriol. **25**: 487 (Oct.) 1922.

[6] Sabin, Florence: The Origin of the Cells of the Blood, Physiol. Rev. **2**: 38 (Jan.) 1922.

[7] Moss, W. L., and Bigelow, G. H.: Yaws: An Analysis of 1,046 Cases in the Dominican Republic, Bull. Johns Hopkins Hosp. **33**: 43 (Feb.) 1922.

[8] Fox, Howard: The Prevalence of Yaws (Frambesia tropica) in the United States, Arch. Dermat. & Syph. **6**: 657 (Dec.) 1922.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ALABAMA

Medical Society Elections.—At the annual meeting of the Mobile County Medical Society held in Mobile, December 2, under the presidency of Dr. Edward S. Sledge, the following officers were elected: president, Dr. George C. Kilpatrick; vice president, Dr. William W. Perdue; secretary, Dr. Willis W. Scales, and treasurer, Dr. Edly W. Cawthorn.——Madison County reelected Dr. Carl A. Grote president of the medical society and Dr. Thomas E. Dryer vice president.

Gorgas Memorial Unveiled.—A drinking fountain, presented by the local chapter of the Daughters of the American Revolution to the Gorgas Public School, was unveiled, November 24, at Toulminville, a suburb of Mobile, as a memorial to General William C. Gorgas. Toulminville was the birthplace of the great sanitarian. A relative of General Gorgas unveiled the fountain, and Major Earl North, representing the U. S. Army, delivered the oration in connection with the ceremony.

ARKANSAS

Hospital Cornerstone Laid.—The cornerstone of the new St. Edward's Infirmary at Fort Smith was laid, October 22, with appropriate ceremonies. The new infirmary will be four stories high with accommodations for 150 patients. It will be erected at a cost of $200,000 and will be operated by the Sisters of Mercy of Fort Smith.

Clinic for War Veterans.—The federal government has leased the entire second floor of the Foreman Block, Texarkana, for the use of a general clinic for ex-service men. The rooms have been remodeled at a cost of $5,000. The clinic will be opened, Jan. 1, 1923, with a full staff of physicians, dentists, pharmacists and nurses. The vocational training quarters for soldiers will have offices in the same building.

CALIFORNIA

Personal.—Dr. J. M. Scanland, formerly medical director of the Montana State Hospital, Warm Springs, has been appointed superintendent of the Napa State Hospital, Napa, to succeed Dr. A. C. Matthews.——Dr. Harry L. Carpenter, Richmond, has been elected president of the Contra-Costa County Medical Society.——Dr. John H. Lang has resigned as city physician of Fullerton, a position he has held for ten years. Dr. C. Gilbertson of Fullerton will succeed Dr. Lang.

COLORADO

County Society Election.—At the annual meeting of the Larimer County Medical Society at Fort Collins, December 6, Dr. David W. McCarthy, Berthoud, was elected president; Dr. John G. McFadden, Loveland, vice president, and Dr. Thaddeus C. Brown, Fort Collins, secretary.

Smallpox in Denver.—Between January 1 and Dec. 2, 1922, Denver had 660 cases of smallpox with 226 deaths. In 1916, Denver had only ten cases, with no deaths; the number of cases increased each year, but there were no deaths until 1920, when among 953 cases there was one death; in 1921, there were 924 cases with thirty-seven deaths. The first fatality of this outbreak occurred during the week ending Nov. 12, 1921. *Public Health Reports*, Dec. 15, 1922, in commenting on these figures, says: "The direct source of the Denver outbreak may have been the same as the unknown source of the Kansas City outbreak. Unfortunately, publicity, which in Kansas City secured sufficient general vaccination to stop the outbreak with the appearance of warm weather, was not equally effective in Denver, and the fatal and highly contagious strain of the disease prevailed through the summer, breaking out again characteristically with the cooler season."

CONNECTICUT

Donation to Yale.—Dr. John P. Peters, associate professor of medicine at the Yale University School of Medicine, New Haven, has presented the library of his father, Prof. John P. Peters, to the university. The collection comprises about 1,200 volumes.

DISTRICT OF COLUMBIA

Heart Clinics Advocated.—Creation of public heart clinics throughout the city of Washington has been advocated by Dr. William C. Fowler, district health officer. At the present time, the number of deaths from heart disease in the District is greater than from any other disease, being rated at 152 per hundred thousand population.

Second Physiotherapy Course.—A second course in physiotherapy will be given at the Walter Reed General Hospital, Washington, beginning Feb. 27, 1923, and continuing for a period of four months. It is open to women who have had at least two years of training in an approved school of physical education. For further information, apply to the Commanding Officer, Walter Reed General Hospital, Attention of the Department of Physiotherapy.

FLORIDA

Quarantine Station Moved.—The War Department has moved the quarantine station headquarters from Mullet Key to Tampa; since the abandonment of Forts Dade and DeSoto, Mullet Key has been almost isolated from Tampa. This change will save a day's time to local shipping, which had to stop at Mullet Key for examination before docking at Tampa.

GEORGIA

Academy of Medicine of Fulton.—It was announced in The Journal recently that the Fulton County Medical Society had bought a house in Atlanta as headquarters for the society. This was formally dedicated with appropriate ceremonies, December 15. The assembly hall has been named for the late Dr. Abner Calhoun, and the library for the late Dr. John Westmorland, who founded the Atlanta Medical College in 1853. The library was dedicated by Lucian Lamar Knight, state historian. At the first meeting held in the new academy, Dr. J. Shelton Horsley, Richmond, Va., spoke on "The Relation of Biology to Surgery." Dr. Rufus T. Dorsey presided.

IDAHO

Physician Elected a Senator.—Dr. Walter F. Pike, Twin Falls, was recently elected to the state senate.

ILLINOIS

Board of Health Elects.—At the annual meeting of the state board of public health at Springfield, December 2, Dr. Edwin P. Sloan, Bloomington, president of the Illinois State

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[9] Pusey, W. A.: Discussion, Arch. Dermat. & Syph. **6**: 672 (Dec.) 1922.

Medical Society, was elected chairman of the advisory board of the health department, to succeed Dr. William A. Evans of Chicago. Mrs. Monroe of Quincy was elected vice chairman, and Dr. Thomas D. Doan, Scottville, secretary of the Marcoupin County Medical Society, was elected secretary.

Quits to Avoid Vaccination.—Rather than submit to the order of the state board of health that every one in Sterling be vaccinated, John Haglock, chief of police of that city for the last ten years, has resigned his position.

Personal.—Dr. H. Horace Long, Orion, is retiring from the practice of medicine.——Dr. James G. Baker, Mattoon, has been appointed local surgeon for the Illinois Central Railroad to succeed Dr. J. T. McDonald, recently deceased. ——Dr. Emil Windmueller, Woodstock, is in the hospital suffering from severe burns, as the result of coming in contact with live wires on his roentgen-ray machine. He was found prostrate on the floor of his office.

Chicago

Prison for Venereal Disease Carriers.—It is announced by Dr. Bundesen, city health commissioner, that at its next session the Legislature will be asked to make the transmission of venereal disease a penitentiary offense. Senator-Elect Mason will introduce the bill. It was also suggested that the guilty party or parties responsible for babies being born dead as the result of venereal infection be charged with second degree murder.

Fenger Memorial Association.—It is announced that the directors of the Fenger Memorial Fund have set aside $500 for medical investigation. The research work should have a clinical bearing, and if possible it should be carried out in an institution that will furnish facilities and ordinary supplies free of cost. Applications with full particulars should be sent to Dr. Ludvig Hektoen, 637 Wood Street, Chicago, before Jan. 15, 1923.

Personal.—Dr. Michael Nelson, Chicago, sailed on the *Helig Olav* for Christiania and Copenhagen, November 30. ——Dr. Carl O. Young, Chicago, sailed December 2, on the White Star liner *Arabic* for Mediterranean ports.——Dr. B. Barker Beeson, Chicago, has been elected a corresponding member of the Société Anatomique de Paris.——Dr. Daniel N. Eisendrath read a paper before the Academy of Muncie, Ind., December 15, on "Diagnosis and Treatment of Renal Calculi."

Children's Clinic Opened.—Dean Arthur D. Black of the Northwestern University Dental School, President Walter Dill Scott and Health Commissioner Herman Bundesen were the speakers at the formal opening of the new children's dental clinic of Northwestern University, December 13. The clinic has been established at a cost of $60,000, and a deficit of about $9,000 has been guaranteed by a Chicagoan who desires to remain anonymous. The operating room contains fifteen dental chairs, and there is a large playroom for the children awaiting examination and treatment.

Society News.—At the annual meeting of the Institute of Medicine of Chicago, December 11, the following officers were elected for the ensuing year: president, Dr. William T. Belfield; vice president, Dr. George H. Weaver; secretary, Dr. Ernest E. Irons, and treasurer, Dr. Joseph A. Capps. Dr. Ludvig Hektoen was elected chairman of the board of governors.——The Robert Koch Society for the Study of Tuberculosis had for its guest, at the December 12 meeting, Dr. Edward Archibald of Montreal, Canada, who gave an address on "Personal Experience with the Operation of Extrapleural Thoracoplasty."

University of Chicago Hospital.—Plans for the Albert Merritt Billings Memorial Hospital for the University of Chicago have been completed. The building, which will occupy a city block, is expected to be one of the most modern institutions in the country. The buildings will be of domestic Gothic architecture in gray Bedford stone. Collidge and Hodgdon, Chicago, who drew up the plans for the Harvard Medical School buildings and several of the University of Chicago campus buildings, are the architects. The hospital has a fund of $1,100,000 for construction purposes. Dr. Frank Billings of Chicago has donated a medical library, and Mr. and Mrs. Epstein have given $100,000 for the erection of a dispensary.

Chicago Safety Campaign.—A pamphlet has been issued by the council, stating how it plans to save life and property in Chicago during the next three years. A vigilance committee of 500 will be organized; ten district safety councils will be formed in as many sections of the city; safety will be taught in the schools; instruction courses will be given for firemen; a safe drivers' club will be organized; an annual safety week will be conducted; three schools will be conducted for safety supervisors; individual service will be provided industries; 150 safety bulletin boards will be installed and maintained; intensive activities in fire prevention will be promoted; monthly meetings will be arranged for industrial executives; two motor schools for chauffeurs and truck drivers will be operated; campaigns to reduce juvenile deaths and injuries will be organized; a school in fire prevention will be conducted, and public sentiment opposed to needless accidents and fires will be developed. It is estimated that six people are killed each day in Chicago.

LOUISIANA

Physicians Donate Library.—The entire library of the Shreveport Medical Society has been donated to the public library in that city. At the recent annual meeting of the society, Dr. Lewis H. Pirkle was elected president and Dr. R. T. Lucas, secretary, for the ensuing year.

Fund for Tulane University.—Under the will of the late William G. Vincent, a fund of $60,000 for establishing a chair of tropical disease at Tulane University of Louisiana School of Medicine, New Orleans, will eventually be available; also, $30,000 for the erection of an isolation building for the Charity Hospital, New Orleans.

Orleans Medical Society.—At the annual meeting of the Orleans Parish Medical Society in New Orleans, Dr. Hiram W. Kostmayer was elected president; Drs. Randolph Lyons, Mary Elizabeth Bass and Frank J. Chalaron, vice presidents; Dr. Lucien A. LeDoux, secretary, and Dr. John A. Lanford treasurer. The society celebrated the one hundredth anniversary of the birth of Pasteur, December 11.

MAINE

County Physicians Elect.—At the annual meeting of the Penobscot County Medical Society at Bangor, Dr. Walter E. Whitney was elected president; Dr. Carl J. Hedin, vice president, and Dr. Harry D. McNeil, secretary-treasurer. The meeting was followed by a banquet, at which the retiring president, Dr. C. H. Burgess, gave an address.

MARYLAND

New Ward Unit at the Johns Hopkins Opened.—The trustees of the Johns Hopkins Hospital have announced the opening of a ward unit for men of moderate means in the urologic department. A generous gift has made it possible to maintain in part, for a term of years, a ward unit for those who require hospital treatment but cannot afford expensive private rooms and professional fees, and who do not wish to enter the public wards.

Public Health Association Formed.—At a meeting of citizens of Baltimore County in Osler Hall, Medical and Chirurgical Faculty Building, Baltimore, recently, a public health association for the county was organized. A constitution and by-laws were adopted and fifteen district directors and six directors-at-large were selected. The new association will continue the work done heretofore by the Baltimore chapter of the Red Cross.

Personal.—Dr. Helen MacMurdy, chief of the division of child welfare of the ministry of health, Ottawa, Canada, addressed the members of the Domestic Efficiency Association at its annual meeting in Baltimore, December 11.——Dr. W. D. Bigelow, director of the Research Laboratories, National Canners Association, delivered a lecture on "The Hygienic Aspects of Canned Foods," at the School of Hygiene and Public Health, Johns Hopkins Hospital, December 18. The lecture is one of the series under the DeLamar course of lectures.

MASSACHUSETTS

Physicians Prescribe Coal.—Prescriptions for coal are being given by physicians and honored by coal dealers in Lawrence. One dealer stated that he had received more than a dozen prescriptions, written on regular prescription blanks, each calling for half a ton of coal. Such orders are given preference over all others, it is announced.

Health Exhibition.—During the week of Oct. 6-11, 1923, a health exposition will be held in the Mechanics Building, Boston, under the auspices of the state and city public health departments and the health exhibit committee of Boston. Felix Mendelsohn, president of the National Health Shows, Inc., will assume the business management and financial responsibility. Dr. Francis X. Mahoney, health commissioner of Boston, is chairman of the committee, consisting of Dr. Eugene R. Kelley, state health commissioner; Miss Beard, director of the Instructive District Nursing Association; Henry Greene, secretary of the health service, Boston Metropolitan Chapter of the American Red Cross, and Dr. Lily O. Burbank, vice chairman of the Boston health exhibit committee. The exposition will be the most important of its kind ever undertaken in Boston, Dr. Mahoney states. The proceeds will be used for furthering public health.

MICHIGAN

Radio Adopted by Health Department.—Health promotion by radio is the latest innovation adopted by the state department of health. A series of short talks of a nonprofessional nature regarding health conditions in the state will be broadcasted every Thursday evening from Lansing.

Beaumont Lectures.—The first of the William Beaumont Foundation lectures, given under the auspices of the Wayne County Medical Society, Detroit, has just been issued in book form. Dr. W. G. MacCallum, professor of pathology, Johns Hopkins University, delivered the first lecture last January. This series of lectures is the outgrowth of a patriotic fund created during the war for the purpose of assisting needy families of members of the medical society who were in war service. After the fund had served its purpose, the contributors redonated the substantial surplus to the progress of scientific medicine.

MISSISSIPPI

Five-Year Malaria Survey.—Dr. H. H. Howard of the International Health Board has arrived in Laurel, to conduct the five-year campaign in Jones County against malaria. Work will be started, Jan. 1, 1923. Dr. Howard will have the assistance of three workers, as well as medical students who wish to study malaria.

MISSOURI

Hospital News.—The cornerstone of the new St. Mary's Hospital, St. Louis, to be erected on the corner of Clayton Road and De Mun Avenue, was laid, November 21.——Miss Flowers, St. Louis, has been appointed superintendent of the Gallaway County Hospital, Fulton, to succeed Mrs. Wilcox, resigned.——Miss Ranz will succeed Miss Reitz as superintendent of the Audrain Hospital, Mexico.——The contract has been let for the erection of a fifty bed hospital at Sarcoxie, at a cost of $112,694. The Simon Construction Company will erect the institution, which will be completed by Aug. 1, 1923.

NEBRASKA

Fire Destroys Hospital.—The hospital building owned by Dr. Samuel A. Van Osdel, Johnson, was destroyed by fire, recently. Dr. Van Osdel plans to rebuild shortly.

Public Health News.—Nebraska has the lowest pneumonia mortality rate of all states in the Union, reports announce, the rate being 143.1 per hundred thousand during 1920, as against 287.1 for Colorado, the highest. Nebraska also leads all other states in having the lowest mortality rate for all forms of tuberculosis, the rate being 36.7 per hundred thousand.

NEW JERSEY

Personal.—Dr. Berthold S. Pollack, medical director of the Hudson County Tuberculosis Hospital, Secaucus, was recently elected president of the New Jersey Tuberculosis League.——Dr. C. Coulter Charlton, Atlantic City, has gone to Europe to study for several months.——Dr. Clarence L. Andrews and Dr. Edward F. Uzzell were elected president and secretary, respectively, of the Atlantic County Medical Society at the annual meeting in Atlantic City, November 10.——Dr. Edward S. Dillon, Woodbury, has been elected president of the Gloucester County Medical Society.

State Medical Society Plans New Legislation.—A meeting of the welfare committee of the Medical Society of New Jersey was held, December 6, at Newark, with Dr. Wells P. Eagleton, Newark, in the chair. The program for the meeting called for consideration of a bill appropriating $10,000 for the state board of medical examiners, in order that they may prosecute violators of the medical practice act; a bill pertaining to nurses, and a bill to transfer from the jurisdiction of the state medical board to the state board of health, the regulation of midwives. A report was also made on the workings of the medical amendment to the Workmen's Compensation Act, passed last winter.

Hospital News.—The State Fireman's Home, Boonton, has applied to the state authorities for permission to construct a hospital at the home. Dr. W. J. Summers was elected president of the Boonton Hospital Association, formed for this purpose.——Dr. Harry B. Slocum has been elected chief of staff of the Monmouth Memorial Hospital, to succeed the late Dr. Edwin Field.——A general hospital will be established at Phillipsburg, instead of a maternity hospital and infantorium as originally planned. The trustees so decided on a petition from the citizens of Phillipsburg.——Congressman E. R. Ackerman has offered the sum of $20,000 payable $10,000 in December, 1922, and $10,000 in 1923, provided that $115,393 is subscribed in full by the general public for other items in the budget of the Muhlenberg Hospital, Plainfield. A campaign is being conducted to raise money for the enlargement of the institution.

NEW MEXICO

County Medical Meeting.—At the annual meeting of the Bernalillo County Medical Society in Albuquerque, December 6, the following officers were elected: president, Dr. Carl Mulky; vice presidents, Drs. David C. Dodds and John A. Reidy; secretary, Dr. Leo B. Cohenour, and corresponding secretary, Dr. Emmett E. Royer. A committee was appointed to set the date and make arrangements for the entertainment of the state medical society in June 1923.

NEW YORK

Syracuse Teachers to Receive Schick Test.—November 21, 150 teachers in the public schools were given the Schick test and 60 per cent. showed a positive reaction. Dr. Joseph C. Palmer, director of medical work in the schools, started a campaign for the testing of schoolchildren, December 9.

Seek Funds for Rehabilitation of the Disabled.—Plans have been completed for a drive soon to be started, to raise $130,000 for the Institute for Crippled and Disabled Men. It is estimated that it will require this amount to carry on the work of the institute for two years and to pay $30,000 to purchase its new quarters at 245 East Twenty-Third Street. Dr. John Culbert Faries is director of the institute.

Open War on Abortion Ring.—Health officials and police of Rochester engineered a successful raid at 470 Lyell Avenue, November 25, arresting Dr. J. Sherburne Read, 429 South Goodman Street; George Guinan, 8 Platt Street, said to be a medical student, and Mrs. Cecilia Weis, 470 Lyell Avenue. All were charged with abortion. Bail was fixed at $10,000 in each case. The police assert that they have the auto license numbers of at least a dozen physicians who frequented the Weis house.

Hospital Donations.—At a meeting of the directors of the Hospital for Joint Diseases, December 10, it was announced that the Equitable Trust Company would act as custodian of the endowment fund of securities of more than $100,000, yielding $5,800, given by Dr. Henry W. Frauenthal, founder and surgeon-in-chief of the hospital. The income derived from this fund will go toward the maintenance of the laboratory of the new hospital.——The Mount Sinai Hospital has received a gift of $25,000 from Mr. Joseph F. Cullman, as the nucleus of a fund for medical education.

Columbia University Celebrates Pasteur Centennial.—The College of Physicians and Surgeons, the Department of Romance Languages, and the Faculty of Pure Science, in cooperation with the University Extension of the Institute of Arts and Sciences, held a meeting, December 18, to commemorate the centenary of Louis Pasteur. The speakers were Emmanuel de Margerie of the University of Strasbourg, whose subject was "France's Estimate of Pasteur"; Dr. Gary N. Calkins, who spoke on the "Debt of Biology to Pasteur," and Dr. Frederic S. Lee, whose subject was "The Debt of Medicine to Pasteur."

New Requirements for Public Health Nurses.—At a meeting of the public health council of the state department of health recently, a resolution was adopted requiring that, after Jan. 1, 1924, public health nurses appointed by county and municipal authorities shall possess the following qualifications:

> (1) They shall not be less than 21 years of age at the time of appointment. (2) They shall be registered nurses. (3) They shall have completed a course in public health nursing approved by the public health council. Similar qualifications were required of public health nurses some years ago, but, owing to the great shortage of nurses during the World War, it was necessary to relax the rules. Graduates of the correspondence course in public health nursing now being conducted at the request of the department of health at New York University and Bellevue Hospital Medical Colleges will be eligible under these new educational requirements.

Personal.—Dr. F. A. Treiber, Brooklyn, sailed for Bermuda, December 2.——Dr. Ward I. Pierce, New York, sailed for Havre, November 23.——Dr. Earl Connell, major, M. C., U. S. Army, New York, was awarded the distinguished service medal by President Harding, recently.——Among those who sailed for Europe on the White Star liner *Majestic*, December 14, were Dr. Boris D. Bogen, head of the Joint Distribution Committee for Russia and Poland; Dr. L. G. Kligler of the Rockefeller Institute, head of the Palestine Malarial Research Unit, and Dr. Otto Shulhof.——Dr. A. Progebin of Brooklyn sailed for Europe on the *Mongolia* of the Hamburg line, December 11.——Dr. Victor Hess and Dr. F. B. Jennings have recently returned from Europe.——Lieut.-Col. Levy M. Hathaway, who served as surgeon with the Thirty-Third Division, has been awarded the distinguished service medal.

New York City

A Warning.—Dr. Mihran B. Parounagian, New York, reports that two physicians called at his office recently, introducing themselves as physicians from Indianapolis and St. Louis. They seemed well informed on medical matters and succeeded in securing an advance of $40 on a memorandum. Having heard nothing from them, he investigated, and letters from the physicians addressed, whom the impostors were impersonating, revealed that a similar scheme had been attempted in connection with other physicians.

Standards for Outpatient Clinics.—The Association of Out-Patient Clinics of New York has published a list of practical standards for outpatient clinics in the hope of receiving the comments and criticisms of the profession. The standards relate to the scope of responsibility of the outpatient clinic; community relations; general organization; relation to the hospital; medical organization; facilities, equipment and procedure; admissions; appointment system; limitation of numbers; fees; social service; follow up; accounting; districting; adaptation of clinics to clientele, and appraisals of results.

OHIO

Dr. Sampliner Exonerated.—The case against Dr. William E. Sampliner, Cleveland, charged with using the mails to defraud, in connection with the presenting of bills to the Ohio Industrial Commission, was recently dismissed by U. S. Commissioner Zinner, and Dr. Sampliner was completely exonerated.

Summit County Medical Society.—At the eighty-first annual meeting of the society held in Akron, December 5, the following officers were elected: president, Dr. Corwin Thomas Hill; president-elect, Dr. Edwin Shoemaker Underwood, and secretary-treasurer, Dr. Alexander Stearns McCormick (elected for the ninth term).

Course in Treatment of Gonorrhea and Syphilis.—The Mount Sinai Hospital of Cleveland offers a three months' practical course in diagnosis and treatment of gonorrhea and syphilis, free to the medical profession. The course starts January, March, September and November, and is limited to four graduates in medicine. Clinics will be held every Thursday by Dr. P. A. Jacobs, chief of the night clinic, and associates. Address all communications to F. E. Chapman, director.

Personal.—Prof. R. G. Hoskins, head of the department of physiology, Ohio State University, Columbus, will give the annual address before the Portland (Ore.) Academy of Medicine, January 11-12.——At the annual election of the Academy of Medicine of Cleveland, December 15, Dr. Clyde L. Cummer succeeded Dr. John Phillips as president.——Dr. C. I. Anders, Old Fort, was recently elected president of the Seneca County Medical Society.——Dr. Erl A. Baber, Dayton, has been appointed superintendent of the Longview Hospital for the Insane, Cincinnati, to succeed Dr. Emerson A. North, who resigned to become director of the Cincinnati Mental Hygiene Clinic, recently organized.——Drs. Russell J. Caton and Charles Ulmer, Bucyrus, have resigned as members of the city board of health.——Dr. Thomas A. Ratliff has been appointed head of the department of public welfare and a member of the state committee of five to investigate the situation in Ohio with reference to the needs for the care of the feebleminded.——C. A. Mills, Ph.D., has resigned as instructor of biochemistry in the College of Medicine of the University of Cincinnati.——A. E. Hardgrove has been appointed superintendent of the City Hospital of Akron.

OKLAHOMA

Personal.—Dr. William P. Lipscomb, Oklahoma City, has given up the practice of medicine and will reside in Denver.——Dr. John C. Mahr has been appointed superintendent of the Central Oklahoma State Hospital for the Insane, Norman, to succeed Dr. David W. Griffin.——Dr. Robert H. Harper, Afton, was recently elected president of the Ottawa County Medical Society to succeed Dr. Dell L. Connell, Picher.——Dr. Ralph V. Smith, president of the Oklahoma State Medical Association addressed the members of the Creek County Medical Association at their annual meeting in Sapulpa, December 7. Dr. Walter G. Bisbee and Dr. Ernest W. Reynolds, both of Bristow, were elected president and secretary-treasurer, respectively.

PENNSYLVANIA

Personal.—Dr. John A. Hawkins, Pittsburgh, president of the Western Pennsylvania Reserve Officers' Association, has been promoted to the rank of colonel in the M. O. R. C.——Dr. J. Lewis Mansuy, Ralston, has been elected president of the Lycoming County Medical Society.——Dr. John A. Weierbach, Quakertown, was recently elected president of the Bucks County Medical Society.——Dr. William M. Lynch was unanimously reelected superintendent of the Fairview Hospital for the Criminal Insane at Scranton, for a period of four years, at the recent annual meeting of the board of trustees.

Philadelphia

Smallpox Quarantine.—More than 1,000 residents of the vicinity of Thirty-Third and Walnut streets were placed under police quarantine, December 14, after the discovery of three cases of smallpox at 3235 James Street.

Children Give Play.—Two health playlets and a lecture on nutrition illustrated with lantern slides were given in the auditorium of Sutro and Sutro Company, December 15, under the auspices of the welfare department of the Northeastern Hospital. Public school children of Kensington composed the casts of the playlets. Costumes and settings were supplied by the Philadelphia Interstate Dairy Council.

Hospital News.—An appropriation of $250,000 has been made for the establishment of a hospital in Philadelphia by the Ancient Arabic Order of the Mystic Shrine. Construction work will be started in the near future.——A temporary women's committee of the Columbus Hospital, a new Italian institution for which a building is to be erected at Broad and Wharton streets, has been organized by Dr. John Gilbride to raise building funds. The hospital will be under the auspices of the Missionary Sisters of the Sacred Heart.

White Surgical Pavilion Dedicated.—Sir Auckland Geddes, the British Ambassador, delivered the dedicatory address, December 14, at the opening of the new J. William White Surgical Pavilion of the University of Pennsylvania. The new pavilion has been several years under construction. It is a seven-story fireproof structure and was erected at a cost of $1,000,000, of which $350,000 was contributed by the state and the remainder by friends of the university. It was named in honor of Dr. J. William White, for many years professor of surgery at the university. The opening of this surgical pavilion increases the number of beds for patients in the University Hospital from 456 to 546.

Pasteur Celebration.—The centenary of Pasteur will be celebrated in Philadelphia, December 27. A committee, with Dr. W. Duffield Robinson as chairman and Dr. McCluney Radcliffe, secretary, is in charge of the arrangements. An afternoon mass meeting will be held in the Academy of Music, with a banquet at the Bellevue-Stratford in the evening. Dr. Hugh S. Cumming, Surgeon-General, U. S. Public Health Service; N. Jules Jusserand, the French ambassador; Dr. Robert Abbe, New York; M. Brunet, special delegate of the French government, director of the Pasteur Institute, Tunis, and Dr. Lewis S. McMurtry, professor of abdominal surgery and gynecology at the University of Louisville, Louisville, Ky., will be among the speakers.

TENNESSEE

Bristol to Have Two Hospitals.—Two new hospitals, representing an outlay of $170,000 will be opened in Bristol early in the new year, it is announced. The King's Mountain Memorial Hospital, is being erected at a cost of $150,000 and the Mercy Hospital for Negroes is practically completed. This institution cost about $20,000 and is the only negro hospital in that section.

TEXAS

Course for Water and Filter Plant Operators.—Under the auspices of the state department of health, in conjunction with the Texas Water Works Association, the fifth course for water and filter plant operators will be given in Dallas, during the week beginning Jan. 15, 1923. The course is free, and anyone interested may attend. Application should be made to Dr. W. T. Davidson, director of public health, Dallas.

Society News. — At the annual meeting of the Tri-State Medical Association (Arkansas, Louisiana and Texas) at Marshall, December 5-6, the following officers were elected for the ensuing year: president, Dr. Oliver M. Heartsill, Marshall; vice president, Dr. Donald Smith, Hope, Ark., and secretary-treasurer, Dr. J. W. E. Burk, DeKalb, Texas. Texarkana, Texas, was chosen for the next meeting place. ——The Northwest Texas Medical Society was reorganized, December 7, during the meeting of the tri-state society, with Dr. Robert T. Mann, Texarkana, as president; Drs. William G. Hartt, Marshall, and Alvin Dinwiddie, Clarksville, vice presidents, and Dr. William Hibbitts, Texarkana, secretary-treasurer. This society covers fifteen counties and was dissolved several years ago.——At the annual meeting of the State Pathological Society of Texas in Waco, recently, the following officers were elected: president, Dr. James H. Black, Dallas; vice president, Dr. Beecher F. Stout, San Antonio, and secretary-treasurer, Dr. Wilbur F. Thomson, Beaumont.——At the annual meeting of the Eastland County Medical Society at Ranger, in November, Dr. William H. Guy, Carbon, was elected president to succeed Dr. Thomas L. Lauderdale, Ranger.——At the annual meeting of the Tom Green County Medical Society at San Angelo, Dr. A. W. Clayton was elected president and Dr. Hubbard K. Hinde, secretary-treasurer.

UTAH

Physicians Elect. — At the annual meeting of the Cache Valley Medical Society, in Logan, December 6, Dr. Warren O. Christensen, Wellsville, was elected president; Dr. Joseph W. Hayward, Logan, vice president, and Dr. William Bowker Preston, Logan, secretary-treasurer.

VERMONT

Push Work on Burlington Hospital.—Work is being vigorously pushed on the construction of the Bishop Goesbriand Hospital at Burlington. When completed, this institution will be one of the largest hospitals in Vermont. The unit under construction is 220 by 58 feet and will constitute one-fourth of the entire hospital.

WASHINGTON

Physicians Elected to Legislature.—At the November election the following physicians were elected to the state house of representatives: Dr. Albert F. Brockman, Bickleton; Dr. Victor J. Capron, Friday Harbor, and Dr. Hubert A. Mount, Waitsburg.

Northern Pacific Surgical Association. — At the annual meeting of the association, held in Tacoma, December 8, under the presidency of Dr. John B. McNerthney, the following officers were elected for the ensuing year: president, Dr. James B. Eagleson, Seattle; vice presidents, Drs. Herman M. Robertson, Victoria, B. C., Canada, and Henry B. Luhn, Spokane, and secretary-treasurer, Dr. Alvin W. Baird, Portland, Ore. (reelected). The 1923 convention will be held in Seattle.

Indian Hospital to Be Erected.—Fifteen buildings at Miles barracks and quarters at old Fort Spokane are being wrecked, the lumber to be used in the construction of a hospital for Indians on the old fort grounds, which have been turned over by the war department for this purpose. Congress will be asked to appropriate $100,000 for construction work on the hospital, reconstruction of the water system and erecting quarters for the employees. This hospital is designed to serve Indians throughout the Northwest.

WISCONSIN

Epidemic of Measles.—The number of cases of measles reported from Milwaukee to December 9 was 1,067, sixty new cases being reported that week.

Milwaukee Physicians Elect. — At the annual meeting of the Milwaukee County Medical Society in Milwaukee, December 7, Dr. Frederick A. Stratton was elected president to succeed Dr. Patrick H. McGovern. Dr. Maurice L. Henderson was elected vice president, and Dr. Daniel Hopkinson, secretary.

PHILIPPINE ISLANDS

Beriberi Investigation Committee Appointed.—The Beriberi Investigation Committee, composed of the U. S. Army Medical Department Research Board and members of the faculty of the College of Medicine and Surgery, University of the Philippines, was recently organized at the Philippine General Hospital, Manila. Dr. Jose Albert, chief of clinics, is chairman of the committee. The other members are Drs. Callender, Garrison, Fleming and Bitterman of the U. S. Army board, and Drs. Bautista, Roxas, Guerrero, Smith, Sison, Fernandez, Concepción, Domingo and Albert of the University of the Philippines.

CANADA

Claims for Cancer Cures.—Following the offer of Lord Atholstan of the Montreal *Star* of a prize of $100,000 for the discovery of a cure for cancer, 2,715 claims for the award have already been received from forty-one countries. On advice of the Royal College of Physicians and Surgeons of London, England, claimants must satisfy a recognized medical faculty or leading medical society in his or her own country first, that there is some scientific basis to justify the experimental investigation of the professed cure, and that any cases said to be successfully treated were, in fact, cases of cancer.

Protecting the Physician.—At a special meeting of the Ontario Medical Association, ways and means of protecting the medical profession from those who would include themselves under the title of doctor without having the proper qualifications was the subject of discussion. Dr. J. F. Argue, Ottawa, was in the chair. A resolution was unanimously passed whereby the medical council was given power to take such action as they deemed fit toward securing legislation that shall define the professional standing requisite to the practice of medicine. A further resolution pledging the support of the association to a joint advisory committee in framing the bill to be placed before the legislature at the next session was introduced by Dr. Edmund E. King, Toronto.

Catholic Hospital Convention.—A joint meeting of the Western Canada, the Manitoba, and Western Canada Catholic Hospital associations was held in Winnipeg, November 13-15, under the presidency of Dr. George H. Stephens, superintendent of the Winnipeg General Hospital, and president of the Western Canada Hospital Association. It was stated that the average per capita cost in Western Canada for hospital service ranged from $3.25 to $3.50 per day. Dr. M. T. MacEachern, Ottawa, president-elect of the American Hospital Association, represented British Columbia at the meeting. He discussed affiliation of the Western Canada Hospital Association with the American Hospital Association. Dr. Barager, superintendent of the Brandon Mental Hospital was elected president of the Manitoba Hospital Association. There were no changes in the Western Canada Hospital Association officers. It is expected that the association will continue.

GENERAL

Radiological Society of North America.—At the annual meeting of the society, in Detroit, December 6, Dr. Percy Brown, Madison, Wis., formerly of Boston, was awarded the gold medal of the society for "distinguished services in the science of radiology." The medal of the society was also awarded to Madame Curie, Prof. Gosta Forssell of Stockholm and Maud Slye of Chicago.

Gen. Leonard Wood Resigns as Provost of the University of Pennsylvania.—Major-Gen. Leonard Wood has resigned the office of provost of the University of Pennsylvania in order to remain as governor-general of the Philippines. The resignation represents a considerable sacrifice on the part of General Wood, whom the medical profession is proud to claim as a physician, since it is known that the salary at the University of Pennsylvania was much greater than that connected with the position in the Philippines, not to mention other advantages in the form of personal comfort, permanence and other features of university life.

National Dairy Association.—At the annual meeting held in Chicago, December 8, Prof. H. E. Van Norman was elected president of the association for the eleventh successive time. He was also reelected a director of the National Dairy

Council, which has been engaged for several years in conducting educational campaigns in behalf of milk drinking. Both organizations have their headquarters in Chicago. Mr. Van Norman is also president of the World's Dairy Congress Association, Washington, D. C., which will hold an international dairy meeting in the United States in October, 1923, to which President Harding has invited 150 nations, colonies and commonwealths to send official representatives.

American Social Hygiene Association.—At the annual meeting of the association held in New York, November 3, under the presidency of Dr. Hermann M. Biggs, the following officers were elected for the ensuing year: president, Dr. Hermann M. Biggs, New York City; vice presidents, Drs. Ray Lyman Wilbur, San Francisco; Dr. William S. Keller, Cincinnati; Dr. William A. Evans, Chicago, and Mrs. Joseph T. Bowen, and secretary, Dr. Donald R. Hooker, Roland Park, Md. It was announced that the *Journal of Social Hygiene* will appear, January, 1923, as a monthly, the new publication taking the place of the *Social Hygiene Bulletin.* Prof. Maurice A. Bigelow is editor-in-chief of the new journal.

Dr. Victor C. Vaughan Delivers Pasteur Addresses.—On December 6, Dr. Victor C. Vaughan of the editorial board of *Hygeia,* gave a public address at Madison, Wis., under the auspices of the University of Wisconsin chapter of Sigma Xi, in commemoration of the hundredth anniversary of the birth of Louis Pasteur.——On December 14, he took part in a program commemorating the centenaries of Pasteur and Mendel, arranged as a formal convocation by St. Louis University. President Robinson of the university presided and addresses were delivered by President Jones of Missouri University, Chancellor Hall of Washington University, Prof. Herbert S. Jennings of Johns Hopkins University and Dr. Vaughan.

Experimental Biologists Convene. — The Federation of American Societies for Experimental Biology, consisting of the Physiological Society, the Society of Biological Chemists, the Society for Pharmacology and Experimental Therapeutics and the Society for Experimental Pathology, will hold its annual session in Toronto, Canada, December 27-29, with headquarters at the University of Toronto. On the opening day there will be a joint session of the four societies, followed by special sessions of the various organizations, and the annual dinner and celebration of the one hundredth anniversary of the birth of Pasteur. The closing session will be devoted entirely to papers on the use of the new pancreatic hormone in diabetes.

American Association for the Advancement of Science.—Section N (medical sciences) of the association will hold a meeting in the Massachusetts Institute of Technology, Boston, December 29. Prof. A. B. Macallum, McGill University of Montreal, will lecture on "The Necessity for Advanced Research on the Intestinal Mucosa, the Great Gateway of Disease of the Body." It has been decided, beginning with the Boston meeting, to hold a symposium to which will be invited representatives from the fields of medicine, parasitology and medical entomology. Each representative will discuss his researches with the workers in these allied fields. The Entomological Society of America and the Parasitological Society will meet with the section in Boston.

The Legal Profession and the National Government.—The American government has been and essentially is a government by lawyers. Of the twenty-eight presidents, twenty-three have been lawyers; of the forty-six secretaries of state, forty-four have been lawyers; all of the attorneys general; all of the judges of the federal courts; of the fifty-six signers of the Declaration of Independence, twenty-five were lawyers; and of the fifty-five farmers of the federal constitution, thirty-one were lawyers. In the present Congress, over two third of the senators are lawyers (sixty-nine out of ninety-six) and over half of the representatives (276 out of 435). In 1920, there were but 122,519 lawyers, judges and justices in this country of over one hundred and five millions of people. Never before in the history of the world has so great and intelligent a nation been governed by so small a body of men.—W. W. Cook of the New York Bar in *American Bar Association Journal.*

Death Rates of Mothers from Childbirth in 1921. — The Department of Commerce announces that the compilations made by the Bureau of the Census show lower death rates of mothers from childbirth or puerperal causes in 1921 than in any year since 1917. For the nine states and the District of Columbia (constituting the "Birth Registration Area" of 1915, exclusive of Rhode Island), the death rate from puerperal causes in 1921 was 6.5 to 1,000 live births as compared with 7.6 in 1920, 6.8 in 1919, 8.9 in 1918, 6.3 in 1917, 6.2 in 1916, and 6.1 in 1915. The ratio of deaths from childbirth to the number of women bearing children in the year 1921 was about 1 to 150. Of the twenty-seven states for which figures are available, South Carolina has the highest 1921 death rate from puerperal causes (9.8 to 1,000 live births) and Connecticut the lowest (5.3). Rates for the white and colored races are shown only for Kentucky, Maryland, Mississippi, North Carolina, South Carolina and Virginia. For 1921 the highest rate for the white (7.8) appears for South Carolina, the lowest (5.7 each) for Kentucky and Virginia, while for the colored the highest rate (14.8) appears for Kentucky; the lowest (9.6) for Maryland.

International Conference on Standardization of Serums.—Dr. Augustus B. Wadsworth, director of the division of laboratories of the state department of health, arrived in Albany, N. Y., from Paris, December 13, where he represented the Rockefeller Institute on the international committee appointed by the League of Nations to standardize serums for the treatment and prevention of pneumonia, meningitis, diphtheria and other diseases. The second International Conference on the Standardization of Serums and Serological Tests of the health committee was held under the auspices of the League of Nations, November 20-26, at the Pasteur Institute, Paris, under the presidency of Prof. Theodore Madsen, president of the health section of the League of Nations. Prof. Jules Bordet, Brussels, was appointed chairman of the subcommittee on serologic tests; Prof. Louis Martin, Paris, of the subcommittee on the standardization of tetanus and diphtheria antitoxin; Prof. Cantacuzene, Bucharest, of the subcommittee on antidysentery serum; Prof. Neufeld, director of the Robert Koch Institute, Berlin, of the subcommittee on antipneumococcus serum, and Dr. Wadsworth of the subcommittee on the standardization of antimeningococcus serum. Dr. Wadsworth stated that progress toward international standardization of serums and serologic tests is necessarily a slow one because of differences in the methods that are used in the several countries, but that, despite the many different points of view, the practical results from free discussion were most encouraging.

LATIN AMERICA

Government Board of Health for Mexico City.—In an effort to place health matters on a more efficient basis, the president has appointed a special board of health for Mexico City, directly responsible to him and independent of the city authorities. The board is headed by Dr. F. de Zárraga, a prominent obstetrician.

Medical Conditions in Peru.—Dr. C. E. Roe, assistant editor of *Medicina Ibera,* who has been visiting his native country, Peru, after an absence of several years, draws a pessimistic sketch of medical conditions. The medical school lacks the necessary facilities. Hospital practice is tinged with commercialism. Quackery is in the saddle and even physicians do not hesitate to advertise in a quacklike form. The only ray of hope is the organization of a medical society as recently mentioned in The Journal.

Personal.—Dr. Elia Martínez Azuara of Túxpam, Mexico, has left for Europe to visit English, French and German clinics.——The Buenos Aires faculty of medicine has granted leave of absence for a trip to medical centers in other countries to Professors Demaría, Iraeta and F. C. Arrillaga. Prof. A. Roffo has also been temporarily relieved of the necessity for lecturing to give him more time for his work as director and in research at the Cancer Institute.——The French government has decorated Dr. P. P. de Carvalho of Rio de Janeiro with the insignia of the Legion of Honor in token of gratitude for the services he rendered during the four years of the war as intern and surgeon at the Hôpital St. Louis at Paris.——The *Brazil-Medico* gives the long list of those who joined in tendering a banquet to Dr. Aloysio de Castro, professor of pathology in the University of Rio de Janeiro, on his recent return from serving on the commission for promoting international relations between institutions of learning, organized by the League of Nations. He was the official representative of Latin America on the commission.

FOREIGN

Street Accidents in London.—The metropolitan police force report 15,419 street accidents in London during the months of July, August and September. Of these, 174 were caused by mechanically propelled vehicles, and 198 of the accidents were fatal.

Lord Lister Fund Completed.—The international fund in honor of Lord Lister has been closed, the amount received being sufficient to provide a prize of £2,800 (about $13,000), to be awarded triennially for the most important advancement made in surgery, irrespective of nationality. This prize will be awarded on the anniversary of Lord Lister's birthday.

Cancer Institute for Madrid.—An institute for cancer has been inaugurated at Madrid, under the patronage of the queen of Spain. It will contain beds, a consulting room, an operating theater, a radiology department, a laboratory and a mortuary, and will be under the direction of Dr. Goyanes.

Donation to Science.—The receipts of the first performance of "Judith," by M. Henri Bernstein, at the Gymnase Théatre, Paris, October 12, were donated to the French Confederation of Scientific Societies. M. Bernstein gave his royalty as author, and Mme. Simone, the leading lady, donated her salary to the same purpose. The audience comprised the social and intellectual leaders of Parisian society.

New School of Pathology.—A sum of £100,000 (approximately $450,000) has been offered by the executors of the late Sir William Dunn, a London banker, to provide a school of pathology at the University of Oxford. It is to be known as the Sir William Dunn School of Pathology, and the gift is conditional on the university's providing a site and making permanent provision for a chair of pathology and a full teaching staff. The trustees have also offered £3,000 for the adaptation of the existing department of pathology for a school of pharmacology.

Honors for the Medical Profession.—Sir George Berry, Edinburgh; Sir John Collie, Glasgow; Major L. G. S. Molloy, Blackpool; Dr. A. Salter, Bermondsey, London; Dr. T. Watts, Withington, and Sir William Whitla, Belfast, are among the members of the medical profession recently elected to the new British Parliament.——The following British physicians have been elected to the mayoralty: Drs. J. J. E. Biggs, Cardiff; E. A. Farr, Andover; C. F. Oldacres, Daventry; J. T. T. Ramsay, Blackburn; E. L. Thomas, Barnstaple; H. Tibbits, Warwick; H. S. Walerk, Louth, and J. W. Cleveland, St. Albans.

Help for War Blinded.—The comité d'aide de l'Union des aveugles de guerre, Paris, is requesting American ophthalmologists, oculists and other practitioners to contribute and to enlist the interest of their friends in behalf of the French Union des aveugles de guerre. The union faces the problem of continuing at 25 rue Ballu, Paris, its center for blinded soldiers, which supplies recreation and a Braille library, buys raw material, makes sales and finds employment and offers lodging and care in urgent cases. Cooperation with the American profession is secured through Dr. de Lapersonne, chief of the eye clinic at the Hotel Dieu, Drs. de Schweinitz, Wilmer, McReynolds, Parker, Jackson and Merrill. Dr. Theodore C. Merrill, the American delegate for the union, will receive contributions. Address: 10 bis rue Herran, Paris, XVIe, France.

Foreign Congresses.—The Australasian Medical Congress will be held, Nov. 12-17, 1923, at the University of Melbourne, under the presidency of G. A. Syme, M.D. It is planned that particular attention shall be given the preventive aspect of medicine, including medical research.——The Federation of Medical and Allied Services held a conference on hospital finance in London, November 30, under the presidency of Lord Islington.——The next congress of the Royal Sanitary Institute will be held at Hull, England, July 30 to Aug. 4, 1923.——The International Society of Surgery will meet in London, July, 1923, under the presidency of Sir William Macewen. The last meeting of the society was held in Paris in 1920.——The eleventh International Physiological Congress will be held in Edinburgh, Scotland, July 23-27, 1923, under the presidency of Sir Edward S. Schafer.——At the annual meeting of the Royal Faculty of Physicians and Surgeons, Glasgow, Scotland, November 6, Dr. W. G. Dun was elected president, and Dr. J. Hogg Macdonald, treasurer. ——The fifth congress of the Far Eastern Association of Tropical Medicine will be held at Singapore, Malay States, Sept. 3, 1923, under the presidency of Dr. A. E. Horn, Singapore.

Personal.—Dr. Michael B. Devane has been awarded the Harry Godfrey Massy-Miles prize of the Royal College of Physicians, Ireland. This prize was founded by Mrs. Massy-Miles in memory of her husband, who was killed in France, April, 1918.——Dr. Mabel M. Manderson, Peking, China, formerly dean of the North China Medical College for Women, is touring the United States to raise funds for the women's medical colleges of the Orient.——Dr. Bernard F. Hartzhorne, London, was recently acquitted of suspicion of poisoning a patient under whose will he was beneficiary.——Dr. Robert J. Johnstone has been elected president of the Ulster (Ireland) Medical Society, to succeed Dr. R. Hall.——Dr. Armand Melka of Hungary arrived in this country, December 9, on the Cunarder *Berangia*.——Dr. Robert C. Garry, who graduated from the University of Glasgow in October, was awarded the Brunton Memorial Prize as the most distinguished graduate of his year in medicine.——Dr. F. Antill Pockley has resigned as lecturer in ophthalmology at the University of Sydney.——Dr. G. E. Rannie, having reached the age of retirement (60), has resigned as senior honorary physician of the Royal Prince Alfred Hospital, Sydney, Australia.——Dr. R. A. Dart, demonstrator of anatomy and lecturer on histology in the University College, London, has been appointed professor of anatomy in the University of Witwatersrand, Johannesburg, South Africa.——Dr. F. J. F. Barrington has been awarded the William Julius Mickle fellowship by the senate of London University, in recognition of the work carried out by him on the nervous mechanism of micturition.

Deaths in Other Countries

Dr. **R. J. Martyn** of Sligo, Ireland; suddenly in London, in October, aged 70.——Dr. **James Andrews**, who obtained his diploma seventy-two years ago, in London, November 18, aged 92.——Deputy Inspector Gen. **Francis Y. Toms**, England, awarded the Arctic medal when serving as medical officer with Sir John Franklin's Arctic expedition searching party, aged 96.——Major **Christopher Vice**, senior physician of Tunbridge Wells General Hospital, November 14, aged 65.——Dr. **J. M. Rattray**, fellow of the Royal Historical Society; shot and seriously injured by an insane patient several years ago and never fully recovered, which necessitated his retirement from practice; suddenly in London, November 4, aged 65.——Dr. **R. W. Parry**, magistrate of Glamorgan; awarded the medal for distinguished merit of the British Medical Association in 1877 for bravery during a colliery disaster in Wales.——Dr. **P. N. Arata**, professor emeritus of organic chemistry at the University of Buenos Aires, noted for his extensive research in chemistry, member of the national public health council, president of the national education council, rector of the veterinary and agronomics faculty, which was due to his initiative, and founder of an actual Argentine school of chemistry, which has devoted much attention to the native drugs.——Dr. **H. Obersteiner**, professor emeritus of the physiology and pathology of the central nervous system at the University of Vienna, aged 75. His manual for study of the structure of the nervous system, published in 1896, has been translated into several languages and passed through numerous editions, and students flocked to his courses from all lands. His research on concussion of the spinal cord, inheritance of acquired characters, allochiria and the pathology of vessels has been of fundamental importance. He edited twenty-two volumes of the "Works from the University Neurologic Institute." He had founded this institute and endowed it from his private means.——Dr. **Iwan Bloch**, a dermatologist and medical historian at Berlin, one of the founders of the German Society for Sexual Science and its first president, aged 50.——Dr. **C. Canavesio** of Buenos Aires, and Dr. **J. M. Espeche**, a retired high official in the medical service of the Argentine navy, at one time undersecretary of state in the department of the interior.

CORRECTIONS

Dr. McCullagh's Medal.—A letter from Dr. McCullagh, New York, states that he was not the recipient of the distinguished service cross as announced in The Journal, December 9, but was awarded the distinguished service medal.

Osteologist—Not Osteopathist.—In The Journal for November 4 appeared a case report with the heading "Intra-Abdominal Hemorrhage from Stomach Due to Osteopathic Treatment." Our attention has been called by several osteopathists to the fact that in the body of the article it is stated that the treatments administered were given by "a person calling himself an osteologist and claiming to be an improvement over the osteopath." The methods of treatment are described so that the reader may determine for himself their nature.

Government Services

Army Survey of Medical Supplies

With a view to more complete national preparedness, the Fourth Corps Area of the U. S. Army, through Col. Ralph S. Porter, M. C., U. S. Army, has been directed by the Surgeon-General to seek cooperation and information from manufacturers and distributors of drug, hospital and sanitary supplies, so that in the event of war these provisions will be available for immediate use.

United States Veterans' Bureau Hospitals

Twelve thousand beds in new, fireproof Veterans' Bureau hospitals will be available by the end of 1923, and 2,000 additional beds will be ready by the end of 1924. Announcement to this effect has been made by Brig.-Gen. Charles E. Sawyer, head of the Federal Board of Hospitalization. President Harding has approved these plans, which are the consummation of the entire federal hospital program for the care of World War veterans. The White committee is to take charge of the construction of a modern 500 bed tuberculosis hospital on land recently purchased at Chelsea, N. Y., which will be turned over to the Veterans' Bureau on completion. The Treasury Department will transfer to the Veterans' Bureau the site at Aspinall, Pa., with the understanding that a hospital will be erected there. With the completion of these two hospitals, the entire federal hospital program for ex-service men will be consummated and will afford, it is claimed, modern, fireproof hospitals so distributed throughout the country as to furnish adequate hospital facilities. With the completion of these two structures, the federal government will have spent a total of $35,000,000 for hospitals for ex-service men.

Appropriation for Public Health Service

Chairman Madden of the house committee on appropriations presented the annual appropriation bill of the Department of the Treasury for 1924 to the House this week. The measure contains appropriations for the U. S. Public Health Service covering the salaries and allowances of the personnel as well as office expenses. For the maintenance of a hygienic laboratory, $45,000 is appropriated; for quarantine service, $488,000; for prevention of epidemics, $335,042; for interstate quarantine service, $23,000; for rural sanitation, $50,000; for the regulation of the production of serums and toxins, $41,500, and for the maintenance and expenses of the Division of Venereal diseases, $227,353. Appropriations are also contained in the bill to cover the expenses of medical examinations by the U. S. Public Health Service of immigrants and aliens at the principal ports of the United States.

Health in the Navy

Health conditions in the Navy for the calendar year 1921 were better than they have been for any year since 1917, according to the annual report of Rear Admiral E. R. Stitt, Surgeon-General of the Navy. During the first four months of the year, the admission rates for diseases, particularly measles and mumps, he explained, were higher than might have been expected in peace time, but, during the remainder of the year, the morbidity rates for the Navy were lower than they have been at any time during the last twenty-two years.

Dr. Rupert Blue to Represent United States

The Secretary of State, Mr. Hughes, has notified the League of Nations at Geneva that Dr. Rupert Blue, foreign representative in Europe of the U. S. Public Health Service, has been designated as official collaborator of the United States with the league in the work of the consultative commission on traffic in opium. Dr. Blue will represent the United States at the next session of the commission held January 3.

Appropriation for Sheppard-Towner Maternity Law

The appropriation bill for the Department of Labor, which was reported from the Appropriation Committee of the House and introduced in Congress this week, carries $120,000 to investigate matters pertaining to the welfare of children and child life. The sum of $1,240,000 is appropriated also for the promotion of maternity and infancy, in accordance with the Sheppard-Towner maternity law passed by Congress last year.

Bill Introduced to Sell Hospital

The Marine Hospital Reservation in the city of Wilmington, N. C., is to be sold according to the terms of a bill introduced in Congress by Representative Lyon. This hospital at Wilmington has not been used by the government for some time and is no longer needed for governmental purposes.

Radio Health Service

The U. S. Public Health Service has just completed the first year of its use of the radio service in disseminating public health information. Broadcasts are now sent through ten stations; 104 public health broadcasts have been released during the year by which appeals have been made for prompt medical treatment, dental hygiene, personal hygiene, community hygiene and sanitation. Radio has also been utilized in cases of epidemics occurring in various parts of the country.

Annual Report of Veterans' Bureau

The work of removing disabled ex-service men from contract hospitals to institutions directly under government control has been retarded somewhat by objections of patients being sent further away from home, according to the annual report, submitted to Congress by Director Charles R. Forbes of the U. S. Veterans' Bureau. Colonel Forbes also told Congress of the necessity for expediting the government's new hospital program. Nine of the hospitals now in use, comprising 3,700 beds, have about reached the point where deterioration is so complete that repair will be impossible and they must be abandoned. These hospitals are of the cantonment type. More than 850,000 claims for compensation have been filed with the bureau since government aid for veterans began, and, of those, all but 45,000 have received medical examinations and their cases acted on. Applications received for vocational training number 630,000 of which 56,000 were pending at the end of the year.

Promotions of Health Officers Confirmed

The promotions of the following commissioned officers of the U. S. Public Health Service were confirmed by the Senate this week: O. M. Spencer to assistant surgeon; R. B. Norment to passed assistant surgeon; R. L. Allen, O. H. Cox, M. S. Lombard, C. Michel, W. F. Tanner, W. C. Witte, and J. F. Worley to surgeons.

Ex-Service Physicians to Treat Veterans

Declaring that thirty-two medical officers serving in the U. S. Veterans' Bureau never saw service during the World War but remained home in private practice, the American Legion has asked that an investigation be conducted and that these officers be discharged and replaced by physicians who are ex-service men. The charge also is to the effect that, of this thirty-two, sixteen hold the highest medical offices in the U. S. Veterans' Bureau. The American Legion is also planning to draw up a bill to be submitted to Congress providing that only medical officers with war records be allowed to care for and treat disabled veterans now confined as patients in government hospitals. It is also alleged that surgeons in the U. S. Public Health Service are also being used in government hospitals who have never been in the service.

Fund for Nursing Disabled Veterans

Disabled ex-soldiers so helpless as to need an attendant will be allowed $50 a month to employ a nurse, according to the bill that passed the House after being amended by the Senate this week. The measure goes to the President for his signature. Formerly, disabled veterans received the sum of $20 a month, to be used to pay for the services of a nurse or attendant.

Bill to Authorize Hospital

The Baptist National Hospital Association of the State of Arkansas is authorized to occupy and use a site containing

6 acres of land in the Hot Springs National Park, Ark., should the bill introduced by Senator Robinson in the Senate be ultimately adopted by both houses of Congress. The association plans to erect a hospital on the property. The Secretary of the Interior is given authority to select the site.

Hospitals Authorized

The organization of an evacuation hospital, organized reserves, to be known as Evacuation Hospital No. 19 (Davis-Fischer Sanitarium Unit, Atlanta, Ga.), of General Hospital No. 10 (Pennsylvania Hospital Unit, Philadelphia), of Surgical Hospital No. 16 (Southern Pacific Hospital Unit, Houston, Texas) has been authorized.

Foreign Letters

PARIS

(From Our Regular Correspondent)

Nov. 24, 1922.

Relations of French Universities with Foreign Countries

In a recent number of the *Revue de France,* M. Firmin Roz has an interesting article on the relations of our universities to foreign countries. For a number of years we have made serious efforts to induce foreign teachers and students to visit France, and to open up the way for our teachers and students to reside for a time for study in some foreign country. The management of the matter has been entrusted chiefly to the Office national des universités et écoles françaises, which is the representative of the large institutions of higher learning. Every year, two American universities, Harvard and Columbia, open their classrooms to a representative of higher education from France. These French professors remain at their post for a year or at least one semester. With the school year 1921-1922 was begun the exchange of professors of applied science between several large universities of the United States and the universities of France. In many other universities and colleges of the United States, French instructors and professors hold permanent positions. There are also about twenty in British universities, and around thirty in the secondary schools of Great Britain. In the Scandinavian universities (Copenhagen, Christiania, Upsala and Lund), four positions are held by French lecturers. In the Netherlands (University of Utrecht), one of our most distinguished mathematicians has been teaching for the last three years, and has been honored by being chosen a member of the Royal Academy of the Hague. With Belgium we concluded, June 17, 1921, "an agreement concerning scientific, literary and scholastic relations." With Italy a similar agreement was signed, March 5, 1919. A French professor has also received a call to the University of Sofia. Another is giving instruction in the University of Warsaw. The universities of Krakow and Poznan claim one each. June 15, 1919, an agreement was signed with Roumania, where a veritable French university mission, so to speak, consisting of thirty-three professors, is to be established.

For the last three or four years, there has also been an exchange of students—men and women—between France and foreign countries, more particularly with the United States, where, since 1918, many scholarships for foreign study, especially for women, have been offered. As evidence of appreciation of this generous offer of the American universities, the French government placed at their disposal thirty more scholarships in our best educational institutions for women, such as the Ecole normale supérieure in Sèvres. The American Field Service, in turn, has dedicated the balance left in its treasury, at the close of the war, to the founding of thirty scholarships to be used for study at various French universities, some of which have shown their approval of the plan by establishing supplementary scholarships in favor of American and other foreign students.

Reopening of the Sorbonne

The University of Paris will hold tomorrow its *séance de rentrée* (reopening ceremonies) in the Sorbonne. The address of the day will be delivered by the rector of the university, M. Paul Appell. On this occasion, the diploma and the insignia of doctor *honoris causa* will be presented to: Mr. Masaryk, president of the republic of Czechoslovakia and professor of philosophy in the University of Prague; Mr. Benès, minister of foreign affairs of Czechoslovakia and professor of sociology at the University of Prague; Dr. Bordet, professor at the University of Brussels; Dr. Ehlers, professor at the University of Copenhagen; Mr. Lawrence Lowell, president of the University of Harvard; Mr. Lugeon, correspondent of the Academy of Sciences and professor at the University of Lausanne; Mr. Michelson, associate member of the Academy of Sciences and professor at the University of Chicago; Mr. Pirenne, professor of the University of Ghent; Mr. Rajna, professor of the University of Florence, and Mr. Elihu Root, the former secretary of state.

A New Service of Radium Therapy

The new service established in the Hôpital Tenon for the radium treatment of cancer has just been opened by the ministry of public health.

Competitive Examinations for Externships in the Hospitals

Partly owing to the fact that 150 externships have been abolished, the number of available openings was much reduced this year, whereas the number of applicants was particularly large. Charging, among other things, that the questions asked gave undue advantage to certain applicants, which amounted to favoritism, the candidates have of late indulged in rather vigorous complaints against the jury of award.

Congress of French-Speaking Alienists and Neurologists

The coming congress of French-speaking alienists and neurologists will be held at Besançon in August, 1923. It will be presided over by Dr. Henri Colin, chief physician of the Asile clinique Ste-Anne. The topics to be discussed are: psychanalysis, by Dr. Hesnard of Bordeaux; nervous troubles resulting from supernumerary ribs, by Dr. André Thomas of Paris, and crimes resulting from toxicomanias, exclusive of alcoholism, by Dr. Legrain of Paris.

VIENNA

(From Our Regular Correspondent)

Nov. 27, 1922.

Effect of Small Doses of Roentgen Rays on Functional Disorders of the Ovaries

At a recent meeting of the Medical Society of Vienna, Professor Thaler called attention to the excellent effects of small doses of roentgen rays in functional diseases of the ovaries. The investigator has been following this kind of work for more than two years, and has treated 147 women for hypofunction of the ovary for a prolonged time (up to two years). He administered from 6 to 8 units at a focal distance of 23 cm. from the skin, over an area extending from the umbilicus to the symphysis. An aluminum filter 3 mm. thick was employed. The treatment was repeated after eight days and once more thereafter, from four to six weeks. He usually applied the treatment from six to eight days after the menses. Several authors have reported good results in amenorrhea and in prolonged bleeding due to hypofunction of the ovaries. He is not quite sure whether the effect of the roentgen rays is due to direct action on the ovaries, or to a secondary action, the primary being directed on the lymphocytes of the intestinal canal. Thaler thinks that hypofunction may be assumed, wherever amenorrhea, neurotic vasomotor disturbances or too frequent bleedings are present. Dysmenorrhea and sterility are often combined, which shows the importance of the hypofunction, a consequence of abnormal rapidity of destruction of the corpus luteum.

In the 147 cases, there were sixty-two patients complaining of amenorrhea, of whom fifty-five presented secondary cases; i. e., the periods had been present orginally but had ceased. Seventy per cent. of the secondary cases were cured, and 60 per cent. of the primary. The result is obtained in from two to six weeks after treatment, and must be regarded as due to an incitement of an otherwise too weak ovulation. In women over 35, the effect is often negative. A patient not benefited by two or three exposures should not receive any further doses. In thirty-two cases of too frequent menstruation, eleven patients were benefited by the rays. A repeated exposure can in such cases produce a total suppression of menses; therefore, one must be careful to select suitable cases. An interesting feature is the disappearance of the adiposity so often noticed in connection with too weak menstruation.

Frequency of Bacillus Mucosus-Capsulatus Infection in Otitic Complications

Quite recently, in spite of the otherwise good health of this city, there occurred a widespread epidemic of tonsillitis, of a mild type, for the most part, but in a number of cases followed by abscess formation, both in the peritonsillar region and in the ears. The onset of the otitic complications was usually insidious, but gradually the inflammation lost its progressive character, and there was little to complain of except deafness and moderate fever. This lasted for six or eight weeks without much change, in spite of all conservative treatment. When at last these patients were prompted to undergo operation, it was found that most extensive destruction of the bones had taken place; in fact, several cases ended fatally even before operation, by extension of the inflammation to the meninges, without symptoms. In all these cases, *Bacillus mucosus-capsulatus* could be demonstrated. The otologic clinic in Vienna has for many years pointed out how dangerous infection with *B. mucosus-capsulatus* is, and how urgent it is to operate as soon as the condition is recognized; otherwise, the most unexpected complications are likely to arise. Any otitis in which, after four weeks of regular treatment, there coexist deafness, fever and even slight tenderness over the mastoid or the antrum region is most suspicious, even if the membrane shows scarcely any pathologic changes. Here, operation is the safest method of treatment. This truth has already been impressed on the profession in this city.

Surgical Interference in Stomach Bleeding

Prompted by a coincidence of several fatal cases of hemorrhage from gastric ulcer, Dr. Finsterer suggested, four years ago, that acute bleeding from this source should be checked by surgical methods. This suggestion encountered numerous objections, but at present, as he explained at a recent meeting of the surgical society, his position is strengthened by results obtained and by researches in the histories of 53,000 necropsies performed within the last ten years in several Vienna hospitals. Among that number, there were 1,292 cases with distinct scars after solitary or multiple ulceration in the stomach, among which there were 190 cases with erosion of larger vessels and 121 cases of perforation, with twelve cases of severe anemia. The opponents of surgical interference in acute hemorrhage state that death is rarely caused by hemorrhage, and that internal treatment is followed by better results than operation. But in this country, fatal cases are by no means rare. It is true that bleeding may result from other conditions (nephritis, syphilis, cirrhotic liver or erosions); but, if the patient is weakened by prolonged hemorrhage, his chances after operation are much worse than if the operation is done in an early stage. Therefore, Dr. Finsterer advocates early interference.

It is not difficult to find the ulcers if care is taken to observe the color of the mucous membranes, and the mortality in his hands is below 5 per cent. As long as only small arteries are eroded, the bleeding need not be profuse; but he has seen erosion of the median colic or the arteria gastrica sinistra. Early operation also prevents the formation of perforations, which are situated mostly on the anterior wall. The diagnosis "nervous stomach" should always be made very cautiously, for many of these patients have ulcers. Constant pain is a signal of danger, while the sudden ceasing of hematemesis might also be due to occlusion of the cardia. The best method is resection, which, however, is impossible if a duodenal ulcer is near the papilla. An exploratory laparotomy is at times indicated. Local anesthesia is usually sufficient for this operation; splanchnic anesthesia is not advisable. Roentgen rays are most useful in establishing the diagnosis, but the surgeon should not rely on this means, for every acute, prolonged hematemesis should prompt the physician to remove the source of bleeding, if possible.

In the discussion that followed the reading of this paper, it became clear that the majority of the physicians were not willing to advocate active interference, but they agreed that passive treatment alone could not be relied on.

Official Help by Lantern Slides for Public Lectures

In order to assist public health lecturers in their task of instructing lay audiences, the ministry of public health has collected 800 lantern slides dealing with the fight against tuberculosis; prevention and cure of venereal diseases; animal parasites in human beings; the feeding of infants and adults; problems of hygiene; bacteriology, anatomy and physiology of man; poisons and intoxicants; industrial injuries; the dangers of dust, and electricity and its dangers. These lantern slides have been prepared by order of the ministry, and have been used extensively for public education, chiefly by medical men. In future, the lecturer desirous of obtaining these slides may borrow them, and may even be supplied with a projecting apparatus if he satisfies the officers of the ministry of his good faith. Especially are physicians affiliated with the antialcohol and antisyphilis movements encouraged to use these collections. At present our militia, the students leaving the upper classes of our high schools, and the members of clubs for working people, frequently make up the audience at these lectures; and as the force of the spoken word, together with interesting demonstrations, is much stronger than that of the written word, the effect on the youthful minds is most gratifying and lasting.

Fee Splitting and Medical Ethics

In the course of a lawsuit between the director of a well known sanatorium for the upper classes and a committee of the shareholders, it was contended that a considerable proportion of the net profits had been used for the purpose of grants to the medical men who patronized the institute. This announcement at once caused an outburst of indignation from all classes of the profession, especially from physicians in the capital; and in due time proofs for the statement will have to be put in the hands of the court. Meanwhile, the medical council of Vienna has taken up the matter. In this country, there is no written law that would prevent a physician's participating in the profits of a sanatorium to which he had sent patients; only the ethics of the profession prohibit this. In the same way, fee splitting is not expressly forbidden. Nevertheless, it is regarded by all as bad form and an unworthy practice; but it must be said that it is done, and the present hard times have placed medical practice in this country on a more commercial basis than is thought good by the older physicians.

There is one very important lack in the education of the would-be practitioner: The curriculum does not contain a lecture or a class on medical ethics, and thus the medical student has no opportunity to learn what his confrères expect him to do in a conflict between morals and personal interest. Although it must be stated that the overwhelming majority of physicians live up to the medical code of ethics, it would be hypocrisy not to admit that fee splitting has always existed and has even made marked progress within the last few years. The custom of asking the physician of the patient to assist at the operation performed by the specialist or consultant whom he has recommended is only natural, and is widespread, not only in this country but also all over the world. But the fee he gets for this assistance is very often paid by the surgeon, too, and it amounts at times to from 20 to 30 per cent. of the total fee. Similar conditions seem to have prevailed in the sanatorium mentioned above, and the outburst of indignation has turned chiefly against the businesslike splitting of net profits. There is no doubt that a purification of medical customs is necessary and urgent, for the patient must know that he can rely on his medical adviser not only in medical matters but also in money matters.

Refusals of Chair of Chemistry in Vienna University

For about two years, the directorship of the second chemical institute of this city has remained vacant, because four chemical investigators from Germany, with whom negotiations had been opened, refused to accept this office. The main reasons for their refusal are that the chemical institute came into existence during the war, and is not yet completed; the new director of the institute would have to devote all his time to its needs, its completion, and the organization of the work, including the teaching; he would thus have no time at his disposal for his own research work for several years. The German scientists who have been asked to accept the office will not resign the possibility of private work as offered to them in their present positions in the small universities of Germany, such as Professor Freudenberg has in Karlsruhe. Furthermore, the new man coming to Vienna from abroad would have great difficulty in finding a private lodging, and the institute does not offer accommodations of this kind. In Vienna there are at present no free lodgings; 38,000 couples have applied, but there are only 7,500 lodgings at the disposal of the board entrusted with their disposition.

This argument is a most forcible one. Therefore, the senate of the university will have to secure a scientist living in Vienna or in its vicinity, or a man from one of the two other Austrian universities, who might be accommodated by friends in this city. It is most unfortunate that, without any fault of the corporations or official boards, Vienna cannot obtain the services of the men best fitted for such an eminent position; for the institute is most up to date, and would no doubt give excellent opportunities for a highly qualified investigator, if only the task of completing and equipping all the laboratories and institutes connected with it were taken off his shoulders.

A New Institute for Medical Students

By the munificent grant of more than $100,000, given by Mrs. Guggenheim, the Vienna medical faculty was enabled to open new and well furnished quarters for students of medicine who are unable to learn at home owing to lack of fuel and books. Arrangements for accommodation of students, together with a museum containing a large number of specimens, will allow the young people to pass their time there in well ventilated, well heated rooms and to continue their daily work. Lectures both by advanced students and by teachers will be held there, too; and absolute freedom from racial or religious prejudice in the management was a condition of the founder. The medical faculty has taken over the institute, and will make a report every half year to the donor.

Bicentenary of Birth of Auenbrugger

Leopold Auenbrugger was born in Graz, Nov. 19, 1722. In 1761, he published a treatise in Latin which, in ninety-four pages, described all the signs of percussion of the lungs, with which every medical man nowadays must be familiar. He embodied in it the results of his most painstaking and persevering study, controlled at the dissection tables. Although his teaching proved absolutely correct, it made no impression on his contemporaries; and it was not until half a century later that it was fully accepted, through the efforts of Corvisart. Auenbrugger lived in Vienna, not overburdened by honors and riches, and died in 1809, at the age of 87. A facsimile edition of his booklet, with the English, French and German translations appended, has been published in Vienna under the original title, "Inventum novum ex percussione thoracis humani ut signo abstrusos interni pectoris morbos detegendi."

BERLIN

(From Our Regular Correspondent)

Nov. 25, 1922.

Birth and Death Rates in Germany Before and Since the War

If we compare the birth and death rates of Germany before the war with the figures for 1920 and 1921, they will be found to be surprisingly uniform. As is brought out in an article in the *Deutsche medizinische Wochenschrift* by the statistician of the central public health bureau, Dr. Roesle, since 1920, the year in which the effects of the war on the vital statistics ceased to be felt, the trend is much the same as it was from 1901 to 1913. The agreement is so marked that, from the reported records, one gets the impression that there must be an immediate connection between this recent period and the period before the war. Not only the birth rates but also the death rates seem to lap right on to the birth and death rates before the war. The following year, both figures drop, so that 1921 stands out for its low birth and death rates. In spite of this fact, the excess of births over deaths was 11.3 higher, per thousand of population, than was commonly the case at the time of the greatest frequency of births. The decrease in the death rate in 1921 as compared with 1920, namely, 1.2 per thousand, was much greater than the decrease in the birth rate (0.7 per thousand) for the same period, which explains the increase in the excess of births over deaths. However, it is to be considered that the year 1921, owing to the extremely favorable weather conditions, was an exceptional year, and that we cannot always expect such a favorable death rate. The present trend in vital statistics becomes even more apparent if we view the conditions in the cities of more than 15,000 population. Here the decrease in both the birth and the death rate for 1921 was much greater than the previous year. As was also the case before the war, the cities have now a lower birth and death rate than the small towns and rural districts, and among the cities it is the largest that present the lowest birth and death rates.

Methods of Selecting Industrial Employees

The first meeting in the interest of applied psychology, held in Berlin recently, was organized by the group for applied psychology, made up of members of the Gesellschaft für experimentelle Psychologie. Of the many fields of application of psychology, only one was considered at this meeting; namely, industrial or vocational psychology, which, dealing with psychotechnical procedures for establishing experimentally the qualifications of applicants for industrial positions, has awakened, since the war, marked public interest. During the intervals between transactions, opportunity was given to inspect the psychotechnical apparatus of various industrial plants. The first part of the session was devoted to the exhibition of the many psychotechnical methods used in establishing various findings of industrial significance. At the close of the session, a resolution was adopted to the effect that all persons who, in an official capacity, have to do with vocational guidance should accord to psychology the important place it deserves.

Constitution in Relation to Individual Characteristics

On the basis of observations on psychopaths, Dr. Kretschmer, a neurologist and psychiatrist of Tübingen, has established two constitutional types — pycnic (compact, shrewd, guarded) and schizophrenic—which correspond to the great main divisions of mental disease (the manic-depressive category and dementia praecox). He has carefully observed the temperamental manifestations, the characteristics and the natural aptitudes (*Anlagen*) of these two types, extending the scope of his researches to persons outside the hospital, and he has reached the conclusion that, physically and psychically, all persons betray symptoms of one type or the other, so that the pathologic symptoms of mental disease are merely accentuations of already existing characteristics. Kretschmer has prepared a character chart which sets forth graphically the physical differences and the various characters (*Anlagen*) of each constitutional type, so that the appearance of a person is an index of his general character and disposition, and vice versa, the manifestations of character serve as an index of his constitution. By means of numerous illustrations, Kretschmer has explained in an engaging way in his book "Körperbau und Charakter" the results of his researches. He also gives an application of his system by analyzing the characters of several noted men.

His analysis establishes an unquestionable parallelism between temperament and body. He noted that the natural, tender, well-rounded types which oscillate between the merry and the sad, between the active and the corpulent, are expressions of the pycnic or compact constitution. With the pycnic constitution are associated marked development of head circumference, chest girth and abdominal contour, with a tendency to corpulence and a heavy-set figure; the shape of the face resembles a flat pentagon or a broad shield. In contradistinction to this type, the schizophrenic oscillates between hypersensibility and indolence, between flightiness and inflexibility. He is guarded, fitful and obstinate, and has either a spare, slender body with poorly developed muscles and a flat chest, or he is an athlete with a hard-muscled, broad-chested frame and unwieldy extremities, but lacking the typical rotundity characteristic of the pycnic types. The profile of the face shows an acute angle or a long nose. If the body is of the athletic type, it usually supports a head with a high, rugged brow (turricephalus). The face has the shape of an abrupt or shortened oval.

Living Conditions as Affecting the Schoolchildren of the Large Cities

In order to gain an insight into the living conditions as affecting the schoolchildren of our larger cities, Dr. Kurcharski had a comprehensive questionnaire filled out by 1,367 children, or 24 per cent. of the children in the public schools of Pankow, an outlying section of Berlin. The children belonged mainly to the poorer classes. He reports the results of his investigations in the *Zeitschrift für Bevölkerungspolitik und Säuglingsfürsorge.* Inquiries were made in regard to the parents of each child, the home in which the child lived, the hygienic surroundings, and the environment as affecting the child's life. Only 8 per cent. of the children were in a good state of nutrition, while 21 per cent. were much undernourished. Mentally—judging from their achievements in school—16 per cent. were designated as backward. It was shown that unfavorable social conditions, such as overcrowded apartments, lack of employment of the father, and inadequate care on the part of a working mother, exerted a harmful effect on the mental development of the schoolchildren. It could not, however, be shown that any damage to physical development had occurred as the result of these conditions.

PRAGUE

(From Our Regular Correspondent)

Dec. 1, 1922.

Tuberculosis Death Rates

The publication of the tuberculosis death rate figures for the year 1921 was an agreeable surprise to all tuberculosis workers. The death rate declined in Czech provinces from 1886 until the World War, when it was 263 per hundred thousand in Bohemia and 323 in Moravia. The World War brought a radical increase in tuberculosis mortality, which was highest in 1918: 362 in Bohemia and 378 in Moravia. The year 1919 brought a reduction of 14.5 per cent. of the death rate of 1918, and the following year, a total reduction of 31.5 per cent. The tuberculosis mortality for 1921 in Bohemia is 190, a reduction of 47.5 per cent. for the year 1918. A similar condition is found in Moravia, where the rate fell to 230, marking a reduction of 39 per cent., in comparison with the year 1918. There is no doubt that the return of peace-time conditions largely accounts for the decline in tuberculosis mortality. But if the tuberculosis mortality had preserved the prewar trend of decline and had not been interrupted by the war, the mortality should be about 200 per hundred thousand. The difference in the actual mortality seems to justify the conclusion that the active antituberculosis measures which were instituted in Czechoslovakia after the war have shown their results in the more rapid decline of the curve.

These figures controverted the views of the pessimists, who expected a rise in tuberculosis mortality for this year, on the assumption that the after-war decline of mortality was due to the fact that during the war most of the tuberculous patients had died who would have died later under normal conditions, and that this fact is responsible for the fallacious rapid decline of the death rate in the after-war period.

Elections in Medical Organizations

In October, elections to the chambers of physicians were held in Bohemia and Moravia. These chambers are autonomous institutions, the duty of which is to defend the interests of the medical profession, on the one hand, and to maintain the discipline and standards among its members, on the other. This institution, introduced under Austrian rule, proved effective. It was every practitioner's duty to belong to the chamber of physicians of the province in which he lived. Only state health officers and army surgeons were exempt. The chamber of physicians of the province of Bohemia has had 2,106 members in the Czech and 1,689 members in the German section in the first half of 1922, a total of 3,975 physicians in the whole province, or one physician to 1,850 of the population. Similar chambers exist also in the province of Moravia and in Silesia, but do not exist in Slovakia and Carpathian Russia. Therefore, a bill is being presented in parliament to introduce these institutions in all provinces of the Czechoslovak republic. This bill will bring about some changes in the general organization of the chambers. The membership in the chambers will be made obligatory to state health officers, exempting only army surgeons. This was done by specific request of the central organization of state health officers, who wished to become regular members of the chambers. There is no reason why the state health officers should fear the jurisdiction of the chambers, and it is hoped that a certain prejudice against the state health officers which has survived in the medical profession will be removed.

The chambers will have a committee and an executive committee elected for the period of five years. A special committee will be appointed on questions of discipline. This committee will have executive power in the case of offenders against the rules of the chambers, which formerly belonged to the executive committee. At the same time, the question of specialization in medical practice will be settled. Up to now, the chamber had the right to grant the title of specialist to the physician who applied for it and who presented documents as to his qualifications in a given specialty. There were no uniform rules for the granting of this title, and the question was always decided according to precedent. The bill will give the state administration the right to set up standards for specialization. It will also be necessary for the chambers of physicians to be assisted by the state administration in enforcing these rules, because past experience shows that the decisions of the chambers have been frequently disregarded, although these institutions have contributed enormously in keeping up the high standard of the medical profession in this country.

Russian Medical Students

The Prague Czech university has assembled the greatest number of Russian refugee students, 2,200. The medical faculty has a large percentage of these students, who for the most part attend the first and second years of the medical curriculum. There are 193 Russian students in these two years. The new Brno medical faculty has thirty-seven of them. The Russians, of course, are not the only foreign element at the Czechoslovak medical faculties, where the local students amount to less than 50 per cent. of the students. The comparatively small medical faculty in Brno counts also among its students seven Jugoslavs, one Pole, two Bulgarians, seven Roumanians, one Austrian and fifteen Ukrainians. While it would be difficult for the Czechoslovak government to refuse hospitality to the students of kindred nations, there is no doubt that the presence of such a large percentage of foreign students renders teaching especially difficult, and the opportunity for practical training of local students is necessarily limited.

Marriages

J. Grady Booe, Bridgeport, Conn., to Miss Myrtle Louise Heinzerling of Statesville, N. C., October 21.

Florau William Dirmann, Jr., to Miss Mabel Rita Ladet, both of New Orleans, November 30.

Maurice B. Karatz to Miss Esther Hannah Shlensky, both of Chicago, November 14.

Irving Gray to Miss Mildred Elizabeth Zilver, both of Brooklyn, December 6.

Leo Brady, Baltimore, to Miss Lucy McCormick Jewett of Chicago, December 5.

Paul F. Titterington to Miss Marian Millen, both of St. Louis, in November.

Deaths

Alfred Eugene Bradley ⊕ Colonel, M. C., U. S. Army, retired, Highland Park, Ill., died, December 17, in Montgomery, Ala. Colonel Bradley was born in Jamestown, N. Y., in 1864. He was graduated from the Jefferson Medical College, Philadelphia, in 1887, and in the following year entered the medical service of the army. He followed the regular routine of promotion, becoming lieutenant-colonel in 1910. When our country entered the World War he was made colonel in July, 1916, and in August, 1917, a brigadier-general of the National Army. In May, 1916, he was made military observer with the British armies, on duty at the American embassy in London. This service he filled until June, 1917, when he was appointed chief surgeon of the American Expeditionary Forces in France. For his services abroad he was awarded the Distinguished Service Medal with the following citation: "For exceptionally meritorious and distinguished services as Chief Surgeon, A. E. F. He gave his utmost energy and undivided devotion to the duty of planning and organizing the work of the Medical Department in France during a period fraught with untold difficulties. To his foresight were largely due the successful operations of that department when it was called upon to meet the demands that were subsequently made upon it."

Colonel Bradley was invalided home from France in June, 1918, and was operated on for lung abscess at the station hospital at Fort Totten. His condition, however, failed to improve and he was retired on March 13, 1920. Colonel Bradley was buried at the Arlington National Cemetery, Washington, D. C., with military honors.

Joseph Gurney Pinkham ⊕ Lynn, Mass.; Long Island College Hospital, Brooklyn, 1866; medical examiner of the Essex district for forty-three years; for thirty years chief surgeon at the Lynn Hospital and consulting surgeon at the Danvers State Hospital for the Insane; member, and formerly chairman, of the board of education; president of the Commonwealth Bank; president of the Massachusetts Medico-Legal Society and at one time vice president of the Massachusetts Medical Society; died, December 1, aged 83, from arteriosclerosis.

George Henry West, Fairmont, N. C.; University of Maryland School of Medicine, Baltimore, 1889; Jefferson Medical College, Philadelphia, 1892; at one time lecturer on histology at Jefferson Medical College; formerly connected with the Jefferson, Polyclinic and Presbyterian hospitals, Philadelphia; for twenty-five years a practitioner in Philadelphia, where he died, October 30, in the Pennsylvania Hospital, aged 60.

Henry H. Schuhmann ⊕ Highland Park, Ill.; Hahnemann Medical College and Hospital of Chicago, 1893; died suddently, December 18, from heart disease. Dr. Schuhmann graduated in dentistry from the University of Michigan, Ann Arbor, in 1889; he was first president of the Chicago Dental Research Club and served also as senior attending dental surgeon to the Michael Reese Hospital, Chicago.

Charles Horace Francis ⊕ Chicago; Bennett Medical College, Chicago, 1894; associate professor of ophthalmology at the Chicago Polyclinic and oculist to the Chicago Union, Francis Willard and Cook County hospitals; member of the American Academy of Ophthalmology and Oto-Laryngology and the Chicago Ophthalmological Society; aged 51; died, December 16, from carcinoma of the bladder.

Forest Alphonso Carpenter ⊕ Statesville, N. C.; North Carolina Medical College, Charlotte, N. C., 1906; part owner of the Carpenter-Davis Hospital; served in the M. C., U. S. Army, during the World War; specialized in ophthalmology, otology, laryngology and rhinology; aged 43; died, December 2, at the Battle Creek Sanitarium, Battle Creek, Mich., from cerebral hemorrhage.

Francis Asbury Coward, Helena, Mont.; Medical College of the State of South Carolina, Charleston, 1900; director of the hygienic laboratory and epidemiologist of the state board of health, a position he previously held in South Carolina; served in the M. C., U. S. Army, during the World War; aged 45; died in a local hospital, November 29, from bulbar paralysis.

Luther Sexton ⊕ New Orleans; Tulane University of Louisiana School of Medicine, New Orleans, 1881; assistant professor of clinical minor surgery and for twenty-five years lecturer on surgery at his alma mater; visiting surgeon to the Charity Hospital; formerly member of the board of health; aged 62; died, November 30, following a long illness.

Everett Thornton Nealey ⊕ Bangor, Maine; Bowdoin Medical School (Medical Department of Bowdoin College), Portland, Maine, 1883; for many years county medical examiner; formerly on the staff of the Eastern Maine General Hospital; aged 65; died, November 26, at the Grace Private Hospital, from pernicious anemia and chronic nephritis.

Christopher Franklin Barker, Newport, R. I.; Medical Department of the University of the City of New York, 1882; member of the representative council; member, and at one time president, of the board of health; at one time member of the school board; aged 73; died, November 28, following a long illness.

Robert M. Bolenius ⊕ Lancaster, Pa.; University of Maryland School of Medicine, Baltimore, 1873; formerly president of the Lancaster County Medical Society; member and at one time secretary of the school board; consulting physician to the Lancaster and St. Joseph's hospitals; aged 75; died, October 13.

Frederick Artemas Simonds, Wakefield, Mass.; Tufts College Medical School, Boston, 1914; member of the Massachusetts Medical Society; served in the M. C., U. S. Army, during the World War; formerly on the staff of the Boston City Hospital, Boston; aged 34; died, December 2, from heart disease.

Maurice Goldberg ⊕ Philadelphia; Jefferson Medical College, Philadelphia, 1904; formerly instructor of clinical obstetrics and pediatrics at his alma mater; at one time connected with the Jefferson, Mount Sinai and Polyclinic hospitals; aged 43; died, November 29, from tuberculosis.

John E. Pace, Scottsville, Ky.; Hospital College of Medicine, Medical Department, Central University of Kentucky, Louisville, 1889; member of the Kentucky State Medical Association; formerly member of the state board of health; aged 64; died, November 24, following an operation.

Leo Caplan ⊕ St. Louis; University of Vienna, Austria, 1891; member of the American Academy of Ophthalmology and Oto-Laryngology; formerly laryngologist to the Bethesda Homes and the St. Vincent Orphan Asylum; aged 57; died, November 25, in Vienna, Austria, from carcinoma.

Dempster W. Woodworth, Ellsworth, Wis.; Western Reserve University School of Medicine, Cleveland, 1868; Bellevue Hospital Medical College, New York, 1876; formerly member of the state legislature; aged 76; died, November 29, at the St. Luke's Hospital, St. Paul, Minn.

Moses Murray Feinberg, New York; Columbia University College of Physicians and Surgeons, New York, 1913; member of the Medical Society of the State of New York; examining physician at the Lebanon Hospital; aged 34; died, December 1, from malignant endocarditis.

George Wright Pattison, Buffalo, N. Y.; University of Buffalo Department of Medicine, 1869; member of the Medical Society of the State of New York; aged 77; died, November 27, at the Buffalo General Hospital, from injuries received when he fell downstairs.

Walter Harold McKay, Monrovia, Calif.; Starling Medical College, Columbus, 1913; served in France during the World War; for several years assistant physician at the State Institute for the Feebleminded, Columbus; aged 32; died, October 25, from tuberculosis.

Arthur D. Reagan, Easton, Pa.; Long Island College Hospital, Brooklyn, N. Y., 1890; member of the Medical Society of the State of Pennsylvania; at one time president of the Northampton County Medical Society; aged 62; died, December 2, from heart disease.

Hull S. Gardiner, Hamilton, N. Y.; Bellevue Hospital Medical College, New York, 1868; member of the Medical Society of the State of New York; county coroner; aged 82; died, November 17, from injuries received when knocked down by an automobile.

Alva Hays Caven ⊕ Youngwood, Pa.; Western Pennsylvania Medical College, 1901; served in the M. C., U. S. Army, during the World War; formerly member of the board of health; aged 45; was struck and instantly killed by a railroad train, December 1.

Harry Richard Smith, Appalachia, Va.; Kentucky School of Medicine, Louisville, Ky., 1908; member of the Medical Society of Virginia; served in the M. C., U. S. Army, during the World War; aged 36; died suddenly, November 27, from cerebral hemorrhage.

James Carlisle Harmon, McCormick, S. C.; Jefferson Medical College, Philadelphia, 1918; served in the M. C., U. S. Army, during the World War, with the Jefferson Hospital Medical Unit; aged 28; died, November 26, at Bryn Mawr, Pa., from septicemia.

Henry Hart, Medford, Ore.; Chaddock School of Medicine, Quincy, Ill., 1887; member of the Oregon State Medical Association; for twenty years on the staff of St. Mary's Hospital; member of the board of health; died, November 29, from appendicitis.

Howard Paul Preston, South Bend, Ind.; Chicago Homeopathic Medical College, 1901; member of the Indiana State Medical Association; served in the M. C., U. S. Army, during the World War; aged 48; died, November 29, from appendicitis.

John W. Melton, Benton, Ark.; University of Arkansas Medical Department, Little Rock, Ark., 1904; member of the Arkansas Medical Society; aged 47; was instantly killed, November 30, when his automobile was struck by a passenger train.

Howard Samuel Perry, South Bend, Ind.; University of Illinois College of Medicine, Chicago, 1913; formerly of Chicago; served in the M. C., U. S. Army, during the World War; aged 33; died, November 29, from heart disease.

William W. Tompkins ⊕ Charleston, W. Va.; Medical Department of Columbia College, New York, 1882; at one time president of the Kanawha Valley Medical Society; aged 61; died, December 2, from cerebral hemorrhage.

Meade Randolph Edmunds, Washington, D. C.; Department of Medicine of George Washington University, Washington, D. C., 1906; aged 40; died, November 30, at the Emergency Hospital, from accidental asphyxiation.

Alfred Hollis Flower, Boston; American Health College, Cincinnati, 1888; former president of the New England Eclectic Society; aged 66; died suddenly from heart disease in the railroad station at Marshfield, December 4.

Cornelius A. Barnett, Potsdam, N. Y.; Bellevue Hospital Medical College, New York, 1890; member of the Medical Society of the State of New York; aged 60; died suddenly, November 13, from cerebral hemorrhage.

John Potts Fillebrown ⊕ Washington, D. C.; Bellevue Hospital Medical College, New York, 1897; on the staff of the George Washington University Hospital; aged 64; died, November 24, following a long illness.

Oscar J. Brown ⊕ DeKalb, Ill.; Bennett Medical College, Chicago, 1898; formerly an engineer; aged 66; died, November 23, at the Washington Park Hospital, Chicago, from myocarditis, following an operation.

William M. Baldwin, Newark, Ohio; Cleveland University of Medicine and Surgery, 1869; although blind for the last twelve years, continued his practice; aged 75; died, November 29, from cerebral hemorrhage.

Blanche Josephine Barrus, Philadelphia; Woman's Medical College of Pennsylvania, Philadelphia, 1920; aged 34; died, November 23, at the home of her brother in Clinton, N. C., from carcinoma of the stomach.

Christopher C. Webb, Warrensburg, Ill.; University of Maryland School of Medicine, Baltimore, 1881; member of the Illinois State Medical Society; aged 72; died, December 1, from cerebral hemorrhage.

Emanuel Danzi, New York; University of Naples, Italy, 1897; member of the Medical Society of the State of New York; aged 48; died, November 17, at the Van Cortlandt Hospital, from pneumonia.

Charles A. Merritt ⊕ Sand Coulee, Mont.; Bennett Medical College, Chicago, 1901; aged 46; also a druggist; superintendent of the Miners' Union Hospital, where he died, November 27, from pneumonia.

Charles William Galloupe, Boston; Medical School of Harvard University, Boston, 1883; member of the Association of Military Surgeons of the United States; aged 63; died, November 30, at Lynn.

James Kay, Nemaha, Neb. (licensed, Nebraska, 1891); gave up the practice of medicine in 1912 when he became disabled from an accident; veteran of the Civil War; aged 86; died, October 11.

Hannabal D. Fortune, Pleasant Hill, Ill.; Washington University Medical School, St. Louis, 1865; member of the Illinois State Medical Society; aged 81; died, November 28, from heart disease.

Edmund Thomas Murdaugh Franklin ⊕ Washington, D. C.; Department of Medicine of George Washington University, Washington, D. C., 1905; aged 40; died, December 2, at West River, Md.

Joseph George Burque, San Francisco; University of Montreal Faculty of Medicine, Montreal, Que., Canada, 1876; aged 73; died, November 24, from angina pectoris and arteriosclerosis.

Orestes C. Lukenbill ⊕ Indianapolis; Medical College of Indiana, Indianapolis, 1892; aged 55; died, December 1, at the Battle Creek Sanatorium, Battle Creek, Mich., following a long illness.

Herman Wilfred Pierson, Wheaton, Ill.; University of Wooster Medical Department, Cleveland, 1881; practitioner in Chicago, 1893-1921; aged 66; died, December 3, from heart disease.

Harlan Hubbell, Laura, Ill.; American College of Medicine and Surgery, Chicago, 1906 aged 42; died, December 1, at the Peoria State Hospital, Peoria, from an overdose of a drug.

Collins M. Hoover ⊕ Alliance, Ohio; Western Reserve University School of Medicine, Cleveland, 1874; on the staff of the Alliance City Hospital; aged 80; died, November 28.

Thomas C. Kiger, Los Angeles; Cleveland University of Medicine and Surgery (Western College of Homeopathic Medicine), 1859; aged 87; died, November 2, from senility.

Rocco Andrew Montani ⊕ Youngstown, Ohio; Indiana University School of Medicine, Indianapolis, 1910; aged 38; was killed, November 26, when struck by a train.

Lee C. Wadsworth, Latonia, Ky.; Medical College of Ohio, Cincinnati, 1893; formerly president of the Newport Board of Aldermen; aged 57; died, November 27.

Eugene Webster Davis ⊕ New York; Medical Department of the University of the City of New York, 1884; aged 69; died suddenly, December 1, from paralysis.

George Rosenthal, Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1906; aged 39; died suddenly, November 30, from cerebral hemorrhage.

Douglas L. Sauerhering ⊕ Wausau, Wis.; Chicago Medical College, 1886; for eight years city health commissioner; aged 61; died in November, from pneumonia.

Joseph A. Baute, Somerset, Ky.; Hering Medical College, Chicago, 1896; aged 54; died, November 26, from heart disease following an attack of influenza.

Augustus Philip Hauss, Sr., New Albany, Ind.; Eclectic Medical Institute, Cincinnati, 1879; aged 65; died, December 2, from cerebral hemorrhage.

K. Lane Miller, Roseburg, Ore.; Hahnemann Medical College and Hospital of Chicago, 1883; aged 58; died, November 28, from cerebral hemorrhage.

Andrew Joseph Edwards, Woodward, Ala.; Birmingham Medical College, Birmingham, Ala., 1912; aged 35; died, October 15, from influenza.

Barton Stone Plumlee, Nashville, Tenn.; University of Nashville Medical Department, 1874; aged 77; died, November 30, from pneumonia.

John H. Mitchell ⊕ Mount Vernon, Ill.; Chicago Medical College, 1874; aged 72; died suddenly in his office, November 27, from heart disease.

A. Dill Greer, Lamoni, Iowa; Homeopathic Medical College of Missouri, St. Louis, 1900; aged 75; died, October 27, from angina pectoris.

Charles Adelbert Libby, Arlington, Mass.; New York Homeopathic Medical College, New York, 1873; aged 71; died, November 28.

Fred E. Stafford, Brooklyn; New York Homeopathic Medical College, New York, 1870; died, November 30, from asthma.

Henry C. Hornung, New Orleans (licensed, years of practice); aged 73; died recently, from acute bronchitis and asthma.

William Chambers Powell, Bryn Mawr, Pa.; Hahnemann Medical College of Philadelphia, 1879; aged 65; died, December 2.

Ray G. Doane, Lucas, Kan.; Kansas Medical College, Topeka, Kan., 1910; aged 41; died, November 24.

Reuben B. Garnett, St. Augustine, Fla.; St. Louis Medical College, 1874; aged 84; died, November 23.

David Rose, Baden, Pa.; Jefferson Medical College, Philadelphia, 1892; aged 70; died, November 16.

Walter B. Mott, Mount Mourne, Ga. (licensed, years of practice); died, October 23, aged 87, from senility.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

COLLENE NOT ACCEPTABLE FOR N. N. R.

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following report which declares Collene not acceptable for N. N. R. because its composition is not correctly declared and because the therapeutic claims made for it are unwarranted.

W. A. PUCKNER, Secretary.

Collene (Collene Laboratories, Inc., New York) is said to be a solution in distilled water of 0.05 per cent. colloidal silver. The silver is claimed to be in the metallic state. The distinctive features of Collene as advertised are: (1) its colloidal nature, (2) the fineness and uniformity of the colloidal particles, (3) the absence of toxic effects and of a tendency to produce argyria, (4) its high potency in inducing increase of leukocytes and (5) its power to penetrate human tissues 3⁄16 of an inch. Collene is recommended:

> "For all purulent infections of the skin and mucus membrane as Conjunctivitis, Pharyngitis, Gingivitis, wounds, abrasions, etc., as a dressing; for Post-operative Sinuses, Cystitis, Colitis, Endocervicitis, chronic and acute, acute endometritis, Gonorrhea as an injection one-half to full strength; intravenously for general infections as Pyaemia, Purulent Endocarditis, pneumonia and post-partum infections."

These briefly are the salient points advanced in the claims for Collene. Many sweeping statements are made of superiority and therapeutic value but they are based on no adequate evidence. Before a product can be pronounced the "best" of all silver germicides, it must have been subjected to rational and controlled experiments involving other germicidal silver compounds. Collene can hardly be asserted "uniformly superior" to other germicides until such experiments have been conducted. Neither can a product be said to have its place established in the treatment of disease until there is acceptable evidence to that effect. The unwarranted recommendation of Collene for intravenous injection illustrates the case in point. Injection of "Colloidal silver" caused "a great increase of leukocytes even up to 100 per cent. or more." Provided Collene were a colloidal silver preparation it might produce leukocytosis, but even if it were colloidal, the evidence available hardly warrants the claim that "Collene should be found remarkably effective" in certain fevers, and much less the statement that it can be "safely used intravenously" in these fevers. Aside from the general misleading tenor of the advertising, the Council found, when it took up the consideration of Collene, discrepancies between facts and claims.

The first point is that of composition. The Collene Laboratories claimed 0.05 per cent. colloidal silver while the Council's examination showed that, in effect, the silver content of Collene was not colloidal but ionic.

Naturally this fact—aside from its bearing on the Council's requirement that a correct declaration of composition must be made—brought up two points of importance: (1) the part of the antiseptic power of Collene that is due to ionic silver and (2) the plausibility of the claim for "non-toxic effect" made in the face of Collene's ionic silver content. Certainly the ionic silver content indicates that the antiseptic effect of Collene is of similiar origin to that of silver nitrate and not to its alleged colloidal nature. In view also of the ionic silver present, the nontoxic effects are inherently improbable.

Instead of being "acid free," Collene has a slight acidity (a P_H of 5.2) which may be responsible in some measure for its irritant effect on sensitive tissues.

The claims for penetration of 3⁄16 of an inch were based on experiments made on agar and the results were applied to the human tissues. These claims were later retracted by the company.

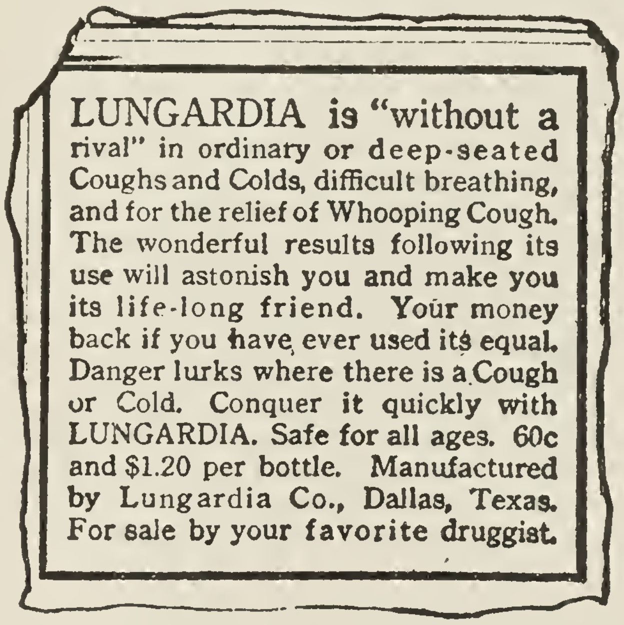
These findings of the Council were sent to the Collene Laboratories, Inc., and it asked time for the reconsideration of its claims. After a lapse of more than six months, the company offered a new report. This report presented no specific evidence on the questioned points; the letters sent from physicians were irrelevant or at best failed to indicate that any "rigidly controlled experiments" such as the Council had said were necessary had been performed. A few revisions, such as abandoning the penetration claim, were made, but on the whole they were not comprehensive enough, since the fundamental contentions in the Council's report were left untouched.

The Council declared Collene not acceptable for New and Nonofficial Remedies (1) because its composition is not correctly declared and (2) because of the extravagant and misleading tenor of the advertising.

MORE MISBRANDED NOSTRUMS

Abstracts of Recent Notices of Judgment Issued by the Bureau of Chemistry of the United States Department of Agriculture

Lungardia.—The Lungardia Co. of Dallas, Texas, shipped in 1919 a quantity of "Lungardia," which was misbranded. The federal chemists reported that the product consisted essentially of kerosene oil, turpentine oil, cassia oil, clove oil, extract from a laxative plant drug, sugar, gum, alcohol and water. The stuff was declared misbranded, first, because while it contained alcohol, the label failed to declare this fact and, second, because the claims made for it were false and fraudulent. The stuff was labeled as a real guardian against pneumonia and consumption and as "The Most Wonderful Remedy for Sore Throat, Croup and Diphtheria." In September, 1921, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed. —[*Notice of Judgment No. 10330; issued July 8, 1922.*]



LUNGARDIA is "without a rival" in ordinary or deep-seated Coughs and Colds, difficult breathing, and for the relief of Whooping Cough. The wonderful results following its use will astonish you and make you its life-long friend. Your money back if you have ever used its equal. Danger lurks where there is a Cough or Cold. Conquer it quickly with LUNGARDIA. Safe for all ages. 60c and $1.20 per bottle. Manufactured by Lungardia Co., Dallas, Texas. For sale by your favorite druggist.

Garren's Blood Purifier and Tonic.—In February and March, 1921, the Garren Medicine Co. and the Asheville Medicine Co., shipped from Hendersonville, N. C., to Richmond, Va., a quantity of this product that was misbranded. The federal chemists reported that analysis showed the product to consist essentially of alcohol, glycerin, sodium benzoate and water with extracts of plant drugs, including golden seal. The preparation was falsely and fraudulently represented as a blood purifier and a remedy for indigestion, dyspepsia, nervousness, pimples, tumors, ringworm, syphilis, etc. In October, 1921, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed. —[*Notice of Judgment No. 10496; issued Sept. 15, 1922.*]

Deer Lick Springs Water.—A quantity of this product, shipped in December, 1920, from California to New York was declared misbranded. According to the label it was bottled by the California Medicinal Springs Company of San Francisco. The federal chemists reported that analysis showed the water to contain mineral matter consisting chiefly of chlorids of sodium, magnesium, and calcium, sulphate and bicarbonate of calcium, and sulphid of sodium. The water was labeled as "A Valuable Aid to Physicians in the Treatment of Diabetes, Cystitis, Bright's Disease, Acne, Eczema, Rheumatism" and as "An Internal Antiseptic." These claims were declared false and fraudulent, as the water "did not contain any ingredient or combination of ingredients capable of producing the effects claimed." In March, 1922, the California Medicinal Springs Company of San Francisco, having admitted the allegations of the libel, judgment of condemnation and forfeiture was entered and the court ordered that the product be released to the company on payment of the costs of the proceedings and the execution of a bond for $250, conditioned in part that the water be relabeled under the supervision of the Department of Agriculture.—[*Notice of Judgment No. 10345; issued July 8, 1922.*]

Lee's Hazel Antiseptic Cones.—The Hazel Hygienic Co., Denver, Colo., shipped in August, 1921, and April, 1922, a quantity of "Lee's Hazel Antiseptic Cones" that were misbranded. The federal chemists reported that these "cones" were perfumed suppositories composed of boric acid, sodium salicylate, a trace of zinc salt and cacao butter. The preparation was falsely and fraudulently recommended as an effective treatment for "Female Disorders. . . . Inflammation of the Genital Organs and the various disorders of the Vagina and Uterus." They were also, by inference, recommended as effective for the cure of uterine displacements and painful menstruation. In June, 1922, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 10617; issued Nov. 8, 1922.*]

Correspondence

"ARE MITOCHONDRIA IDENTICAL WITH BACTERIA?"

To the Editor:—In the editorial in The Journal, November 25, entitled "Are Mitochondria Identical with Bacteria?" no mention was made of the evidence I have brought forward in the solution of this problem in the *American Journal of Anatomy*. Under separate cover I am sending reprints. I think you will appreciate from these articles that I have opened up this problem with new lines of evidence.

Ivan E. Wallin, Boulder, Colo.

[Comment.—The editorial "Are Mitochondria Identical with Bacteria?" elicited correspondence indicative of considerable difference of opinion and conflicts of judgment on the major thesis involved. Basing an opinion on the latest conclusions of Cowdry and Olitsky (Differences Between Mitochondria and Bacteria, *J. Exper. Med.* **36**:521 [Nov.] 1921), the editorial emphasized their belief that the theory of "symbiotes"—the conception that mitochondria are symbiotic micro-organisms—remains without convincing support. The evidence relied on in reaching this conclusion is somewhat indirect in character, and involves marked differences in the histologic staining of the two types of structures, as well as the absence, in mitochondria, of certain structural characters regarded as peculiar to bacteria.

Unfortunately, no reference was made to the extensive studies of our correspondent (Wallin, I. E.: On the Nature of Mitochondria, I, Observations on Mitochondria Staining Methods Applied to Bacteria; II, Reactions of Bacteria to Chemical Treatment, *Am. J. Anat.* **30**:203 [March] 1922; On the Nature of Mitochondria, III, The Demonstration of Mitochondria by Bacteriological Methods; IV, A Comparative Study of the Morphogenesis of Root-Nodule Bacteria and Chloroplasts, ibid. **30**:451 [July] 1922). His observations, conducted in the Department of Anatomy and the Henry S. Denison Research Laboratories at the University of Colorado, lead him to assert that the results obtained in subjecting bacteria to mitochondrial staining methods and to the chemicals that have been utilized to determine the chemical nature of mitochondria appear to demonstrate that these methods are not specific for mitochondria, but have a similar reaction on bacteria. To the degree, he asserts, that these staining methods and chemical reactions are not specific, bacteria and mitochondria have a similar chemical constitution.

The fragility of mitochondria also has been made the basis for the contention that they cannot be micro-organisms. Wallin asserts, however, that bacteria and many other living forms are far more "fragile" than is generally alleged, and that bacteria are by no means as stable in form as is sometimes insisted. Instead of agreeing to "incontestable differences," Wallin meets the criticism of the previous failures to grow mitochondria in culture mediums by the statement that "while it must be admitted that a demonstration of mitochondria growing as independent organisms in a culture medium would be absolute proof of their organized or bacterial nature, the lack of such a demonstration is not proof that they are cytoplasmic organs and not organisms."

The details of Wallin's experiments cannot be cited here. In conclusion he asserts:

> In a "balance sheet" of favorable and unfavorable evidence in behalf of a bacterial nature of mitochondria, it appears to the author that the "unfavorable" side of the "sheet" lacks entries. After careful analysis, the author is convinced that no property of mitochondria has been recorded in the literature that is not equally applicable to bacteria.
>
> From the evidence that has been recorded in these studies, together with the evidence that may be found in mitochondrial literature, the author can arrive at no other conclusion than that mitochondria are symbiotic bacteria in the cytoplasm of the cells of all higher organisms whose symbiotic existence had its inception at the dawn of phylogenetic evolution. The conception embodied in this conclusion presupposes that the establishment of new symbiotic complexes is coexistent with the development of new species.

It should be pointed out here that another correspondent, Dr. S. B. Wolbach of the Medical School of Harvard University (The Journal, Dec. 9, 1922, p. 2022), although objecting to the implication that any expert would confuse mitochondria with *Rickettsia*, does not hesitate to imply his dissent from the theory of symbiotes. At any rate, he ventures the statement that "it is gratifying to have grotesque conceptions in biology neatly disposed of." On the other hand, one reads Wallin's reminder that "the practically universal occurrence of mitochondria in plant and animal cells points to a fundamental property of these structures. Their nature remains as much a puzzle today as when they were first discovered."—Ed.]

THE PREPARATION OF STAINING SOLUTIONS

To the Editor:—In the textbooks dealing with microscopy and with bacteriology, as well as in the periodical literature dealing with these subjects, there are two general types of stain formulas. In one type of formula so much dry stain in weight per given volume of solution is called for; in the other type, so many cubic centimeters of a saturated solution of stain. It will be readily seen that the same staining formula could be prepared by the two methods, provided the solubility of the dry stain and its actual dye content were known. If all batches of dry stain contained the same amount of actual dye, either sort of formula would be perfectly satisfactory.

Unfortunately, however, different lots of any stain vary greatly in the amount of inert material they contain. This is true even in regard to different batches of Grübler stains, and it is especially true now when there are so many different brands of stains on the market. An investigation of certain methylene blues, for example, showed a Grübler sample examined to contain 57 per cent. of actual dye, and a Merck sample 55 per cent., while five different American samples varied from 69 to 88 per cent. It seems, in general, desirable that the color strength should be as high as reasonably possible, and it must be particularly pointed out that the sample containing 88 per cent. of dye proved one of the two very best in a long series of methylene blues examined. It is obvious, however, that a staining formula calling for so many grams of Grübler methylene blue will be more concentrated if made up with one of these American stains. Considering how these stains vary in actual dye strength, much more nearly constant formulas can be obtained, provided they are prepared on the basis of a definite volume of a saturated solution. Although there are undoubtedly some differences in the amount of actual dye that goes into solution in the case of different brands of stains, nevertheless the results are much more constant in this case than when the formulas are prepared on the basis of weight of dry dye. For this reason, biologists publishing stain formulas are urged to cooperate with the committee in putting the formulas on the basis of so many cubic centimers of saturated solution. The saturated solution may be either aqueous or alcoholic, according to the needs of the individual case. Objections are sometimes made to this type of formula in that it is difficult to prepare without waste when the solubility of a stain is not known. This is not a valid objection, however, because a saturated solution of any stain can always be kept on hand with an excess of undissolved material at the bottom of the bottle, more water or alcohol being added from time to time as more stock solution is needed in preparing staining solutions. This type of formula, therefore, has so many advantages that its use is recommended in all possible cases.

H. J. Conn, Geneva, N. Y.
Chairman, Commission on the Standardization
of Biological Stains.

VOLUNTARY CONTROL OF THE HEART RATE THROUGH RESPIRATION

To the Editor:—The editorial comment on voluntary acceleration of the heart (The Journal, Oct. 21, 1922, p. 1432) brought to my mind the fact that, invariably in my experience, one can voluntarily control the rate of the heart by so simple a means as the respiration. I have proved this relation on myself as well as on patients, including the tuberculous, the thyrotoxic and the diabetic. It is reasonable to state that the heart, during the demonstration, must be uninfluenced by drugs such as morphin, digitalis, atropin, strychnin, caffein, epinephrin and quinidin.

Deep, slow respirations cause a slowing of the pulse; rapid, shallow breathing, an increase in the rate. Holding the breath after maximum inspiration produces a slowing of the pulse rate of ten or more beats each minute. A corresponding increase in rate follows holding the breath after maximum expiration. If, however, the breath is held for long, the rate becomes rapid and apparently irregular in every case, whether at the end of expiration or of inspiration.

Keeping in mind the statement of the editorial that "when arterial tension falls, the pulse rate is accelerated; with rise of blood pressure, the pulse rate decreases," one should read the chapters of Macleod (Physiology and Biochemistry in Modern Medicine, St. Louis, C. V. Mosby Company, 1922), on respiration, in which he shows conclusively that the mechanism of respiration is the important causal factor in so-called voluntary blood pressure changes. Also, according to Mackenzie (Diseases of the Heart, Oxford Medical Publications) in certain cases, the reflex stimulation of the vagus will produce an alteration of the heart's rate, most striking illustrations being found after slow or rapid deep respirations and after swallowing. These irregularities are classified under sinus arrythmias in Chapter XVIII, and are found especially in patients in whom the vagus is more excitable. He also refers to the increase in diastole, shown in cardiographic tracings, following deep inspiration.

According to Macleod, the blood pressure is affected by the alternating changes in intrapleural (negative or suction) pressure and intrapulmonic pressure, affecting directly all the thin walled structures in the thorax, including the walls of the blood vessels and the heart, especially the auricles. Full expansion of the thorax results in increased intrapleural pressure; decreased intrapulmonary pressure, with dilatation of the heart chambers and increase in blood volume in heart and pulmonary vessels, with secondary rise in blood pressure. The entirely opposite picture is seen following complete contraction of the thorax: decreased intrapleural pressure, increased intrapulmonary pressure, contraction of the heart walls and pulmonary vessels, decrease in blood volume in the heart, and a lowering of blood pressure.

The mechanism of respiration, therefore, seems the logical factor, rather than Taylor's nerve stimulation theory, in explaining the effect of volition on blood pressure and pulse rate changes.

C. W. Lueders, M.D., Philadelphia.

"ROENTGEN RAYS AND STERILITY"

To the Editor:—I wish to call attention to an editorial comment with this title in The Journal, Nov. 11, 1922, p. 1692. I am familiar with Dr. Hooker's work. It is admirable so far as it goes. But this comment is likely to be misleading, and may tempt some physician to use the roentgen ray for sterilization purposes.

Recently I have seen the work along similar lines of Prof. C. C. Little, formerly of the Carnegie Institution, and now of the University of Maine. He gave mice one fifth of an erythemal dose on five successive days and watched the results to the fifth generation. The first generation were apparently normal; but with the second and continuing down to the fifth, various anomalies began to appear, such as blindness in one eye, and deformities of the ears, jaws and feet. No report of this work has as yet been published, I believe, but I hope that a report of it may soon appear.

If sterilization is desired or necessary, there are methods more effective and safe than the use of the roentgen ray.

Lydia Allen DeVilbiss, M.D., New York.

"MERCUROSAL IN THE TREATMENT OF SYPHILIS"

To the Editor:—I was intensely interested in the careful and scientific study of Drs. Cole, Driver and Hutton on mercurosal in the treatment of syphilis (The Journal, Nov. 25, 1922, p. 1821). Their conclusions, based on thirty-eight carefully watched cases, are beyond much comment. However, certain facts that give rise to some discrepancies, in the opinion I have formed about mercurosal, should be brought out carefully. I have been experimenting with mercurosal for more than four years. The work of Dr. Cole and his associates does not make a distinction of the stages of the disease under treatment. If I may judge from their scant statements, most of their cases were either primary or secondary. Taking, for example, those cases that did not respond favorably to the treatment, I find that the great majority were in the primary and practically all the remaining in the secondary stage, with florid skin and mucous membrane manifestations. In my investigations, although arsphenamin was used conjointly with mercurosal, still the superiority of this treatment to a mixed treatment with any other mercurical was clearly demonstrated in my case records. Dr. Cole and his associates, using mercurosal alone in thirty-eight cases, obtained an average total of 60 per cent. improvement, which, in view of the number of primary and secondary infections among their cases, is very much in agreement with my views concerning mercurosal. In regard to the effect of the drug on the vein, these authors state that in four of their twenty-three cases treated intravenously, a sclerosis of the vein due to the injection was noted. I have administered more than 2,000 intravenous injections, and by going carefully over my records I have not found more than five instances in which sclerosis of the vein was not due to some other error in the technic, mainly puncturing the vein through both walls and thus infiltrating it with the drug. In conclusion, I must state again that for the time being we should avail ourselves of the distinctive advantages offered by this new synthetic mercurial, whose solubility in water, together with its low toxicity and high efficiency, leaves nothing to be desired when compared with the old list of mercurials in common use.

L. G. Hadjopoulos, M.D., New York.

"BATTERY BURNS"

To the Editor:—Dr. Gradle (The Journal, November 25, p. 1819) states that "a storage battery consists of an acid-proof cell, containing alternate plates of lead and zinc filled with dilute sulphuric acid." Both sets of plates are lead, pasted with lead oxids. This is only a slight inaccuracy, but it mars an otherwise interesting paper.

C. D. Martinetti, M.D., Orange, N. J.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

TOXIN-ANTITOXIN—CONTRAINDICATIONS

To the Editor:—In giving toxin-antitoxin, suppose, for the sake of example, a child has received two injections, but, when the third is due, there is some contraindication, such as fever—what then? How is one to proceed? When may or should the third and last injection be given after the child is back to normal health? What would happen if an interval of two weeks instead of one week were observed in giving toxin-antitoxin. Please do not publish my name.

————, M.D., Missouri.

Answer.—Under the circumstances mentioned, it would probably be wise to defer further injections until the child has recovered. Immunity may follow two injections, and if a Schick test after three months is positive, another series of injections can be administered. In a series of observations related by Park (The Journal, Nov. 4, 1922, p. 1585), of persons who gave positive Schick reactions, 80 per cent. of those who received three injections of toxin-antitoxin became immune, while immunity developed in about 70 per cent. of those receiving two injections, and in about 50 per cent. of those receiving a single injection.

Since most of the observations have been made in series of cases in which the toxin-antitoxin injections were administered at intervals of a week, it is impossible to say just what would occur if the intervals should be prolonged to two weeks. In any case, it would not be wise to repeat the injection until the reaction from the former dose has subsided.

ABSORBINE, JR.

To the Editor:—Will you please give me the formula of Absorbine, Jr., a commonly advertised and used patent rubbing compound, which has been brought to my attention by quite a few of my patients. Would like to know just what it is.

George S. King, M.D., Bay Shore, N. Y.

Answer.—This liniment was dealt with in the Propaganda department of The Journal, Oct. 25, 1913, and the matter has been reprinted in "Nostrums and Quackery," Vol. 2. It was stated at the time that a product almost identical in physical appearance could be made from the following formula:

Oil of wormwood	1 dram
Oil of sassafras	16 minims
Menthol	15 grains
Acetone, sufficient to make	11 drams

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Alabama: Montgomery, Jan. 9. Chairman, Dr. Samuel W. Welch, Montgomery.

Arizona: Phoenix, Jan. 2. Sec., Dr. Ancil Martin, 207 Goodrich Bldg., Phoenix.

Colorado: Denver, Jan. 2. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

District of Columbia: Washington, Jan. 9. Sec., Dr. Edgar P. Copeland, Stoneleigh Court, Washington.

Hawaii: Honolulu, Jan. 8. Sec., Dr. G. C. Milnor, 401 Beretania St., Honolulu.

Illinois: Chicago, Jan. 9-11. Supt. of Registration, Mr. V. C. Michels, Springfield.

Indiana: Indianapolis, Jan. 9. Sec., Dr. W. T. Gott, Crawfordsville.

Minnesota: Minneapolis, Jan. 2-4. Sec., Dr. Thomas S. McDavitt, 539 Lowry Bldg., St. Paul.

National Board of Medical Examiners: Written examination in Class A medical schools. Part I and II, February 12-14 and February 15-16. Sec., Dr. John S. Rodman, 1310 Medical Arts Bldg., Philadelphia. Application for the February examination must be sent in by January 1.

New Mexico: Santa Fe, Jan. 8-9. Sec., Dr. R. E. McBride, Las Cruces.

North Dakota: Grand Forks, Jan. 1. Sec., Dr. G. M. Williamson, 860 Belmont Ave., Grand Forks.

Oklahoma: Oklahoma City, Jan. 9-10. Sec., Dr. J. M. Byrum, Shawnee.

Pennsylvania: Philadelphia, Jan. 30-Feb. 3. Sec., Mr. C. D. Koch, Professional Credentials Bureau, 422 Perry Bldg., Philadelphia.

Rhode Island: Providence, Jan. 4-5. Sec., Dr. Byron U. Richards, State House, Providence.

South Dakota: Pierre, Jan. 16. Director, Dr. H. R. Kenaston, Bonesteel.

West Virginia: Charleston, Jan. 9. State Health Commissioner, Dr. W. S. Henshaw, Charleston.

Wisconsin: Madison, Jan. 9-11. Sec., Dr. John M. Dodd, 220 E. Second St., Ashland.

Kansas October Examination

Dr. A. S. Ross, secretary, Kansas State Board of Medical Registration and Examination, reports the written examination held at Topeka, October 10-11, 1922. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Four candidates were examined, all of whom passed. Eleven candidates were licensed by reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Rush Medical College	(1922)	88
University of Kansas	(1922)	87.2
Tufts College Medical School	(1921)	86
Jefferson Medical College	(1922)	78.4

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
Chicago Medical School	(1921)	Illinois
College of Physicians and Surgeons, Chicago	(1899)	Iowa
Rush Medical College	(1881), (1922)	Illinois
University of Maryland	(1907)	Maryland
Barnes Medical College	(1910)	Illinois
St. Louis College of Physicians and Surgeons	(1921)	Colorado
St. Louis University School of Medicine	(1920)	Missouri
University of Nebraska	(1919), (1921)	Nebraska
Jefferson Medical College	(1921)	Missouri

Wisconsin June Examination

Dr. John M. Dodd, secretary, Wisconsin State Board of Medical Examiners, reports the oral, written and practical examination held at Milwaukee, June 27-29, 1922. The examination covered 19 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 48 candidates who took the physicians' and surgeons' examination, 47, including 1 osteopath, passed, and 1 candidate failed. Seventeen candidates were licensed by reciprocity. Three candidates were licensed on government credentials. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Illinois Medical College	(1899) 77, (1900)	84
Loyola University	(1917)	83
Northwestern University	(1911) 83, (1922)*	85
Rush Medical College	(1922)	84,* 86,* 86,* 89, 90*
Tufts College Medical School	(1910)	87
St. Louis University School of Medicine	(1922)	84, 85
University of Cincinnati	(1921)	85
Western Reserve University	(1921)	88
Jefferson Medical College	(1921) 83, (1922)	86
University of Pennsylvania	(1921) 84, (1922)	83, 83, 90
Woman's Medical College of Pennsylvania	(1920)	87
University of Texas	(1922)	87
Marquette University	(1920) 86, (1922) 90, (1922)*	83, 83, 83, 84, 84, 85, 85, 85, 86, 86, 86, 87, 87, 87, 87, 88, 88, 89
University of Germany	(1920)†	79
University of Budapest	(1921)†	86
University of Naples	(1920)†	77
Osteopath		88

FAILED

College	Year Grad.	Per Cent.
St. Louis College of Physicians and Surgeons	(1920)	74

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
Northwestern University	(1918)	Illinois
Rush Medical College	(1916), (1921, 2), (1922)	Illinois
University of Illinois	(1919), (1922, 2)	Illinois
University of Louisville	(1905)	Kansas
Harvard University	(1920)	Missouri
Detroit College of Medicine and Surgery	(1920)	Michigan
University of Michigan Medical School	(1921)	Michigan
University of Minnesota	(1920)	Minnesota
University of Oklahoma	(1920)	Oklahoma
Meharry Medical College	(1903)	Arkansas
Marquette University	(1921)	Missouri
Milwaukee Medical College	(1908)	Minnesota

ENDORSEMENT OF CREDENTIALS

College	Year Grad.	Endorsement with
Loyola University	(1916)	U. S. Army
University of Illinois	(1917)	U. S. Navy
University of Minnesota	(1917)	U. S. Army

* These candidates have finished the medical course and received the M.B. degree, and will obtain the M.D. degree after they have completed a year's internship in a hospital.

† Graduation not verified.

Book Notices

The Propaganda for Reform in Proprietary Medicines, Vol. 2, 1922. Containing Reports of the Council on Pharmacy and Chemistry and contributions from the A. M. A. Chemical Laboratory and from The Journal of the American Medical Association. Cloth. Price, $2. Pp. 603, with illustrations. Chicago: American Medical Association, 1922.

The first volume of "The Propaganda for Reform in Proprietary Medicines" ran through nine editions, and recorded the efforts which the American Medical Association had made through its Council on Pharmacy and Chemistry, and its Chemical Laboratory against fraudulent and unscientific proprietary mixtures and toward a more rational use of drugs. The material of this volume covered a period prior to 1917.

The present volume begins, appropriately, with the resolution endorsing the work of the Council on Pharmacy and Chemistry presented and signed by all the members of the House of Delegates in attendance at the San Francisco session. It deals with the work that was done from January, 1917, to April, 1922, inclusive. Like the previous volume, this one is divided into four parts:

Part I: Reports of the Council on Pharmacy and Chemistry. This section presents the principles and rules which govern the Council in the examination of medicaments, and contains articles and reports bearing on the work of the Council as well as the most important reports of the Council from 1917 to April, 1922, inclusive.

Part II: Reports of the A. M. A. Chemical Laboratory. This, besides presenting the aims and objects of the Association's Chemical Laboratory, also outlines some of the laboratory's work of special interest to physicians.

Part III: Contributions from The Journal—Proprietary Products. This contains articles which have appeared in The Journal on proprietary preparations and their methods of exploitation.

Part IV: Contributions from The Journal—Miscellany. In this section are articles dealing with matters of interest to the medical profession but not coming strictly under the classification of proprietary medicinal preparations.

A comparison of the material that has appeared in Volume 1 with what appears in this volume reveals the changing conditions in the proprietary medicine field. Many of the reports in the first volume brought out the fact that medicinal preparations were at that time foisted on the profession with false claims of composition; reports of this character are less conspicuous in the present volume. Many of the reports in Volume 2 deal with unwarranted therapeutic claims, especially those advanced for animal organ preparations, serums, vaccines, preparations for intravenous medication, etc. The present volume will also be found of interest in its portrayal of the changed conditions in proprietary medicines brought about by the World War.

The index is combined with a bibliography. It includes references not only to articles in the book but also (*a*) to articles which appeared in Volume 1; (*b*) to articles on the same general subject in The Journal, and (*c*) to articles appearing in the annual reports of the Council on Pharmacy and Chemistry and of the A. M. A. Chemical Laboratory, but not printed in either volume of the Propaganda for Reform in Proprietary Medicines.

The book is a valuable work of reference for the physician when importuned to use a new drug or when reading medical publications which refer to apparently new drug preparations. A supplement keeps the matter up to date. The book will be welcomed by those who aim to support the efforts of the American Medical Association toward the rational use of drugs and who wish to keep informed about this work so that they may give intelligent and effective support. Finally, much of the matter is interesting and entertaining reading. The review of the passing fads and fancies in drug therapy is especially illuminating. Reports, such as "Lactopeptine," "The Hypophosphite Fallacy," "The Therapeutic Value of the Glycerophosphates," "Aspirin" and "The Claimed Galactagogue Effects of Nutrolactis and Goat's Rue not Substantiated," will bring a realization of the changing estimate of drugs which have been brought about as a result of the American Medical Association's "Propaganda for Reform in Proprietary Medicines."

Grundzüge der Elektrodiagnostik und Elektrotherapie für praktische Aerzte. Von Dr. Max Kahane, Spezialarzt für physikalische Therapie in Wien. Paper. Price, 162 marks. Pp. 236, with 27 illustrations. Berlin: Urban & Schwarzenberg, 1922.

As this book aims to furnish the general practitioner with a reliable guide for electrodiagnosis and electrotherapy, the enumeration of the physical and physiologic technical details is reduced to a minimum. Special stress is laid on electrodiagnosis. The author uses the term galvanopalpation for the application of the galvanic current in the diagnosis of internal diseases. While he is strongly in favor of the use of electricity by the general practitioner, he demands that the physician should make himself thoroughly familiar with all the electrical appliances employed before using them on the patient. The two main indications for electrotherapy are defined as the reducing of pathologically raised sensibility, and the raising of pathologically reduced sensibility. The psychic attitude of patients toward electrotherapy is also considered; as electrophils are said to be as numerous as electrophobes, the physician is obliged to dampen extravagant hopes as well as to combat skepticism. The bodily structures are said to vary in their conductivity according to the part involved and to the physical condition. The observation that hyperthyroidism brings about a decrease in resistance is important from both the diagnostic and the therapeutic point of view. In considering the influence of electricity on motor nerves and the muscles, the author describes Dubois-Reymond's and Pflueger's laws, and explains their importance with regard to clonic, tonic and tetanic contractions. Several chapters deal with the action of electricity on the sensitive nerves in general, the specialized cerebral sensory nerves, the circulation, the temperature and metabolism. The physicochemical action of electricity and the various electrical apparatus and electrodes are described. Galvanopalpation was introduced by the author on the ground that certain deep seated disorders will manifest themselves on the surface of the body by phenomena of reaction to the galvanic current. These phenomena are divided into two categories, the reaction of subjective sensations and the reaction of the superficial blood vessels. The details of this method as to application and diagnostic grouping must be studied in detail; judgment must be suspended until other observers have employed the author's method and controlled his deductions. The diagnostic part of the book concludes with a chapter on the application of the faradic and the galvanic current as a means of diagnosing the diseases of the nervous system and the muscles. The differential diagnosis between complete and partial degeneration is explained. The prognosis is also included in this discussion. The therapeutic part takes up the forms of electricity to be employed, and gives general rules for the administration of the faradic and galvanic currents. The sinusoidal current and hydro-electric baths are described, together with the therapeutic use of high frequency currents and magnetotherapy. The special indications of electrotherapy are discussed according to the organs to be treated. Galvanopalpation is still sub judice, but the remainder of this textbook is a complete and satisfactory guide for the administration of electrotherapy.

Notes on Diseases Treated by Medical Gymnastics and Massage. By Doctor J. Arvedson. Translated and Edited by Mina L. Dobbie, M.D., B.Ch., Medical Officer, Chelsea College of Physical Education. Cloth. Price, $2.50. Pp. 280. Philadelphia: P. Blakiston's Sons & Co., 1921.

The discussions of symptomatology and pathology that open the chapters in this book are too simple to interest physicians, and too brief to inform nurses. Vitamins, for example, are not included among the food substances required by the body, although protein, carbohydrate, fats, salts and water are mentioned. In the chapter on mental disease, we read, "Sometimes mental trouble is associated with arrested menstruation, and in that case one would give movements taking blood to the pelvis, to bring back menstruation." Statements involving so much understanding, as this one does, do not appear to advantage when scantily surrounded by associated ideas. The gymnastic treatment of a case of aneurysm of the aorta, the author says, must be carried out with the greatest caution, and only at the express order of a physician. Why not omit that subject entirely? There is no definite indication for gymnastic treatment in thrombosis, laryngitis, whooping cough, and other subjects included. There is more often a definite contraindication. The book gives the impression that there are few ailments not benefited by gymnastics or massage. An example of caution is found when the author italicizes the words, "Gymnastic treatment must not be given for gastric ulcer."

Précis d'Histologie Physiologique. Par A. Policard, Professeur d'Histologie à la Faculté de Médecine de l'Université de Lyon. Paper. Pp. 1117, with 465 illustrations. Paris: Octave Doin, 1922.

This is one of those book the French call by the deceiving name of "précis," which may vary all the way up from a little quiz-book or mere aide-mémoire to a veritable treatise. Policard's work, one of the numerous Testut collection, differs from the average octavo textbook only in the smaller format and type. It contains the lessons on histology given by the author to first and second year medical students at Lyons, where he teaches. As he is careful to point out, the book is intended essentially for students and physicians, and not for physiologists or histologists. It is written in the lucid style apparently inborn in the French, and therefore fulfils its purpose of presenting accepted data in a simple and readable form. Because of the rarity of an index in books from Latin countries, the presence of one in this book is noteworthy; while incomplete, it is a step in the right direction.

Kompendium der topischen Gehirn- und Rückenmarksdiagnostik. Kurzgefasste Anleitung zur klinischen Lokalisation der Erkrankungen und Verletzungen der Nervenzentren. Von Robert Bing, Professor an der Universität Basel. Fifth edition. Paper. Price, 540 marks. Pp. 242, with 102 illustrations. Berlin: Urban & Schwarzenberg, 1922.

This useful compend has seen five editions in thirteen years. The present one contains much new material from experience gained in the war and from recent work on the basal ganglions and the cerebellum. It consists, first, of a clear exposition of those features of the anatomy and physiology of the brain and cord actually necessary for practical purposes in the topical diagnosis of lesions of these organs. There are numerous schematic illustrations in the text, often of original design; for instance, of cross-sections of the extremities, with different shading of the muscles according to their radicular and peripheral nerve supply. Then the topical diagnostic importance of symptoms, such as hemiplegia, aphasia and hemianopia, is discussed. Individual diseases are not taken up, nor are lesions of peripheral nerves as such; but symptoms on the part of these nerves bearing upon localization of central lesions are carefully considered. The book is intended for the general practitioner rather than the specialist, but we dare say that there are few neurologists who do not need a book of this kind at their elbow.

Tuberculosis. A Primer and Philosophy for Patient and Public. By McDugald McLean, B.A., B.Sc., M.D. Paper. Price, $1. Pp. 168, with 3 illustrations. New York: Journal of Outdoor Life Pub. Co., 1922.

This, as the title indicates, is a small book of cheerful and scientifically correct advice to those who find themselves infected with the bacillus of tuberculosis. Six years ago the author found himself in this class, and he has made a courageous and, we hope, successful effort to fight the infection and to regain his health. The brochure is entertainingly written, and in a cursory reading we have found his statements in accord with the best teachings. Certainly the author has read wisely on the subject. Some apt quotations are made from both modern and ancient writers. Celsus, who lived in the first century of our era, is quoted as saying: "As soon as a man finds himself spitting and hacking on arising in the morning, he should immediately take possession of a cow and go up into the mountains and live on the fruit of the cow." Proper tribute is rendered Trudeau and other pioneers in the open air treatment of tuberculosis. There is an interesting chapter on "Distinguished 'T. B's,'" containing short notes on the lives and work of such men as Trudeau, Grancher, Laënnec, Lanier, Stevenson, Schiller, Molière and Wesley. Both those who have been unfortunate enough to acquire this infection and those who have fortunately escaped it will find the reading of the book interesting, and the advice given sound.

Since the foregoing was written, we have learned of the death of this talented author. May his little volume be helpful to others.

Procedimientos Actuales de Exploracion Renal. Por el ponente oficial Doctor Manuel Barragán y Bonet. Paper. Pp. 111. Madrid: Imp. de Ministerio de Marina, 1921.

This is the official report on renal examination methods submitted to the National Medical Congress held in Madrid in 1919. The different methods are described briefly but thoroughly, with their technic, results and drawbacks. The examining methods are classified into (1) direct: examination, percussion, palpation and ballottement; (2) physical: roentgen rays, and (3) functional: urinalysis and secretion tests, Ambard's constant, cystoscopy and exploratory operations. The author explains the value and limitations of each, dwelling on the usefulness of ballottement, palpation, roentgenography; potassium iodid, experimental polyuria, experimental glycosuria and phenolsulphonephthalein tests and Ambard's method. Dr. Barragán's favorite method, however, is double ureteral catheterization combined with urinalysis as being less liable to error and showing the limitation or extension of the process to one or both kidneys. The author has generally done his task well. The printing, editing or proofreading, however, has been very carelessly done, and it seems strange, not to say funny, to find among American authors Caboty, Joung, Foung, Geraghy, Kelles, Thomas Brands Keyes, Rowostres and Rowontre. But then, French and even Spanish authors have not fared any better.

Selected Works of Thomas Sydenham, M.D. With a Short Biography and Explanatory Notes. By John D. Comrie, M.A., B.Sc., M.D., Lecturer on History of Medicine and on Clinical Medicine in the University of Edinburgh. Cloth. Price, $3. Pp. 152, with illustrations. New York: William Wood & Co., 1922.

Many physicians who would be dismayed at the task of reading Sydenham's writings, even in translation, will welcome this small volume of well selected extracts. The one on gout, especially interesting, occupies about one fourth of the book. Among the other briefer articles are those on rheumatism, chorea, hysteria, venereal diseases, epidemic diseases and scarlatina. A bibliography of Sydenham's works is given. There is a biographic sketch that has the merit of being something more than a mere record of dates and events; it reveals to us Sydenham as a man, a living personality.

Medicolegal

Test of Insanity as Defense to Crime—Insane Delusions

(Kraus v. State (Neb.), 187 N. W. R. 895)

The Supreme Court of Nebraska, in reversing, for erroneous instructions, a judgment of conviction of murder, holds that the test of insanity, urged as a defense to a charge of crime, is the capacity of the accused to understand the nature of the act committed and his ability to distinguish between right and wrong with respect to it. When a person is so diseased in mind at the time the act is charged to have been committed that he is incapabale of comprehending the nature of the act and is unable to distinguish between right and wrong, he is not accountable, however insanity may be manifested, whether by insane delusion or in any other manner. In case of partial insanity, an insane delusion which raises in the mind of the accused an imagined state of facts and so corrupts his mental processes that he is incapacitated from distinguishing right from wrong with respect to the act charged is a defense, though the imagined state of facts, if real, would not have justified a sane man in doing the same act.

When there is evidence that the accused was, in committing the act charged, laboring under an insane delustion, but was sane on matters not connected with the subject of his delusion, it cannot be presumed, as a matter of law, that he is able to reason with regard to the subject matter of his delusion, as a sane man would as to actual facts conforming to the imaginings of the accused. The question of the effect of an insane delusion in incapacitating a person who is otherwise sane, as to his ability to distinguish between right and wrong, with regard to matters connected with his delusion, is always a question for the jury, and an instruction on insane delusions should call on the jury to pass on that question.

An insane delustion is a false belief, springing from a mind disordered by diseases, and may be defined entirely apart from the acts that are the result of such delusion. It is the product of a diseased mind, as distinguished from errors of judgment or imagined conditions in a healthy mind, which are brought about by processes of reasoning. It is not generated by reason or reflection, and it cannot be dispelled by them. The person afflicted has no control over it, and the images of his mind are to him facts from which he cannot escape.

Judgment for Physician Against Employer Reversed

(Moore v. Derees (N. J.), 117 Atl. R. 480)

The Supreme Court of New Jersey, in reversing a judgment that the plaintiff recovered against the defendant for services rendered to an injured employee of the latter, says that the employee sent for the plaintiff to attend him. The plaintiff found him suffering from a bad injury to one of his eyes, which needed an immediate operation. The plaintiff took charge of the case and took the man to an eye and ear infirmary, and performed the necessary operation. The plaintiff did not see the defendant until afterward, and first talked with him over the telephone. The defendant then told him to give the man every possible attention, private hospital care and the services of a private nurse; and to spare nothing. The plaintiff did not, however, secure a private room and a private nurse, because the infirmary did not have the available room. The plaintiff sought to recover $100 for the operation, $84 for twenty-eight calls, and $14 for two office calls, making a total of $198; and he obtained judgment therefor. The trial judge found that the defendant led the plaintiff to rely on him for payment of the bill. The defendant did not dispute the amount of the bill, but rested on the fact that it was a proper case for proceeding under the workmen's compensation act, so as to preserve his right to recover indemnity from his insurance carrier.

The operation, for which the charge was more than half the bill, was performed before the defendant knew anything about the accident and at the request of the injured workman

There was nothing to take this case out of the ordinary rule that a debt will be implied from the rendering of services on request, and there was nothing to negative the indebtedness of the man to the plaintiff. Nor was there any question that the man became indebted to the plaintiff for the subsequent attendance, since the plaintiff said himself that he took charge of the case. There was no evidence that he acted on the defendant's request to provide private hospital care and a private nurse. So far as ordinary attendance was concerned, the plaintiff's obligation to render it was, under his agreement with the defendant, without consideration, since he was already under obligation to render those services under his employment by the injured man. Whether it was possible or not for the plaintiff to perform the contract for extra services might be a question. He said it was impossible. That impossibility might excuse his failure to provide the extra services; it explained his failure to contract to do so; it saved him from any action against himself for breach of contract; even if he accepted the defendant's terms, it surely could not entitle him to recover for services not rendered. In short, the debt for the subsequent attendance, as well as for the original operation, was a debt of the injured man, and the promise of the defendant to pay was a promise to pay the debt of another and within the statute of frauds, or required to be evidenced in writing.

But there was another aspect of the case, growing out of the employers' liability act of New Jersey. The provision for enforcement in the name of employees clearly negatives any right to enforcement in the name of a creditor of the employee, as was the present case, and the provision involving the limitation of the liability of the insurer to the employer is quite inconsistent with any permission to the employer to increase his liability by way of special contract or to extend the number of those who may sue on the policy. A special contract by the employer with a third party is out of harmony with the scheme of the legislation. The result is that the employer is no more free to make larger compensation than the statute provides than he is free to make less compensation. The state, through its own agencies, determines what is proper and enforces compliance in a spirit of judicial fairness. The plaintiff sought to recover by virtue of the compensation law contract without being a party to the contract or following the terms of the statutes. The court holds he could not recover under statutes by which he was not bound.

Privilege Attaches to Hospital Records—When Treated as Public Records

(Galli v. Wells (Mo.), 239 S. W. R. 894)

The St. Louis (Mo.) Court of Appeals affirms, in this personal injury case in which the plaintiff obtained a judgment, an order granting a new trial on account of certain records of the city hospital having been excluded when offered in evidence by the defendant. The court says that what was offered in evidence was the record preserved by the hospital of the plaintiff's condition and treatment made by her physicians while she was a patient at the hospital, it having been made by a junior intern at the hospital, whom the clerk of the hospital testified had charge of the patient, although the record purported on its face to be a record of the diagnosis and treatment of the patient by another physician. Ordinarily, such a record would be inadmissible because it is a privileged communication between physician and patient; but here it was conceded that the plaintiff, by taking the stand and testifying to her physical condition, and also by calling her own physician to testify on that subject, had waived the privilege given to her by the statute. The question of privilege being eliminated on account of the waiver, it remained to be determined whether the record offered in evidence came within the well-recognized exception to the hearsay rule frequently designated by the terms "public documents," or "official statements." If the record could be said to be an official public document, it was admissible under the exception to the hearsay rule, notwithstanding the person who made the record was not produced in court, and although it was not shown that it was impossible to obtain such testimony by reason of death, absence, insanity or like circumstance; for the official registers or books of a public official, which are required by law to be kept, are competent evidence to establish such facts as the law requires to be recorded therein.

By Section 5799 of the Revised Statutes of Missouri of 1919, it is provided that, in cities in which health officers or other officials are conducting effective registration of births and deaths under local ordinances, these officers shall be continued as registrars in and for the cities in question; and, under the charter and ordinances of the city of St. Louis, the hospital commissioner in charge of the city hospital came within the provisions of the statute. By Section 5812, he is required to keep a record of all persons admitted to the hospital for medical treatment, and should enter in the record the nature of the disease. In addition, Section 1820 of the ordinances required that a patient's record be kept at the hospital, which should contain a complete statement of all operations and treatments, and the condition of the patient from time to time. It was argued that the city hospital records were not open to the inspection of the public, and, although kept by public officials, were not for the benefit of the public, as the public had no interest in them, and therefore they were not public records within the exception to the hearsay rule. Ordinarily, such records are not open to the public because of the privilege statute, but, when that statute is waived, as in the present case, the records of the city hospital, a public institution, kept under requirement of the law, are like other public records, and are open to the public. In other words, the court holds that, in view of the foregoing charter provisions, ordinances and state statutes, the record offered in evidence was a public official record required by law to be kept, and was competent evidence of such facts as the law required should be recorded therein in a case in which, as here, the privilege of the statute had been waived.

Evidence with Regard to Impotence

(Bissell v. Bissell (N. J.), 117 Atl. R. 252)

The Court of Chancery of New Jersey, in decreeing an annulment of marriage for impotence, holds that nullity of marriage may not be decreed either on the uncorroborated testimony of the petitioner or on the uncorroborated admission of the defendant. But, when a defendant, as in this case, refuses to appear before physicians who are appointed inspectors to examine him to the end that they may form and express an opinion as to whether he is incapable of performing the act of generation, and has on his part any impediment to the consummation of marriage, this conduct, coupled with the other evidence in the cause, may be sufficient to warrant the conclusion that the defendant was at the time of the marriage physically and incurably impotent. After parties have cohabited for three years, and the marriage remains unconsummated, that being made to appear by the woman's remaining a virgin, the man's impotence is to be presumed, and this is called triennial cohabitation; but if they have cohabited for a less period, and other facts satisfy the court of impotence, it may be deemed established.

Society Proceedings

COMING MEETINGS

American Biochemical Society, Toronto, Canada, Dec. 27-29. Dr. Victor C. Myers, 303 East 20th Street, New York, Secretary.

American Pathological Society, Toronto, Canada, Dec. 27-29. Dr. Wade H. Brown, Rockefeller Institute for Medical Research, New York, Secretary.

American Pharmacological Society, Toronto, Canada, Dec. 27-29. Dr. E. D. Brown, University of Minnesota, Minneapolis, Secretary.

American Physiological Society, Toronto, Canada, Dec. 27-29. Dr. Chas. W. Greene, University of Missouri, Columbia, Secretary.

Federation of American Societies for Experimental Biology, Toronto, Canada, Dec. 27-29. Dr. Victor C. Myers, 303 East 20th Street, New York, Secretary.

Medical Society of the District of Columbia, Washington, Jan. 3, 1923. Dr. C. B. Conklin, Medical Science Building, Washington, Secretary.

Society of American Bacteriologists, Detroit, Dec. 27-29. Dr. A. P. Hitchens, Army Medical School, Washington, D. C., Secretary.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

November, 1922, **24**, No. 5

*D'Espine's and Allied Signs in Childhood. J. L. Morse, Boston.—p. 361.
*Clinical and Chemical Study of Butter Soup Feeding in Infants. A. Brown, A. M. Courtney and I. F. MacLachlan, Toronto.—p. 368.
*The Calcium and Phosphorus Concentration in Serum of Infants with Mild Rickets or Condition Simulating Mild Rickets. F. F. Tisdall, Toronto.—p. 382.
*Incidence of Meningitis in Early Infancy; Two Cases Due to Unusual Organisms. J. V. Cooke and H. H. Bell, St. Louis.—p. 387.
Study of Shadows in Thorax of Newly-Born. L. R. DeBuys and Ernest C. Samuel, New Orleans.—p. 397.
*Gastric Motility After Pyloric Obstruction in Infancy. B. S. Veeder, M. B. Clopton and R. W. Mills, St. Louis.—p. 404.
*Rate of Secretion of Breast Milk. C. H. Smith and K. K. Merritt, New York.—p. 413.
Intraventricular and Subdural Serum Treatment of Meningococcus Meningitis in Infancy. W. W. Howell and S. A. Cohen, Boston.—p. 427.
*Incidence of Thymic Enlargement without Symptoms in Infants and Children. R. M. Greenthal, Milwaukee.—p. 433.
*Classification and Management of Asthma in Childhood; Importance of Rabbit Hair as Cause in New York City. N. P. Larsen and S. D. Bell, New York City.—p. 441.

D'Espine's Sign.—Investigation has convinced Morse that most men have not read D'Espine's original articles and are using the term "D'Espine's sign" very loosely. The sign to which D'Espine originally called attention is a whispering sound following the spoken voice and heard over the spinous processes. No such sound is heard normally. He believed this to be the earliest sign of enlargement of the tracheobronchial lymph nodes. He also believed that the bronchial character of the spoken voice did not normally extend below the seventh cervical spine and that extension of the bronchial sound below this point was evidence of an enlargement of the tracheobronchial lymph nodes. He considered that the extension of the bronchial voice below the seventh cervical spine was always a later sign than the addition of the whispering sound to the spoken voice and that it meant a more advanced process. He paid little attention to the character of the whispered voice (meaning by this a whisper, not the whispering sound heard after the spoken voice) and believed that extension of the bronchial respiratory sound and of dulness on percussion below the seventh cervical spine were still later manifestations and that they signified much more marked changes. Incidentally, he warns against mistaking an unusually loud or deep voice for bronchophony, and states that sometimes it is impossible to determine anything from the voice itself, because of its peculiar character or the thinness of the chest wall. One hundred and eighteen patients between the ages of 2 and 14 years were studied by Morse and he reports his findings in detail. In eighty-eight cases, or nearly 75 per cent., there was no whispered sound after the spoken voice; in twenty-four cases it was heard through the seventh cervical spine, and in six cases below this point as well. It seems evident, therefore, that a whispered sound after the spoken voice is not the usual condition and is probably abnormal.

Butter-Soup Feeding in Infants.—The original mixture proposed by Czerny and Kleinschmidt calls for the following ingredients: butter (melted), 7 gm.; flour, 7 gm.; sugar, 5 gm.; water, 100 c.c. The mixture is diluted with milk in the proportion of two-thirds butter-flour to one-third whole milk for children weighing less than 6½ pounds, and three-fifths butter-soup to two-fifths milk for children in a better state of nutrition. Such a food gives from seventy-five to eighty calories per pound. The following simplified method has been adopted and used exclusively by Brown, Courtney and MacLachlan: butter, 7¼ level teaspoonfuls; granulated sugar, 5¼ level teaspoonfuls; flour, 14¾ level teaspoonfuls; water, 17½ ounces. The caloric value of this butter-soup (without addition of milk) is approximately twenty-eight calories to the ounce. For an infant weighing 7 pounds, the following feeding would thus be adopted: butter-soup, 14 ounces; whole milk, 7 ounces; 7 feedings. The caloric value of this mixture is approximately twenty-four calories to the ounce. When the stools tended to be loose, the sugar was omitted and from ½ to 1 ounce of casein flour was added in order to overcome the excessive fermentation. Little difficulty has been experienced with the preparation of this food in the home. Details of observations are given. The authors are convinced that undoubtedly butter-flour mixture is a valuable addition to our resources in the feeding of premature, small and undernourished infants who are not suffering from any acute digestive disturbance.

Calcium and Phosphorus in Serum of Rickets Patients.—The calcium and inorganic phosphorus concentration in the serum of a number of infants with craniotabes and slight enlargement of the costochondral junctions, as determined by Tisdall, averaged 8.8 mg. calcium and 6.1 mg. phosphorus per hundred cubic centimeters of serum. The average concentration of the calcium and inorganic phosphorus in the serum of a number of infants with signs of active tetany in addition was 6.1 mg. calcium and 5.9 mg. phosphorus per hundred cubic centimeters of serum. The question is raised whether the bone changes observed (craniotabes and enlargement of the costochondral junctions) were not more of an osteoporotic than true rickets.

Incidence of Meningitis in Infancy.—The incidence of acute meningitis in infants under 3 months of age is briefly reviewed by Cooke and Bell with mention of four cases due to meningococcus, two to streptococcus and two caused by pneumococcus. Two cases are described in which the organisms involved were gram-negative bacilli of the type commonly found in the intestinal tract. One of these belonged to the group of paracolon bacilli, but did not correspond exactly in fermentation reaction to other described strains, while in the second case the organism isolated was an encapsulated proteolytic nonfermenting bacillus apparently not hitherto observed. On account of the tough elastic growth on culture mediums, we have suggested the name *Bacterium elasticum* for this organism. The fact that meningeal infection with colon bacilli and allied organisms is usually unaccompanied by recognizable infection elsewhere in the body suggests that these bacteria gain entrance through the intestine. The possible relation of various factors in explaining why such infections are confined to early infancy is discussed, and reasons given for the belief that the increased permeability of the intestinal mucosa to bacteria, the absence of inherited immunity to the colon group, the imperfect power of antibody formation in young infants, and the general lowered resistance accompanying malnutrition predispose to infection by organisms of this type.

Gastric Motility After Pyloric Obstruction.—The gastric motility of eight children, all of whom had been patients with pyloric obstruction in early infancy, was studied by Veeder, Malvern and Mills and in every instance was found normal. Four of these, aged 4, 4⅓, 6 and 8 years, respectively, had been treated medically, and in four cases, children, aged 1⅓, 4, 4½ and 5 years, respectively, a pyloroplasty (Rammstedt operation) had been done. At the time of the gastric examination the children were all in a good condition of nutrition and with one exception they had developed normally after overcoming the trouble in early infancy. All belonged to the "sthenic" type of habitus, as classified by Mills.

Rate of Secretion of Breast Milk.—Smith and Merritt are convinced that nursing infants obtain the greater part of their feeding of breast milk in the first few minutes, from 40 to 60 per cent. in the first two minutes, and from 60 to 85 per cent. in the first four minutes. This holds true whether the supply is abundant, moderate or scanty. After eight minutes very few babies get any milk whatever. Only seventeen of their subjects showed any increase in weight after eight minutes; only three babies obtained milk after ten minutes. The babies who need both breasts usually get less from the second than from the first side, except when one regularly yields a better supply.

Incidence of Thymic Enlargement Without Symptoms.—In a series of 2,000 consecutive hospital admissions, thymi enlargement was diagnosed in ninety, or 4.5 per cent. Of these ninety patients, eighty-seven gave no history or presented no symptoms of thymic involvement. Enlargement of the thymus was noted in 25.6 per cent. of all the patients who had a roentgenogram of the thorax made. Greenthal says that patients with congenital defects and malformations are more apt to have thymic enlargement than are other patients. It is possible that the mortality rate among surgical cases was lowered by preoperative thymic treatment. It would seem advisable to give thymic treatment to persons with thymic enlargement, even though they have no clinical evidence of thymic hyperplasia.

Asthma in Childhood.—Of 100 cases of asthma and chronic bronchitis analyzed by Larsen and Bell, forty-four subjects were shown to be sensitive to protein. Of the forty-four, thirty-six were positive to animal emanations and of these thirty-two were positive to rabbit hair. Sixty positive reactions were obtained. Of these forty-nine, or 81 per cent., were positive to animal emanations and thirty-two, or 54 per cent., were positive to rabbit hair. In treating the sensitive type, removal of the protein from the environment gave marked immediate relief. In treating the nonsensitive type, simple hygienic measures gave relief in slightly more than half the cases.

American Journal of Psychiatry, Baltimore

October, 1922, **2**, No. 2

*Studies in Focal Infection: Its Presence and Elimination in Functional Psychoses. N. Kopeloff and C. O. Cheney, New York.—p. 139.

*Etiology and Treatment of So-Called Functional Psychoses. H. A. Cotton.—p. 157.

Responsibility of American Psychiatric Association in Relation to Psychiatric Nursing. E. H. Cohoon, Harding, Mass.—p. 211.

Efficiency Survey of Worcester State Hospital. W. A. Bryan, Worcester, Mass.—p. 221.

Physiologic and Anatomic Approach to Classification of Mental Diseases. H. I. Gosline, Howard, R. I.—p. 235.

Internal Secretions in Their Relationship to Mental Disturbance. B. R. Tucker, Richmond, Va.—p. 259.

*Clinical Activities of Connecticut Society for Mental Hygiene. W. B. Terhune, New Haven, Conn.—p. 273.

Focal Infections Not Cause of Psychoses.—The conclusions resulting from a study made by Kopeloff and Cheney of the relation of focal infections to functional psychoses are summarized as follows: The removal of infected teeth and tonsils from twenty-seven cases showing manic depressive, dementia praecox, and psychoneurotic reactions has been followed by no more mental benefit than was shown by a comparable group of thirty-three patients from whom such supposed foci of infection were not removed. There were no recoveries or distinct improvements other than those prognosticated irrespective of focal infection. The Rehfuss method of fractional gastric analysis is not to be relied upon as a means for determining gastric infection. The bacteria found in the stomach contents by this method may be derived for the greatest part or entirely from the saliva that is swallowed.

Focal Infection May Cause Insanity.—The fact that many individuals harbor focal infections and are not insane, Cotton says, is no argument against the doctrine that focal infections can cause insanity. One may argue similarly regarding a functional psychosis. The type, specificity and severity of the infection, plus the patient's constitutional lack of resistance, determine whether or not a psychosis will develop. Such factors as heredity and psychogenesis undoubtedly play an important rôle; more, however, it is now believed, in precipitating the psychosis rather than the principal etiologic factor. The successful treatment of 1,400 cases during the last four years with only forty-two return cases now in the hospital, Cotton says, must be accepted as evidence that the work has been efficient. The fact that recoveries in the last four years average 80 per cent. of this group against an average of 37 per cent. for a period of ten years prior to 1918 should be convincing. The latter can be considered as spontaneous recoveries, and the increase of 43 per cent. is due entirely to the method of detoxication that is employed. It is imperative that every patient who is admitted to the state hospital should be subjected to a thorough diagnostic survey, and that all foci of infection should be eliminated.

Activities of Connecticut Mental Hygiene Society.—Terhune points out that the Connecticut Mental Hygiene Society combines clinical work with its other activities. Nearly 2,500 patients have been helped by this organization, 1,600 of them having been seen during the past two years. The result of this experience shows the great need of mental hygiene organizations in every county, state and community.

American Review of Tuberculosis, Baltimore

November, 1922, **6**, No. 9

Some Factors Concerned in Dissemination of Tuberculosis in Experimental Animals. S. R. Haythorn, Pittsburgh.—p. 731.

*Pneumokoniosis and Tuberculosis: Special Reference to Both Diseases in Potters. H. R. M. Landis, Philadelphia.—p. 766.

Pneumokoniosis in Stone Industry. F. L. Hoffman, Newark, N. J.—p. 772.

Studies on Relation of Mineral Dusts to Tuberculosis. II. Relatively Early Lesions Produced by Inhalation of Marble Dust and Their Influence on Pulmonary Tuberculosis. L. U. Gardner and M. Dworski, Saranac Lake, N. Y.—p. 782.

*Studies on Tuberculous Infection. IX. Influence of Inhalation of Coal Dust on Tuberculous Infection in Guinea-Pigs. H. S. Willis, Baltimore.—p. 798.

Pulmonary Aspiration of Particulate Matter. H. J. Corper and H. A. Robin, Pueblo, Colo.—p. 813.

*Pulmonary Tuberculosis Produced Experimentally by Aspiration. H. J. Corper, Denver.—p. 851.

Pneumokoniosis and Tuberculosis.—The hypothesis is advanced by Landis that silica is the most irritant of all dusts and those exposed to it in its pure form are incapacitated in from two to eight years. In other words, it will produce as much damage in this brief period as occurs after from thirty to fifty years in a pottery or in a coal mine. Instead of being a slow chronic process, silicosis is subacute and in some instances distinctly an acute process. It would, therefore, seem that lungs acutely or subacutely inflamed might readily become a fertile field for the tubercle bacillus. Landis emphasizes that no dust, not even silica, can cause tuberculosis. It may as in the case of silica, predispose the individual to the disease, but without the presence of the tubercle bacillus tuberculosis cannot develop.

Influence of Inhalation of Coal Dust on Tuberculous Infection.—Willis' observations showed that coal dust accumulates slowly in the lungs of guinea-pigs exposed repeatedly to its inhalation. It tends to become localized in the alveoli and alveolar walls, under the pleura at intervals, in the lymphoid tissue situated along the air and blood passages and at the hilum, and along the lymphatics in the adventitia of these tubes and vessels. After infection tubercle develops somewhat more abundantly in lungs of animals exposed to dust than in those of normal animals. The ratio is about as three to two. Dust cells usually can be found in and about foci of tuberculosis in lungs that have been well exposed to dusting.

Pulmonary Tuberculosis Produced by Aspiration.—The upper lobe localization of pulmonary tuberculosis, the most common type of the disease found in man, Corper says, can be reproduced in dogs (in the sense of human postural anatomy) by the instillation of suspensions of tubercle bacilli into the nose while the animal is lying in the horizontal posture (on the right or left side depending on the side on which involvement is desired) during ether anesthesia with the head slightly elevated. These experiments with tubercle bacilli verify the postural studies previously reported in animals in which India ink was used. By means of dead human tubercle bacilli, aspirated under ether anesthesia, all of the important characteristics of the disease in man may be reproduced, except progression in the true sense of the term, such as would naturally be dependent upon actual multiplication of the bacilli in the lungs. The most important of these changes, including massive tuberculous granulation tissue formation with subsequent necrosis followed by discharge into the bronchi and resulting cavity formation, fibrous pleural adhesions and intrapulmonary capillary hemorrhages are all obtained and in definite sequence, indicating that the full tissue damage initiated when the bacilli enter the lungs is not exhausted for a considerable period of time; visible cavities were found only after 139 days, while intrapulmonary capillary hemorrhage was seen regularly earlier (after forty-one days).

Annals of Otology, Rhinology and Laryngology, St. Louis

September, 1922, **31**, No. 3

Treatment and Prognosis of Carcinoma of Larynx. W. Okada, Tokyo, Japan.—p. 601.
Study of Tonal Ranges in Lesions of Middle Ear. L. W. Dean and C. C. Bunch, Iowa City, Ia.—p. 617.
Observations on Hay Fever. I. C. Walker, Boston.—p. 660.
Unpleasant End-Results in Well Performed Tonsillectomies. C. W. Richardson, Washington, D. C.—p. 678.
Contribution to Study of Brain Abscess. J. K. M. Dickie, Ottawa, Can.—p. 683.
Intimate Lymphatics of Trachea. J. F. Strauss, Chicago.—p. 715.
Malignant Tumor of Temporal Bone. A. Zebrowski, New York.—p. 739.
Anatomy and Surgery of Temporal Bone, with Reference to Mastoid in Health and Disease. J. C. Keeler, Philadelphia.—p. 759.
Sphenoethmoid Sinusitis. J. J. Shea, Memphis, Tenn.—p. 813.
Present Status of Skiagraphic Interpretation as an Adjunct in Diagnosis of Catarrhal Affections of Accessory Sinuses. R. H. Skillern, Philadelphia.—p. 855.
Otitic Pyemia without Sinus Thrombosis. E. M. Seydell, Wichita.—p. 862.
Report of Case of Thrombosis of Superior Petrosal Sinus of Otitic Origin, Presenting a Symptom Complex Strongly Suggesting Diagnosis. W. G. Shemeley, Jr., Philadelphia.—p. 869.
Electrocoagulation in Treatment of Carcinoma of Larynx. F. J. Novak, Chicago.—p. 878.
Vasomotor Disturbances of Upper Air Passages and Sinus Disease. J. L. Goodale, Boston.—p. 882.
Barany's Priority. I. W. Voorhees, New York.—p. 895.

Boston Medical and Surgical Journal

Nov. 30, 1922, **187**, No. 22

*Injuries to Crucial Ligaments and Avulsion of Tibial Spine. C. F. Painter, Boston.—p. 765.
Comparative Statistics on Physical Examinations of Pupils of Boston Public Schools from December 1, 1915, to June 30, 1922. W. H. Devine, Boston.—p. 774.
*Chronic Intestinal Indigestion During Second and Third Years of Childhood. L. W. Hill, Boston.—p. 777.
*School Children and Spinal Curves. E. H. Bradford, Boston.—p. 781.
Spinal Flexibility. E. H. Bradford, Boston.—p. 785.
Electrocardiographic Signs of Coronary Thrombosis and Aneurysm of Left Ventricle of Heart. M. H. Kahn, New York.—p. 788.
Roentgen-Ray Treatment of Acne Vulgaris. R. Jacoby, Boston.—p. 793.

Injuries to Crucial Ligaments.—The keynote of the experience of the most careful observers, Painter says, seems to be that ruptures of crucial ligaments are not as serious affairs as at one time they were credited with being. Very serviceable joints may be expected after injuries of this nature, and the operative methods employed may be counted on to restabilize the joints with very little surgical risk. It would not appear that in the majority of instances the conditions call for the tunneling operations and transference of muscles or transplants of fascia. Through the median patellar incision the crucials may be repaired or bridged so that they repair themselves. Protection with a "cage" splint for several months after walking is commenced should be insisted on. So far as the treatment of avulsions of the tibial spines are concerned, Painter's experience has convinced him that they should be treated conservatively by a cast with the leg in extension.

Chronic Intestinal Indigestion in Childhood.—Hill describes chronic intestinal indigestion as a disease, the essential nature of which is probably an infection of the contents of the small intestine with organisms which would not be there, this infection being usually caused in the first place by overfeeding with too much solid food at too early an age, or by an acute attack of diarrhea. The basis of treatment is a low starch and fat, high protein diet. Nothing whatever in the way of results can be accomplished without considerable painstaking study of each individual case.

Schoolchildren and Spinal Curves.—With proper attention on the part of the parents, school authorities and physicians, Bradford says, it may be expected that future generations will have better carriage and straighter backs than are at present seen among schoolchildren. He describes various procedures which may be used to keep children's backs straight. Where the spinal column sags in the dorsolumbar region and there is a marked hollow back, forward pressure is necessary on the sacrum and upper part of the spinal column with back pressure on the abdomen, while the shoulders are held back and the neck kept from bending forward. This can be accomplished by a simple arrangement. Two strips of steel are fastened together in the shape of a cross, the short cross piece to extend across the shoulders at the level of the axillae. To the top of the upright arm of the cross can be fastened a band of ribbon or webbing which can be tied around the neck. To the end of the cross arms is attached webbing long enough to pass around the shoulders, crossed in the back, to be buckled in front to a square piece of leather or canvas placed over the abdomen. The bottom of this abdominal piece is secured by straps coming around the lower part of the trunk from the lower end of the steel upright. The abdominal cloth can be kept from rising by garter supporters or by attached webbing straps passing around the thighs. The patient can with this arrangement be kept for a required portion of the day in a proper position.

Illinois Medical Journal, Oak Park

November, 1922, **42**, No. 5

Effects of Hypothyroidism. J. H. Hutton, Chicago.—p. 337.
Some Newer Phases of Vitamin Studies. A. D. Emmett, Detroit.—p. 342.
Medical Cults from Standpoint of Publicity. C. E. Humiston, Chicago.—p. 352.
Advances in Chemistry as Aids to Clinician. H. C. Bradley, Madison, Wis.—p. 356.
Medical Economics Problems. E. H. Ochsner, Chicago.—p. 362.
Graduate Instruction in Ophthalmology. W. H. Wilder, Chicago.—p. 366.
Surgery of Lung. C. U. Collins, Peoria, Ill.—p. 372.
Methods of Refinement in Ophthalmic Diagnosis. R. Von Der Heydt, Chicago.—p. 375.
Tuberculosis in Childhood. C. Jacobson, Chicago.—p. 378.

Indiana State Medical Association Journal, Ft. Wayne

November, 1922, **15**, No. 11

Biliary Tract Infection and Its Differentiation from Ulcer. C. L. Mix, Chicago.—p. 373.
Four Cases of Congenital Pyloric Stenosis. O. G. Pfaff, Indianapolis.—p. 378.
Epidemic Encephalitis After-Effects. W. A. Fankboner, Marion.—p. 381.
Therapy of Syphilis. J. E. Luzadder, Bloomington.—p. 385.

Journal of Biological Chemistry, Baltimore

November, 1922, **54**, No. 3

Glutathione. II. Thermostable Oxidation Reduction System. F. G. Hopkins and M. Dixon, Cambridge, Eng.—p. 527.
Colorimetric Method for Determination of Small Amounts of Magnesium. F. S. Hammett and E. T. Adams, Philadelphia.—p. 565.
*Metabolic Disturbances in Cats on Milk Diet. G. W. Pucher and K. F. Cori, Buffalo.—p. 567.
*Constancy of Creatin-Creatinin Excretion in Children on High Protein Diet. V. J. Harding and O. H. Gaebler, Toronto, Can.—p. 579.
Some Sources of Error in Determination of Chlorids in Blood and Similar Material. I. Greenwald and J. Gross, New York.—p. 589.
Combined Uric Acid in Beef Blood. A. R. Davis, E. B. Newton and S. R. Benedict, New York.—p. 595.
Distribution of Combined Uric Acid in Corpuscles of Beef Blood. E. B. Newton and A. R. Davis, Boston.—p. 601.
Combined Uric Acid in Human, Horse, Sheep, Pig, Dog and Chicken Blood. E. B. Newton and A. R. Davis, Boston.—p. 603.
Influence of Water Deprivation, Pilocarpin and Histamin on Changes in Blood Concentration in Rabbit. F. P. Underhill and S. C. Roth, New Haven, Conn.—p. 607.
Use of Iodin in Determination of Glucose, Fructose, Sucrose and Maltose. F. A. Cajori, San Francisco.—p. 617.
Pigments of Mendelian Color Types in Maize: Isoquercitrin from Brown Husked Maize. C. E. Sando and H. H. Bartlett, Ann Arbor, Mich.—p. 629.
Chart for Conversion of Colorimetric Readings Into Hydrogen Ion Concentration. J. F. McClendon, Minneapolis.—p. 647.

Metabolic Disturbances in Cats on Milk Diet.—Cats when fed on meat and water excrete a urine normal for carnivorous animals. The total carbon dioxid content of the urine is very small and constant in value. Cats when fed on milk excrete in from twenty-four to forty-eight hours a urine which shows the following qualities: (*a*) alkaline to brilliant yellow or even to phenolphthalein; (*b*) substances which easily reduce Benedict's solution (five minutes boiling); (*c*) high amounts of bicarbonates (calculated from total carbon dioxid evolved); and (*d*) increase of the ammonia and the ammonia total nitrogen ratio. These symptoms were observed as long as the animals were maintained on a milk diet (three weeks). Within forty-eight hours after the withdrawal of the milk the animals returned to normal. Milk sugar is not responsible for these changes in the alkali metabolism of the cats.

Creatin-Creatinin Excretion on High Protein Diet.—Creatinuria in pathologic conditions, Harding and Gaebler state, shows the same general rule as creatinuria in children. The total creatin coefficient averages 21.9, a figure very close to that given as the average for children of 22.7, and that the variations in the coefficient cover the same range as does the creatinin coefficient in normal man. It would not appear from the results obtained that the thyroid gland plays any direct role in the production of creatinuria. Acromegaly, muscular dystrophies, and children all show a power to produce the same amount of creatin per kilo body weight as the normal adult. Only in so far as the activities of the thyroid after the proportion of muscular mass to total body weight, does that gland contribute a quota to the production of a creatinuria.

Journal of Urology, Baltimore

November, 1922, 8, No. 5

*Operative Cure of Incontinence of Urine. H. H. Young, Baltimore.—p. 361.

*Pathology and Mechanism of Prostatic Hypertrophy. J. L. Tenenbaum, New York.—p. 431.

Carcinoma in Ureteropelvic Juncture Metastatic from Prostate. A. S. Giordano and H. C. Bumpus, Rochester, Minn.—p. 445.

*Streptothrix Prostatitis: Preliminary Report. A. H. Schwartz and J. Cancik, Duluth, Minn.—p. 451.

Operative Cure of Incontinence of Urine.—Cases are cited by Young to prove that even after great traumatism, extensive destruction of both internal and external sphincters, and in the presence of much scar tissue, it is still possible by means of thorough plastic operations to cure urinary incontinence and obtain normal micturition. In some cases the defect is posterior and excision of scar tissue and sphincteric plastics must be carried out along the floor of the urethra both through the suprapubic and perineal incision. Where the defect is along the roof of the urethra as in epispadias, excision and plastic must be along the roof. Where incontinence is due to fistulae which parallel the urethra whether after fracture of the pelvis, or from dermoid cysts of the prevesical space, the restoration of a normal urethra, excision of strictures and the closure of fistulas must be carried out, but if the internal and external sphincters have been injured, the operation must include plastic procedures to restore these sphincters. Each case is, therefore, a study unto itself and the operation has to be varied according to the findings and conditions presented, as in the ten cases detailed in which excellent results were obtained.

Prostatic Hypertrophy.—Prostatic hypertrophy cannot be considered as a disease, Tenenbaum maintains. It is with the secondary changes in the urinary tract caused by proliferation of the periurethral glands that the true pathologic process develops. The changes in the urethra in regard to size, lumen and curve are the result of various cooperating and antagonistic forces, of which the direct pressure of the intruding glands, the indirect influence of the changes in the bladder upon the urethra and the anatomic peculiarities of the latter, are the most important factors. The part of the urethra which is directly subjected to molding by the growth is the supramontane part of the prostatic urethra. The conception of back pressure as the primary cause of the changes in the upper urinary tract is inconsistent with the anatomic and physiologic peculiarities of the bladder and the ureters. Contraction of the bladder prevents rather than causes urinary reflux, and in an atonic bladder urinary reflux is still less probable.

Streptothrix Prostatitis.—Of twenty cases in which cultures were made by Schwartz and Cancik on special mediums in thirteen, or 65 per cent., the streptothrix was demonstrated in culture, sometimes in pure culture, sometimes mixed with staphylococci. Of the twenty cases, in seventeen there was found a definite urethral discharge, among these cases were thirteen cases in which the streptothrix had been demonstrated. In nine of the thirteen streptothrix cases the discharge seemed characteristic; it was more profuse than in the other cases and was distinctly mucopurulent. This type of discharge was not noted in the nonstreptothrix cases. A vaccine was made from the pure cultures of the streptothrix. Injections were given hypodermically, beginning with a small initial dose, 0.05 c.c., repeated every three or four days, and gradually increasing the dose until in some cases as high as 1 c.c. was given. A local reaction developed in all the cases, and in some there was a marked systemic reaction. Seven patients were relieved from the symptom of discharge with no other treatment. Three patients required massage of the prostate in addition to the vaccine before relief from discharge could be noted. Two patients improved. In one case there was no improvement with massage and twenty-two injections of vaccine and cultures showed streptothrices after suspension of therapy.

New York State Journal of Medicine, New York

November, 1922, 22, No. 11

Criticism of Certain Tendencies in American Obstetrics. J. W. Williams, Baltimore.—p. 493.

Obstetric Analgesia. R. C. Coburn, New York.—p. 499.

Obstetrical Analgesia. J. V. D. Young, New York.—p. 501.

Rectal Complications of Pregnancy and Puerperium. D. C. McKenney, Buffalo.—p. 503.

*Brain Tumors and Abscesses. E. A. Sharp and W. F. Jacobs, Buffalo.—p. 507.

*Neuropsychiatrist and Study of a Person as a Whole. L. F. Barker, Baltimore.—p. 512.

Orthopedic Surgery and Neurologist. L. Mayer, New York.—p. 515.

Possible Clinical Significance of Thyroid-Suprarenal Cortex Interrelationship. D. Marine and E. J. Baumann, New York.—p. 518.

Solid Edema of Face and Eyelids: Report of Four Cases. W. B. Weidler, New York.—p. 521.

*Changes in Virulence of Tubercle Bacilli. E. R. Baldwin, Saranac Lake, N. Y.—p. 524.

Anaphylaxis from Wasp Sting. N. P. Brooks, Croton-on-Hudson, N. Y.—p. 527.

Brain Tumors and Abscesses.—Thirty-eight cases of brain tumor and eleven cases of brain abscess are analyzed by Sharp and Jacobs. Of the former twelve cases showed definite focal signs preceding the general pressure symptoms. These focal signs, insignificant at first, gradually developed a definite syndrome of sufficient value to localize the lesion before the diffuse pressure symptoms masked the clinical picture. In fifteen cases the general symptoms appeared co-incidently with the focal symptoms and the localizing symptoms were more or less obscured by the general pressure symptoms. The remaining eleven cases showed only general symptoms: headache was present in thirty-six; optic disk changes in thirty; vertigo in eighteen; vomiting in twenty-five; changes in pulse rate in fourteen; psychic disturbances in fifteen. In the nontumor or doubtful cases the headaches were also the most prominent symptom; next the vertigo and vomiting. The highest pressure recorded in this series was 850 mm. water pressure, equivalent to about 63 mm. of mercury. The mechanical factors in the brain abscess cases were similar to those found in the tumor growths. The general pressure symptoms, however, were less intense and in a few cases were absent.

Need for Psychophysical Study.—The knowledge and technic necessary for the thorough study of a (psychophysical) person, as a whole, Barker says, has become so complex that it is now beyond the power of a single physician to attain to mastery of all parts of it. The complete analytic and synthetic study of a person, a psychophysical individual, by modern clinical methods demands (1) examinations by experts in the study of the several component bodily systems (respiratory, circulatory, digestive, urogenital locomotor, neural, endocrine); (2) technical studies of the biography with special reference to the assets and deficiencies of the associated personality, and (3) an integration of the results of the various examinations into a diagnostic whole that is properly coordinated and subordinated. By such a thorough survey only can the modes of reaction of the phenotype or "realized person" be as satisfactorily recognized and the hereditary and environmental factors be as fully appreciated as the present state of clinical knowledge and technic make possible. When the results obtained through the examinations of internists, of various medical and surgical specialists, of neurologists and psychiatrists have been collected and arranged, the data can then be critically examined with reference both to the endogenous and the exogenous factors that have been responsible for the production of the special phenotype (or realized person) that the patient represents. It should then be possible to plan a therapy that will pay due attention to the physical, chemical, psychic and situational measures that will most favorably modify the person in the direction of adequate adaptability. In the present state of diagnosis, the knowledge we can gain of a person as a whole is but fragmentary, but we shall work with greater confidence if we are sure that our studies are properly directed.

Changes in Virulence of Tubercle Bacilli.—Baldwin discusses briefly the significance of the virulence of tubercle bacilli in making a prognosis. At Saranac, a culture known as R1 of human tubercle bacilli, which is thirty years old, retains slight pathogenicity. A culture, H37, isolated seventeen years ago is still quite pathogenic. A culture of bovine tubercle bacilli, B1, twenty years old, is still very virulent for rabbits. Baldwin emphasizes the need of methods for the determination of the virulence of tubercle bacilli and a suggested standard procedure. The possible correlation of clinical forms of tuberculosis with variations in strains of bacilli is pointed out.

Philippine Islands Medical Association Journal, Manila

September-October, 1922, **2**, No. 5

Effect of Milk Injections in Ocular Inflammations. A. S. Fernando and F. Nicolas, Manila.—p. 218.
Relation of Physical Exercise to Growth and Development. R. R. Ylanan.—p. 223.
Treatment of Eclampsia. A. Villarama, Manila.—p. 227.
Health Officer and Public. J. P. Bantug.—p. 231.
Legal Medicine and Other Collateral Subjects as Taught in Medical Colleges of Various Universities in United States and in Europe, and in College of Medicine and Surgery of University of Philippines. S. de Los Angeles.—p. 232.

Philippine Journal of Science, Manila

October, 1922, **21**, No. 4

Diagnoses of Hainan Plants. E. D. Merrill, Manila.—p. 337.
Effect of Sulphur Compounds on Cement. J. C. Witt, Manila.—p. 357.
Use of Textile Fibers in Microscopic Qualitative Chemical Analysis. V. Detection of Gold by Means of Stannous Chlorid-Pyrogallol Viscose-Silk Fibers. H. I. Cole, Manila.—p. 361.
Influence of Substances on Cement and Concrete. J. C. Witt, Manila.—p. 365.
New or Little Known Tipulidae from Philippines (Diptera). C. P. Alexander, Urbana, Ill.—p. 373.
Indo-Malayan Rhynchitines (Curculionidae). E. Voss, Waldsiedlung Spandau, Germany.—p. 385.

South Carolina Medical Association Journal, Greenville

November, 1922, **18**, No. 11

Aortic Insufficiency. J. F. Woods, Charleston.—p. 315.
Surgical Anatomy of Temporal Bone. M. R. Mobley, Florence.—p. 318.
Faulty Food in Relation to Intestinal Stasis and Auto-Intoxication. S. Brunson, Sumter.—p. 320.
Case of Intestinal Rupture, Caused by Compressed Air Entering Anus. J. R. Sparkman, Spartanburg.—p. 324.
Obstetrics on R. F. D. G. E. Thompson, Inman.—p. 325.
Cholecystitis. S. O. Black, Spartanburg.—p. 330.
Phenolsulphonephthalein Test. M. Weinberg, Sumter.—p. 333.

Wisconsin Medical Journal, Milwaukee

November, 1922, **21**, No. 6

*Effect of Antisyphilitic Treatment on Kidney. W. F. Lorenz and W. J. Bleckwenn, Madison.—p. 211.
Value of Transuterine and Transabdominal Gas Inflation of Female Pelvis with Carbon Dioxid. R. S. Cron.—p. 215.
*Traumatic Rupture of Femoral Artery with Hematoma. W. C. F. Witte and H. E. Zilisch, Milwaukee.—p. 218.
Relationship of Genito-Urinary Diseases to Chronic Patient. B. C. Corbus, Chicago.—p. 222.

Effect of Antisyphilitic Treatment on Kidney.—Lorenz and Bleckwenn's clinical experience leads them to believe that many patients with syphilis will be found to be suffering from nephritis of varying degree which will clear up under antisyphilitic treatment, demonstrating probably the syphilitic origin of that nephritis. Kidney function tests have the apparent advantage of disclosing kidney embarrassment before the usual signs of albumin and casts are demonstrated in the urine. The authors advocate the use of the kidney functional tests, before, during and after drug administration. If it is found that the drug administration increases the renal abnormality it then becomes a matter of selecting the least irritating of the antisyphilitic measures. In a borderline case in which the renal mechanism might easily be injured by the larger doses of a drug generally employed, a careful study of the renal function will disclose the amount of drug that can be tolerated without such injury. Although the actual percentage of cases which developed kidney lesions resulting from antisyphilitic treatment is small, it is still very essential to avoid such disaster and it is strongly felt that the study as outlined above is imperative. The most important finding by Lorenz and Bleckwenn not observed before is that a kidney function test made immediately after drug administration cannot be accepted as evidence of kidney impairment.

Traumatic Rupture of Femoral Artery.—While riding a motorcycle for the first time, Witte and Zilisch's patient ran into a telephone pole and in falling from the machine hit his abdomen against one of the handle bars. He arose and walked about 10 feet unassisted, using both legs. Within a few hours he was unable to use the left leg at all. The abdomen presented an unusual spherical mass about 10 inches in diameter, located in the left inguinal region, extending up into the lower left quadrant and down over the left leg. This mass was apparently between the skin and muscles of the abdominal wall and was very firm, hard and nonpulsatile. The skin over this tumor was unbroken. The left side of the scrotum was swollen and the genitalia were slightly discolored on the left side. There was a flaccid paralysis of the left thigh and a spastic paralysis below the knee. On the inner side of the thigh there was marked hyperesthesia. Below the knee there was complete anesthesia. All voluntary control of the leg was apparently lost. The roentgen ray showed no fracture of the pelvis or femur. The pathologic changes found at operation were a hematoma below the skin, laceration of all abdominal muscles, exposing the femoral artery which was completely severed, and both proximal and distal ends of the artery contained a blood clot. There was no active hemorrhage. The nerve was evidently not lacerated. There was a laceration of the muscle and tissues between the bladder and the peritoneum. The left leg was paralyzed and there was a beginning gangrene of the foot. Later an atypical amputation was done about 5 inches below the knee joint.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

Nov. 18, 1922, **2**, No. 3229

Animal and Vegetable Pathology in Relation to Human Disease. I. Animal Pathology in Relation to Human Disease. F. Hobday.—p. 955.
Id. II. Some Aspects of Vegetable Pathology in Relation to Human Disease. W. H. Lang.—p. 958.
Some Characteristics of Virus Diseases of Plants. E. J. Butler.—p. 963.
Disease Resistance in Plants. F. T. Brooks.—p. 964.
*Persistent Eosinophilia with Splenomegaly. S. McDonald and A. F. B. Shaw.—p. 966.
*Cancer of Scrotum: Etiology, Clinical Features and Treatment of Disease. A. H. Southam and S. R. Wilson.—p. 971.
Removal of Paper Fastener by Direct Peroral Bronchoscopy. H. Tilley.—p. 973.
*Case of Arsenical Keratosis Followed by Cancer. H. C. Semon.—p. 975.
Puerperal Infection Mortality in Wales. E. J. Maclean.—p. 976.
Hemorrhagic Chickenpox. W. McC. Wanklyn.—p. 977.
Potassium Permanganate in Dermatology. J. A. Scott.—p. 977.

Persistent Eosinophilia with Splenomegaly.—McDonald and Shaw have had under observation a case of persistent eosinophilia (from 71.4 to 82.3 per cent.) associated with a high total leukocyte count (from 34,000 to 138,000) and marked splenomegaly. The condition appears to be extremely rare. The authors have found records of only two similar cases. Splenectomy was performed with marked improvement in the patient's physical condition. The ratio of phagocytic power of the eosinophils to the polymorphonuclears was 1:3.9 and 1:9.5, respectively, on two occasions. The nature and significance of Charcot-Leyden crystals are still undetermined, yet there appears to be strong evidence in support of the view that they are in some way a product of eosinophil leukocytes. The marked eosinophilia present in this patient has afforded an opportunity of inquiry along these lines. The appearances found lead the authors to suggest: (1) that the crystals are first formed within the substance of the eosinophil leukocytes; (2) that the cells eventually break down and liberate the crystals, which then grow into larger formations; (3) that there is no definite evidence that the crystals primarily arise from the oxyphil granules of disintegrated eosinophil cells; and (4) that the conditions which lead to the formation of crystals appear suddenly about the third or fourth days.

Cancer of Scrotum.—One hundred and forty-one cases of cancer of the scrotum are analyzed by Southam and Wilson. The occupations of these patients are of considerable interest: epithelioma of the scrotum was largely associated with two occupations—cotton spinning (sixty-nine cases) and workers in tar and paraffin (twenty-two cases). There was only a single chimney-sweep. In mule-spinners the growth is usually situated on the anterior aspect of the left side of the scrotum, a position explained by the occupation of the spinner. The etiology appears to depend on chronic irritation, the result of friction and contact with oil. It is doubtful if the condition is preceded by an innocent stage. The disease is similar in general features to other forms of cutaneous cancer and equally malignant. The only hope of successful treatment lies in early and radical operation.

Arsenical Keratosis Followed by Cancer.—The case reported by Semon illustrates the danger of prolonged arsenical medication by the mouth. The patient had taken arsenic continuously for seven years for psoriasis. By this time pigmentation of the abdomen and warty growths on the palms and soles developed. Fourteen years after cessation of the drug the hyperkeratosis on palms and soles was as obvious as ever, and a small painless ulcer made its appearance in or around one of the warty growths on the outer border of the right sole. The ulcer persisted, and was not regarded as serious until Semon saw the man and recognized the lesion. The right leg was amputated through its lower third and recovery was uneventful.

Glasgow Medical Journal

November, 1922, **16**, No. 5

*Clinical Significance of Failing Sight. A. M. Ramsay.—p. 289.
Some Links Between Natural History and Medicine. J. A. Thomson.—p. 318.
Cause of Increased Electrical Excitability. N. Morris.—p. 329.

Clinical Significance of Ophthalmic Examination.—Ramsay stresses the fact that the eye is an integral part of the body, and is implicated in many forms of general disease; consequently, a knowledge of clinical ophthalmology ought to be part of the medical equipment of every general practitioner. The family doctor ought to include the eye in the routine examination of a patient. Let him, if he can, make full use of the ophthalmoscope in the same way that he employs the stethoscope, the polygraph, the sphygmomanometer, the clinical thermometer, and applies chemical tests in the examination of the urine and of other excretions of the body; but he must understand that it is far more important to know how to make a thorough functional examination of the eye. He must be able to test the sensibility of the optic nerve and retina before he is able to form a trustworthy opinion of the condition of a patient who is complaining of failing sight.

Irish Journal of Medical Science, Dublin

August, 1922, **5**, No. 6

*Relationship of Eclampsia To Other Toxemias of Pregnancy. G. FitzGibbon.—p. 245.
Rheumatoid Arthritis and Allied Conditions. R. J. Rowlette.—p. 261.
Vesicles of Vesicular Mole. E. J. R. Evatt and L. S. Simon.—p. 267.
*Two Cardiac Cases. L. Abrahamson.—p. 271.

Relationship of Eclampsia to Other Toxemias of Pregnancy.—FitzGibbon emphasizes the close association of eclampsia with all the other toxemias of pregnancy, in incidence, cause, symptoms and treatment. The pathologic findings in toxemia, eclampsia and toxemia hemorrhage are identical. The one condition common to all cases is a subacute nephritis, and with this a variable degree of focal necrosis in the other organs, markedly the portal system of the liver. This is clearly an indication of an irritant excreted by the kidneys, injuring their function, and then affecting other tissues of the body.

Auricular Fibrillation and Heart Block.—A case of auricular fibrillation still showing normal rhythm four and a half months after treatment by quinidin is reported by Abrahamson and also a case of complete heart block, with multiple ventricular extrasystoles.

Journal of Tropical Medicine and Hygiene, London

Nov 1, 1922, **25**, No. 21

Cholera Epidemics in Japan and in Her Colonies. M. Miyajima.—p. 337.
Case of Isospora Hominis (Rivolta), Dobell, Probably Contracted in Durban, South Africa. H. B. Newham and A. Robertson.—p. 344.
Antimony and Sulphur in Treatment of Lepers. F. G. Cawston.—p. 345.

Nov. 15, 1922, **25**, No. 22

*Histopathology and Hematology of Guinea-Pigs Infected with Leptospira Icteroides. W. H. Hoffmann.—p. 353.
Case of Hemorrhagic Pancreatitis in Dog. W. A. Young.—p. 360.

Pathology of Leptospira Icteroides Infection.—A thorough investigation of the histopathology and hematology in a large series of guinea-pigs, experimentally infected with *Leptospira icteroides* (strain "Merida"), isolated by Noguchi from human yellow fever, gave results absolutely identical with those found in another series of animals infected with *Leptospira icterohaemorrhagiae,* isolated from Habana rats. There were no clinical and anatomic differences in the two experimental infections. The histologic changes in the organs are numerous and characteristic, and in all essential parts corresponding to those found in Weil's disease in man. From the results of clinical, anatomic, histologic and hematologic examination in guinea-pigs infected with *Leptospira icteroides* (strain "Merida"), Hoffmann does not see any conclusive argument which would prove the etiologic importance which *Leptospira icteroides* "Merida" may have as the causative agent of yellow fever in man.

Lancet, London

Nov. 11, 1922, **2**, No. 5176

Spolia Nemoralia: Shrunk Heads, Ear-Plugs, and Labrets. J. Bland-Sutton.—p. 995.
Maternal Mortality of Childbearing: Its Causes, and How to Deal with Them. T. W. Eden.—p. 998.
*Influence of Saturnine Compounds on Cell Growth. W. B. Bell.—p. 1005.
*Serologic Properties of Dysentery Stools. A. Davies.—p. 1009.
*Cheese Poisoning: With Special Reference to Dover Outbreak. H. M. C. Macaulay.—p. 1012.

Influence of Lead on Cell Growth.—Bell asserts that lead enters into combination, probably chemical, with lecithin. Lead affects those normal tissues of the body in which lecithin or similar lipins are present in greatest quantity. Malignant neoplasms contain lecithin in direct proportion to their rate of growth. Intravenous injections of a colloidal preparation of lead, while not without danger, can, with experience, be so regulated that little or no disturbance is caused. After previous intravenous injection of a colloidal preparation lead can be recovered from the malignant growth in a quantity proportionately greater than that contained in the rest of the body. Lead in suitable doses appears in nearly all cases to arrest the growth of malignant tumors. In some cases treatment with this metal may result in disappearance of the neoplasm, possibly by the action of the normal tissues on arrested cell developments. The probability of this appears to depend on the vascularity of the parts. At the same time there is improvement in the general condition. It is desirable when possible that the bulk of the growth be removed, and that this procedure be followed immediately by the injections while there is increased blood supply to the part concerned. Previous intravenous injections of a colloidal preparation of lead seem to increase the beneficial effect of roentgen rays, owing to the promotion of secondary radiation. It is possible that prophylactic treatment after complete removal may be of considerable importance with regard to the prevention of recurrence.

Serologic Properties of Dysentery Stools.—Davies made an attempt to ascertain whether the examination of the fluid portion of dysentery stools would afford information as to the nature of the dysenteric infection. His paper is based on the argument that in bacillary dysentery specific antibodies to the *B. dysenteriae* would be present, whereas in amebic dysentery, caused by a protozoal agent, such bacillary antibodies would be absent from the intestinal exudate; the intestinal tract being the seat of infection, the fluid exudate would contain a larger antibody content at an earlier date than the blood serum, and therefore an early diagnosis could be made. The antibody investigated was the agglutinin. Details of technic and the results obtained both in early and in late cases are given. Agglutinins were found to be present in low titer, and their significance is discussed. Besredka's researches showing that the immunity in bacillary dysentery is established at the site of the intestinal lesions are quoted, and in view of Besredka's findings the hope is expressed that the intestinal exudate may receive attention from laboratory workers with the view of ascertaining whether a method may be established which has the advantages of simplicity and rapidity and of involving the minimum of laboratory equipment. It is submitted that this method affords an additional means of dealing promptly with an outbreak of dysentery from the points of view of diagnosis and treatment and is of special value in adverse surroundings.

Cause of Cheese Poisoning.—Macaulay's researches point to toxin of a Gaertner-group bacillus being the usual cause of those outbreaks of poisoning in which cheese is the vehicle.

Nov. 18, 1922, **2**, No. 5177

- *Occurrence and Prevalence of Parasitic Intestinal Worms During War. W. Nicoll.—p. 1049.
- *Pathogenicity of Diphtheria Group. J. H. Jordan, F. Smith and A. Kingsbury.—p. 1052.
- Case of Weil's Disease Occurring in London. P. Manson-Bahr.—p. 1056.
- Opaque Meal. S. G. Scott.—p. 1059.
- "Acute" Antrum. T. B. Jobson.—p. 1060.
- Safe Artificial Ear Drum. J. Dundas-Grant.—p. 1062.
- Colloidal Gold Reaction in Neurosyphilis. C. Worster-Drought, H. J. B. Fray and G. R. Lyncb.—p. 1063.
- Anatomy and Surgical Bearing of Nerves Found in Abdominal Wall. R. Coyte.—p. 1065.
- *Case of Bilateral Exophthalmos. A. F. MacCallan.—p. 1066.
- *Case of Sarcoma of Kidney in Young Boy. F. M. Hughes.—p. 1067.
- Case of Strangulated Inguinal Hernia. C. P. G. Wakeley.—p. 1067.

Intestinal Parasites Cause Enteritis.—About 80 per cent. of cases of enteritis which came under Nicoll's notice were infected with entamebic cysts, chiefly *E. dysenteriae.* About 10 per cent. did not show infection with either pathogenic bacteria or protozoa, though it is possible that further continued examination might have demonstrated their presence. This residue of cases was found to harbor parasitic worms. The commonest of these were *Ascaris lumbricoides* and *Trichuris trichiura,* but the occurrence of the tapeworm, *Hymenolepis nana,* was also noted.

Pathogenicity of Diphtheria Group.—A study was made by Jordan et al. of the relation of morphologic and cultural characteristics of the diphtheria group of bacilli to pathogenicity. Seventy-four virulent and thirty-two avirulent strains of diphtheria-like organisms were examined. Neither morphology nor the intensity of Neisser staining was found to be of value as an indication of virulence. The pellicle sometimes seen on the surface of a broth culture is inconstant and may be given by virulent and nonvirulent strains. Fermentation of glucose, maltose, and dextrin with no change in saccharose is regarded as a very valuable, but not an infallible, indication of virulence. Fermentation of lactose by virulent and avirulent strains is variable. In guinea-pigs dying after inoculation with a broth culture of virulent *B. diphtheriae* the commonest lesion is a circumscribed edema at the site of inoculation which tends to disappear if the animal lives more than four days. Serous effusions are sometimes found, and although hemorrhagic suprarenals are not common the glands frequently show congestion. Cultures from heart blood and suprarenals of the dead guinea-pig indicate that a septicemia frequently occurs.

Bilateral Exophthalmos.—In the case cited by MacCallan the conclusion arrived at as a result of operation and necropsy was, that this condition originated probably in an attack of cerebrospinal fever some years previously which had cleared up and left a thickened pia-arachnoid which interfered with the return flow of lymph from the orbit. The condition, in fact, seemed to be one of lymphatic edema of the orbital tissues with most pronounced bilateral exophthalmos.

Sarcoma of Kidney in Young Boy.—Hugh's patient was 4 years of age. Six weeks before the author saw him, he had fallen over a brick onto his abdomen. He was carried home and was unable to sit up for a week. There were no signs or symptoms of injury and no vomiting. A week after the injury he was able to walk, and shortly afterward appeared to have recovered. The child was brought to Hughes because his mother had noticed a large swelling on the left side of his abdomen displacing the lower ribs and extending downward on the left side. She had observed this when bathing him a week before. Roentgen-ray examination showed a mass extending from the left loin down to the anterior superior spine and across the abdomen and up toward the right renal region. A diagnosis was made of sarcoma of the kidney. Laparotomy was considered inadvisable. Necropsy was refused.

South African Medical Record, Capetown

Oct. 28, 1922, **20**, No. 20

- Injuries and Common Diseases of Eye. D. J. Wood.—p. 390.
- Reactions Following Intravenous Administration of Arsenobenzene Compounds. A. R. Fraser.—p. 398.
- Meningococcus and Production of Antimeningococcal Serum. F. S. Lister.—p. 404.

Annales des Maladies Vénériennes, Paris

November, 1922, **17**, No. 11

- Treatment of Gonococcus Endometritis and Adnexitis. Franck.—p. 801.
- Venereal Prophylaxis in Morocco. Carle.—p. 817.
- Doubtful Cases of Syphilitic Reinfection. G. Belgodère.—p. 823.
- Four Cases of Syphilitic Reinfection. Mouradian.—p. 838.
- Extragenital Syphilitic Chancre. Dccrop and Crambes.—p. 845.

Archives des Maladies du Cœur, etc., Paris

September, 1922, **15**, No. 9

- Delirium Cordis in Tabes. A. Nanta.—p. 605.
- *Roentgen Control in Angina Pectoris. E. Bordet.—p. 612.
- *Endocrines and Coagulation of Blood. M. Perrin and A. Hanns.—p. 617.
- The R Wave of Electrogram in Different Leads. La Franca.—p. 640.
- Basophil Inclusions in Polynuclears. J. Sabrazès.—p. 643.

Roentgen Control in Angina Pectoris.—In most cases Bordet found distinct lesions of the aorta. Few cases presented only an enlargement of the heart without aortic changes, and in very rare cases neither the heart nor the aorta was abnormal.

Endocrines and Coagulation of Blood.—Most of the organs have both a coagulating and anticoagulating action. Perrin found a simple coagulating action in the thymus, spleen, bone marrow and kidney. A similar but much more intense action was manifested by the pituitary, bowel, lung, skin and ovaries. Similar action of the thyroid may be perhaps due to the internal secretion.

Bulletin de l'Académie de Médecine, Paris

Oct. 10, 1922, **88**, No. 32

- Fatality from House Electric Current. V. Balthazard.—p. 111.
- *Administration of Copper by Electrolysis. E. Doumer.—p. 114.
- *Surgical Treatment of Tuberculous Peritonitis. Témoin.—p. 116.
- *Anhematosis. J. Pescher.—p. 125.

Electrolytic Administration of Copper.—Doumer is professor of medical physics at Lille and he reports that he has established by experiments on himself and a number of volunteers that the introduction into the body of a solution of a copper salt by electrolysis is harmless. The only disadvantage seems to be a bronzing of the skin, and this occurs only on regions exposed to the light. He thus introduced in one subject 100 mg. of metallic copper daily for fifteen days, which corresponds to about 270 mg. of copper sulphate, without the slightest apparent harm. In others, 50 mg. of copper were thus introduced daily for three months without the slightest harm. The bronzing appeared more pronounced in the persons exposed most to the outdoor light. These doses are far larger than copper can be administered in any other way, and by this means the dosage can be exact. He does not discuss any therapeutic action from the copper; his aim being only to announce the harmlessness of the procedure. He generally used copper formiate.

Surgical Treatment of Tuberculous Peritonitis.—Témoin is loyal to the practice of treating tuberculous peritonitis by laparotomy. He has applied this in more than 300 cases, but makes a point of operating only on sunny days, with the table arranged so the sunlight streams into the abdomen as it is opened. The lips of the incision and of the peritoneum are retracted to the utmost to expose as much as possible of it to the sunlight for ten or fifteen minutes. Then he sutures. Tuberculous peritonitis, fortunately, is often primary; and this is the truly surgical form, in which the laparotomy almost always gives excellent results, whatever the stage of the disease. He has had numbers of patients apparently in the last stages of cachexia who recuperated after the laparotomy and seemed to be completely cured in six or eight weeks, gaining up to 8 kg. in weight. After the eighth day he begins systematic heliotherapy, exposing the abdomen to the sunlight for an hour or two every day. The cure was generally complete by the end of the second month. He ascribes the benefit to the sunlight, because the air alone or a laparotomy on a cloudy day fails to display this curative influence. In a few cases he had to operate later to detach old adhesions, and he was always amazed at the enormous transformation that had been going on in the interim, the lesions melting away and all the pathologic products being absorbed. This digestion of toxic products explains the slight fever sometimes observed for a few days after the laparotomy. He has had cases in which some slight incipient pleural or pulmonary tuberculous lesion disappeared along with the peritoneal tuberculosis. A cure can be counted on, he says, in about 80 per cent. of the cases, even the farthest advanced. This surgical treatment seems to impart such surprising curative power to the peritoneal reaction which follows, that it suggests that the clue to the cure of tuberculosis in general lies in this direction.

Anhematosis.—Pescher deplores that no one thinks of examining the respiratory capacity in a child that is not thriving, or in an adult with chronic bronchitis, or oliguria from heart or kidney disease, or in the obese, and yet they are suffering from curable anhematosis. It may be secondary to some pulmonary or cardiac affection, or it may be primary from some neuropathic inhibition of the respiration center. In either event, graduated, progressive and objective training in breathing exercises, especially with the spiroscope, may soon transform conditions as the blood gets properly oxygenated.

Oct. 31, 1922, **88**, No. 35

*Levulose in Treatment of Diabetes. Desgrez et al.—p. 167.
Necessity for Medical Examination of Chauffeurs. C. Fiessinger.—p. 175.
Embryo Organotherapy. P. Carnot.—p. 177.
*Iodin Internally for Children. P. Nobécourt.—p. 179.
Hemolytic Jaundice After Vaccination Against Smallpox. Doré.—p. 181.

Levulose in Treatment of Diabetes.—Desgrez and his co-workers report research which confirms that the various sugars are not physiologically equivalent, and that the absence or presence of vitamins modifies the tolerance for carbohydrates in diabetes. The utilization of each kind of sugar seems to be independent of the other kinds, each kind having its specific mode of being utilized in the individual case. The diet of diabetics must take into account not only the amount but the quality of the sugars; their functional rôle seems to be determined to a certain extent by their molecular structure and chemical function. Two eight day periods each month in which levulose is given seem to offer a number of advantages in the management of diabetes. They found most effectual a course of three doses of 10 gm. each during the day, or four doses of 7 gm. This was supplemented with calcium phosphates and 5 gm. of fresh beer yeast to supply the vitamin B. They give the metabolic findings in a few cases to illustrate the advantages of this. The levulose wards off certain metabolic disturbances. The individual tolerance of the diabetic for carbohydrates has to be determined first, and then the levulose is given to the maximum which he is capable of assimilating.

Internal Iodin Treatment for Children.—Nobécourt has been treating children with a 10 per cent. tincture of iodin, giving 10, 20 or 30 drops a day, in milk, fractioned in three doses, increasing by a drop or two until the children are taking 40 to 100 drops a day. Some of the older children took up to 250 or 300 drops. This corresponds to 4 or 5 gm. of the tincture, that is, 0.4 or 0.5 gm. of iodin. It acts on the general health; the weight increases, and it seems to modify advantageously the lymphoid tissues, but it did not seem to display any antiinfectious action.

Bulletin Médical, Paris

Sept. 16, 1922, **36**, No. 38

*Latent Primary Peritonitis. P. Savy.—p. 741.
*Gangrene from Cachexia Alone. A. Hanns and A. Weiss.—p. 745.

Latent Primary Peritonitis.—Savy refers to cases in which some inflammatory process develops in the peritoneum, chronic from the start, in persons who have never had febrile visceral disease. The symptoms are those from nearby viscera, and the special clinical feature is the variability of the symptoms from time to time. There is often a history of different physicians in turn having diagnosed appendicitis, adnexitis, etc., or the same physician changing the diagnosis as time passes. The chronic peritonitis develops insidiously, and adhesions and sclerosis drag organs out of place, but operations show that the supposedly diseased organ is sound, the plastic peritonitis independent of any subjacent visceral lesion. The hyperemia of the adjoining intestines may even induce local hemorrhagic conditions. Some typical instances of these false gastric ulcer cases, false colon cancers, false gallstone disturbances, etc., are related. In one case the generalized primary peritonitis induced symptoms mistaken for tabetic gastric crises. In differentiation, the discovery of tuberculous lesions elsewhere is strong presumptive evidence as to the peritonitis being primary. Syphilis and influenza are also liable to start this clinical picture. The cases on record of "alcohol peritonitis" and the peritonitis with chronic nephritis or arteriosclerosis need to be revised, he says, from this new standpoint. Investigation of the family antecedents may give the clue to the bacillary origin of this primary peritonitis. In the absence of all signs of tuberculosis or syphilis, abnormal loss of flesh or a subfebrile temperature is suggestive. Differentiation is important from the standpoint of treatment, as the soil must be modified, and the abdominal pains resulting from the primary plastic peritonitis must not be mistaken for neuropathic disturbances, or for enteritis compelling rigid dieting when these patients need nourishing food and other measures to help to throw off their tuberculosis. When a laparotomy is necessary to break up adhesions, the outcome is not very promising, as the tendency persists. Conditions are much the same as with primary pleuritis, but with the latter the lung alone is involved, while with primary peritonitis any one or more of a number of viscera may be drawn into the clinical picture.

Contracture and Gangrene from Cachexia Alone.—Contracture and the gangrene of toes had developed in consequence of voluntary privations and staying in bed in the course of melancholia. No lesions in vessels, muscles or nerves could be found at necropsy of the man of 64. He succumbed to pneumonia two years after he had taken to his bed.

Paris Médical

Oct. 28, 1922, **12**, No. 43

*Cerebellar Syndromes in the Aged. J. Lhermitte.—p. 373.
*Mental Disturbances and Epilepsy of Cardiac Origin. R. Targowla.—p. 384.
Tendon Reflexes in Chronic Arthritis Deformans. D. E. Paulian.—p. 388.
*Continence of Artificial Anus. A. Schwartz.—p. 389.

Cerebellar Syndromes in the Aged.—Lhermitte gives a very careful study of these syndromes, which are more frequent than we believe. The differential diagnosis between them and the lesions of corpus striatum and the pyramidal tracts is given.

Mental Disturbances and Epilepsy of Cardiac Origin.—Targowla believes that many mental disturbances in cardiac insufficiency are due to the insufficiency of the liver. Other cases show a relation of similar symptoms to high blood pressure.

Continence of Artificial Anus.—Schwartz leaves about from 6 to 10 cm. of the length of the colon outside of the wound. This tube can be easily compressed.

Nov. 11, 1922, **12**, No. 45

Follicular Conjunctivitis Contracted in Public Baths. Terrien.—p. 425.
Treatment with Delbet's Vaccines. A. Guillemin.—p. 426.

*Attack of Gout. C. Finck.—p. 429.
Organotherapy of Menstrual Disorders. L. Fouliot.—p. 434.

Attack of Gout.—Finck finds that the attack of gout indicates the resorption of a deposit of urates. Good blood circulation makes the attack possible, while it does not appear if the local circulation is poor.

Presse Médicale, Paris

Oct. 25, 1922, **30**, No. 85

Technic for Extraction of Nonirrupted Lower Wisdom Tooth. P. Brocq and L. Monier.—p. 917.
*Electromyography. A. Zimmern and P. Cottenot.—p. 919.

Electromyography.—Zimmern and Cottenot remark that the importance of this general subject has been overshadowed by one special branch of it, namely, electrocardiography. It deserves more attention, especially in research on reflexes, on voluntary excitation, on comparison of the work of different muscles, and of responses in health and disease.

Nov. 4, 1922, **30**, No. 88

*Diffuse Atrophy of the Skin. M. Bloch and P. Blamoutier.—p. 949.
*Atrophic Cirrhosis from Relapsing Fever. A. Carniol.—p. 952.
Present Status of Creatinemia. M. Nathan.—p. 953.

Diffuse Atrophy of the Skin. — Bloch and Blamoutier describe a case of atrophic chronic dermatitis with atrophic rhinitis and pharyngeal malformation in a woman of 24. Endocrine organotherapy gave very encouraging results, and the general condition of the patient has continued to improve to date.

Atrophic Cirrhosis from Relapsing Fever.—Carniol reports the case of a woman of 23 who during a relapsing fever developed intense jaundice and atrophic cirrhosis of the liver. He states that this form of cirrhosis might be given etiologic treatment, as in syphilitic cirrhosis in which cures have been recorded even when treatment was not begun until cachexia was under way.

Nov. 8, 1922, **30**, No. 89

*Wounds of the Knee. H. Mondor.—p. 961.
*Urine Volume Output Index. M. Hélouin.—p. 965.

Wounds of the Knees.—Mondor reviews the checkered history of the treatment of wounds of the knees in the last decade. He emphasizes the one feature common to all such injuries, from the slightest to the severest, "their terrible resemblance in their aptitude to entail purulent arthritis." Treatment has grown constantly more and more conservative, and with greater attention to detail. A recent French thesis compiles 328 cases of primary suture after war wounds of the knees, with 312 completely cured without ankylosis. The progress thus triumphantly realized enforces the principle of thorough mechanical clearing out of all foreign substances in the wound, recognizing that devitalized tissues and even extravasated blood come under the heading of alien substances.

Urine Volume Index.—Hélouin found that healthy men eating the same meal at night voided different amounts of urine in the following twelve hours, the range being from 400 to 1,395 c.c. He theorizes that these wide differences are due in part to the sodium chlorid content of the body at the moment. Hence to obtain an index for comparison he had the subjects refrain from salt until the salt content of the urine was at the lowest physiologic limit. They then all voided practically the same amount of urine in the first four hours after taking a supper with a given amount of water. The range was only from 500 to 750, this parallelism being in striking contrast to the wide range in the first series of tests. Hence he insists that tests of kidney functioning must be preceded by restriction of salt for three days, or no reliance can be placed on the findings. He accepts 550 to 650 c.c. as the standard range for the first four hours after drinking 600 c.c. of water. The volume index is thus practically 100; for 100 c.c. of water ingested, 100 c.c. is voided. This represents the absorption of the water, the pressure of the blood fluid on the kidney filter, and the permeability of this filter. The pressure on the kidney filter depends on the blood pressure in general, and the effectual blood pressure is represented, as he explains, by a figure obtained by adding to the diastolic pressure one half the differential pressure. The urine output index can thus be expressed by dividing the volume index by this figure. In normal conditions he calculates the output index at 8.7. He cites a number of cases of kidney or heart disease showing a range from 5.26 to 10. His experience with this urine output index in hundreds of cases in the last four years has convinced him of its instructive value for estimating the extrarenal and renal factors in diuresis, and explaining among other things the apparently paradoxic polyuria of Bright's disease, and the oliguria with permeability unimpaired. He gives the normal output index as $\frac{100}{9+\frac{5}{2}} = 8.7$.

Revue Franç. de Gynécologie et d'Obstét., Paris

September, 1922, **17**, No. 9

*Cervical Stenosis Following Curettement. J. Mouchotte.—p. 449.
Late Conservative Cesarean Section. A. Grosse.—p. 466.
Forceps with Equal Branches. Roux.—p. 476.

Difficult Labor Due to Cervical Stenosis Following Curettement.—Mouchotte recommends to think always in time on the possibility of cicatricial stenosis of the cervix in deliveries of women who had been previously subjected to a curettement.

Schweizerische medizinische Wochenschrift, Basel

Oct. 19, 1922, **52**, No. 42

*Tuberculosis of Bones and Joints. F. de Quervain.—p. 1021.
Roentgenotherapy of Tuberculosis. H. E. Walther.—p. 1023.
Proposed Swiss Law Against Tuberculosis. H. Hunziker.—p. 1028.
Traumatic Hydronephrosis and Accident Insurance. A. Sträule.—p. 1033. Conc'n.
Fleawort Seed and Linseed in Treatment of Habitual Constipation. Demiéville.—p. 1040.

The Roentgen Picture and Therapeutic Indications in Tuberculosis of Bones and Joints.—The roentgen picture gives very valuable information in these cases, but it is rarely sufficient for indication of treatment. Sometimes we find local changes in cases where the roentgenogram does not present anything new, and in other cases it can lead us to continue treatment where the other clinical signs show that no further treatment is necessary.

Policlinico, Rome

Sept. 18, 1922, **29**, No. 38

*Inflammatory Tumors of Bladder. T. Cimino.—p. 1225.
Cinchonin in Treatment of Malaria. F. Amantea.—p. 1231.

Inflammatory Tumors of the Bladder.—Cimino has had five cases in which what seemed to be a neoplasm subsided spontaneously, or after evacuation of pus, with complete recovery. They had followed the trauma of childbirth or dilatation of a urethral stricture, divulsion of the anus or a gunshot wound of the bladder. The inflammatory process in some cases was in the anterior wall, the bladder bulging smoothly and hard, as if distended. There was no metastasis, but the temperature was sometimes subfebrile, and the woody tumor had developed comparatively rapidly. The cystoscope showed the bladder mucosa congested and inflamed but nothing to suggest a tumor. When the inflammatory process is in the bladder itself, the aspect of the tumor is smooth and regular, and there are none of the villous or fringed processes seen with malignant tumors. The mucosa around is apparently normal except for hyperemia. The main point is to think of the possibility of a simple inflammatory process, and not be misled to a grave prognosis and radical operative measures. Elements for the differential diagnosis are the heredity; the age; trauma affecting the region or vicinity; some infectious process elsewhere; the slight or no reaction in the bladder, and the way in which it can be modified by simple measures, and the frequent rise in temperature. If there is suppuration, the pus is liable to find an outlet spontaneously into the bladder. Under moist heat the process rapidly subsides, as a rule, but a foreign body, or long persistence of symptoms justifies operative intervention. The chief danger with these inflammatory tumors is that they may be mistaken for and treated as malignant disease.

Oct. 16, 1922, **29**, No. 42

*Rivalta's Reaction. F. Alzona.—p. 1353.
Myiasis Superposed on Favus. P. Stancanelli.—p. 1357.

Advantages of Intraspinal Anesthesia. R. Palma.—p. 1360.
Technic for Microtest for Urea in Blood. L. Condorelli.—p. 1366.

Chemical Nature of Rivalta's Reaction.—The method of extraction used commonly for gastric and bowel mucosa has been applied by Alzona to the precipitate obtained with acetic acid—Rivalta's test for distinguishing between fluids of transudation and exudation. By this means he isolated from the reaction precipitate a minute amount of a white substance, nonprotein, isolabile, which, added to a protein, reproduced the differentiating phenomenon. It did not respond to tests for chondroitic acid.

Oct. 23, 1922, **29**, No. 43

*Intravenous Treatment of Pyelitis. V. Iura.—p. 1385.
*Cervical Glioma. A. Linassi.—p. 1388.
Coagulation of Blood and Hemorrhagic Syndromes. M. Ghiron.—p. 1392.

Intravenous Treatment of Pyelitis.—Alessandri injected in cases of pyelitis every week from 0.09 to 0.40 gm. of neoarsphenamin and every other day 0.40 to 0.90 gm. hexamethylenamin, both intravenously. The results were favorable.

Cervical Glioma.—The symptoms in Linassi's case of glioma of the four cervical segments in a 13 year old boy were progressing so rapidly that the disease resembled an acute myelitis. The patient died from respiratory paralysis three weeks after the first clinical manifestations of the disease.

Oct. 30, 1922, **29**, No. 44

*Biologic Diagnosis of Tuberculosis. I. Nasso.—p. 1417.
*Bronchial Asthma After Injury to Spine. G. Milani.—p. 1420.
Rectus Plastic in Inguinal Hernia. C. Licini.—p. 1423.

Biologic Diagnosis of Tuberculosis.—Nasso had very good results with intradermic injections of a 10 times concentrated urine (Wildbolz' method) except in the new-born where the reaction was often positive. Serum of patients concentrated in a similar way gave corresponding but weaker reactions, while the cerebrospinal fluid was strongly positive only in cases of tuberculous meningitis and miliary tuberculosis. The method is valuable even in anergic cases, because one can inject the concentrated urine in patients who are known to be sensitive.

Bronchial Asthma After Injury to Spine.—Milani describes a case of fracture of the left transverse processes of the fourth and fifth cervical vertebrae with exuberant callus. Since there were at first attacks of laryngospasm, followed by paralysis of the posterior crico-arytenoid muscle, it is reasonable to assume that not only the inferior laryngeal but the vagus too was directly affected by the formation of callus. Milani admits the possibility of an anaphylactic state previous to the trauma; the latter would be, however, the determining factor.

Oct. 15, 1922, **29**, Surgical Section No. 10

*Appendicectomy in Real Appendicitis. P. Bastianelli.—p. 525.
Transperitoneal Low Cesarean Section. P. Gaifami.—p. 540.
Two Cases of Intestinal Invagination. A. Kraus.—p. 554.
Experiments on Implantation of Dead Preserved Tissue. Regoli.—p. 559.
Decompressive Craniectomy. C. Silvan.—p. 574.
Oncology. F. Carrozza.—p. 583.

Appendicectomy in Real Appendicitis.—Bastianelli puts his personal creed on appendicitis into three aphorisms: (*a*) When physicians are discussing whether the case is appendicitis or not: it *is*. (*b*) When they are inclined to admit the possibility of appendicitis without being perfectly sure of it: it not only is, but it is about to perforate. (*c*) When the diagnosis is sure, there is already perforation, with a more or less circumscribed peritonitis.

Archivos Españoles de Pediatría, Madrid

July, 1922, **6**, No. 7

*False Scarlet Fever. J. García del Diestro.—p. 385.
Eczema in Children. J. Fernández de la Portilla.—p. 401.
Congenital Sacrococcygeal Cyst. R. Florindo Pavón.—p. 408.

False Scarlet Fever.—García cites a few examples of what seemed to be scarlet fever but the course of the case proved that merely some infectious or toxic cause was responsible for the rash and the other symptoms. In two cases it developed after the children had eaten grapes that had been sprayed with copper sulphate. In another case the scarlatinal eruption developed with Vincent's angina, and in others after antitoxin treatment of diphtheria. He then reports two cases in which acute articular rheumatism developed with almost the complete clinical picture of scarlet fever, presenting it with such accuracy as to suggest a close connection between these two diseases. The joints were painful almost from the start—arthritis so early is rare in true scarlet fever. By the end of the week, the joint lesions and pains dominated the clinical picture. The tongue was never of the strawberry type. The main arguments for the rheumatismal nature of the disease were the prompt benefit from salicylate treatment, the absence of desquamation afterward, and the fact that none of the other children in the families developed scarlatina. The children did not seem very sick, although the pulse was small and slightly irregular in the girl of 12, and the boy of 6 presented a mitral murmur and complained of vague precordial pain. In the boy the onset of the supposed scarlet fever had been sudden and acute, the eruption appearing the second day. By the third day, pain in some of the large joints and in the appendix region were the predominant symptoms. The diagnosis of appendicitis seemed most probable and the blood count sustained this assumption, but under two days of expectant treatment the acute rheumatism became unmistakable. Convalescence was slow in both cases. Appendicitis and even peritonitis of scarlatinal origin is not unknown, but has always harmlessly subsided. Veau remarked in reporting three cases that possibly chronic appendicitis may often have an unsuspected scarlatinal origin. Necropsy may show the appendix intensely congested in scarlet fever. It behaves like the tonsils in this respect. Canelli related in 1919 a case of fatal scarlet fever in which at the sixth day there was a typical localization in the appendix, and cited fifteen cases from the records. In Harrigan's case, an operation was done on the appendix, which was found sound.

August, 1922, **6**, No. 8

*Congenital Heart Block. J. Bravo y Frías.—p. 449.
*Treatment of Tuberculous Meningitis. A. Zorrilla y Polanco.—p. 462.

Congenital Heart Block.—The girl over 5 years old was otherwise apparently normal; there was no known inherited taint. Soon after the acute onset of an infectious disease at 4 the physician noted that the pulse beat was only 46. The bradycardia does not seem to interfere with or impair the work of the heart in any way. The pulse has kept at this figure during the year since and a functional disturbance seems probable, the prognosis good.

Tuberculous Meningitis.—Zorrilla refers to Pauly's method of treating tuberculous peritonitis with ascites by introducing four silk threads into the peritoneal cavity after tapping. The outer ends of the threads are fastened under the skin or in the preperitoneal tissue, and the abdomen is sutured. This insures permanent drainage, and all his eighteen patients treated in this way recovered, as also eight with tuberculous arthritis treated by autodrainage in the same way. He suggests the possible application of the same method to tuberculous meningitis, introducing the silk threads through a lumbar puncture and draining the spinal cavity into the subarachnoid cavity. Zorrilla thinks this might be worth a trial. Tuberculin injected into the spinal canal has not given favorable results. He injected subcutaneously in four cases 1 to 3 c.c. of cerebrospinal fluid drawn by lumbar puncture, according to Tilli's method, repeating this procedure at intervals of one to several days. He supplemented it with Ramond and François' method of injecting warm air into the spinal canal, about one half or two thirds of the amount of spinal fluid withdrawn. This can be repeated for one to six successive days, he says. The results of this are not so good as with the Tilli method. All these patients died, but this was to be expected, he says, as the disease was well advanced. He adds that if these two measures could be applied earlier, when tuberculous meningitis is just starting, they might improve the prognosis. No by-effects of any import were noted in his cases aside from the febrile reaction.

September, 1922, **6**, No. 9

Single Tubercle in Brain. B. González Alvarez.—p. 513.
*Prophylaxis of Measles. J. Estella and B. de Castro.—p. 517.
Anomaly of Larynx. A. Martín Calderín.—p. 526.

Convalescents' Serum in Prophylaxis of Measles.—Estella and de Castro relate that they have been watching in Czerny's service at Berlin the experiments to perfect a technic which will insure a durable desiccated serum to use in prophylaxis of measles. During an epidemic, when convalescents' serum is available, it is collected and dehydrated with sodium hypochlorite. Their illustration shows the Petri dish containing 5 c.c. of serum centrifuged from fresh blood—enough for one dose. This dish stands uncovered on a thick layer of sodium hypochlorite, and a glass bell is placed over the whole. In from thirty to forty-eight hours nothing is left of the serum except a pellicle in the dish. This crumbles as it is transferred to the ampule, which is then fused. The desiccated serum seems to keep indefinitely. They review the international literature on the serum prophylaxis of measles, stating that this hypochlorite method has not been published yet.

Siglo Médico, Madrid

Nov. 4, 1922, **70**, No. 3595

*Trigeminal Neuralgia. E. Fernández Sanz.—p. 437.
Graduate Lectures on Tuberculosis. I. Verdes Montenegro.—p. 439.
Biologic Properties of Tubercle Bacillus. Julio Blanco.—p. 441.
Pathogenesis of Gastric and Duodenal Ulcer. T. Hernando.—p. 442. Cont'd.

Trigeminal Neuralgia.—Fernández Sanz reviews certain accessory symptoms in trigeminal neuralgia which throw light on the diagnosis and the prognosis. He emphasizes the necessity for careful search which may reveal some removable primary cause for what seems to be essential neuralgia. With pain in the abdomen the muscles stiffen, but with trigeminal neuralgia the muscles contract and work and grimace irregularly, and the eyes, the teeth, the whole head may share in the paroxysm. This motor restlessness during the attack contrasts with the immobility during the intervals, the subject fearing to bring on a paroxysm. In a recent case the facial muscles were permanently contracted, especially the commissure on the side of the pain. The neuralgia was of six years' standing; the permanent contracture changed to excessive grimacing when the attacks came on. The condition in this case seems to be more like the stiffening of the abdominal wall with visceral pain, and it suggests that there is an element of neuritis in the neuralgia in this case. The conjunctival and corneal reflexes may be exaggerated or attenuated; in the latter case, the prognosis is graver as this indicates a deficit in functioning. A zone of hyperesthesia is another sign pointing to stable lesions. Hypo-esthesia, on the other hand, points to a deficit.

Deutsche medizinische Wochenschrift, Leipzig

Oct. 6, 1922, **48**, No. 40

The Trypanosomicide "205." M. Mayer.—p. 1335.
Cyclamin Technic for Leukocyte Count. C. Schilling.—p. 1337.
Clearer Representation of Basophilic Erythrocytes by Means of the "Thick Blood Drop." H. Schreiber.—p. 1337.
Differences in the Blood Pressure Findings and Vascular Changes of the Arteries of the Arm and Leg in Insufficiency of the Aortic Valves, Hypertonia and Arteriosclerosis. E. Leschke.—p. 1338.
Eclampsia. O. Wuth.—p. 1339.
Diagnostic Value of Epinephrin Glycosuria in Pregnancy. H. Küstner.—p. 1340.
End-Results of Implantation of Testis. R. Mühsam.—p. 1341.
Diagnosis of Tuberculosis of the Bronchial Glands in Children. H. Langer.—p. 1343.
Effect of General Disease on the Dental Pulp. S. Gräff.—p. 1346.
Effect of Ultraviolet Rays on Phagocytosis. D. Albela.—p. 1347.
Economical Method by Which U-Shaped Capillary Tubes May be Used Several Times in Serial Researches on the Blood Serum. H. Bohn.—p. 1347.
Epididymitis Associated with Influenza. Engelen.—p. 1347.
Wearing Out of Nerve or Organ from Excessive Use. J. Bauer.—p. 1348.
Emphysema in General Practice. Goldscheider.—p. 1349.
Technic of the Testing of Vision. K. Steindorff.—p. 1351.
*The Campaign Against the Nostrum Evil in America. W. A. Puckner.—p. 1352.

German Appeal for Data on the Work of the Council on Pharmacy and Chemistry of the American Medical Association.—The editor of this weekly wrote asking for an account of the workings of the Council, saying that the public health authorities in Germany and also the courts fail to take as strong a stand on the nostrum evil question as is desirable. Dr. Puckner, secretary of the Council and director of the A. M. A. chemical laboratory, prepared this article in response, explaining the aims and objects of the American Medical Association and its four "Councils," and the work of the Council on Pharmacy and Chemistry in particular since it was founded in 1905. As written up for the German profession in this article, the progress accomplished makes an impressive showing and, incidentally, Puckner emphasizes that the medical press has not suffered in the long run from excluding questionable advertisements.

He expatiates in particular on the advantage of informing the medical student thoroughly as to the therapeutic value of a few well established drugs rather than, as in the past, allowing him to leave the school with a smattering of knowledge of many drugs, and thus be left liable to become the easy prey of the exploiters of unscientific or worthless proprietaries. The repeated efforts of the German profession to inaugurate similar work in Germany have been duly chronicled in the News department of The Journal and elsewhere, the Arzneimittelkommission being now actively at work, but it has as yet a precarious financial backing.

Deutsche Zeitschrift für Chirurgie, Leipzig

September, 1922, **174**, No. 5-6

Points of View of Present Cancer Research and Treatment. K. Fritsch.—p. 289.
Origin and Treatment of Subcutaneous Rupture of Long Biceps Tendon. G. Rosenburg.—p. 311.
*Development and Value of Lumbar Anesthesia. O. Hagedorn.—p. 330.
*Pylorospasm of Infants and Its Treatment. B. Hein.—p. 356.
*Spontaneous Necrosis of Extremities. F. Krampf.—p. 387.
Etiology of Perthes' Disease (Follows Traumatic Luxation of the Hip-Joint). N. Rehbein.—p. 416.
An Obliterated Muscle of the Stomach. E. Bircher.—p. 424.

Development and Value of Intraspinal Anesthesia.—Hagedorn wishes to see lumbar anesthesia employed by practitioners in urgent cases.

Pylorospasm of Infants and Its Treatment.—Hein operates if internal treatment in four or five days does not give sufficient relief. Rammstedt's method is easy, short, and gives the best results.

Spontaneous Necrosis of Extremities and Endarteritis Obliterans.—Krampf does not believe in primary obliterating endarteritis and endophlebitis. He found identical changes, proliferation of intima and splitting and increase in number of elastic fibers, in a case of traumatic thrombosis, and concludes, therefore, that a primary arteriosclerosis is neither proved nor necessary for the explanation of spontaneous necrosis of extremities in young persons. These changes are secondary to thrombosis. Constitutional elements seem to account for it much more than exogenous factors.

Klinische Wochenschrift, Berlin

Oct. 14, 1922, **1**, No. 42

Endemic Struma, Cretinism and Their Prophylaxis. G. Hotz.—p. 2073.
Ingestion of Sodium Lactate as Liver Function Test. E. Hesse and A. Havemann.—p. 2077.
Bilirubin Formation in the Spleen. A. Rice Rich.—p. 2079.
Chemical Changes in Blood After Ingestion of Salt Solutions in Health and in Diabetes. W. Arnoldi and S. Ettinger.—p. 2082.
Etiology of Experimental Glycosuria in Pregnancy. E. Frank.—p. 2084.
Gastroscopy in Diffuse Gastric Lymphosarcoma. Schindler.—p. 2086.
Moro's Diagnostic Tuberculin. Kretschmer.—p. 2087.
*Duration and Concentration of Arsphenamin in Blood. H. T. Schreus and A. Holländer.—p. 2089.
Comment on Handovsky's Article in No. 35. H. Freund.—p. 2092.
Reply. H. Handovsky.—p. 2093.
Pharmacology of Potassium and Calcium. M. Rosenmann.—p. 2093.
Pigmentation of Kupffer's Cells by Bile in Mechanical Icterus. O. Kanner.—p. 2094.
Rachitis and Growth. F. Wengraf.—p. 2095.
Perforation of Sarcoma of Stomach Into the Abdominal Wall. H. Kolbe.—p. 2095.
Size and Measurements of Heart. H. Dietlen.—p. 2097.
Physicians and Choice of Profession. W. Pryll.—p. 2102.

Oct. 28, 1922, **1**, No. 44

Treatment by Parenteral Injection of Proteins. M. Matthes.—p. 2169.
*Calcium and Potassium in Nephritis. H. Zondek, H. Petow and W. Siebert.—p. 2172.
Surgical Complications in Trichocephalus and Oxyuris Infections. Anschütz.—p. 2174.
Significance of the PH of Urine. W. H. Veil.—p. 2176.
The So-Called d'Herelle Phenomenon. K. W. Jötten.—p. 2181.
*Endocrine Lesions of Tadpoles from Thallium. A. Buschke and B. Peiser.—p. 2182.
Heredity in Criminals. E. Reiss.—p. 2184.
Roentgen Ray Healing of Recurrence of Cancer of Breast of Five and More Years' Duration. A. Hintze.—p. 2187.
Specific Dynamic Action of Food. J. Abelin.—p. 2188.

Biologic Proof of Permeability of Red Cells for Cation. E. P. Pick.—p. 2188.
Generalized Emphysema in Tuberculosis of the Lungs. L. Alterthum.—p. 2189.
Spontaneous Gangrene of Scrotum and Penis. A. Salinger.—p. 2190.
Skiagraphy of Brain. A. Bingel.—p. 2191.
Association Against Tuberculosis in Nuremberg. A. Frankenburger.—p. 2197.

Duration and Concentration of Arsphenamin in Blood.—Schreus and Holländer found that fifteen minutes after injection of arsphenamin only 30 per cent. of the drug was circulating. After half an hour, only 20 per cent. The curve then slowed down and was very small after three hours.

Calcium and Potassium in Nephritis.—Zondek found in cases of insufficiency of the kidneys a distinct decrease in calcium in the blood plasma (down to 6 mg. in 100 c.c.) and an increase in potassium (up to 24 mg.). Similar changes were found in severe acute cases of glomerular nephritis.

Endocrine Lesions in Tadpoles from Thallium.—Buschke and Peiser state that thallium inhibits growth and metamorphosis of tadpoles. Thymus and thyroid can overcome this action only partially. It seems that thallium acts chiefly on organs which direct the growth and development.

Nov. 4, 1922, **1**, No. 45

Reflexes and Their Physiologic Significance. V. v. Weizsäcker.—p. 2217.
Function of Neuro-Epithelium in the Labyrinth. K. Wittmaack.—p. 2220.
Criticism on Abderhalden's Direct Reaction. H. Sachs and K. v. Oettingen.—p. 2223.
Chronic Affections of Kidneys in Endocarditis Lenta. Nonnenbruch.—p. 2225.
Chronic Progressive Deforming Polyarthritis and Exophthalmic Goiter. G. Deusch.—p. 2226.
*Hereditary Hemolytic Jaundice. G. Freymann.—p. 2229.
Double Meal Test of Stomach Function. J. Vándorfy.—p. 2231.
Fractures of Neck of Femur. F. Böhringer.—p. 2232.
Influence of Ionic Changes on Enervated Striated Muscles and Their Pharmacologic Analogy. E. Frank et al.—p. 2238.
Water and Mineral Metabolism in Tetany. H. Elias et al.—p. 2238.
Sensitive Test for Morphin in Urine. F. A. Loofs.—p. 2239.
Central Rupture of Perineum. Seyffardt.—p. 2239.
Lupus Pernio with Cystic Fibrous Osteitis. H. Lippert.—p. 2240.
Diagnosis and Treatment of Acute Colitis. R. v. Lippmann.—p. 2241.
Milk Supply. M. Bing.—p. 2244.
Recent Works on Suprarenal Capsules. L. Lichtwitz.—p. 2245.

Hereditary Hemolytic Jaundice.—Freymann reports the cases of three children with hereditary icterus presenting signs of infantilism, dilatation of heart, with murmurs, and ulcera cruris. The extirpation of the spleen cured all of these symptoms.

Medizinische Klinik, Berlin

Sept. 17, 1922, **18**, No. 38

*Gangrene of the Lung. H. Curschmann.—p. 1200.
*Rectal Cancer. L. Kuttner.—p. 1201.
Evolution of Conception of Inflammation. F. Marchand.—p. 1207.
Experimental Syphilis. P. Uhlenhuth.—p. 1210. Conc'n No. 40.
Fibers in Optic Nerve. C. v. Hess.—p. 1214.
*Meningococcus Sepsis. H. Adler.—p. 1216.
Diagnosis of Swine Plague in Man. H. Rahm.—p. 1217.
*Research on Heredity. V. Haecker.—p. 1218.
The Primal Cause in Biology. H. Zimmermann.—p. 1222.
Tonics, etc., Required for Traumatic Neuroses. Stier.—p. 1224.
Present Status of Treatment of Exophthalmic Goiter. K. Singer.—p. 1228.
Recent Works on Foot Deformities in Children. S. Peltesohn.—p. 1229.

Arsphenamin Treatment of Gangrene of Lung.—Curschmann relates that he has encountered 5 cases of gangrene secondary to pneumonia in the last few years. In the latest case the gangrenous process developed three or four days after the onset of the pneumonia in the farmer of 26. The mortality under medical treatment used to average 75 or 80 per cent., but since the advent of arsphenamin, 9 cases have been reported completely cured by this drug, and 4 materially improved. In 4 other cases no benefit was apparent. In the case here described the gangrene was rapidly progressive but it was arrested and the lung healed completely in thirty-six days, with a total of only 1.35 gm. of the neo-arsphenamin. In a case of fetid infection of bronchiectasia, in a man of 71, great improvement followed a course of 4 gm. of neo-arsphenamin in six weeks. This subjective cure has persisted for six months to date, the benefit in this case far surpassing anything ever realized with ordinary treatment in such a case. In another case of gangrene of the lung, the woman showed notable improvement under the neo-arsphenamin but it did not last. This treatment was not begun till the third month, and the privations of refugee life had sapped her strength. The complete cure in the farmer was due in large part to the early beginning of treatment, only two and a half weeks after the first fetid sputum had been noted. The gangrene in these cured cases was of bronchial, not embolic origin, a spontaneous metapneumonic solitary process. In none of his cases was the fuso-spirillar combination or spirochetes or tubercle bacilli found.

Diagnosis of Rectal Cancer.—Kuttner admits that a rectal cancer can long develop without any symptoms to attract attention, but declares that it is inexcusable to overlook it when consulted on account of bleeding, diarrhea or tenacious constipation, abdominal pain or vague pains in the sacral or bladder region, or pain suggesting sciatica. Especially in the twenties and thirties, pains in any of these regions calls, he reiterates, for digital investigation of the rectum. Under 30, the symptoms from a rectal cancer are especially liable to be misinterpreted. When hemorrhoids are found, they are incriminated for the bleeding and no further search is made for its source. Even the absence of visible and occult blood does not exclude a cancer. The bleeding is especially instructive when accompanied with tenesmus. It is especially significant when tenacious constipation occurs after years of regular bowel habits. Diarrhea is too often treated as simple colitis until the opportunity for removal of the causal cancer is past. With any obstinate bowel irregularity, at any point, the rectum should be examined, not once, but repeatedly. Christen found tuberculosis in the family in 26.5 per cent. of his cases of rectal cancer, and Kuttner has had five cases with pulmonary tuberculosis; in each instance the rectal cancer had failed to be discovered. In three cases of rectal cancer without local symptoms the general weakness, anemia, etc., had been ascribed to latent tuberculosis and the rectum had not been examined. In several cases the well nourished condition led to the abandoning of the idea of malignant disease although the tumor had been found. In some of Kuttner's inoperable cases the patients continued to gain in weight, and only the lethal course of the cases convinced the attending physicians that malignant disease had been present. In some of his cases obscure liver disturbances and jaundice proved to be secondary to a rectal cancer running a silent course.

He emphasizes the importance of having the intestine thoroughly cleared out and the bladder empty for the digital examination. On suspicion of spasm, a general anesthetic should be given. The prostate or a fold or the adnexa may be mistaken for a cancer during the digital examination; in several cases operations have been performed on this blunder. In one instance a small tumor in the adnexa was resected as the source of the tenesmus, etc., and the cancer encircling the sigmoid flexure was not discovered even during the operation. Even with a palpable tumor, roentgenography should not be omitted; in the digital examination a high tumor may be pushed out of its natural place, and the surgeon be misled as to the easiest route of access, or as to the extent of the lesion. A case is described in which the roentgen findings were entirely negative; evidently the ileocecal valve was not functioning properly, and the fluid and air passed freely through it, without distending the bowel below. Kuttner now insists on an exploratory laparotomy in dubious cases, even with negative local findings. Besides tuberculosis, he has often found diabetes associated with rectal cancer. He has witnessed remarkable benefit from radium and deep roentgen therapy in some cases; others were not modified by it, while still others were temporarily improved so that an artificial anus could be dispensed with. In some of the inoperable cases, the radiotherapy was followed by a rapid decline. Some recommend making an artificial anus, then rinsing thoroughly, and then applying radiotherapy, but Kuttner prefers to keep the artificial anus for the last resource, trying everything else first.

Meningococcus Sepsis.—Adler relates that after complete subsidence of the meningeal symptoms in epidemic meningitis, the young man continued to have meningococci in the blood for three months. Finally the sepsis was conquered with neo-arsphenamin, and complete recovery followed.

Research on Heredity.—Haecker describes the present status and the newer methods of study of this subject.

Sept. 24, 1922, **18**, No. 39

*Infant Feeding and Dermatoses. C. Leiner.—p. 1241.
*Multiple Cancers. O. Steiner.—p. 1249.
*Fatal Insufficiency of Liver. E. Mayer.—p. 1253.
Treatment of Septic Abortion. M. Schneider.—p. 1254.
Relation of Arsenic to the Liver and to Arsphenamin Treatment of Syphilis. Gottschalk.—p. 1255.
Glycerin for Enrichment of Tubercle Bacilli. R. Steich and J. Pietsch.—p. 1256.
Recent Works on Psychotherapy and Sexual Science. W. Stekel.—p. 1259.

Infant Feeding and Dermatoses.—This is a postgraduate lecture. Leiner presents the present state of our knowledge in regard to eczema, strophulus and desquamating erythrodermia, and the influence on them of diet. He compares the contradictory views of different pediatricians. Desquamating erythrodermia occurs almost exclusively in the breast fed. He has seen it in two sets of twins. In one family the three children all presented this dermatosis, and the two breast fed died, while the one artificially fed infant recovered. Such cases suggest a constitutional element besides incriminating the mother's milk. Bowel disturbance is noted practically in every case; as this is cured, the dermatosis heals under the mildest measures. But it may not be possible to cure the intestinal disturbance, and death then is inevitable although the children had always been breast fed. Only in the cases of actual idiosyncrasy is the connection with the diet certain.

Multiple Cancer.—The two cases reported warn that when a cancer is found in the throat, the esophagus should be investigated for a second cancer. In the first case the malignant lump in the epiglottis region was resected ten weeks after the first symptoms. But the decline continued, and necropsy revealed the fatal cancer low in the esophagus. In the other case, the esophagus tumor had been discovered but the one in the epiglottic vallecula had been overlooked.

Fatal Insufficiency of the Liver.—Mayer discusses the duration of cirrhosis and acute atrophy of the liver before the fatal termination. It is impossible to estimate the duration of acute yellow atrophy of the liver or of cirrhosis of the liver from clinical observation or even from postmortem findings. The patient may die with the symptoms of typical insufficiency of the liver without presenting the histologic findings of yellow atrophy. The insufficiency of the liver can be proved anatomically in some of the cases by its action on other organs, especially by the diffuse fatty infiltration of the kidney cortex, and by hemorrhages in the lungs and serous membranes.

Oct. 15, 1922, **18**, No. 42

Criticism on Psychologic Extremists in Psychiatry. W. Jacobi.—p. 1333.
Therapeutic Freezing of Nerves. B. Valentin.—p. 1337.
Pathogenic Influence of Light on Human Organism. E. Pulay.—p. 1339.
Relative Aortic Insufficiency. F. Reiche.—p. 1341.
Injury of Hemopoietic Organs with Arsphenamin. F. Juliusberg.—p. 1341.
Unilateral Progressive Dystrophia of Muscles. E. Adler.—p. 1343.
Humeroscapular Periarthritis as a Symptom of General Arthritis. F. Kanzow.—p. 1343.
*Alternating Treatment with Arsphenamin Preparations. Bockholt.—p. 1344.
Two Obstetrical Observations. R. Kobes.—p. 1346.
Colorimetric Determination of Partial Hemolysis in Wassermann Reaction. H. Hecht.—p. 1348.
Agglutination of Tubercle Bacilli. W. Kiyokawa.—p. 1348.
Dold's Turbidity Reaction for Syphilis. H. Ziskoven.—p. 1349.

Alternating Treatment with Various Arsphenamin Preparations.—Bockholt hoped to prevent arsphenamin dermatitis by alternating neo-arsphenamin and silver arsphenamin. He failed.

Oct. 29, 1922, **18**, No. 44

*Heart, Vessels and Constitution. R. Schmidt.—p. 1395.
Idiopathic Osteopsathyrosis and Endocrine System. Meissner.—p. 1397.
Familial Neurofibromatosis with Posttraumatic Sarcomatosis. M. Versé.—p. 1400.
*Fever in Angina Pectoris. A. Hanser.—p. 1402.
Treatment of Abortion with Instruments Outside of Hospitals. Pentz.—p. 1405.
Localized Relapsing Dermatitis After Mercury. E. Langer.—p. 1406.
*Bilirubin in Duodenal Fluid in Pernicious Anemia. Sonnenfeld.—p. 1407.
Tropical Malaria Simulating Dysmenorrhea. F. Rosenberger.—p. 1409.
Direct Irradiation of Blood by Ultraviolet Rays. Naswitis.—p. 1410.
Icterus and Diseases of Liver. E. Pickardt.—p. 1413.
Pregnancy and Diseases of Heart Valves. K. Brandenburg.—p. 1414.

Heart, Vessels and Constitution.—Schmidt prefers to consider as constitution the anatomic or functional individual singularity of organs or systems instead of using the vague term of general constitution. But he broadens the term sufficiently to include acquired endogenous and exogenous changes. Many details on prognosis and distant relations of different types of cardiovascular structures and changes are given.

Fever in Angina Pectoris.—Hanser recommends to measure the temperature after attacks of angina pectoris and to keep the patient in bed as long as the fever lasts, even if there are no other severe symptoms.

Bilirubin Content of Duodenal Fluid in Pernicious Anemia.—Sonnenfeld found the concentration of bilirubin in the duodenal fluid strongly increased above the normal.

Nov. 5, 1922, **18**, No. 45

Differentiation of Congestion in Kidney and Nephritis. Schlayer.—p. 1425.
Syphilitic Heart Lesions and Their Treatment. L. Görl and L. Voigt.—p. 1426.
*Familial Arteriosclerosis. R. Ehrmann.—p. 1431.
Acute Yellow Atrophy of Liver. G. Kollmann.—p. 1432.
*Congenital Stenosis of Duodenum Resembling Pylorospasm. E. Stransky.—p. 1433.
Anesthesia and Instrumentation in Tonsillectomies. Birkholz.—p. 1433.
*Expedients in Suture of Perineum. H. Strube.—p. 1435.
Relation of Dold's Reaction to the Sachs-Georgi Reaction. H. Dold.—p. 1436.
Manifestations of Exudative Diathesis. K. Blühdorn.—p. 1439.

Familial Arteriosclerosis, Especially of the Aorta.—Ehrmann publishes roentgen pictures of two brothers of 50 and 53 with severe arteriosclerosis, which manifested itself in each at the age of 40. Their father died at 40, his two brothers between 40 and 50, from heart disease and contracted kidney. The younger of the two patients lived quietly and avoided hard work. The older one used to ride and march and indulged in rich food and alcohol. The latter, although older, has by far less pronounced changes.

Congenital Stenosis of Duodenum Resembling Pylorospasm.—Stransky describes a case of congenital stenosis of the duodenum with all the signs of pylorospasm, including hypertrophy of the pylorus. If the baby had been operated on by the Weber-Rammstedt method (dissection of the pyloric ring), it would have died just the same. A gastroenterostomy might have saved it.

Expedients in Suture of Perineum.—Strube introduces a Hegar dilator in the rectum for better orientation in lacerations of third degree. To diagnose the function of the sphincter ani, he introduces a suppository, leaving its base outside. A sound sphincter pushes it out. If it remains in place, only the internal sphincter is torn. If only the external sphincter is not functioning, the suppository, pushed in a little farther, slides into the bowel.

Monatsschrift für Geb. und Gynäkologie, Berlin

August, 1922, **58**, No. 5-6

Roentgen-Ray Study of Birth Mechanism. H. Sellheim.—p. 237.
*Abdominal Cesarean Section for Placenta Praevia. R. T. von Jaschke.—p. 249.
Prolapse of Ureter Diverticulum During Childbirth. Schroeder.—p. 261.
Experiences with the Kielland Forceps. A. Bruch.—p. 265.
*Skin Functioning in Sepsis. A. Mayer.—p. 272.

Cesarean Section with Placenta Praevia.—Von Jaschke insists that the opponents of cesarean section in treatment of placenta praevia will have to present figures showing an equally good outcome for both mother and child before their objections can be considered.

Skin Functioning Tests in Septic Conditions.—Mayer discusses the behavior of the skin as an aid to prognosis. He estimates the functional capacity of the skin by its ability to respond to stimuli. A simple and apparently reliable test for this is its power to absorb tincture of iodin. In very grave cases, tincture of iodin painted on the skin persists without much change, while in the healthy it soon fades away. Microscopy of the capillaries is instructive also, as likewise the appearance of glucose in a cantharides blister fluid after test ingestion or intravenous injection of glucose. This test is applied from within outward, while the iodin test works from without inward.

Zeitschrift für Krebsforschung, Berlin

Oct. 19, 1922, **19**, No. 2-3

*Roentgen Cancer. L. Halberstaedter.—p. 105.
*Immunization in Mice Tumors. K. Nather.—p. 115.
*Histogenesis of Tar Cancer. H. T. Deelman.—p. 125.
Tumor Cells and Tumors. E. Schwarz.—p. 171.

Roentgen Cancer.—Halberstaedter points out that it takes years for roentgen cancer as well as xeroderma pigmentosum and "sailor's skin" to develop. The amount of short rays which act upon the skin, and the sensitiveness of the skin are determining factors. In all of these conditions we have at first inflammatory changes, then an abnormal distribution of pigment, regressive changes in the connective tissue, and the very important formation of warts. These processes resemble exceedingly the experimental tumors produced by tar. At last, even after the original cause has been removed, carcinoma, sarcoma or a mixed tumor may develop.

Immunization in Mice Tumors.—Nather tried partly to immunize mice against a virulent adenocarcinoma, partly to cure them by injections of emulsions and autolysates of the tumor cells. The results were absolutely negative.

Histogenesis of Tar Cancer.—Deelman publishes a very careful study on the histologic changes in beginning tar cancer of mice. The cancer cannot be prevented by stopping the application of tar after slight macroscopic changes have appeared, although it seems that the change of the seemingly benign affection into cancer occurs earlier if the irritation is continued.

Zeitschrift für Tuberkulose, Leipzig

September, 1922, **36**, No. 7

*Transactions of the German Conference on Tuberculosis.—p. 481.

Experiments on Relation of Lupus to Human or Bovine Bacilli.—Kirchner found tubercle bacilli of the human type in eleven cases of lupus, and of the bovine type in twelve cases. In thirteen cases bacteriologic examination was negative.

October, 1922, **37**, No. 1

*Climatic Observations in High and Middle Altitudes. C. Flügge.—p. 1.
Duration of Sunshine in Schömberg and Davos. C. Dorno.—p. 13.
Comment on Dorno's Article. G. Schröder.—p. 18.
Complement Fixation in Tuberculosis. G. Ichok.—p. 22.
*Further Therapeutic Experiments in Tuberculosis. F. Jessen.—p. 33.
*Toxicity of Tuberculin in Diagnostic Doses. Schwermann.—p. 37.
New System of Graphic Records of Lung Findings. C. O. Segerberg.—p. 44.
*Gwerder's Relaxation Pneumothorax. A. Wolff-Eisner.—p. 48.

Climatic Observations in High and Medium Altitudes.—Flügge believes that the climate in high altitudes has many advantages, which account for its favorable influence and which can be compensated only by prolonged treatment in other places.

Further Therapeutic Experiments in Tuberculosis.—Jessen anoints patients with the serum of animals injected with an ether extract of tubercle bacilli, and reports favorable results, especially in beginning cases.

Toxicity of Different Old Tuberculins Especially in Diagnostic Doses.—Schwermann concludes that only careless injections of tuberculin for diagnostic purposes, especially in unnecessarily large doses, are harmful. The indications are limited, but clear, and the reliability and value of the test are great.

Gwerder's Relaxation Pneumothorax.—Wolff-Eisner discusses the intrathoracic pressure in cases of artificial pneumothorax without exudates. He extols Gwerder's method of keeping the intrathoracic pressure negative even during the expiratory phase. He prefers the term *entlastungspneumothorax* to Gwerder's *entspannungspneumothorax,* as more descriptive.

Acta Scholae Medicinalis Univ. Imp. Kioto

April 28, 1922, **4**, No. 4. Articles in German, English or French

*Thyroid Function on Different Diets. K. Tsuji.—p. 471.
Toxic Action of Eel Serum. H. Yamaoka.—p. 481.
*Thrombo-Angiitis Obliterans. K. Koyano.—p. 489 and p. 501.
Elimination of Mineral Substances by Fasting Hens. Y. Sata.—p. 511.
The Circulation in the Cold-Blooded. K. Kitamura.—p. 553.
*Classification of Dysentery Bacillus. I. Matsuo and T. Izawa.—p. 571.

Thyroid Function on Different Diets.—Tsuji found that the thyroids of rats fed on large quantities of egg-yolk or milk hypertrophy. The animals presented besides a hypertrophy of various organs similar to that produced by feeding the animals with thyroids. Since these organs atrophy in thyroidectomized rats, in spite of large quantities of egg-yolk or milk in the food, Tsuji concludes that these substances act on the thyroid in a similar way as iodin.

Thrombo-Angiitis Obliterans.—Spontaneous gangrene of extremities seems to be quite frequent in Japan, since Koyana was able to collect 120 cases of it in one surgical clinic. He recommends repeated hypodermic injections of Ringer's fluid, which relieves the pains, lowers the increased blood viscosity and makes high amputations superfluous.

Classification of Dysentery Bacillus.—Matsuo and Izawa were able to induce the Y type of dysentery bacillus to split many sugars, thus simulating other types of dysentery bacilli. Yet the strains did not change immunologically.

Acta Medica Scandinavica, Stockholm

May 31 1922, **56**, No. 5

*Antitoxin Treatment of Diphtheria. V. Bie.—p. 537.
*Myodystonic Reaction. G. Söderbergh.—p. 585. Idem. p. 601.
Hemorrhagic Arachnoiditis with Porencephalia. N. Stenström.—p. 591.
Syndrome Belonging to the Pseudosclerosis Group with Pigmentation, Cachexia and Corneal Changes. G. Söderbergh.—p. 604.
Comment on Lindberg's Article.—p. 162. C. Sonne.—p. 618.

Antitoxin Treatment of Diphtheria.—Bie finds that antitoxin has no effect on the temperature in diphtheria. He does not think that it has any great influence on the spreading of the membranes, but believes that diphtheria itself has become milder of late and therefore we do not see these cases so often. It seems that antitoxin hastens the disappearance of the membrane to a certain extent. The one outstanding favorable property is its antitoxic influence. Bie does not give any antitoxin in very light cases, and only 4,000 to 8,000 units on admission in cases with a membrane just covering the tonsils. In severe cases, however, he does not hesitate to give enormous doses: patients under 10 years are given 80,000 units on admission, another 60,000 within twelve to twenty-four hours and 20,000 more after twelve hours, partly intramuscularly and partly intravenously. The largest single dose of antitoxin in an adult was 100,000 units (in 140 c.c. of serum); the largest total amount 350,000 units (in 250 c.c. of serum), of which 56,000 units (in 40 c.c.) were given intravenously. Under this treatment the mortality decreased to 0.7 per cent. and no patient has died from paralysis of respiration in the last nineteen months notwithstanding a large material. The number of cases of diphtheria in the entire nine years analyzed totaled 8,980.

Myodystonic Reaction.—Söderbergh found the same reaction which he described previously in Wilson's disease in a case of pseudosclerosis. The reaction consists in clonic or tonic contractions of muscles after faradic stimulation of muscles (or sometimes of nerves or even galvanic stimulation) had stopped. The reaction may be valuable in determining an organic lesion, although it is not yet certain whether it is pathognomonic for lesions of the central ganglia of the brain.

Ugeskrift for Læger, Copenhagen

Oct. 12, 1922, **84**, No. 41

*Causes of Death in Acquired Syphilis. L. Melchior.—p. 1351.
Microtest for Chlorin in Fluids Containing Albumin. M. Claudius.—p. 1366.

Causes of Death in Acquired Syphilis.—Melchior analyzes the 358 known syphilitics among 5,865 adult cadavers at Copenhagen. Over 45 per cent. died from conditions not connected with the syphilis; 1.7 per cent. died from by-effects of mercury or arsphenamin; 39 per cent. succumbed to a syphilitic affection, and this was probable also in 14 per cent. others. Hence the direct mortality from the syphilis was between 39 and 54.7 per cent. The various syphilitic affections are discussed in detail as they appeared in this material.

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A PLEA FOR THE DEVELOPMENT OF PATHOLOGY *

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Pathology, in its early development, was a by-product of anatomy during that period when the first dissections of the human body were developing anatomic knowledge. Morgagni, Vesalius, Fallopius, Eustachius, and others of the earlier anatomists, whose names are still attached to hydatids, tubes and various other structures of the body, made note of abnormalities encountered in the course of their anatomic investigations. Pathology, during this early stage of its development, could not be considered a subdivision of knowledge with standing of its own. It noted objectively gross anatomic deviations from the normal, but, because of the fantastic humoral doctrines of disease then prevailing, it could not intelligently concern itself with the processes that had led to the abnormalities.

It was not until Virchow showed that the cell doctrine applies to abnormal tissues as well as to normal ones that pathology began to establish itself as the most fundamental of the medical sciences. With the knowledge that the constituents and products of abnormal tissues are derived from preexisting normal structures, it became possible to establish the fact that abnormality is not some new and distinct state of the body, for the explanation of whose causation it was necessary to suppose mechanisms foreign to those usually at work. It became possible to show that pathologic lesions result from mechanisms of which the body normally makes use, and we began to arrive at an understanding of processes as opposed to anatomic end-results. It was quite a distinct advance in our conception of disease to know, for instance, that the pus corpuscle is a derivative of the normal leukocyte, axiomatic as such knowledge may seem to us today. But it was an even greater advance to learn that the mechanisms which lead to pus formation are physiologic ones which the body employs under normal conditions.

PRESENT STATE OF PATHOLOGY

With the applicability of the cell doctrine to abnormal tissues established, pathology entered on the era which has added to medical literature a long list of most illustrious names. The leaven added by Virchow and his successors is still at work, but it is fair to ask whether America has contributed and is contributing its proper share to the advancement of pathology. If we have not done and are not doing our share, then it behooves us to inquire into causes and to attempt to overcome the retarding forces that may be operative. Our first question we shall have to answer in the negative; we shall have to admit that this country has not contributed as much as it ought to the literature of pathologic anatomy and histology, and that, with only one or two exceptions, it has not developed any outstanding philosophers in the field of pathology. Unfortunate as this is from the standpoint of the development of pathology, it reflects itself even more seriously in the attitude of the large body of the medical profession, the clinicians and practitioners, toward pathology. It reflects itself also in the medical education of the country; the medical student is all too apt to look on pathology as one of the "theoretical" subjects of the first half of the curriculum, subjects which are to be forgotten as rapidly and as completely as possible during the final two years of "practical" work.

FACTORS THAT HINDER DEVELOPMENT

The factors that underlie the present state of pathology in this country are probably national, rather than local, in character. First and foremost in importance is the unsympathetic and even antagonistic attitude toward postmortem examination, an attitude manifested not only by a large part of the lay public but also, unfortunately, by a part of the medical profession. Medicine, in this country, has not yet achieved for itself such a position that every possible aid is given it as a science whose chief aim is the betterment of the condition of mankind. Too many pathies and cults share with scientific medicine the affections of the laity, for medicine to demand as a right certain privileges which it should have. The result is that the layman, even if he is of more than average intelligence, does not understand the importance of the necropsy to medicine, nor has he any appreciation of the effect which knowledge gained at the postmortem table may have on some ill to which he may later fall victim. A change in conditions, which would result in the performance of necropsies in a minimum of from 75 to 80 per cent. of all patients dying in hospitals, would evidence itself in a short time by an incalculable development of pathology, of medical teaching, and of medical practice.

We can hope for no improvement through laws which make postmortem examination compulsory; hence it is necessary to determine, if possible, some of the causes underlying the present hostile attitude. If we can know causes, we may be able to overcome them to a greater or less degree by other than legal means, education being the chief one. It must be remembered, however, that not only the laity, but also a part of the medical profession, needs education. Almost every hospital staff has a few members who not only make no effort to obtain consent for postmortem examination of their cases, but who may even actually frown on any exertion to this end put forth by the pathologist, the intern or the administration of the hospital.

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* President's address, read before the Chicago Pathological Society, Oct. 9, 1922.

* From the Nelson Morris Memorial Institute for Medical Research of the Michael Reese Hospital.

Factors other than ignorance and indifference have probably received a larger share of blame than they deserve. Religious objection is frequently mentioned as an insuperable obstacle to obtaining consent for necropsies, especially in those hospitals a large proportion of whose patients are Catholics or Jews. The essential factors in such hospitals, as in all others, are ignorance and indifference, rather than religious belief. My first experience was in a Catholic hospital whose governing Sister Superior was so broad minded and intelligent that she herself frequently accepted the responsibility of ordering a necropsy, knowing that she could overcome objections based on religion alone; the result was a high percentage of necropsies in a hospital which previously had had very few. At the Mount Sinai Hospital of New York the necropsy percentage has been increased, by well directed effort, from a negligible figure to more than 50 per cent., and at the Michael Reese Hospital of this city the latter figure is also being approached during the present year. Such experiences indicate that religion is not an insurmountable barrier to the development of a worth-while postmortem service. The attitude of the hospital staff and of the hospital administration is a much more important factor than religion or other factors that might be mentioned.

While objection to postmortem examination is a general condition, the percentage of permission necropsies varies in different hospitals, communities and localities, indicating that lack of effort is perhaps as much to blame as lack of knowledge. How unsatisfactory conditions are in Chicago is indicated by the figures published by the Institute of Medicine of Chicago. In 1920, in a total of thirty-nine hospitals, not including Cook County Hospital, whose percentage was 12.7, there were 4,868 deaths, in only 12 per cent. of which permission necropsies were made. In six of the hospitals, the percentage was 20 or over, ranging from 20.1 per cent. to 52.2 per cent. for this group; in seven it was from 10 to 20 per cent.; in ten, from 5 to 10 per cent., and in nine, from 1 to 5 per cent. These figures are not of such a magnitude as to induce an egotistic overdevelopment of local pride; the highest percentage attained by all of the hospitals, 52 per cent., should be the minimal aim. The opposition of the Chicago Association of Undertakers is a local factor of importance. While this organization, through its governing board, has taken a stand that will not permit a hearing of intelligent arguments, many of the members of the association, as individuals, are amenable to reason and can be quite helpful. So far as the local situation is concerned, I am inclined to agree with the statements of the committee of the Institute of Medicine, that "while prejudice and ignorance, together with religious scruples, account for much of the difficulty encountered in obtaining permission for necropsies, the alleged prejudice against necropsies is not so great as has been assumed," and that "indifference in the matter of necropsies often goes hand in hand with professional indifference as to correctness of diagnosis and treatment."

It might be argued that, although there is a paucity of necropsies in this country, surgical material should be ample for the development of pathology. Of such material there is certainly no dearth, and much of it is of value. It is difficult to understand how the surgeon, through whose hands passes a wealth of material in a condition ideal for study, can do otherwise than become a competent pathologist; mere contact with the material, aided by good eyesight, should do the work. As a matter of fact, however, one of the striking features of surgery in this country is the rarity of the surgeon who knows pathology. For most surgeons the chief point of interest in abnormal tissues is the technic of their removal, rather than the condition which the tissues may show or the processes that have been active. The attitude of the surgeon toward the tissues that he removes is only part of our general reaction of indifference to the development of pathology; and until we acquire a deeper interest in general pathology in this country, we cannot hope that the surgeon or other specialist will become adequately trained in this science. While, therefore, surgical material should offer a fruitful field for study, it will not be fully utilized until a change in the lay and professional attitude toward postmortem examination shall have brought about a broader knowledge of pathology on the part of the profession as a whole.

Still another general factor that retards the development of pathology is the absence of an American journal devoted primarily to pathologic anatomy and histology. We have nothing in this country comparable to *Virchows Archiv*, Ziegler's *Beiträge*, or the *Frankfurter Zeitschrift für Pathologie*, journals whose influence on modern pathology, even today, cannot be measured. Because there is no similar publication in this country, the pathologist hesitates to submit a paper on a purely pathologic subject to any of the existing journals. Since he knows that he will have this hesitation in connection with the completed work, he hesitates to begin the work at all. The result is an inadequate presentation of even such material as does become available. There is no doubt that such a journal would be a great stimulus to the publication of valuable work; no other one thing would be so immediately effective.

EXPERIMENTAL RESEARCH

Our existing journals reflect the tremendous development which experimental medicine in all its branches has made in this country. This development, due in part, at least, to the stagnation of pathology caused by lack of material, has, in its turn, led to further retardation of pathology. For many, experimental work on animals, in the absence of human pathologic material, becomes a path of least resistance. The spectacular results occasionally obtained in experimental work have also helped to enhance the importance of such work. The increasing number of full-time clinical teaching positions has directed the energies of a large number of investigators into experimental work of clinical application. As a result of these and other factors, experimental research in the United States has reached a development of which we may well be proud. But without laying oneself open to the charge of belittling experimental research, one may be permitted to express a fear of certain tendencies that are manifesting themselves. Of these, one is the greater emphasis sometimes placed on "experimental" than on "work"; merely because a piece of work is experimental in character, it may receive a greater measure of credit than the work itself actually deserves. The great desire to do something experimental, because experimental research now occupies the center of the stage, may lead to the carrying on of work whose inception was not preceded by proper conception, by the thought and planning and imagination that every problem should receive before the actual attack on it is begun. And in the interpretation of results there is sometimes apparent a lack of calm contemplation and of knowledge of underlying principles which is characteristic of mediocrity. Imagination and speculation have no place in the reading of the actual results of experimental procedures, but they should have a part, when properly controlled by sound judgment, in the planning of work and in the discussion of its applications. The philosophic type of mind is not being developed to the degree that one might wish. This may be due, in part, to the fact that much of our experimental research is being done by younger investigators, who have not reached the age of contemplation and reflection, and who work more from without than from within. While mental youth, so valuable because of the enthusiasm and energy which it applies to work, may be an element in our present tendencies, one may express the fear that the latter are not such as will lead to the development of philosophers, even under the mellowing effect of advancing years.

Experimental research needs a period of reflection and introspection, in order that it may properly correlate its findings. It needs occasionally to measure its results in terms of pathology in order to be sure that it is not going astray. The development of the experimental sciences, instead of retarding pathology, should lead to a fuller flowering of the latter. Pathology, for its further advancement and interpretation, needs to have applied to it the results which have been obtained by the application of experimental methods to all the other sciences. Virchow and his successors carried us to the border of the cell; it remains for the newer research to admit us into the cell itself. The cellular pathology of Virchow must become the intracellular pathology of the future. But while we are waiting for the full development of the latter, it is necessary to keep alive an interest in pathology as we already know it; we can build for the future only on the knowledge of the past. Biologists with a wide knowledge of cytology, chemistry or physics will find in pathology, not a dead subject that is to be disregarded, discarded and forgotten, but a most interesting field for study if they will but remember that end-results are not so important as processes in pathology. I would, therefore, plead that our future development be not entirely at the expense of pathology, and that in the evaluation of work done, that of the pathologist be not entirely discredited. Pathology must still continue to be the foundation of clinical medicine; medical practice can be no better than its basic element. And pathology must be the final measure for determining the value of our experimental work and its applicability to the problems of human medicine.

INFLUENCE OF LOCAL SOCIETIES

While some of the factors that hinder the development of pathology are general in character, rather than local, and are not to be overcome by the endeavors of any local group of individuals, it has seemed to me that our local societies can perform a most useful function in maintaining an interest in pathology. This is my reason for making this plea for the development of pathology before this society. It should be our aim to enlist the interest of the clinician as well as of him who is concerned primarily with pathology and its related subjects. The clinician should be stimulated to learn pathology, not merely by listening, but by presenting his own interesting material. The younger workers who are engaged in the laboratory, either permanently as a life work or temporarily previous to going out into practice, should be urged to present the products of their labors from time to time, in order that the results of their experimental and other work may have the widest possible application. For keeping the lamp alight, a local society such as this is the most important agency.

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EXERCISE TOLERANCE IN HEART DISEASE *

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Exercise tolerance, a term generally used the last few years in connection with heart disease, expresses a new idea which has done much to illuminate an obscure section of cardiac diagnosis and prognosis. The implications of this idea are far-reaching and not yet fully appreciated. It puts before us the conception that we can best judge of the heart's capacity or reserve power by observing the way exercise is tolerated rather than by various other procedures. The capacity for physical exercise is undoubtedly a valid criterion of the condition of the heart's efficiency, because the capacity for exercise depends essentially on the heart's ability to increase its output, provided the lungs, the nervous system and the skeletal muscles are functioning in a normal manner. This is a most important statement, the truth of which is not generally recognized. An essential function of the heart is to furnish an adequate supply of blood to the working muscles. The blood flow through the muscles during heavy work may be increased as much as eight times that existing during rest. This is only accomplished through harder work by the heart, whereby its great reserve power is utilized. What could be more logical than to base our judgment of the heart's capability on the result of a procedure which calls into action that reserve power about which we are seeking information?

If we admit the validity of the exercise tolerance test, we are at once confronted by the problem of deciding just how to be certain that a given exercise is tolerated or endured. By tolerated, we mean that it is performed without overtaxing the heart. To quote Bainbridge,[1] "The essential feature of overtaxing the heart (overstress) is clearly lessened contractile power of the heart. The less its contractile power, the more must the heart dilate in order to obtain the energy necessary to maintain its output. If the power of the heart sinks to a level at which it can barely maintain the output necessary during rest, the heart will remain fully dilated, long after exercise, and under the steady pressure of the heart on the pericardium, the latter will give way . . . . With increasing dilatation and steadily declining efficiency, a point will be reached at which it can no longer transform into work sufficient energy to increase its output or even to maintain a

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* From the cardiac clinic of the New York Hospital.

* Read before the New York Academy of Medicine, Oct. 19, 1922.

[1] Bainbridge, J. A.: Physiology of Muscular Exercise, New York, Longmans, Green & Co., 1919, pp. 82-200.

normal output. When this stage is reached, failure of the circulation is at hand."

There are a number of subjective symptoms—dyspnea, palpitation, fatigue and precordial distress—which are of much help in deciding the question of overtaxing; also a number of symptoms and physical signs which may be observed—dyspnea, the expression and color of the face and the return of the pulse rate to normal inside of a few minutes. In instances in which these symptoms are marked, we are certain that the exercise has *not* been tolerated. Often, however, these various symptoms are not marked, and we are in much doubt as to whether the exercise has been tolerated. In these patients, I have found the plotting of the systolic blood pressure curve of much value. A "delayed rise" and "prolonged fall" indicate, we believe, that the exercise has not been well tolerated. In other words, the heart's capacity has been overtaxed.

The question naturally arises as to the type of exercise we shall use in determining exercise tolerance. It is difficult, even impossible, to reduce various forms of exercise to a common denominator. Therefore, the form, amount and time consumed should always be specified when the exercise tolerance of an individual is stated. The necessity for normal standards is apparent if we expect to detect moderate decreases in the heart's capacity. We are able, however, to appreciate any considerable deviation from the normal, and the patient himself generally knows whether his capability for physical activity has undergone any marked diminution. Dr. May Wilson [2] has performed a most valuable service by determining normal standards of exercise tolerance for children. Similar work remains to be done for adults. In determining the amount and kind of exercise to be used as a therapeutic measure, or the exercise permissible for a person with heart disease, however, we are not hampered by the lack of normal standards: we simply decide whether they can tolerate any given exercise.

It may be of interest to discuss briefly the value of determining the condition of the heart's reserve power in various normal and diseased states by means of exercise tolerance tests. In persons recovering from protracted infectious diseases, the time to permit any physical activity and the amount of increase advisable from day to day can be intelligently determined only by an exercise tolerance test. As a practical example, a patient who has been confined to bed for some time is able to sit on a chair and walk a few steps as soon as he can flex each thigh alternately on the abdomen ten times without overtaxing the heart.

We often see persons in whom heart disease has been diagnosed who show nothing abnormal except a systolic murmur over the heart. If they tolerate vigorous exercise, it does much to dissipate the apprehension they may feel about taking exercise and strengthens the physician's conviction that he is dealing with a normal heart. This, perhaps, will make unnecessary the advice so often and so solemnly given these patients to be cautious about physical activity.

Persons with valvular disease show the greatest variation in their exercise tolerance whatever the exercise may be, swinging dumb-bells, climbing stairs, walking, etc. At one extreme, there is minimal tolerance, which may be stated in terms of different exercises thus: ability to (1) walk on the level a distance of 300 feet, in two minutes; (2) swing the body trunk from a stooping position, the arms hanging between the legs, to an upright position ten times, in twenty seconds; (3) climb a flight of stairs with a 10-foot rise, in twenty seconds. At the other extreme, patients may show a tolerance equal to a normal person: ability to (1) swing a 20-pound dumb-bell fifty times, or (2) climb a flight of stairs with a rise of 60 feet, in thirty seconds. Only by determining their exercise tolerance can we prescribe intelligently the amount of physical activity most suitable for them.

There are certain patients with advanced mitral stenosis who have a very small exercise tolerance. These patients have to be extremely careful about their physical activities. They improve but slightly, or not at all, on graduated exercise, and they have to take digitalis almost continuously. It is interesting to see how long a time they are fairly comfortable with their very limited exercise tolerance. I have watched several such patients for nearly three years. Patients with aortic valve disease stand physical activity, as a rule, better than those with mitral stenosis. When they show a persistently low exercise tolerance, the duration of life is generally short.

I believe that as time goes on the validity of the exercise tolerance test for determining the condition of the heart's functional capacity will become generally recognized, and our knowledge of heart disease will be much enriched through the facts acquired by this comparatively new method of cardiac diagnosis.

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[2] Wilson, May G.: Exercise Tolerance of Children with Heart Disease as Determined by Standardized Test Exercises, J. A. M. A. **76**: 1629 (June 11) 1921.

OCULAR MANIFESTATIONS OF THE RAT WHICH RESULT FROM DEFICIENCY OF VITAMIN A IN THE DIET *

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Various names have been given to certain ophthalmologic phenomena which accompany nutritive disturbances in experimental animals. Long before the vitamin hypothesis was formulated, Falta and Noeggerath [1] described a conjunctivitis with crust formation beginning about the fourth week and lasting until death, in rats fed on a diet which, from their description, must have been free from vitamin A. Knapp,[2] continuing the studies, described the eye symptoms as beginning with photophobia, followed by a slimy secretion in the corners of the lids so that it was found difficult to separate them. This was followed by turbidity of the cornea and ulceration. Osborne and Mendel,[3] in 1913, described the ocular phenomenon as an "eye disease," which, as they showed later,[4] cleared up by adding butter fat or cod liver oil to the diet. McCollum and Davis [5] also called attention to the condition of "inflamed eyes," which McCollum later designated xerophthalmia. He and his associates [6] noticed that there was edema of the eyelids with hemorrhage of the conjunctiva. The eyes became swollen so badly that they were opened with difficulty. The cornea became inflamed, and unless the missing dietary essential was given, blindness speedily resulted. Freise, Goldschmidt and Frank [7] showed that there was a loss of hair from the eyelids, followed by a retraction of the eyeball. Corneal lesions were noted, and particularly a corneal dryness which was quickly followed by cloudiness and ulceration without much inflammation. Other investigators have not added much to the ophthalmic picture.

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* This investigation was made in cooperation with Drs. Thomas B. Osborne and Lafayette B. Mendel, under whose direction the feeding of the experimental animals was conducted.

[1] Falta, W., and Noeggcrath, C. T.: Beitr. z. chem. Phys. u. Path. **7**: 313, 1906.

[2] Knapp, P.: Ztschr. f. exper. Path. u. Therap. **5**: 147, 1908.

[3] Osborne, T. B., and Mendel, L. B.: J. Biol. Chem. **16**: 423, 1913.

[4] Osborne, T. B., and Mendel, L. B.: J. Biol. Chem. **17**: 401, 1914.

[5] McCollum, E. V., and Davis, M.: J. Biol. Chem. **21**: 180, 1915.

[6] McCollum, E. V.; Simmonds, Nina, and Parsons, H. T.: J. Biol. Chem. **33**: 411 (March) 1918.

Most observers have found that the ocular manifestation is not a mere chance one, but is due to a definite lack of vitamin A in the diet. The different names given to the abnormal eye condition are derived from the nomenclature of the eye diseases of man. It is therefore important that a comparison between the lesions found in the rat and xerophthalmia, keratomalacia and general ophthalmia found in man be definitely made; hence the present study of the progressive visible changes in the eye and its adnexa from an ophthalmologic standpoint.

In order to examine in detail the progressive ocular changes which have been described very vaguely by other observers, five groups of experimental animals have been secured. The first consisted of six rats fed on a mixed diet. The second group, consisting of six animals fed on a food mixture devoid of vitamin A, was killed when they showed an excessive lacrimation and beginning photophobia with a very slight suggestion of sanguineous tinging of the secretion. The third group of seven animals, fed on the same diet as the second, was allowed to progress to the stage at which plaques fatty in appearance accumulated in the fornices, and the cornea showed signs of dryness and loss of corneal reflex. The fourth group of animals was continued to a stage at which the cornea showed signs of breaking down when the rats reached a condition of extreme nutritional decline. In this group are also included animals fed on the same diet which, further, was also made poor in vitamin B. Of the last group (eight animals), some subsequently received cod liver oil and butter fat and others orange juice—all of which contain vitamin A—as supplements to the diet in order to secure recovery.

All animals except two were killed by chloroform anesthesia, and were examined immediately. The eye, the upper and lower lids, the lacrimal gland and the orbital fat were dissected out carefully and fixed in Zenker's fluid.

In order to determine whether the method of death by chloroform might have any effect on the microscopic finding of the eye and its adnexa, a further group of six animals consisting of two cured and four normal rats was killed by the injection of 2 per cent. mercuric cyanid subcutaneously into the abdominal region. The tissues were fixed as in the previous cases. Opportunity was also secured to examine many instances of eye disease among the rats living on abnormal diets in the laboratory of Drs. Osborne and Mendel.

The first sign of an ocular complication is that the eyes water very freely, and the animals seem to dread the light more than a normal individual does. The normally prominent protruding eye of the rat gradually recedes into its bony orbital socket, and the photophobia increases. The animal facies assumes a sleepy appearance. Lacrimation increases and, instead of being watery, becomes more viscid. It is at this stage that the animal shows some signs of ocular irritation and rubs the lids with its front paws. A slight edema of the eyelids becomes manifest, and the viscid lacrimal secretion assumes a sort of serosanguineous character accumulating in the inner canthi in the form of crusts. The hair of the lids falls out, and the latter become thicker. When the swollen lids, which at this stage may be matted together with a dry secretion, are pushed back, accumulations of semisolid, fatlike, yellowish-white patches of secretion or perhaps exfoliated epithelium in the upper and lower fornices often appear.

In the early stages, the cornea shows no visible changes except for the marked congestion about its junction with the palpebral conjunctiva. There is no visible sclera in the albino eye. With the progress of the eye disturbance and following the swelling of the lids, the cornea shows some signs of haziness, particularly about the periphery. As the patches increase, the normal cornea reflex disappears. Frequently they are seen on the center of the cornea, but more often extend on to the corneal surface from the fornices. Thereupon the cornea becomes dry, lusterless and oily in appearance, losing its normal transparency.

In our earlier observations, it was thought that the central, fatlike plaques were ulcers; but as our work progressed, it was found that they could be easily removed from the cornea. In order to see how much destruction of the cornea is produced when the plaques are removed, the tissue was stained with fluorescein; to our surprise, it rolled over this area as water does over an oily surface. Seen through a corneal loupe, the tissue seemed to be intact; but a slight swelling in the form of a bleb occupied the areas from which plaques had been previously removed. At such times the animal showed marked debility owing to its nutritional decline. Furthermore, if the experiment was continued, the corneal tissue showed frank ulceration, which stained with fluorescein; and, finally, panophthalmitis set in with complete destruction of the eye.

The iris observed in the early stages of the experiment showed very little change; but when the congestion of the conjunctiva was marked, the folds of the iris, observed with a Berger loupe, also became prominent through congestion. Because of the nutritive decline of the animal and the haziness of the cornea at such stages, further accurate observations on the iris became almost impossible.

From the standpoint of a comparison of these ocular manifestations found in the albino rat with the somewhat similar clinical condition sometimes found in man, the early lesion resembles that described in the ophthalmic literature as xerosis of the conjunctiva and cornea; and the progressive changes of the cornea in the rat are like the condition known as human keratomalacia.

In previous communications,[8] we stated that the eye changes resulting from deficiency in vitamin A, and characterized by a widespread keratitis in the advanced stage, do not begin in the cornea but have their origin in the lids; and from the review of our material it appeared that there is either a marked degenerative or an inflammatory change in the lacrimal gland. These alterations may account for some of the phenomena of so-called xerophthalmia.

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[7] Freise, E.; Goldschmidt, M., and Frank, H.: Monatschr. f. Kinderh. **13**: 424, 1915. Goldschmidt, M.: Arch. f. Ophth. **90**: 354, 1915.

[8] Yudkin, A. M., and Lambert, R. A.: Proc. Soc. Exper. Biol. & Med. **19**: 375, 376, 1922.

In a later paper I shall discuss the gross and microscopic pathology of the rat eye and its adnexa, and the resemblance of its phenomena to those found in pathologic conditions of the human eye; also the different views of the etiology of these ocular manifestations.

CONCLUSION

It is my impression that, from a clinical standpoint, the incipient changes in the eyes of rats showing nutritive disturbances on diets deficient in vitamin A are like the condition known as xerosis of the conjunctiva and cornea in man; and the more advanced picture is that of keratomalacia.

THE VALUE OF REST IN CASES OF EMPYEMA AND LUNG ABSCESS

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In acute pulmonary tuberculosis and in certain derangements of the nervous system, it is generally admitted that the rest regimen is a success. This treatment requires complete relaxation, both mental and physical, and any influence which causes increase in the cardiac effort constitutes exercise and is the antithesis of rest. In order to secure the maximum amount of rest, something more than being confined to bed is required. Apprehension, worry and mental depression act as physical stimulants, while emotions caused by noise, anger and arguments upset the vasomotor equilibrium and defeat efforts employed to obtain this form of treatment. The patient should therefore be freed from all responsibility, quietness assured, and a pleasant, cheerful and optimistic environment established.

When dealing with a severe infection, such as the acute stage of empyema, rest is imperative. Following the active phase, the inflammatory process in the pleura becomes localized, a pyogenic membrane forms, and a different condition presents itself for treatment. In this state a mechanical problem may exist, owing to a displacement of the mediastinum or limitation of lung capacity with associated dyspnea and circulatory disturbances. By this time the patient has become exhausted, and little difficulty is experienced in convincing him of the importance of rest. It should be definitely established that the pleural sac contains pus; this is usually determined by the introduction of a needle, the variations of the leukocyte count, the history and the physical examination, including roentgen-ray findings. If an empyema exists, thoracotomy should be performed. Prior to this, rest has been the natural result of exhaustion. Following surgical interference, its use as a therapeutic measure is unfortunately rapidly discarded, because the patient is improving, the offending substance in the chest has been removed, and a slow but definite return to a feeling of well-being is experienced. It is now that the continuation of absolute rest is of such great importance and often so difficult to secure.

Guarded and graduated exercise may be added to the treatment. Sitting up in a chair and taking a few steps each day constitute the best means of slowly winning the patient back to a state of confidence. The change should be gradual, for too vigorous mental or physical exercise frequently results in an exacerbation of the affection.

METHOD OF TREATMENT IN EMPYEMA

During the last three years, twelve cases of empyema have been treated at our clinic in the following manner:

Before thoracotomy was performed, there was reason to believe that the acute inflammatory process in the pleural cavity had subsided and that the empyema was well walled off. Drainage was established at the lowest point (posterior axillary region). In each case, before thoracotomy, an attempt was made to ascertain the position of the diaphragm by fluoroscopic and roentgenographic study. Adequate drainage being of greatest importance, the surgical communication between the pleural cavity and the exterior was made in such a manner as to insure an orifice equal in width to that of the lower empyemic area. A large, short rubber tube was then inserted, and some form of one way valve was attached to the exposed end of the tube.

For the first ten days after rib resection, the typhoid rest regimen was instituted. This was followed by a ten day period in which the patients were allowed to sit up for a while each day and the use of the commode was permitted. No further privileges were granted, and in the majority of cases this treatment was continued until the discharge had disappeared for at least two weeks.

A daily charting of the temperature and a frequent leukocyte count during the period of convalescence revealed, in some instances, evidence of drainage interference. Single roentgen-ray films usually revealed a displacement of the drainage tube, the correction of which brought about a subsidence or disappearance of untoward symptoms.

Fresh air proved to be an excellent adjunct to the rest treatment, and when possible the patients were placed on porches, some of them spending the entire twenty-four hours outdoors. This improved the appetite and exerted a markedly beneficial effect on the nervous and mental state. The patients were encouraged to eat a liberal amount of nutritious food; those underweight were given special attention with reference to diet, and the bowels were regulated by a liberal supply of liquid petrolatum, fresh vegetables and the consistent drinking of a reasonable amount of water.

An average case required from four to eight weeks in bed under this regimen; the severe cases required a longer time.

When chronic empyemic cavities persisted after a reasonable period of rest, thoracoplastic surgery was employed. The patients stood surgical interference well, the long standing absorption having apparently established a definite immunity to the infecting organisms.

Of the twelve cases treated in this manner, seven were acute and resulted in satisfactory recoveries. The average stay in bed following thoracotomy was thirty-two days. Of the remaining five chronic cases, resection was performed in the first about three months before the patient came under our observation, but after sixty-four days of bed rest all symptoms disappeared. The second patient came for treatment a year after resection; after the establishing of a more complete drainage, about 1,600 c.c. of pus was released. This patient gained 40 pounds (18 kg.) in weight during three months of rest treatment, but the immense empyemic cavity did not recede, and a four stage thoracoplastic operation, necessitating the removal of parts of the lower eleven ribs, was followed by a complete recovery. The third patient, a boy, aged 9, succumbed to a meningitis following the thoracotomy for the relief of an empyema of three months' standing. The fourth patient made an excellent improvement, but refused surgical treatment for the relief of a persistent small sinus. The fifth case is reported in detail:

History.—A man, aged 27, came under my observation in May, 1920, twelve weeks after an attack of pneumonia followed by empyema. The previous history was unimportant. The present weight was 126 pounds (57 kg.); the average, 145 pounds (66 kg.); the maximum, 182 pounds (82.5 kg.). The pulse was 96; temperature, 99.8 F. The patient complained of weakness, depression, loose, productive cough, copious yellow expectoration frequently tinged with blood, irregular night sweats, loss of appetite, and a heavy feeling in the right side.

Examination.—The patient looked ill; his nutrition was poor, his development, fair. The shape of the chest was normal. The right thorax was deficient in expansion; a discharging sinus was present at the site of the previous thoracotomy—the seventh rib in the posterior axillary line. Feeble breath sounds and decreased resonance were elicited below the sixth rib in the back of the right thorax. Stereoroentgenograms of the chest revealed the thoracic circulatory system normal in size, shape and position. In the right lung a cloudy density occupied the root zone, and extended outward and downward to the periphery in the midaxillary region. The lung was compressed from the fourth to the eighth rib, in the anterior axillary line, and a distinct pleural space about 6 cm. in width was revealed between the lung margin and the ribs. Part of the seventh rib, posterior axillary, had been removed (original thoracotomy). The left was apparently normal.

Laboratory Examinations.—The blood Wassermann reaction was negative. Complement fixation for tubercle bacilli was negative. The white blood count was 11,000. The urine was normal. Twenty-two sputum examinations revealed no acid-fast bacilli or elastic tissue. Guinea-pig inoculation was negative.

Treatment.—Thoracotomy was performed in the posterior axillary line (ninth rib), a wide opening made in the midaxillary line (lowest point of the cavity), a drainage tube was inserted, and a small amount of Beck's paste was injected. This was coughed up in the expectoration the next day, proving the existence of a bronchial fistula. The patient was placed on bed rest for three months, during which time the discharge disappeared. The wound was allowed to close. The patient gained 34 pounds (15 kg.) and lost all symptoms except a slight cough with scanty expectoration. He was then allowed some light exercise, and a month later had a moderate hemoptysis. The rest treatment was reestablished, and at the end of two months all symptoms had disappeared.

Subsequent History.—At present, October, 1922, the patient is working. He weighs 160 pounds (72.5 kg.), feels well, and has been free from symptoms for more than a year. The empyemic cavity has healed; the bronchial fistula is apparently obliterated.

PULMONARY ABSCESS

In cases of pulmonary abscess it was found necessary to continue the bed rest for a much longer period of time than that required of the patients suffering from empyema. In most instances, the same strenuous regimen of rest was instituted as that employed in cases of active pulmonary tuberculosis. Little is thought of keeping the latter patients in bed for six months or a year. Why not enforce the same methods in the instance of a pulmonary condition that exhibits less tendency toward fibrosis?

In a period corresponding to that in which the empyemic cases were observed, twenty-one patients were found to be suffering from pulmonary abscess. Ten of these cases were acute or subacute, seven of which followed a tonsillectomy under general anesthesia, the patients coming to the clinic within a period of from four to nine weeks following the first lower respiratory symptoms. Two cases followed pneumonia, and in the tenth case a causative factor was not determined.

Of the remaining eleven chronic cases, three followed tonsillectomy under a general anesthetic, four were a sequence of pneumonia, two occurred in diabetic patients and were finally proved to be tuberculous, one case followed an extensive abdominal operation, and the last one was associated with an advanced arthritis deformans.

Of the ten patients with acute abscess, five were placed on the rest regimen and four made complete recoveries in an average of from two and a half to four months of bed rest; the fifth showed excellent improvement after two months of rest, and then left the institution.

In the eleven chronic cases, it was apparent that good results would require a longer period of rest. Three of the eleven patients recovered after being placed on this treatment for from four to seven months. In the first case the abscess had existed for two years; in the second, eighteen months had elapsed since the beginning of symptoms, while the third patient had suffered for six months prior to treatment. Of the remaining eight patients, one made a reasonable recovery except that at intervals of a few months she expectorates a slight amount of blood-streaked sputum; a second patient died following a surgical attempt at drainage; the third case terminated by a cerebral embolism; the fourth case, associated with advanced arthritis deformans, naturally gave a hopeless prognosis. The two tuberculous cases were complicated by a long standing diabetes, and the one of unknown origin showed no improvement. The following description illustrates the first case of chronic abscess mentioned in this paragraph:

History.—Mrs. C., aged 29, complained of cough of two years' duration following influenzal pneumonia in January, 1919; this was accompanied by a feeling of fatigue and anorexia. Pneumonia at the right base two years before admission was followed in three weeks by a relapse of fever, and the sudden appearance of a copious amount of offensive yellow sputum. The fever, ranging from 99.8 to 101 F., continued for about nine weeks, during which period the patient lost weight and strength. The subsidence and disappearance of the acute symptoms was in turn followed by the present chronic symptoms of cough and yellow expectoration.

Examination.—The patient weighed 110 pounds (50 kg.) gross, average 130 pounds (60 kg.), the maximum being 145 pounds (66 kg.). There was moderate dyspnea; no cyanosis; the patient was pale and weak; cough was loose, persistent, frequent, and always productive of a characteristic yellow sputum. The fingers were definitely clubbed. Nutrition had remained good, in view of the two years of indisposition. The shape of the chest was normal; there was limited movement of the right base; there were decreased resonance and medium sized râles over the back of the right lung below the fifth rib, with some prolonged expiration below the sixth and eighth ribs, in the posterior axillary line. Grouped râles were heard between the third and sixth ribs, in the midclavicular line over the right side. The patient was able to drain sputum into the main bronchi by lying on the left side. Fluoroscopy disclosed an irregular, dense shadow in the lower right lung suggestive of that seen in cases of lung abscess. Movement of the right diaphragm was definitely restricted. Stereoroentgenograms of the right lung revealed the diaphragm flattened and elevated. Within the lung substance opposite the area between the second and fifth ribs in front there was a round, dense shadow with a clearer center, rather characteristic of a pulmonary abscess. The blood Wassermann reaction was negative. Frequent sputum examinations revealed no acid-fast bacilli or elastic tissue. Each specimen contained much pus.

Treatment.—The patient was placed on the rest regimen for a period of more than five months, followed by six months of graduated exercise. During this time her cough and expectoration gradually decreased; at the end of a year she was walking from 3 to 4 miles a day, was attending to her domestic duties, had gained 39 pounds (18 kg.), and was entirely free from symptoms. Nine months have elapsed since then, and the patient has remained well. Some weakened breath sounds are still in evidence over the right base, and the percussion note is not clear, owing to a thickened pleura; but the stereoroentgenograms reveal little or no signs of the frank pathologic condition of twenty months ago.

COMMENT

It is worthy of note that in the foregoing series of twenty-one cases of lung abscess, ten followed a tonsillectomy in which a general anesthetic was used. The value of other methods of treatment is highly appreciated, such as surgery, pneumothorax, irrigation, heliotherapy, postural drainage and the administration of vaccines. It is believed, however, that with the addition of a longer period of bed rest to any or all of these forms of treatment, more gratifying results would be obtained in cases of pulmonary abscess.

A SEASONAL TIDE OF BLOOD PHOSPHATE IN INFANTS

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An investigation[1] undertaken somewhat more than a year ago showed that in infants the inorganic phosphate of the blood could be raised to the normal level by means of frequent exposures to the sun's rays. It was shown later[2] that the same result can be accomplished by irradiation with the carbon arc lamp. It seemed probable that this striking phenomenon—chemical equilibrium brought about by the action of light—is due to the ultraviolet, rather than to the visible rays of the spectrum. As a matter of fact, subsequent investigation has confirmed the view that some ultraviolet radiations possess this biologic action, for when they are filtered out from the spectrum the rays lose this power.[3] As is well known, the composition of the rays of the sun is not at all times the same. There is a marked seasonal variation in its spectrum—in the temperate zone the rays are incomparably richer in ultraviolet during the spring and summer than they are during the winter months.[4] In view of this seasonal variation of the ultraviolet rays, and in view of the pronounced effect of ultraviolet radiation on the inorganic phosphate of the blood, it seemed worth while investigating whether the transition of the seasons led to periodic chemical alterations. The infants who were tested were from 6 to 18 months of age, living under excellent hygienic conditions, and were on a diet of certified raw milk or of dried milk, as well as the usual amount of orange juice, the older ones receiving cereal in addition.

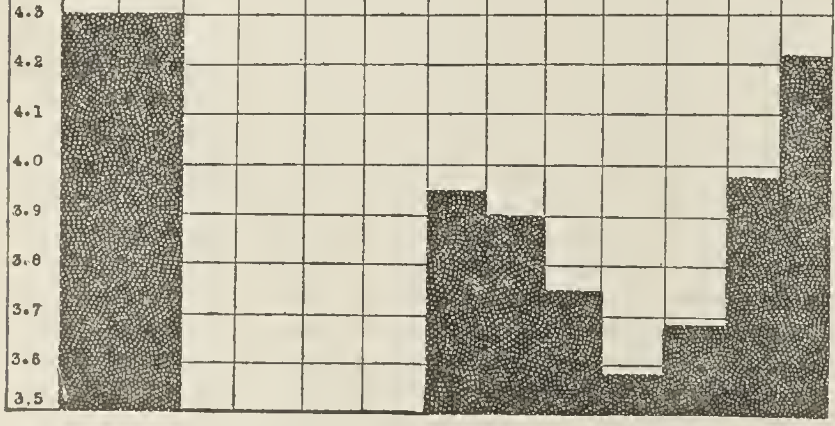

Chart 1.—Seasonal tide of blood phosphate (inorganic).

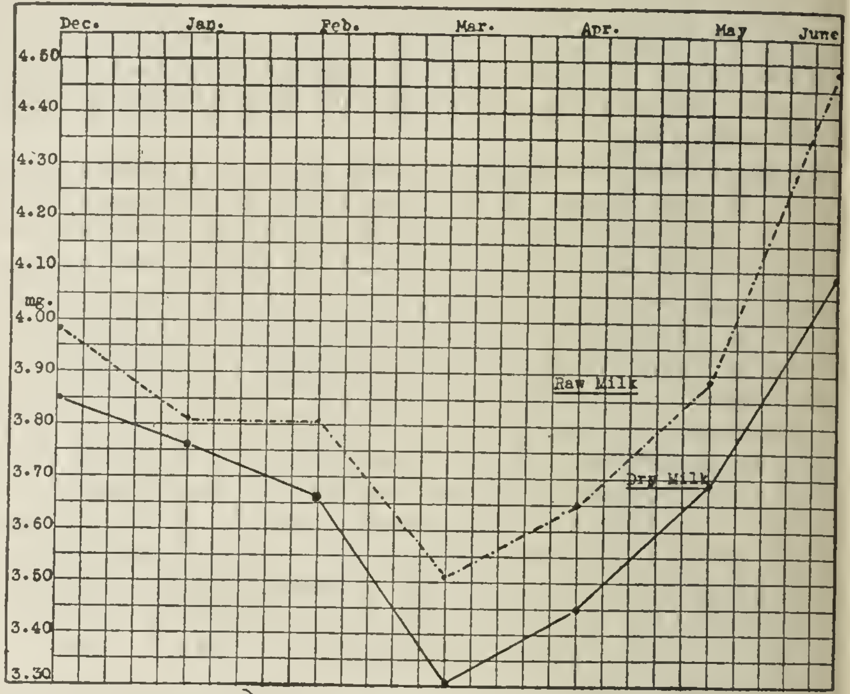

Chart 2.—Seasonal tide of blood phosphate; diets, raw milk and dried milk.

Chart 1 illustrates the result of this study. It will be noted that in the summer of 1921 the phosphate content of the blood was 4.34 mg. per cent., which is within the normal for the Bell and Doisy method. Further data were not available in 1921 until December, when it was found that the average had fallen to 3.92 mg. per cent. Monthly examinations, some 300 in all, comprising about sixty infants, demonstrated a steady decrease of the inorganic phosphate, the lowest ebb being in March. This level would have been still lower had it not been for the fact that whenever the phosphate content was found to be low (3.75 mg.) the child was given either sun treatment or irradiation from an artificial source. In fact, it was found that the blood test furnished a valuable criterion as to when heliotherapy should be instituted. In April the tide began to rise, ascending markedly in May, and rising to almost a normal level during June.

It is probable that this seasonal tide, with its summer flood and winter ebb, occurs to a greater or less degree in most bottle-fed infants living in the large cities.

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[1] Hess, A. F., and Gutman, P.: The Cure of Infantile Rickets by Sunlight as Demonstrated by a Chemical Alteration of the Blood, Proc. Soc. Exper. Biol. & Med. **19**: 31, 1921.

[2] Hess, A. F., and Unger, L. J.: Use of the Carbon Arc Light in the Prevention and Cure of Rickets, J. A. M. A. **78**: 1596 (May 27) 1922.

[3] Hess, A. F.; Pappenheimer, A. M., and Weinstock, M.: A Study of Light Waves in Relation to Their Protective Action in Rickets, Proc. Soc. Exper. Biol. & Med. **20**: 16, 1922.

[4] This distinction is not due to a difference in quality of the rays themselves, but is an absorption effect resulting from the inclination of the sun and the average absorption coefficient of the atmosphere due to varying weather conditions. The ultraviolet portion of the sun's spectrum is much more sensitive to such changes than the red, and the altitude of the sun occasions a much greater relative difference in the degree of absorption.

These babies were outdoors every fine day for a few hours, bundled up in the usual fashion, with only a portion of their faces uncovered. Their diet was far better than the average; about half received certified milk, in an endeavor to ascertain whether this high grade of milk possessed advantages over the cheaper pasteurized milk which is in general use. A glance at Chart 2 will show that the phosphate tide is not intimately dependent on the variety of milk, and that it was pronounced when the raw certified milk was fed, although the level was somewhat higher than when dried milk was given. It may be added that the diet was either full milk, or formulas containing two-thirds milk, so that the intake of calcium and of phosphate was high. We are unable to state how breast-fed infants react to the influence of season: whether they also manifest a tidal blood variation. Judging, however, from the fact that 50 per cent. of well nourished breast-fed infants attending an outpatient department have been found to show clinical evidences of rickets at the end of March,[5] it seems probable that they, likewise, are susceptible to seasonal fluctuations.

In somewhat older children the variations were found less marked. In a group of ten children, from 2 to 3 years of age, on a mixed diet containing milk, broth, cereal, vegetables, etc., the inorganic phosphate fell in March to 3.89 mg.; in June it rose to 4.2 mg. per cent. The rise was definite, however, in every instance. A small number of tests were carried out on adults, for the most part on the medical staff and their assistants. The inorganic phosphate of the blood, as is well known, is normally lower in adults than in infants. Our examinations showed that it is also far more stable. The figures for June did not vary appreciably from those in March, the average being 2.9 mg. at both seasons; moreover, individual idiosyncrasies were maintained at both periods.

that the ultraviolet rays are the main cause of its seasonal variation. It is quite possible that other climatic factors and meteorologic conditions play a rôle, but they would seem to be of minor importance. The accompanying table gives meteorological data taken in New York City (Central Park) covering the period of the tests for blood phosphate. This information was kindly furnished by the New York Meteorological Observatory. An examination of these figures shows that the most constant seasonal alteration during this period was in the actual amount of sunshine. A study of this table shows that the course is very similar to that of the blood phosphate, decreasing during the winter months and beginning to rise in the latter half of March. In a relationship of cause and effect we should expect the increase in sunshine to precede by a few weeks the augmentation of the inorganic phosphate. There was also a mean daily elevation of temperature beginning at this period, so that this factor may play a rôle in the chemical change. The relative humidity runs such an irregular course that the change in the blood phosphate cannot be ascribed to this phenomenon.

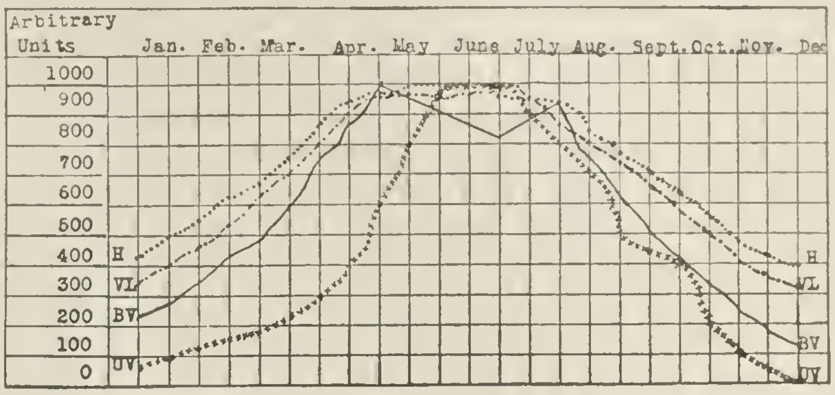

Chart 3.—Seasonal variations of the sun's spectrum: *H*, solar heat; *V L*, visible light; *B V*, blue violet; *U V*, ultraviolet.

METEOROLOGICAL DATA COVERING PERIOD OF PHOSPHATE TESTS

	1921				1922					
	June	July	Nov.	Dec.	Jan.	Feb.	March	April	May	June
Mean daily maximum temperature	81.2	85.5	50.8	39.9	34.4	40.9	48.8	60.7	75.1	79.9
Mean daily minimum temperature	61.1	68.8	38.6	25.5	21.9	26.2	33.2	42.2	54.0	63.6
Mean daily temp. (average of maximum and minimum)	71.1	77.3	44.7	32.5	28.2	33.6	41.0	51.4	64.6	71.8
Relative humidity (mean hourly)	61.3	75.6	74.4	62.8	59.0	65.7	63.8	56.8	62.2	75.7
Dry bulb temperature (Fahrenheit; shade; mean hourly)	70.3	76.1	44.3	33.1	28.1	33.3	40.6	50.9	63.5	70.7
Wet bulb temperature (shade; mean hourly)	61.2	69.9	40.8	29.4	24.6	29.9	36.0	43.7	55.3	65.0
Precipitation (snow and rain; total for the month)	2.79	2.02	3.81	9.64	12.13	10.55	9.42	2.02	3.76	6.88
Mean barometer (average of 7 a.m., 2 p.m., 9 p.m.)	29.807	29.830	29.88	30.005	29.992	29.951	29.926	29,894	29.845	29.805
Mean vapor pressure (average of 7 a.m., 2 p.m., 9 p.m.)	0.458	0.658	0.227	0.129	0.100	0.134	0.174	0.219	0.356	0.555
Dry bulb temperature (exposed to sunlight)	99.0	97.0	58.4	52.9	51.3	53.9	63.3	77.1	91.2	93.3
Actual sunshine (total hours for the month)	327.3	271.1	116.0	171.6	175.4	144.3	209.0*	279.2	337.1	266.4
Cloudiness (scale 0-10; during daylight)	4.6	6.3	7.3	5.5	5.4	6.6	6.3	5.5	4.6	6.9
Prevailing wind (direction)	S.W.	S.W.	N.E.	N.W.	N.W.	N.W.	N.W.	W.N.W.	W.S.W.	W.N.W.
Mean daily wind movement (miles)	211.6	186.0	267.7	248.0	294.2	264.1	290.3	263.7	235.9	203.2
Average daily wind velocity (miles an hour; Dines anemometer)	8.8	7.8	11.2	10.3	12.3	11.0	12.1	11.0	9.8	8.5
Average daily maximum wind pressure (Dines anemometer).	2.13	1.26	3.09	3.12	3.71	2.99	3.15	2.91	2.39	2.02

* During first half of March, 81.4 hours; during second half, 127.6 hours.

As has been stated, the ultraviolet rays of the sun vary markedly with the season. This is particularly well illustrated by a graph of Dorno (Chart 3), a composite of observations carried out at Davos, Switzerland. It shows the small amount of ultraviolet radiation in the winter, its rather sudden increase in the late spring, its flood during the summer, and its gradual fall during the autumn months. This curve resembles essentially the graphs of the inorganic phosphate content of the blood which are portrayed in Charts 1 and 2, and lends added weight to the opinion

These meteorological observations confirm our opinion that the dominating factor in the phosphate tide is sunlight, an opinion which is strengthened by the fact that an increase of blood phosphate was brought about during these winter months simply by irradiations of ultraviolet light supplied by an artificial source (carbon arc).[2] In this connection it is well also to bear in mind that rickets and tetany are almost nonexistent in the tropics.

As referred to elsewhere,[6] ultraviolet light is not only able to raise to the normal a lowered inorganic phosphate content of the blood, but also to perform the same service in respect to calcium when it is diminished. We have encountered numerous instances in which a low percentage of about 7 mg. has been increased to more than 10 mg. by irradiations for from two to three weeks with the carbon arc light. Only an extensive study can determine whether this reaction indicates that there is likewise a seasonal tide in infants of the calcium of the blood. In general, our figures for calcium are somewhat lower for the early spring than for June. The greater stability of calcium, however, as compared to the inorganic phosphate of the blood, would lead us to expect far less fluctuation.

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[5] Hess, A. F., and Unger, L. J.: Infantile Rickets: The Significance of Clinical, Radiographic and Chemical Examinations in Its Diagnosis and Incidence, Am. J. Dis. Child. **24**: 327 (Oct.) 1922.

[6] Hess, A. F.: Influence of Light in the Prevention and Cure of Rickets, Lancet **2**: 367 (Aug. 19) 1922.

As is well known, one of the disorders that manifest a striking seasonal incidence is tetany. The peak of its incidence occurs somewhat later in the spring than that of rickets. It is associated with a diminished content of calcium in the blood, which is especially low in its relation to the inorganic phosphate. In many cases there is an inverse ratio between the calcium and the phosphate content of the blood. This relationship may be illustrated by the case of an exceptionally well nourished infant, aged 11 months, who, March 8, had a content of 12.5 mg. per cent. of calcium and 3.54 mg. per cent. of inorganic phosphate in the blood. May 22, these amounts had changed to 7.55 mg. for calcium and 4 mg. for phosphate; the calcium had fallen markedly, whereas the phosphate had risen. Carbon arc irradiation was then given, and by June 8 the calcium had risen to 10 mg. and the phosphate to 4.58 mg. per cent. In other words, with the marked fall of the calcium in May there was a concomitant rise of phosphate. Such occurrences, which are not exceptional, suggest that the seasonal increase of phosphate, beginning in April and ascending still higher in May, tends in some cases to the development of tetany late in the spring.

This seasonal variation evidently indicates that the chemical constitution of our blood is not constant for all periods of the year; this probably holds true for other tissues. Marked fluctuations of this character may be discovered only in young children, in whom the body has to make provision not only for the metabolism associated with maintenance, but also for that demanded by rapid growth, a mechanism which necessarily involves a tendency to wider deviations from the normal. It is quite possible that "the phosphate blood tide" is only one of many seasonal variations that take place in the body. This aspect of metabolism has not been the subject of investigation, but it would seem to be a promising field, and a systematic study of the blood from various points of view—chemical, immunologic, etc.—might well be undertaken on animals and on man, and may reveal unknown seasonal peculiarities. In this connection, a variation in the iodin content of the thyroid gland of animals may be referred to. Some years ago, Seidell and Fenger[7] showed that the average iodin content of the healthy thyroid gland of sheep, of cattle and of hogs is, in general, about three times as large for the months from June to November, as for the months from December to May. Another investigation which borders on this subject is that of Reid Hunt,[8] who found that guinea-pigs were decidedly more resistant to acetonitril poisoning in the spring and summer than in the winter, and who concluded that this difference probably was associated with some seasonal variation in metabolism.

Undoubtedly climatic conditions exert a pronounced influence on general nutrition. For many years, clinicians have insisted on the obscure but definite relationship between seasonal changes and certain pathologic disorders, although scientific medicine could not substantiate their empiric observations. A striking example of the fundamental influence of the seasons on normal nutrition, and one which is subject to mathematical verification, is the seasonal periodicity of growth in length which is manifested in childhood. The investigations of Malling-Hansen and of others have shown that children grow far more rapidly in the spring and summer than during the winter months. Such seasonal activity is all the more significant when we bear in mind the fundamental character of the impulse required to bring about growth in length.

It is quite possible that chemical alterations of the tissues, induced by seasonal meteorological variations, may exert an influence not only on nutrition, but also on infection. For example, the low content of inorganic phosphate that occurs in the early spring and is closely associated with rickets may play a rôle in the susceptibility to infection which accompanies this disorder. Furthermore, seasonal alterations of the blood many bear a relationship to the vagaries in incidence of the epidemic diseases, and should be considered in connection with epidemiologic studies on animals and on man.

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[7] Seidell, A., and Fenger, F.: Seasonal Variation in the Iodine Content of the Thyroid Gland, J. Biol. Chem. **13**: 517, 1913.

[8] Hunt, Reid: The Effects of a Restricted Diet and of Various Diets upon the Resistance of Animals to Certain Poisons, Bull. 69, Hyg. Lab., U. S. P. H. S., 1910.

MANAGEMENT OF HEAD INJURIES WITH REAL OR POTENTIAL BRAIN DAMAGE

WITH SPECIAL REFERENCE TO THE VALUE OF SATURATED SOLUTIONS OF MAGNESIUM SULPHATE AND SODIUM CHLORID

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During the last year, the relatively large number of cases of head injury admitted to the Grady Memorial Hospital (colored division) has afforded an unusual opportunity to work out a definite policy in the management of such cases, and one attended with a degree of success justifying this review.

CLASSIFICATION OF CASES

We have learned to classify cases of head injury thus:

A. Massive brain injury, with evidence of rapid exhaustion of the medullary centers, and death within one to several hours after admission.

B. Definite evidence of middle meningeal hemorrhage.

C. Simple or compound depressed fracture, with localized brain contusion, with or without indriven bone fragments.

D. Classic manifestations of rapidly increasing intracranial pressure which are well within the period of medullary compensation.

E. Definite evidence of brain injury exhibiting no classic findings of acutely increasing intracranial pressure, yet of the type that experience has shown is liable to develop gradually increased intracranial pressure due to fluid accumulation.

F. So-called "concussion" with no evidence of gross brain damage.

G. Depressed fracture of a mild degree, giving rise to no symptoms whatsoever.

H. Scalp lacerations, without damage to the underlying structures.

TREATMENT OF DIFFERENT CASE GROUPS

Before determining the type of treatment, we attempt, as far as possible, to classify the case. In many cases, the eventual decision may be delayed until the patient has been observed for several hours.

A classification under A, B, C or H can usually be readily determined and a decision promptly made as to what should be done. From two to six hours of careful observation is usually necessary before the other classes of cases can be properly estimated.

Class A. These cases are of such a nature as to render any effort without avail. Operation is without value and is distinctly contraindicated. Death invariably results within a few hours, no matter what is done.

Class B. Here, an immediate operation is indicated. A straight incision such as is used in a typical subtemporal decompression is made on the involved side. The temporal muscle is separated in the direction of its fibers and retracted to either side. The skull is entered with perforator and burr, disclosing to view the large epidural clot. As soon as the diagnosis has been thus confirmed, and before enlarging the opening in the skull and removing the clots, the external carotid artery should be ligated through a small neck incision. By this precaution, much time will be saved and continued troublesome hemorrhage from the torn meningeal artery prevented. The intracranial ligation of the artery under such circumstances is not always an easy matter. After the external carotid artery has been ligated, the craniotomy can be safely continued. The bone is removed for a diameter of from 5 to 7 cm., and the large epidural clot thoroughly removed. As a further precaution against the possible occurrence of increased intracranial pressure, the dura should be opened by means of crucial incisions. The overlying structures are now carefully closed with several layers of interrupted fine silk sutures.

Class C. In these cases the best results are obtained, if the technic of débridement (with certain modifications) advised by Cushing in the operative handling of war injuries is employed. The edges of the lacerated scalp are cut away; the underlying bone injury is exposed; all bone fragments are carefully removed and placed in sterile salt solution, and, by means of catheter-suction, all contused brain and blood clots are carefully removed. The dural opening is now closed, if possible, and the bone defect covered with such of the removed bone fragments as are suitable. The scalp wound is now carefully approximated with interrupted fine silk galea and skin sutures. If it seems advisable to give the brain room on account of increased intracranial pressure, a typical subtemporal decompression can now be done. As a rule, this will not be necessary.

Class D. These cases usually have more or less laceration of the temporal lobe, with accumulation of blood intradurally. The choice of treatment is still a source of much argument among neurologic surgeons. I myself am of the opinion that the best chance of recovery for these patients is offered by a subtemporal decompression, with or without temporary drainage by means of a small wick of rubber tissue placed under the temporal lobe and escaping through the lower angle of the wound. Occasionally, bilateral decompressions may be indicated. There is, of course, much room for argument for and against operation in this class of cases. I have adopted the operative treatment in this particular type of injury during the last ten years and I feel convinced that the results have justified the method.

Class E. It is to this class of patients that I wish to call particular attention. The patients are usually brought into the hospital in a semiconscious condition. The blood pressure as a rule is somewhat higher than normal, but does not gradually increase as in Class D. The roentgen ray usually reveals linear fractures of varying degrees, and the spinal fluid is often blood tinged. One feels safe in assuming that there has been definite gross brain damage, although there is no rapidly increasing intracranial pressure. Such cases under the usual method of treatment (absolute rest in bed and application of an ice cap to the head) are liable, within a few days, to show definite signs of increased intracranial pressure, not infrequently of such an alarming character as to call for energetic treatment. If these patients are operated on when symptoms of increased intracranial pressure develop, there is usually found a large collection of blood-tinged fluid under the dura, but apparently none in the subarachnoid space. Why this fluid should be between the arachnoid and dura is an interesting question. A plausible explanation is that, at the time of injury, the arachnoid is ruptured in different areas so that the cerebrospinal fluid does not remain in the subarachnoid space, from which it would probably be absorbed, but escapes directly under the dura, where cerebrospinal fluid absorption is impossible. When this fluid is allowed to escape at operation, the brain mass, instead of being swollen and edematous, seems at times to be actually decreased in volume. Drainage, for several days, usually relieves the distressing symptoms of increased intracranial pressure.

In our experience, the foregoing sequel to the injury can be prevented, provided the patient is given the proper treatment soon after being admitted to the hospital. Weed and McKibben[1] have shown experimentally that the pressure of the cerebrospinal fluid and the bulk of the brain can be reduced by the intravenous injection of hypertonic salt solution. Foley and Putnam[2] demonstrated experimentally that hypertonic saline solution given by mouth likewise reduces cerebrospinal fluid and brain bulk, although the action is much slower than when saturated sodium chlorid solution is given intravenously. The clinical uses of salt solution in conditions of increased intracranial tension have likewise been discussed by Foley.[3]

In an effort to prevent the accumulation of fluid, with the resulting symptoms of increased intracranial pressure in this class of cases, we now administer a saturated solution of magnesium sulphate by mouth as a routine measure in all cases in which immediate operation is apparently not indicated. One-half ounce of the solution is given every two hours (the dose being decreased in proportion in children) for the first twenty-four to forty-eight hours. Thereafter, the time of administration is lengthened to every three hours for a day or two, and then gradually decreased according to the condition of the patient. After from seven to ten days, the drug is usually withdrawn entirely. If at any time evidences of increased pressure develop in spite of the magnesium sulphate, the treatment is supplemented by the intravenous injection of 30 per cent. sodium chlorid solution. This, however, has been necessary in only a very few cases falling in this group. Although occasionally magnesium sulphate poisoning occurs, in our series of cases there has been no illustration of such an effect of the drug. However, on account of this danger, we have considered putting a series of patients on sodium chlorid tablets coated with phenyl salicylate in order to determine whether or not the same beneficial results are obtained.

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[1] Weed, L. H., and McKibbon, P. S.: Am. J. Physiol. **48**: 512 (May) 1919.

[2] Foley, F. E. B., and Putnam, T. J.: Am. J. Physiol. **53**: 464 (Oct.) 1920.

[3] Foley, F. E. B.: Clinical Use of Salt Solution in Conditions of Increased Intracranial Tension, Surg., Gynec. & Obst. **33**: 126 (Aug.) 1921.

As evidence of the value of this routine measure, in no case in this series has operative drainage of the fluid become necessary. All cases ran an uneventful course and the patients left the hospital apparently well within three weeks after admission. On the other hand, in several cases seen in consultation and in which no hypertonic solution had been given, the classic picture of increased intracranial pressure was present, necessitating energetic treatment in order to combat the distressing symptoms. As an illustration of this type of case, I wish to mention briefly a recent experience:

V. S., a man, received a head injury, Sept. 12, 1922, resulting in unconsciousness which lasted thirty-six hours. His condition then became satisfactory, according to the attending physician, and remained so until September 20, when he began to show symptoms of increased intracranial pressure. September 22, he was admitted to the hospital in the general surgical service. He was kept in bed with ice cap to the head, but had no other treatment. September 29, I saw him in consultation. The picture presented at this time was practically that of the terminal stage of increased intracranial pressure. There was marked bilateral choking of the disks, stertorous, irregular breathing, rapid pulse, absence of knee reflexes and relaxation of sphincters. In general, the picture was such that one hesitated to advise operative treatment. Fifty cubic centimeters of a 30 per cent. sodium chlorid solution was given intravenously, with an appreciable improvement in the condition. Thirty cubic centimeters of the hypertonic solution was administered intravenously six hours later, and continued every six hours during the following thirty-six hours. At the end of this time, the picture presented was quite different in every respect. The patient was conscious; the pulse was 100; respiration was even and regular, and voluntary swallowing was possible. A saturated solution of magnesium sulphate in one-half ounce doses was then ordered by mouth every three hours. Within five days, the patient seemed securely on the road to recovery. Ten days after administration of the hypertonic solution had been instituted, the patient was normal in all respects, except the choked disks, which gave evidence of subsiding. October 20, the patient left the hospital, apparently normal in every way.

Class F. To this class of cases belong those who have a history of a slight blow on the head followed by temporary unconsciousness. After a few hours, these patients become mentally clear, and careful neurologic examination fails to reveal any evidence of gross brain damage. The spinal fluid is clear, and there is no particular alteration of the pulse, blood pressure, or respiration. Such cases are usually kept under careful observation for about three days, in order to be sure of the diagnosis. Rest in bed and free purgation with salines is the treatment indicated. If there is such a thing as real concussion of the brain, I feel that this particular class of cases should be the type referred to when such a diagnosis is made.

Class G. Not infrequently, patients with simple depressed fracture of the skull presenting no symptoms whatsoever, are admitted to the hospital. It is an open question whether or not these patients should be operated on. I feel that, as it is a simple matter to elevate such fractures and to investigate the structures underlying the depression, the safest policy is to operate in these cases as a matter of routine. Not infrequently, there will be found a certain amount of localized brain contusion underlying these fractures. When such a condition exists, a simple débridement by means of suction, followed by closure of the dura and replacement of the bone fragments, I believe to be the treatment of choice.

Class H. In treating the average case of scalp laceration, it is extremely important to determine whether or not the underlying structures are damaged. If not, the edges of the lacerated wound should be trimmed away and the wound closed with interrupted fine silk sutures. These wounds when so treated invariably heal by primary intention.

The value of hypertonic solutions in surgery of the brain has been proved by many observers (Haden,[4] Cushing,[5] Sachs [6]). It is not my purpose to discuss the various conditions in which they are beneficial. In my work I give saturated magnesium sulphate solution in varying doses, as a routine measure, after all cranial operations in which I feel that acute increased intracranial pressure may occur owing to fluid accumulation. When this condition already exists, I prefer the more rapid action of saturated sodium chlorid solution, intravenously.

CONCLUSIONS

1. All head injuries should be carefully studied and the type of injury properly estimated before the institution of any particular treatment.

2. No treatment is of avail in those cases of massive brain injury presenting evidence of rapid exhaustion of the medullary centers.

3. The treatment of middle meningeal hemorrhage can be greatly facilitated by ligating the external carotid artery.

4. The technic advised by Cushing in the treatment of war wounds of the skull and brain should be used in the treatment of those cases of brain injury in which there is localized brain contusion.

5. Subtemporal decompression is still the treatment of choice in cases of brain injury when there is evidence of gross brain laceration, and the patients are yet well within the so-called period of medullary compensation.

6. Saturated magnesium sulphate solution by mouth will prevent the occurrence of increased intracranial pressure due to fluid accumulation and thereby prevent the necessity of late operation in many cases of brain injury in which immediate operative intervention does not seem to be indicated.

7. Saturated solution of sodium chlorid intravenously is of inestimable value in relieving acute increased intracranial pressure due to fluid accumulation occurring several days after head injuries, with definite brain injury.

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[4] Haden, R. L.: Therapeutic Application of Alteration of Brain Volume by Injection of Glucose, J. A. M. A. **73**: 983 (Sept. 27) 1919.

[5] Cushing, Harvey, and Foley, F. E. B.: Proc. Soc. Exper. Biol. & Med. **17**: 217, 1920.

[6] Sachs, Ernest, and Belcher, G. W.: Use of Saturated Salt Solution Intravenously During Intracranial Operations: Preliminary Report, J. A. M. A. **75**: 667 (Sept. 4) 1920.

THE STATUS OF THE NEGATIVE WASSERMANN REACTION *

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Probably because of the protean character of its manifestations, there is no disease presenting more inherent difficulties in its management than syphilis, and there are few in which more terrible and well-nigh inexcusable errors have been committed. This may be maintained as to both diagnosis and treatment, and it is to a realization of these facts, reenforced by the enormous increase in our general knowledge of the disease that, perhaps, we owe the evolution of the syphilologist.

In spite of the fact that the condition is one that requires the most expert and skilled management if its complete control is to be attained, for reasons that are apparent a large proportion of cases will always be cared for by the man in general practice.

Much emphasis has been laid on the vital importance of an early diagnosis and the prompt initiation of treatment; much has been written concerning the dangers of a premature dismissal from treatment; and it is inevitable that much prominence—deservedly—has been given to the significance of the Wassermann test in both connections.

It is permissible to question whether or not the utility of the complement-fixation test has at times, perhaps, been unduly distorted when considering the positive reactions, and whether or not sufficient emphasis has been laid on the proper evaluation of a negative Wassermann reaction in its relation to diagnosis and treatment.

It is inevitable that, with or without his willingness and accord, the general practitioner must accept the responsibility of the care of a certain proportion of syphilitic patients. He owes it, therefore, to both himself and his patients, and it becomes a moral necessity not to be avoided, to handle them wisely and scientifically. For that reason he must be prepared to interpret correctly and utilize intelligently the Wassermann test as a diagnostic and therapeutic aid.

It may be taken for granted, perhaps, that the significance of a positive Wassermann reaction is known and understood; but it can be debated whether the value and the significance of a negative Wassermann reaction are grasped with equal clarity and confidence. It can safely be maintained that, in many instances, the reliance placed on a single negative reaction as an indication of the absence of syphilis is too great, is unwarranted, and is the direct cause of untold misery as being responsible for a high proportion of intractable, though avoidable, complications.

With these thoughts as a premise, it seems of interest to consider, briefly, the consensus of thought as to the significance of a negative Wassermann reaction, and the factors influencing its evaluation in both the diagnosis and the treatment of syphilis.

Some consideration of the rationale underlying the complement-fixation test in syphilis is unavoidable because of its direct bearing on the point at issue.

Although the exact and detailed mechanism of the test has yet to be discovered, much information of value has been elicited, even though it be mainly of negative character.

The nature of the substance or substances—conveniently spoken of as reagin—concerned in the reaction is still unknown. The bulk of the evidence at hand seems to indicate that they are of lipoid character and that the reaction is, most likely, of a chemical nature in which colloids play a large part. Nor is the exact source or mode of production of these bodies as yet made clear: whether they arise from the action of the spirochetes on the cells of the tissues; whether they are entirely an expression of cellular reaction to the activities of the spirochetes; whether the activities of the spirochetes per se play a part in their production, or whether all these factors are interrelated all being matters still held sub judice.

Regardless of their exact origin, however, it is plain that their presence represents a reaction of the body in some fashion to infection with spirochetes, and it is apparent, therefore, that many factors are concerned as influencing their presence, their production, and the amount in which they may be found.

It becomes obvious, therefore, that while the occurrence of a positive Wassermann reaction when properly checked and controlled is well-nigh indisputable evidence of the presence of syphilitic reagin and hence of syphilitic infection, by no means the same reliance can be placed on a negative reaction as indicative of the absence of syphilis, for reasons hereafter indicated.

In the first place, it must be recognized that there are limits to the delicacy of the Wassermann test. This is in part dependent on the inherent character of the reaction, and in part directly related to details of technic. The latter factor may give rise to such marked variations in delicacy as to render it advisable for the clinician to familiarize himself with the general principles of the test so as to be in a position to estimate the relative efficiency of the method used by his serologist.

Secondly, regardless of the source or exact mode of production of the reagin, it is clear that, because it represents a reaction to infection, the rapidity and intensity of production will be influenced by the individual capacity of the patient to react, as well, perhaps, as by the virulence and aggressiveness of the infecting strain. Furthermore, there must necessarily be an indeterminate period, possibly influenced by all these factors, which must elapse before reagin can be produced and appear in the blood in amounts sufficient to be detected by methods of ordinary delicacy.

It is also of great importance to have in mind the fact, as yet inexplicable, that in known syphilis, without treatment, sudden and spontaneous variations in the strength of the reaction may occur so that, without apparent cause, a strongly positive reaction may become weaker and even, temporarily, negative.

RELATION TO DIAGNOSIS

With these general premises as a starting point, the negative Wassermann reaction may be considered in its relation to diagnosis.

Primary Syphilis.—As might be foreseen from the consideration of the factors influencing the production of reagin, its occurrence in detectable amounts in the blood stream is in direct proportion to the age of the lesion.

While delicate antigens, such as the cholesterinized extracts, will not infrequently give a positive reaction as early as seven days after the appearance of the chancre, as a general rule it can be said that it is unsafe to expect the appearance of a positive Wassermann reaction before the twenty-first to the thirtieth day in primary syphilis. A negative Wassermann reaction before this time in the presence of a suspicious lesion is of no diagnostic value, and cannot be relied on as a basis for dogmatic assumptions.

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* From the Laboratories of the Pittsburgh Hospital.

It may not be amiss, here, to digress momentarily to emphasize that any genital lesion is suspicious; all are to be looked on as chancres until shown to be otherwise, for experience has shown that the "typical" chancre is rare and that a differential diagnosis between abrasion, chancre and chancroid by means of gross physical characteristics is often impossible and cannot be relied on. There is only one certain method of distinction: the dark field illuminator. If, as is frequently the case, salves or washes have been used and the spirochetes thus driven from the surface, examination of the fluid secured from a regional lymph gland may be successful. This is easily done by the injection and reaspiration of a small amount of sterile physiologic sodium chlorid solution.

In the early days of a chancre, then, the dark field illuminator is the method of choice and solely to be relied on for diagnosis, the Wassermann reaction being of little value. The longer the time between the appearance of the lesion and the examination, the less are the chances of success with the microscope and the greater become the possibilities of the Wassermann test.

It is inexcusable in these days, when the vital importance of prompt treatment has been so conclusively shown, to wait for the appearance of secondaries; and to rely on the "therapeutic test" is a confession of ignorance or laziness or both.

If, however, the Wassermann test is of no diagnostic value in the first three or four weeks of the disease, a negative Wassermann reaction is of decided prognostic value during this period, since experience has shown that the patients in whom treatment is begun before the appearance of the Wassermann reaction present the greatest hope of ultimate and complete cure.

It is advisable, therefore, in the examination of a suspicious patient, while relying on the microscopic demonstration of the spirochetes for diagnosis, to take a Wassermann test for its aid in estimating the probable result of treatment.

Secondary Syphilis.—In secondary syphilis the disease is well advanced and, as evidenced by the character of the lesions, generalized, systemic invasion has occurred. It is logical, therefore, to expect the concomitant appearance of reagin in the blood and body fluids, and this expectation is confirmed by the high percentage of cases (from 92 to 100) in which a positive Wassermann reaction occurs.

A negative reaction, therefore, may be regarded as indicating the nonsyphilitic character of suspected lesions with a marked degree of certitude. It should always be the rule, however, to confirm the reaction by another when in doubt.

Tertiary Syphilis.—As in this stage of the disease a positive reaction is found in from 90 to 96 per cent. of untreated patients, and in from 75 to 80 per cent. of patients who have had more or less treatment, a negative reaction is of decided value.

This is a favorable place in which to emphasize that the results of the Wassermann test—or any other method of examination—must always be interpreted in terms of the individual patient, and the occurrence of a negative reaction must never be allowed to overshadow the presence of suggestive clinical findings. If, however, in a suspected case the test is repeatedly negative, especially when performed by different observers, the nonsyphilitic character of the lesions is very probably assured.

Cerebrospinal Syphilis.—While in this class of cases the Wassermann test is positive in a high proportion, it must not be overlooked that a definite number of such positive reactions will be with cholesterinized antigens, the cholesterin-plus reaction, other antigens being negative. This must be noted because, in the absence of fixation with other antigens, the cholesterin-plus reaction is looked on as without significance by some workers, and may therefore be reported as negative.

Also it must be remembered that occasionally in cerebrospinal syphilis the blood serum may be entirely negative while the spinal fluid is strongly positive, a condition probably due to the fact that antibodies pass from the blood to the spinal fluid only with great difficulty, the reagin being probably confined to the subarachnoid space.

In any event, the absence of cerebrospinal syphilis cannot be stated with certainty until a negative Wassermann reaction is secured with the spinal fluid, and such a negative reaction can be taken as very reliable evidence of the absence of syphilitic reagin.

Congenital Syphilis.—While the Wassermann test has been a valuable source of information and a valuable aid in the discovery of congenital syphilis, it is important to remember that the results are to a marked degree influenced by the time at which the examination is made.

It has been demonstrated that a considerable number of syphilitic infants may show a negative Wassermann reaction at birth and only react positively months later. It is advisable, therefore, when either of the parents is known to be syphilitic, to repeat the test on the child at 3, 6 and 9 months of age. If the reaction remains consistently negative, the probabilities are largely in favor of the infant's remaining free from congenital syphilis.

In untreated congenital syphilis in children 1 year of age or over, the test is positive in from 97 to 100 per cent. of cases, so that a negative reaction under these circumstances is of decided value and largely to be relied upon.

Latent Syphilis.—In this condition the spirochetes may often be dormant with consequently little tissue destruction and therefore only small amounts of reagin present, so that a negative reaction is of little significance.

For the proper evaluation of a negative Wassermann reaction in its relation to the diagnosis of syphilis, therefore, certain desiderata are necessary:

1. The test must be carefully and accurately made and intelligently applied to the study of the individual case.
2. The specimen must be secured with a clear realization of the various factors influencing the result of the examination.
3. The result of the test must be interpreted in conjunction with all the other findings in the case at hand.
4. A single negative reaction must not be allowed to overshadow other suspicious or suggestive data, and is best corroborated by subsequent repeated examinations.

THE NEGATIVE WASSERMANN REACTION IN ITS RELATION TO TREATMENT

The Wassermann test, at present, is virtually the only guide available for estimating the efficiency of treatment, and it is in this connection, perhaps, that undue value and reliance has been placed on a negative reaction, the result of attributing too great a significance to a single test and too little importance to technical details. It has been shown beyond question that in determining whether or not treatment can be safely discontinued, unless the test includes a cholesterinized antigen, implicit reliance cannot be placed in a single negative result.

Certain general principles must be adhered to if the Wassermann test is to be—as it must be—intelligently utilized as a guide to treatment.

1. A negative Wassermann reaction is of no value and has no significance if the test is made while the patient is still under medication. The specimen cannot safely be taken until from three to four weeks have elapsed after the cessation of treatment.

2. Treatment can never be safely discontinued until a negative reaction has been obtained with a cholesterinized extract.

3. A single negative reaction is not to be relied on as indisputable evidence of complete cure. It must be reenforced and corroborated by further negative reactions at appropriate intervals before the permanent absence of syphilitic reagin can be assumed.

4. A negative result occurring during or shortly after the ingestion of large amounts of alcohol is of no significance.

It may not be amiss here to discuss briefly the relation of the negative Wassermann reaction to the determination of the cure of syphilis. Much has been written in the past, and many caustic shafts have been leveled at the domination of the treatment of syphilis by the Wassermann test, but time tells its story and the increasing weight of experience has rendered the test well-nigh impervious to assault. Syphilis is a curable disease under certain conditions, but it is a wise man or a rash one who assumes the ability to tell when it has been cured. As far as can be ascertained, there are only three criteria by which the absolute cure of syphilis can be determined: (1) the contraction of a new chancre; (2) a persistently negative Wassermann reaction with both blood and spinal fluid, coupled with (3) the absence of symptoms of any kind.

We now know that, in a high percentage of so-called "Wassermann-fast" cases, cerebrospinal symptoms develop; persistent efforts are therefore indicated to make the Wassermann reaction negative.

The negative Wassermann reaction is the only available, reliable evidence at hand to determine the absence of reagin and consequently of interaction between the spirochetes and the tissues at the time of the test, and a single negative reaction is of no value per se as indicating the permanent absence of reagin.

The only safe plan to follow in deciding whether or not a sufficiency of treatment has been administered in a given case may be thus outlined:

1. After the completion of two courses of treatment (arsenicals and mercury), a Wassermann test should be made one month after treatment has been stopped.

2. If this is negative, no further treatment should be given, and the test should be repeated at the end of the third month following the cessation of treatment.

3. If this is negative, the test should be again repeated at the end of six months and one year after the cessation of treatment.

4. In the second year, the test should be repeated at least twice.

In addition, since we now know that involvement of the central nervous system occurs early rather than late in the disease, there is a growing opinion that no case should be dismissed until a negative spinal fluid Wassermann reaction has been obtained.

If consistently negative Wassermann reactions have been secured during the foregoing period, the patient may be dismissed from observation with a fair degree of safety; but he must be earnestly impressed with the necessity of having his Wassermann reaction taken at two or three year intervals during the remainder of life, if without symptoms, and at once if suggestive symptoms appear.

CONCLUSION

A negative Wassermann reaction is of value only when intelligently interpreted in conjunction with the other findings; a single negative reaction is of little value in the presence of suggestive clinical findings; and as evidence of cure, a single negative reaction is worthless.

SPONTANEOUS PNEUMOTHORAX: REPORT OF CASE, WITH RECOVERY

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Pneumothorax of the spontaneous type is of apparently rare occurrence. In conversation with many busy practitioners and with specialists in diseases of the chest, I found none who could recall having seen a case. Osler[1] states that it is an extremely rare condition and that, almost invariably, it is associated with serous fluid or pus. I feel, therefore, that this case should be reported both for its interest in itself and in order that the records may be amplified.

In the majority of the reported cases, spontaneous pneumothorax has been associated with some severe effort. In many instances, however, as in the one now reported, the condition has developed under ordinary circumstances and while the victim was at rest. It occurs usually in young adults and more commonly in males. In most of the cases there is no previous history of pulmonary disease. The onset is sudden and is usually accompanied by pain in the affected side, urgent dyspnea, cough and cyanosis. In most instances the severe symptoms last but a few days, and, after from eight to ten weeks, the air is completely absorbed. The physical signs in a typical case offer an easy means of diagnosis. Should there be any doubt, a roentgenogram is very characteristic.

The treatment in these cases should be merely symptomatic and by no means meddlesome. Absolute rest will usually relieve all the unpleasant symptoms. Should the dyspnea become severe, however, aspiration must at once be proceeded with; otherwise death from suffocation may result. The tear in the lung may act as a valve, allowing the air to rush in and then preventing its return. In the reported instances, no bad effects were noted from tapping. There was instant relief, with no return of the pneumothorax. The prognosis in all cases attended by recovery from the immediate effects is for a complete recovery.

REPORT OF CASE

History.—Nov. 13, 1919, J. F. R., a minister, aged 30, was referred to me by Dr. Walter Reedy, a laryngologist, who had been consulted by the patient because of dyspnea. Dr.

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[1] Osler, William: Textbook of Medicine.

Reedy, after an examination, made a diagnosis of pneumothorax of the left chest. The family history in the case was negative to tuberculosis, as both parents, three brothers and two sisters, all adults, were in good health. Twelve years previously, after a ride in the cold, behind a team, the patient had developed a pain in the left back so severe that he was unable to use the arm on that side. After three weeks, he felt completely well. This attack was probably an acute pleuritis. Four years before the present illness, he had a gastric disturbance, when the diagnosis of chronic appendicitis was made. At the same time, he had night sweats for a few months. Then followed a breakdown, which kept him from his studies for a short period. This he attributed to the effects of the indoor seminary life after he had been active in athletics for years. For the last few years, he had had pain in the region of the left shoulder. This pain could usually be "worked out." In later attacks, it spread to the region of the sixth and seventh ribs, beneath the left scapula, and each time had grown more severe. Immediately preceding the onset of his illness, he was unusually active and was in the habit of taking hard drives over country roads.

November 10, at 7 a. m., without any unusual effort and with no warning, the attack came on as the patient was dressing. The feeling was as of the sudden passing of gas from the stomach, filling the left back, then crossing to the front of the chest and descending to the base. There followed a period of unproductive coughing. He was unable to bend his body forward, and in order to pick up anything he was compelled to get down on his right side by flexing the knees. There was no real pain at the time, or any sense of suffocation. Later, however, there was a choking sensation, as if he were suffering from lack of air. An hour after the onset, he held services, but he could not preach because of the oppressive feeling in his chest. He had a mission several miles away; and, during the ride there in the buggy, he was compelled to sit sideways and be careful to avoid any jarring. Three hours after the onset, such excruciating pain came on that with every breath he was forced to grunt. The pain was unlike any he had ever experienced. In another hour, he held his second service; and he felt so well that he preached as usual. The nervousness and restlessness that had seized him now cleared up and his confidence returned. He ate well and retired early, but that evening could not sleep because of a sense of foreboding. He remained in the country on the following day, but on the third day came to the city for medical advice.

Examination.—The patient, who was referred to me on the fourth day of his illness, was well nourished and muscular, with a chest markedly well developed. His appearance was that of one under some physical strain. The face was slightly cyanosed, and he had a dry, irritating cough and some difficulty in breathing. When his clothes were removed, it was evident that there was no movement of the left chest, not even on deep inspiration. On the left side, tactile fremitus was completely absent and the apex beat could not be felt. The percussion note was markedly hyperresonant over the entire left chest, including the precordial area. Breath sounds were everywhere absent, and the vocal fremitus was greatly diminished. The heart sounds could be heard only under and to the right of the sternum, and the rate was 78. The coin sound could not be elicited. The right lung was negative, and the liver was not felt below the costal margin. The diagnosis of left-sided pneumothorax, made by Dr. Reedy, was confirmed, and a roentgenogram taken that afternon showed a complete left pneumothorax with the lung collapsed toward the hilus and no sign of fluid. In the right lung, a few small calcified spots appeared in the upper lobe and about the hilus.

The patient looked well and experienced few ill symptoms. From his appearance, the extent of the lesion would never have been suspected. The slight cyanosis and dyspnea, with no rise in temperature and a pulse rate a few beats above normal, gave no hint of the true condition.

Course.—The patient was sent to a hospital and put at complete rest. November 19, the tenth day after the onset, some movement of the left chest was detected, and rough, crumbling breath sounds could be heard over the upper lobe. At the same time, he experienced a sensation as of slight irritation in the left lung. From then on, the lung gradually expanded until, November 30, he had improved to the extent that breath sounds were everywhere heard distinctly, but at a distance, and vocal fremitus was increasing. The physical signs now resembled those met with in a thickened pleura, with the exception that the percussion note was hyperresonant. At the base in the midaxillary line, there was a small area into which the lung had not yet entered. The apex beat had returned to almost the normal position. A second roentgenogram by Dr. Jackson, December 3, showed a small amount of air in the pleural cavity at the base and the lung almost in complete expansion.

December 10, while out for a short walk, the patient felt a sudden pain in the left chest, radiating upward into the neck and down into the abdomen. He was very much frightened, as the pain was not unlike that felt at the onset of his attack. His surprise was great when he was informed that the lung had not again collapsed. On examination, however, a small area of flatness, about 3 inches (7.5 cm.) in diameter, had appeared at the base, in the midaxillary line. Under the fluoroscope, a small amount of fluid could be seen. For a few days, the effusion spread, then gradually disappeared, until at the end of ten days there was no sign of it. Its appearance was accompanied by no rise in temperature or pulse rate. In all likelihood, the pain was due to the lung expanding suddenly to all limits, and the effusion was consequent on the friction of the two pleural layers.

Outcome.—About Jan. 1, 1920, the patient felt so well that he was anxious to resume his duties. His strength had never been affected, and the pain and dyspnea had disappeared. Fluoroscopic and physical examinations revealed no sign of pneumothorax or effusion, but a thickening of the pleura posteriorly was apparent. Although urged to rest and to be extremely careful at least until spring, he disregarded the advice and took over an active service. For many months afterward, there appeared on occasions a return of the old deadening pain beneath the left scapula, but of late this has abated. The patient is now in excellent health, and on examination practically no difference in the two lungs can be found.

Three weeks after the onset, the patient was seen by Dr. Joseph Walsh of Philadelphia, and the roentgenograms were examined by him and by Dr. Pancoast. Their opinion was that the pneumothorax was due to the tearing of an old adhesion from the pleurisy of ten years before. They noted that a portion of the lung did not collapse about the seventh rib posteriorly, owing very likely to adhesions that did not break.

SUMMARY

A case of pneumothorax occurring in a healthy person under ordinary circumstances was likely due to the breaking of an adhesion from an old pleuritis. The hole in the lung closed in four hours, after which there were few unpleasant symptoms. There was no accompaniment of effusion or fever. In ten days the breath sounds began to return, and in three weeks there was almost complete expansion. The patient returned to his duties in two months. A recent physical and fluoroscopic examination shows a lung with complete return of function except for a slightly lessened expansion.

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Rabies in Portugal.—The *Medicina Contemporanea* gives the figures from the Lisbon and the Paris Pasteur institutes since 1893 for comparison. They show that the number of persons applying for treatment has constantly declined in Paris, from 1,648 in 1893 to 330 in 1913; the number since has risen a little. In Portugal, the number has increased from 367 in 1893 to 1,562 in 1913. Since then it has increased to 4,249 during the first six months of 1922. The mortality in Paris has ranged from zero to 0.5 and at Lisbon from zero to 0.82, but since 1913 it has not been above 0.15 at Paris and 0.32 at Lisbon. Lisbon has had five zero years to Paris' four, between 1893 and 1915.

FLAGELLATE INFESTATIONS AND INFECTIONS

GIARDIASIS, OR LAMBLIASIS; TRICHOMONIASIS; PROWAZEKIASIS, CERCOMONIASIS, CHILOMASTIXIASIS AND TETRAMITIASIS

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Because of the apparently increasing interest in the United States in the flagellates, and in compliance with numerous requests, a brief summary of the problem has been prepared from my Philippine records. No attempt is made to consider the biology of the parasites, because that is well done in a number of publications on parasitology.

LAMBLIASIS,[1] OR GIARDIASIS

The synonyms of the term lambliasis, or giardiasis, are flagellate diarrhea (in part), tropical diarrhea (in part) and monad diarrhea (in part). It may be defined as an infection or infestation, principally of the intestine, by *Lamblia intestinalis* (R. Blanchard, 1888), characterized by chronic diarrhea with intermittent acute exacerbations, digestive disturbances and nervous symptoms, or by the presence of the parasites without symptoms. *Lamblia intestinalis* is one of the common parasites, and lambliasis one of the common diseases, of the tropics. The intestinal or usual form of the disease is noted more than 1,500 times in my hospital records, and it is much more frequently encountered in ambulatory patients. It is, and has been for years, recognized by clinicians in the tropics as a disease of importance, particularly in children; and experimental reproduction and other research work are attracting more attention to it in temperate climates.

Predisposing Causes.—Infestation with *Lamblia* is cosmopolitan. Evidences of infection, with the production of harmful symptoms, is somewhat more restricted, and appears to be influenced by a number of factors, some of which at least are known. Tropical climate and the summer weather of the temperate zone favor the infestation and development of infection in carriers. Children are especially susceptible, and the infection is more severe in them than it is in adults. In the tropics, the infection is relatively higher and more severe among foreigners than among the native races. The presence of other diseases or debility from any cause is a noticeable predisposing factor. Other intestinal infections appear to predispose to lambliasis; but this probably is due to the frequent common sources of the various infecting agents, a fact which also explains the frequency of mixed infections.

Exciting Cause.—The disease is an infection by *Lamblia intestinalis,* acting alone or in conjunction with other somewhat similar parasites. For discussion of the biology of the parasite, any of the numerous books on animal parasites may be referred to. The methods of invasion and the pathogenicity for and locations in the human host may be discussed here. It is generally considered that the parasite has no free living cycle. Its transmission, therefore, must be directly or indirectly from one host to another; and there is ample evidence that such are the methods of transmission to the human host. The direct method from infected excretions to the mouth probably is important, particularly in children. Grassi infected himself with the cysts; and, recently, well controlled experiments have proved the practicability of this method of infection. The cysts are thrown off in great numbers in the discharges from infected persons and from animals, such as rats, rabbits and mice; but the duration of their infectivity under these conditions is not known, and therefore the indirect methods of transmission may not be accurately predicted. Stiles and Keister consider the carrying of the spores from infected discharges to food by the common house fly the most important method of transmission. These authors believe that *Lamblia* found in animals is a distinct species and that human infection is dependent on transmission directly or indirectly from a human host. Some students accept the specific identity of the human and animal *Lamblia*, and thus greatly broaden the infective opportunities.

It is generally recognized, and has been experimentally demonstrated in some cases, that water, vegetables, cereals and other foods may be contaminated with spores or encysted forms from the discharges of infected persons or animals, and that new infections occur through eating such infected substances. It has been suggested that the spores may be transmitted through the air, in dust, as is known to be the case with certain other parasites. The occasional infestation of the respiratory tract appears to strengthen this view as to a possibly practical method of transmission. In the vast majority of instances, invasion is through the mouth; but the occasional finding of the cysts in bronchiectatic secretion suggests possibilities of entrance through the respiratory system. The parasites are most numerous in the intestine, but have been found in the mouth, in vomited material, and in the discharges from liver abscesses which have been operated on. The pathogenicity of *Giardia* for the human host now is generally accepted, and certainly there can be no question of its disease-producing properties, at least under certain conditions. This fact is supported by numerous reports from various countries, and has been experimentally proved by inoculation, originally by Grassi on himself, and since that time by other investigators. Mice also have been infected by feeding the cysts of *Lamblia* from infected human discharges.

The principal argument against the pathogenic properties is the frequent presence of the organisms in persons without symptoms of disease. This argument formerly was applied to many bacterial and parasitic diseases, from cholera to amebiasis. Such an argument needs no reply, in the light of our present knowledge of infections and immunity.

Pathology.—The nature of the lesions and the methods by which they are produced are difficult to determine because (1) death rarely results from the pure *Lamblia* infection; (2) mixed infections are the rule, and (3) lesions found at necropsy may be due to or influenced by the associated parasites and bacteria. Such evidence as is available indicates that the parasites produce a catarrhal condition of the mucosa of the small intestine, and that either primarily or as secondary invaders they aggravate lesions of the intestine caused by other agents. It is not unlikely that the unknown cysts or egglike bodies sometimes encountered in sections through amebic and other intestinal lesions may be *Lamblia.* In their flagellate stage, the parasites probably are limited to the small intestine in distribution, except in diarrhea, when active forms frequently are seen in feces. Encysted forms are more or less constantly present in the formed stools when the small intestine is infested. That the cysts may reach more distant organs is shown by their presence in the contents of liver abscesses.

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[1] Although probably not zoologically correct, the word lambliasis is used for historical and sentimental reasons.

Symptoms.—Lamblia may be transiently present in the stools of persons showing no symptoms of disease. If permanent parasitism may be established without symptoms, it must be exceptional, depending on the many explanations of similar cases of infection with other pathogenic organisms. We have encountered no instance of prolonged parasitism without symptoms. The characteristic and usual symptoms of intestinal infection are a chronic diarrhea, with exacerbations and intermissions, during which there may be constipation, very much as is seen in amebic colitis. There is nothing distinctive about the diarrhea except its persistence and the difficulty in obtaining a permanent cure, particularly in children. The stools are of the usual type; and in severe cases there may be some tenesmus and blood, but this is exceptional. Microscopically, there is mucus, usually blood cells and either motile or encysted *Lamblia.* The parasites usually are quite numerous when the diarrhea is severe, and during intermissions only a few or no cysts may be found after prolonged search. In a child under my care for a pure infection of *Lamblia* for more than two years, and who was finally sent to the United States because of the persistence of the disease and the consequent anemia and lack of development, there were frequent periods of six or seven weeks when there would be no diarrhea, and only a few cysts could be found in the stools. Such intermissions invariably were followed with exacerbations of acute diarrhea, usually with some blood, and the specimens would contain myriads of the motile *Lamblia* organisms. More or less indigestion is usual in the well established cases, and occasional nausea and vomiting is not rare. The nervous symptoms complained of are irritability, insomnia and occasional headache. Infections elsewhere than the intestine, such as in the lungs, stomach and liver abscess, are so rare and so frequently associated with other diseases that they are only mentioned.

Diagnosis.—This is based on the persistent presence of *Lamblia* in the diarrheal stools for which there is no other logical cause. In the mixed infections with other flagellates, so often seen, *Lamblia* may be considered the most important causative agent. Diagnosis should not be made on a single examination, for obvious reasons.

Prognosis, Prophylaxis and Treatment.—The infection usually is a chronic one, particularly in children, and very resistant to treatment. Among foreign children in the tropics, where it shows its greatest intensity and persistence, it may be necessary to advise a change to a temperate climate in order to secure recovery. Public health measures consist in the proper disposal of feces, and the destruction of flies, rats, mice and other animals known to harbor the parasites. Important personal measures consist in using safe drinking water, avoiding uncooked food, and maintaining scrupulous cleanliness about the discharges, particularly where there are children. There is no known specific remedy. Various drugs, such as turpentine, ipecac, emetin, quinin, methylene blue, arsphenamin, arsenic and thymol, have been used intravenously, internally or by enema. Enemas are useful when there is diarrhea, and for this purpose a 1 : 2,000 solution of thymol has given me the greatest satisfaction. It is, of course, impossible to reach the breeding ground of the parasites in the small intestine by local methods. Of all internal remedies, thymol in 0.25 to 0.5 gm. doses given in capsule with lactose has given me the best results. General measures to conserve the patient's strength and control the diarrhea are indicated.

TRICHOMONIASIS

Trichomoniasis may be defined as an infestation or infection of the intestine, less frequently of the stomach, mouth, air passages, vagina, bladder and other organs, by species of the genus *Trichomonas,* characterized by no definite symptoms or by those due to local irritation.

Species of *Trichomonas* are among the most cosmopolitan and widespread parasites infesting man. Opinions regarding their influence in the causation of disease vary from the belief that they are entirely harmless, to the other extreme, in which they are charged with responsibility for severe dysentery and other pathologic conditions. The weight of evidence appears to attach slight importance to them when in small numbers in otherwise healthy persons, and to consider that their etiologic importance increases when in large numbers, or in persons already debilitated from other causes, or when, as usually is the case, they are associated with other parasites.

Etiology.—Infestations and infections with symptoms are reported from many countries. However, both infestation and the prevalence of disease symptoms are more frequent in the tropics. Children are more susceptible than adults, and the debilitated more so than the healthy. Foreigners are more likely to show symptoms of infection than are natives of the tropics. The biology of the various species of *Trichomonas* is not considered here. They are usually classed as strict parasites of man and other animals, with an encysted stage during which they are transferred directly or indirectly from one host to another. They usually enter directly into the digestive tract, but may be found in the respiratory passages, the vaginal and urinary canals and elsewhere. For convenience, the disease may be discussed as intestinal, respiratory and genito-urinary.

Intestinal Trichomoniasis.—This is the usual type and the one of most importance. As determined by stool examination, the percentage varies between 10 and 75, or more, of the inhabitants in different tropical localities. The number of persons harboring the parasites who show diarrhea or other symptoms which may reasonably be charged to the infection varies from 10 to 50 per cent. of all classes, and is much higher among those heavily infected. *Trichomonas intestinalis* is the species usually present, but various other closely allied flagellates frequently are associated with it. The pathogenicity of *Trichomonas* in diarrheal conditions is pretty generally accepted by experienced clinicians in the tropics, though not by all. Some even credit it with being the cause of dysentery among children. Mello-Leitao considers primary trichomoniasis, either alone or with *Lamblia* infections, the most common form of dysentery among children in Rio de Janeiro; and Escomel reports 152 cases of dysentery from the same cause in Peru. Derrieu and Raynaud report it from Algeria; Brumpt, in a patient from Tonkin, and many other observers from various places recognize the disease-producing properties of these flagellates. Lynch believes that *Trichomonas* found in the intestine, mouth, lungs and vagina is the same organism, and that it excites existing inflammatory conditions. He was successful in infecting rabbits both from cultures of the parasites and from infected secretions.

Symptoms.—The symptoms of intestinal infection are diarrhea, usually not severe, worse in the morning and accompanied by flatulence and more or less indigestion. There may be moderate secondary anemia, and usually there are nervous symptoms, such as irritability, insomnia and headache. Not infrequently *Trichomonas* occurs in the stomach as well as the intestine, and usually is associated with pronounced symptoms. One of the most interesting reports in this connection is that of Frank Smithies' two cases. In both of these, constipation was present instead of diarrhea. Other prominent symptoms were nausea, flatulence, abdominal distention, colicky pains, headache, neuralgia and exhaustion. Smithies suggests that the cleavage products of protein contained in large numbers of these parasites may be a not inconsiderable influence as (1) a gastro-intestinal irritant; (2) an altering metabolic change in digestive glands, or (3) a source of so-called intoxication symptoms, clinically.

Treatment.—The treatment is the same as that already given for lambliasis. The parasites are difficult to remove, and appear both by microscopic examination and by clinical symptoms to exhibit a periodicity in numbers, as is true of most pathogenic parasites. Vigorous special treatment is not indicated in the absence of symptoms.

Respiratory Trichomoniasis.—This type has been reported by a number of observers who consider the parasites pathogenic in the air passages, especially following some injury. Dolley reports a case of gangrene of the lung in which large numbers of *Trichomonas* were the apparent cause. They have been discovered in bronchiectatic sputum, and reported in cases of chronic bronchitis. Steam inhalations of creosote and terebene caused the disappearance of the flagellates, and was followed by recovery in two cases of bronchiectasis in my service. There is no method of determining the pathogenic rôle of the parasites in these cases, but, as in the gastro-intestinal type, their disappearance usually is simultaneous with improvement in the patients.

Genito-Urinary Trichomoniasis.—*Trichomonas vaginalis* is frequently found in the vaginal canal in women residing in the tropics. The same or a similar species is found in the female bladder and, rarely, in the male bladder. Those from the bladder usually are found in the urine, indicating more or less cystitis; but the part played by the flagellates in its production has not been sufficiently studied.

TETRAMITIASIS; CHILOMASTIXIASIS; CERCOMONIASIS; PROWAZEKIASIS

Flagellate protozoa belonging to these genera and species, and perhaps others not yet classified, are found inhabiting chiefly the intestine and occasionally other parts of the human body. Their distribution is widespread as parasites of man, several lower animals and invertebrates. Their association with diarrhea and other disease symptoms in man is cosmopolitan, but, as in the case of *Giardia* and *Trichomonas*, the highest incidence of infestation and the most frequent association with symptoms are found in the tropics. The methods of invasion are similar to those already described for *Lamblia*, which is by direct or indirect transmission of the cysts or spores from the discharges of one host to the digestive canal of another. This may take place directly by faulty personal hygiene, or indirectly by infected food and water or by flies, or perhaps even wind may carry the spores. The most interesting and important point in connection with these infections is the question of pathogenicity of the parasites, and here there is the widest difference of opinion. Some authorities consider the parasites harmless; but the weight of evidence among men working in warm countries assigns pathologic importance to them, at least under conditions of mass invasion of the parasites or decreased resistance on the part of hosts. Marques da Cunha and Torres consider *Chilomastix* the cause of chronic diarrhea in children in Brazil, and Gobel reports similar conditions in Tunis.

The symptoms and treatment of intestinal infections, which are the only ones of medical importance, are similar to those already described for *Lamblia*.

If the common parasites discussed briefly in this paper do not have pathogenic significance, they certainly "are an awful lot in bad company."

593 Market Street.

VITAMINS IN ICE CREAM *

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The study of the vitamins in ice cream has two points of value. In the first place, it adds an important item of a statistical nature to the evidence which is still accumulating concerning the accessory food factors; for the already large consumption of ice cream in the United States is on the increase, and popularity of the frozen sweet is bound to spread to other countries. Secondly, through the experiments here reported, one may estimate the effect of pasteurization and of freezing and storage on the vitamins in such a mixture as ice cream.

The plan of the experiment was to test the ice cream for the various accessory food factors before freezing, and to repeat the tests on the same mixture after freezing. White rats were used in the tests for vitamins A and B, the technic of Ferry [1] being followed. For the antiscorbutic vitamin, the procedure of Sherman, Lamer and Campbell,[2] with the following diet, was employed: soy bean meal (autoclaved), 83 per cent.; filter paper pulp, 3 per cent.; cod liver oil, 5 per cent.; dried yeast, 3 per cent.; calcium lactate, 3 per cent.; sodium chlorid, 3 per cent.

When the frozen ice cream was used as the source of the accessory food substance, it was first melted on the water-bath, care being taken that the temperature of the mixture did not rise above that of the room. Plain vanilla ice cream containing 10 per cent. butter fat was employed throughout the experiments.

VITAMIN A

Two kinds of protein were used in the diets for vitamin A study. One, casein-Merck, which had been heated in air at 105 C. for twenty-four hours and then extracted with hot alcohol and ether, contained traces of the fat soluble factor, with the result that the animals grew for from four to eight weeks at a subnormal rate and usually developed ophthalmia while still making this slow gain. On the other protein, casein-Harris, which was prepared from a good grade of commercial casein by dissolving in caustic alkali, and filtering sparkling clear, reprecipitating and washing repeatedly with alcohol and ether, the rats gained for a very short time or not at all, the cessation of growth occurring without evident ophthalmia. In all cases, if loss of weight on diets low in the A factor was allowed to proceed longer than a week, pulmonary affections, sore feet, diarrhea and extreme emaciation followed, and death could not be prevented by feeding vitamin A. It is important, in such feeding experiments, to give the source of vitamin A when the animal has merely ceased growing on the vitamin-low diet rather than after decline in weight has definitely set in.

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* From the Sheffield Laboratory of Physiological Chemistry, Yale University.

[1] Ferry, E. L.: J. Lab. & Clin. Med. 5: 735 (Aug.) 1920.

[2] Sherman, Lamer and Campbell: J. Am. Chem. Soc. 44: 165, 1922.

Mendel[3] has reported that 100 mg. of butter fat daily will provide fat soluble vitamin for growth to maturity of a rat on otherwise adequate diet. In the present series of experiments, 1 gm. and 0.5 gm. a day of the unfrozen and of the frozen ice cream, respectively, were fed in different experiments. When 1 gm. of ice cream (100 mg. of butter fat) furnished the sole source of vitamin A, normal growth was obtained. The same was true of the unfrozen mixture. When, however, 0.5 gm. of ice cream (50 mg. of butter fat), either frozen or unfrozen, was fed, subnormal growth was obtained. Here, then, is evidence that freezing has no effect on the growth-promoting power of the fat soluble vitamin and, basing our statement on Mendel's figures for butter fat, the preliminary pasteurization of the unfrozen mixture at 180 F. for one-half hour had no marked deteriorating effect on vitamin A in the mixture.

Rats, with ophthalmia of varying degrees of severity, on a diet low in fat soluble vitamin were cured by 1 gm. daily of either the unfrozen or the frozen ice cream. The ophthalmia in two rats was cured with as little as 0.25 gm. of frozen ice cream a day, which represents 25 mg. of butter fat. Growth was not obtained with this quantity of ice cream, however, until the eyes were entirely clear, and then the animals grew only at a subnormal rate.

VITAMIN B

Milk has not been considered a rich source of the water soluble vitamin. American investigators have never been able to duplicate the results with the small dosages found adequate by Hopkins.[4] Osborne and Mendel[5] obtained normal growth to maturity with 16 c.c. of fresh milk as a minimum. In ice cream, the milk and possibly the eggs used constitute the source of vitamin B. In the present series of experiments, 7.7 gm. of either the unfrozen or the frozen ice cream (equivalent to 15 gm. of milk) was the minimum satisfactory amount for normal growth, and some rats required 10.2 gm. (equivalent to 20 gm. of milk). Doses of both the unfrozen and the frozen ice cream equivalent to 5 and 10 gm. of milk were found to be distinctly inadequate as a source of vitamin B for inducing normal growth.

VITAMIN C

The potency of milk as an antiscorbutic varies with the feed of the cows and the treatment of the milk. The obscure history of the milk used in commercial ice cream and the pasteurization of the mixture raises doubt as to the value of the product as an antiscorbutic. Again, the high calorific value of the ice cream mixture prevents the ingestion of the large amount theoretically necessary even when resorting to forced feeding. Doses equivalent to 60 c.c. of milk were given, but as soon as scurvy developed the guinea-pigs refused to eat this amount. Guinea-pigs on the soy bean diet usually showed the first clinical signs of scurvy in from fourteen to sixteen days. When the animals were forced to eat the ice cream, the first appearance of the disease was delayed for one to seven days. Apparently, the animal was sustained by the forced feeding long enough for severe scurvy to develop; for classic clinical and postmortem pictures of the disease were obtained in practically all of the animals. Lack of appetite, lethargy, bloody diarrhea, prolapse of the rectum, sore joints and muscles, costochondral enlargements, sore eyes and loose teeth were observed, and on necropsy, extensive hemorrhages under the muscle sheaths and in the joints, gums and costochondral junctions.

Neither frozen nor unfrozen ice cream in the maximum doses possible caused more than the slightest delay in the appearance of scurvy. In no case was protection afforded.

SUMMARY

Vitamin A was present in the typical samples of ice cream in such concentration that one may conclude that no noteworthy alteration in its potency is caused by pasteurizing or freezing. Normal growth was induced by 1 gm. of the ice cream, and ophthalmia was cured by 0.25 gm., containing 25 mg. of butter fat.

The vitamin B of the ice cream can be accounted for by the equivalent quantity of milk used in it. Freezing had no effect on the vitamin B in the ice cream used. The ice cream, which was made from pasteurized products, contained no significant quantity of vitamin C.

INFLUENCE OF DIET ON BLOOD GROUPING *

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Since their discovery by Landsteiner and Shattock, working independently in 1900, isohemagglutinins have been studied extensively by Hektoen, Ottenberg, Moss, Jansky, Gay, Brem and many others. Their practical application in blood transfusion requires no comment here. During this time, the investigators have uncovered many interesting and practical facts in regard to the character and mechanism of these isohemagglutinins. Among the influencing factors may be mentioned heat, desiccation and disease. No reference in regard to diet as a definite factor in this respect has been noted.

We believe that diet does play a part in influencing isohemagglutinins, especially in Group III blood, and that it should be taken into consideration to avoid untoward results. The question of diet was brought to our attention in the following manner: This laboratory, like others, keeps on hand for blood grouping purposes the serums of Groups II and III. The serums are obtained from the laboratory personnel. Occasionally, difficulty was experienced in securing a Group III serum that was high in isohemagglutinin or was of good keeping quality, notwithstanding the fact that the same blood had yielded an excellent serum on a previous occasion.

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[3] Mendel, L. B.: New York State J. Med. **20**: 212 (July) 1920.

[4] Hopkins: J. Physiol. **44**: 425, 1912.

[5] Osborne, T. B., and Mendel, L. B.: J. Biol. Chem. **34**: 537 (June) 1918.

* From the U. S. Naval Medical School.

Then, again, it was noticed that, in attempting to group such a blood, unsatisfactory results were encountered: the cells of this Group III blood would not properly agglutinate with a definite Group II serum; so that, unless one was alert, a Group III would be classified as a Group I (Jansky) or a Group IV (Moss). This difficulty was never experienced with groups other than Group III. Several instances occurred in which a donor, classified under Group I (Jansky) or Group IV (Moss) was subsequently found to belong to Group III. The error was detected by a direct match with a recipient's blood which was a definite Group I (Jansky) or Group IV (Moss). When this occurred, inquiry always revealed that the Group III subject had been on a diet insufficient in greens. This led to a more or less empiric policy of placing men of Group III on a diet rich in greens before using their serums for grouping purposes. The results obtained were excellent.

TABLE 1.—ORDINARY DIET

		Group II (Serum)	Group III (Serum)
Group I (Cells)..	A.	No agglutination	No agglutination
	B.	No agglutination	No agglutination
	C.	No agglutination	No agglutination
		Group II (Serum)	Group III (Serum)
Group II (Cells).	D.	No agglutination	Strong agglutination
	E.	No agglutination	Strong agglutination
	F.	No agglutination	Strong agglutination
		Group II (Serum)	Group III (Serum)
Group III (Cells).	G.	Weak agglutination	No agglutination
	H.	Weak agglutination	No agglutination
	I.	Weak agglutination	No agglutination

TABLE 2.—GREEN-FREE DIET

		Group II (Serum)	Group III (Serum)
Group I (Cells)..	A.	No agglutination	No agglutination
	B.	No agglutination	No agglutination
	C.	No agglutination	No agglutination
		Group II (Serum)	Group III (Serum)
Group II (Cells).	D.	No agglutination	Strong agglutination
	E.	No agglutination	Strong agglutination
	F.	No agglutination	Strong agglutination
		Group II (Serum)	Group III (Serum)
Group III (Cells).	G.	Very weak agglutination	No agglutination
	H.	Weak agglutination	No agglutination
	I.	Very weak agglutination	No agglutination

TABLE 3.—GREEN DIET *

		Group II (Serum)	Group III (Serum)
Group I (Cells)..	A.	No agglutination	No agglutination
	B.	No agglutination	No agglutination
	C.	No agglutination	No agglutination
		Group II (Serum)	Group III (Serum)
Group II (Cells).	D.	No agglutination	Strong agglutination
	E.	No agglutination	Strong agglutination
	F.	No agglutination	Strong agglutination
		Group II (Serum)	Group III (Serum)
Group III (Cells).	G.	Strong agglutination	No agglutination
	H.	Strong agglutination	No agglutination
	I.	Strong agglutination	No agglutination

* Jansky classification is used. Group IV (Jansky) or Group I (Moss) is not available. The technic is essentially that of Lee and Minot as described in "The Principles of Immunology" by Karsner and Ecker. Letters A, B, C, etc., refer to men of each group.

In order to arrive at a definite conclusion, three men each of Groups I, II and III (Jansky) or IV, II and III (Moss) were grouped and placed on a green-free diet for a period of four days, and again grouped. These men were then placed on a diet consisting of a large quantity of greens for four days, and grouped again. The results are shown in the accompanying tables.

It will readily be seen that the grouping of the Group III Cells was influenced to a remarkable degree. It cannot be said, however, that there was a definite change of group.

SUMMARY

1. Diet apparently influences the serum of Group III blood.

2. Diet apparently interferes with the proper agglutination of cells of Group III blood in Group II serum.

3. As we were handicapped by lack of sufficient material, the series is, as we realize, entirely too small to form a basis for definite conclusions. However, we consider these findings sufficiently practicable to stimulate investigation along this line.

THE DIAGNOSIS OF EPIDEMIC ENCEPHALITIS *

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Epidemic (lethargic) encephalitis is one of three important inflammatory, nonsuppurative diseases of the central nervous system which have certain features in common. Each regularly, at least in the more severe cases, affects to some degree the whole cerebrospinal axis and its meningeal coverings; but there is nearly always a maximal involvement of some particular portion which determines the principal symptomatology in any given case. The other two diseases to which I refer are acute poliomyelitis and syphilis. To distinguish the three diseases from one another and from other diseases, it will be helpful to bear in mind a few of their salient pathologic features.

POLIOMYELITIS AND ENCEPHALITIS

Poliomyelitis and encephalitis both affect the interior of the nervous organs more than the meninges, and gray matter more than white matter. In both we have collars of inflammatory cells about blood vessels; but neither tends to cause occlusion of the blood vessels. The meningeal inflammation is slight and only microscopic in both, but more marked in poliomyelitis; hence the greater tendency to meningitic signs, such as Kernig's sign and stiff neck and back, in poliomyelitis. Each disease really is poliencephalomyelitis, but one principally affects the brain and the other principally the cord. Hence there is little difficulty in distinguishing between the two if we have a pure brain picture or a pure cord picture.

There is a place, however, where brain and cord meet, namely, the medulla oblongata; and with an acute inflammation there, producing an acute bulbar paralysis, we are often at a loss when it comes to making a diagnosis. If the patient should live long enough, the appearance of atrophy, reaction of degeneration, and residual flaccid paralysis of the affected muscles would almost settle the diagnosis in favor of poliomyelitic infection, as the less severe inflammation caused by the encephalitic virus rarely causes sufficient destruction of ganglion cells to produce these sequels.[1] But the patient usually dies in a few days, and as there are no distinguishing laboratory tests, we are left to guess. I have seen several such cases; those occurring in summer I called poliomyelitis, those in winter encephalitis, and when I saw one in the fall I just held up my hands. Necropsy was refused, but it is by no means certain that histologic examination would have settled the question. Very likely there would have been too little ganglion cell destruction for typical poliomyelitis, perhaps a trifle too much for typical encephalitis, while the perivascular inflammation which undoubtedly would have been present is common to the two.

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* Read before the Englewood Branch of the Chicago Medical Society, Nov. 7, 1922.

[1] However, localized degenerative muscular atrophy in an unusual case of epidemic encephalitis also complicated by optic neuritis has been described by Julius Grinker: J. Nerv. & Ment. Dis. **52**: 323 (Oct.) 1920.

Even with the main symptoms relating to the pons and ocular nerve nuclei in the midbrain the same doubt may exist, and only the addition of symptoms referable to the basal ganglions will settle the diagnosis in favor of the encephalitic virus. There have been whole epidemics of such borderline cases, particularly the famous one in Australia, where the nature of the infection remains unsettled. Even animal inoculations on a large scale do not always settle the question, as the disease produced may also be betwixt and between, and the globoid bodies or pleomorphous streptococci likely to be encountered may be claimed for either disease. Neutralization experiments with a known virus might be helpful, but they are laborious and very expensive.

SYPHILIS

Syphilis does not so often produce clinical pictures resembling encephalitis. However, there are a few reports of cases of syphilitic inflammation of the midbrain in which the clinical resemblance was very close.[2] The most interesting point connecting these two diseases is the apparent existence in encephalitis as well of a "para" stage, i. e., of progressive cerebral disease coming on long after the acute illness, and separated from it by an apparently normal interval. This is particularly true of the postencephalitic parkinsonian syndrome. It is probably not yet known by all physicians that this condition may come on long after the acute illness which often was so mild that it is forgotten, so that it is necessary to ask the patient about it. I have seen many cases in which a diagnosis of previous acute encephalitis could be positively made by the character of the subsequent affection, just as the nature of a doubtful and, at the time, trivial venereal lesion many years later is made clear by the appearance of tabes or paresis. I have now under my care a young woman who had a rather mild acute attack, recovered, married, and had a child. Then she gradually developed a severe parkinsonian syndrome so that she even became unable to feed herself and walk. Another case is that of a stenographer, aged 26, who had a typical and rather severe attack in February, 1919. There was a general tremor at first, and it persisted in the left foot for about half a year. Then she was perfectly well until July, 1921, when the tremor reappeared in the left leg. It was typically parkinsonian, present with the foot at rest, suppressed during voluntary movement. A third case is that of a professional man, aged 38, who came to me a few days ago with a constant side-to-side tremor of one foot, of a few months' standing, of parkinsonian type, and no other symptoms. He told me that he had a mild attack of influenza two years before; he did not have to go to bed, but stayed at home several days because of double vision, which was the first and the most troublesome symptom. Of course, what he had at that time was a mild acute encephalitis.

If we are not aware that a long normal interval may intervene, we shall make the mistake of regarding these patients as victims of true paralysis agitans. To be sure, such a mistake is not so very serious as the treatment is virtually the same, and in these late forms the resemblance both as to character of tremor and as to progressiveness of course to true paralysis agitans is closer than in cases in which the parkinsonian syndrome develops during the acute stage and persists as a sequel. In these late recurring cases the onset of tremor and rigidity is usually very gradual, and there is no reason to assume that a fresh infection from without has taken place. The view is gaining ground that the virus, like that of syphilis, may remain dormant for years, and then give rise to a more chronic and degenerative process than the one encountered in the typical disease. Necropsy returns from old and prolonged cases begin to come in and substantiate this view. In a case of two years' standing, König[3] found in the corpus striatum proliferation of neuroglia and calcareous deposits in the small vessels. In the pons and medulla he found glial proliferation, invasion of ganglion cells by phagocytes, and perivascular infiltrations of plasma cells and lymphocytes. In this country, Globus and Strauss[4] have described a primarily subacute form in which early diagnosis is extremely difficult. Four such cases were examined postmortem, and the most striking change consisted of proliferation of the adventitia of vessels and organization of new connective tissue and new blood vessels—in other words, changes quite similar to those of the late stages of syphilis. This view, that the so-called sequels are really manifestations of a chronic and often progressive process, has the support of such exeperienced investigators as von Economo in Vienna and Netter in Paris. The other view has been that the acute disease may leave lesions behind in the basal ganglions analogous to those produced by illuminating gas and manganese poisoning, with the later tissue changes purely degenerative and secondary, and no active virus or toxin operating. Another resemblance between encephalitis and syphilis is the occurrence of the Argyll Robertson pupil. While not common in the former disease, it certainly is encountered.

SEQUELS

Several rare conditions may be sequels of acute encephalitis, and their presence may lead to a retrospective diagnosis of the original infection. I may mention so-called hypophysis syndromes with adiposis, polyuria and genital atrophy,[5] myasthenia,[6] progressive lipodystrophy,[7] and a very oily seborrhea of the face (Salbengesicht).[8]

Certain mental states, especially in children, are found so frequently after encephalitis that their presence should lead to careful inquiries as to a possible acute attack. Thus, Kirschbaum[9] reports four cases of encephalitis in children followed by a change in personality without mental deterioration. The first three patients showed asocial tendencies, in one case reaching the degree of actual "moral insanity." The fourth patient presented a hypomanic state, boiling over with activity and happiness. The author is at a loss to explain the relationship between a more or less focal brain disease and the psychic transformation. It is striking that similar conditions have not been reported in adults in whom we find nervousness, depression, disinclination for work, exhaustibility and deterioration, but not this kind of character change.

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[2] Achard, C., and Rouillard, J.: Bull. et mém. Soc. méd. d. hôp. de Paris **45**: 130 (Feb. 11) 1921. Guillain, G.; Jacquet, P., and Lechelle, P.: Ibid., p. 74.

[3] König, Otto: Ztschr. f. d. ges. Neurol. u. Psychiat. **75**: 221, 1922.

[4] Globus, J. H., and Strauss, Israel: Subacute Epidemic (Lethargic) Encephalitis, Arch. Neurol. & Psychiat. **8**: 122 (Aug.) 1922.

[5] Stiefler, G.: Monatsschr. f. Psychiat. u. Neurol., August, 1921. Bertolani, A.: Riv. sper. di freniti **45**, 1922. Barkman, A.: Acta med. Scandinav. **56**: 188 (March) 1922.

[6] Sarbo, A.: Orvosi hetil. **65**, 1921.

[7] Sarbo, A.: Orvosi hetil. **65**, 1921.

[8] Stiefler, G.: Ztschr. f. d. ges. Neurol. u. Psychiat. **73**: 455, 1921.

[9] Kirschbaum, Max: Ztschr. f. d. ges. Neurol. u. Psychiat. **73**: 599, 1921.

Psychic sequels in six children are described by Bonhoeffer.[10] In the acute stage there had not been parkinsonian symptoms but delirium, disordered sleep, ocular symptoms and, in some cases, panting respiration. After the recession of the acute phase, the children became talkative, bold, obtrusive, without respect and inhibition and unsocial, with occasional emotional outbreaks. There was no hereditary psychopathic predisposition, so the encephalitis itself must be considered the sole cause. No such transformation of the personality was observed in adults, who merely displayed diminution of activity and volition.

Staehelin,[11] an assistant in Blueler's clinic, Zurich, has contributed a long article on the psychopathology of the postencephalitic states. A peculiar case of postencephalitic mental disorder in a girl, aged 13 years, observed at the Psychopathic Hospital, was recently presented to the Chicago Neurological Society by Neymann.[12] A normal child prior to the attack of encephalitis a year and a half before, she now was an "inveterate liar, extremely incorrigible, quarrelsome, bit the other children, cuffed them, knocked them down and finally put pins in the tips of her shoes and kicked them." [13]

Kauders [14] describes "moria-like and defective states" as occasional sequels. From the large material of Wagner von Jauregg's clinic in Vienna, he has selected six cases, all in persons from 5 to 17 years of age. Some of these patients showed a typical moria-like mental state with desultory thinking, silly cheerfulness, with fondness for making puns (witzelsucht), a condition frequently described in connection also with frontal lobe tumors. In some cases motor restlessness was marked, the picture suggesting the old term "hyperkinetic motility psychosis," coined long ago by Wernicke. Mannerisms and stereotyped movements were also present in these postencephalitic cases. Finally, in several cases a neurasthenic or psychopathic state gradually developed, with interrelation of motor disturbances and psychic peculiarities. Characteristic of the whole group is the organic, neurologic substratum of the psychic manifestation.

Also in adults, conduct disorders indicative of lowering of ethical standards may call attention to preceding encephalitis. One day two women came to my office and related how the husband of one of them had stood up masturbating in front of an open window in full view of the other woman and her daughter across the alley. This had been repeated on several occasions. The wife added that her husband had changed since he had the influenza, had become indolent and shiftless, and had lost his desire for normal sexual gratification. I sent for the man, and he presented the typical postencephalitic parkinsonian syndrome. He did not have a real psychosis; he was rather anemic, and much discouraged. He rapidly improved when given encouragement, and gave up both exhibitionism and masturbation.

I have dwelt so long on these psychic sequels because I believe they are, as yet, little understood in this community. There are not only postencephalitic pseudoparkinsonians, but also postencephalitic pseudoschizophrenics, even pseudomorons. The possibility of preceding encephalitis should always be looked into. Another advantage to be gained by careful catamneses is the possible recognition of abortive types of the acute illness. These are probably very common, but so far we have lacked criteria for their recognition.

DIAGNOSIS OF THE ACUTE STAGE

The condition of the spinal fluid has been described at length by Kraus and Pardee,[15] and more recently by Eskuchen.[16] The latter summarizes the available data, stating that there are two spinal fluid syndromes which may be considered fairly characteristic:

A. Pleocytosis. Globulin increase. "Luetic" gold curve. Hyperglycorhachis (sugar increase).

B. Cell-globulin dissociation (high cell count in proportion to the amount of globulin.) "Luetic" gold curve. Hyperglycorhachis.

In children, tuberculous meningitis offers great diagnostic difficulty, but in this disease the sugar content is usually diminished, the gold reaction occurs in the higher dilutions, and the cell count is usually higher.

Botulism may closely resemble epidemic encephalitis both clinically and postmortem. Thus, Geiger [17] relates a case from San Francisco in which a clinical and anatomic diagnosis of encephalitis stood unchallenged until *Bacillus botulinus* was isolated from the medulla oblongata.

Tumors of the third ventricle and basal ganglions may be clinically identical with encephalitis, running a febrile course, with rigidity, characteristic tremors, etc. I have reported such a case.[18] The same is true of localized basal meningitis with extension to the third and fourth ventricles.[19]

In the early stages I have had difficulty in excluding such diseases as typhoid fever, acute miliary tuberculosis and chorea; and in cases of slow onset with little fever, the differentiation from catatonic dementia praecox, hysteria, and episodes of excitement in the feebleminded. In one child, even muscular dystrophy has been troublesome. Cases with predominating spinal cord involvement seem to exist and are most difficult, as are those complicated by preexisting chronic nervous diseases, such as cerebrospinal syphilis and multiple sclerosis. Altogether, no disease makes greater demands on the all-around knowledge of the diagnostician than epidemic encephalitis.

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Ophthalmology in Ecuador.—As late as the seventies, ophthalmology was unknown in Ecuador. It was introduced by Dr. E. Gairaud of the Montpellier (France) school, who was appointed dean of the Quito Medical School in 1873. The first cataract extraction was made by Dr. Antonio Falconi in 1878

ULCER OF THE STOMACH AND DUODENUM

DIAGNOSIS AND TREATMENT FROM THE ROENTGENOLOGIC STANDPOINT

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NEW YORK

The literature of twenty-five years ago discloses the fact that chronic ulcer was hardly recognized by pathologists of the time, and the clinical picture of the disease was entirely overlooked. The presence of ulcer was usually suspected through the occurrence of hemorrhage, perforation or pyloric stenosis. We owe our knowledge of the pathology and symptomatology of chronic ulcer primarily to surgical exploration, but roentgen-ray study of ulcer, in more recent years, has opened an entirely new avenue of approach. The accurate location of the site and determination of the kind of lesion, or a definite negative diagnosis, can now be attended with only a small percentage of error; and the employment of this method of study in gastro-intestinal cases, in general, makes possible the accurate diagnosis of a variety of ulcer-simulating lesions. Roentgenology, used more and more as a routine, is destined to have a far-reaching effect on our conceptions of the symptomatology of the disease, the prognosis of different types and sites of ulcer, and the actual results of treatment which may be expected for each particular lesion. The data on ulcer which emanate from surgical clinics are misleading, because the surgeon deals so largely with cases of long duration, unrelieved disability or established accidents of the lesion.

In the course of years, the opportunity has arisen to examine, from the roentgen-ray and clinical standpoint, a considerable number of patients with ulcers of varying kinds and duration. Many of these patients have remained under immediate or remote observation for months or years; and, as a result, our opinions on various phases of the ulcer problem have been decidedly influenced, and our handling of patients considerably modified.

RELATIVE DEPENDABILITY OF ROENTGEN-RAY AND SYMPTOM DIAGNOSIS OF ULCER

The one important symptom in the diagnosis of ulcer is localized epigastric pain, distress or gas, which comes on once, twice or three times daily, one-half hour to five hours after food ingestion. The diagnosis of ulcer is made without any other symptom or physical sign, especially if there are also definite food ease and periods of remission. The exceptions to this rule are so few that I am suspicious of ulcer in spite of negative findings. It is surprising that ulcer is still so generally overlooked, from the clinical standpoint, in view of all that has been said in recent years about this pathognomonic symptom. I always feel that, in spite of the demonstration of other lesions, at least a superficial ulcer may be present. The roentgen-ray evidence of ulcer may fail because of incomplete study or the overlooking of definite evidence; but nevertheless there is a small proportion of cases of ulcer, possibly 5 per cent., in which the roentgen-ray diagnosis is unsuccessful, owing to the peculiar character or position of the lesion.

In the absence of this pathognomonic symptom, the diagnosis of ulcer is absolutely uncertain except by a roentgen-ray study. We have no idea as to the number of these cases because they have so largely passed unrecognized. Certainly, we see occasional perforations of ulcer and hemorrhage from ulcer, with not the slightest previous history of pain, and we see patients who continue to bleed more or less for years without suffering any suggestion of pain.

Gastric ulcers give rise at times to an atypical distress, persistent nausea and vomiting, belching or sour eructations, and the only hope of a definite diagnosis is serial roentgenology or exploration. It is in these atypical cases that the question may well arise as to whether the roentgen-ray series enables us to differentiate sharply between an active and a healed lesion. As this question, even at operation, is sometimes difficult to answer, it is obvious that the problem is troublesome, especially in clinically doubtful cases and in those with persistence of symptoms after medical and surgical therapy. I think we must agree that the complete healing of ulcer is attended with the absorption of induration, to a degree that permits the normal passage of the peristaltic wave over the affected area. This occurs with striking rapidity when a second exploration of the stomach is made only a few months after a successful gastro-enterostomy, or when a serial roentgenographic examination is made. Penetrations or craters are seen to have filled, in some cases, even a few days after the inauguration of successful treatment.

Spasm of the musculature opposite the point of the ulcer, whether in the stomach or in the duodenum, strongly indicates the persistence of the lesion; and, when it disappears, we find that there are satisfactory end-results. The surgeon who sometimes sees white lines on the peritoneum, without underlying induration indicating the previous site of an ulcer, must remember that such a condition would not give rise to roentgenographic evidence of ulcer, as it does not affect the musculature at that point.

In the differential diagnosis between ulcer and cancer, we are seldom confronted with serious difficulties, because cancer is almost always an insidious lesion, free from symptoms during its early stages, and, by the time the case comes under observation, the lesion is well advanced and, in the majority of cases, is characteristic in appearance. I doubt that it is possible, on roentgen-ray examinations, to make an absolute differentiation between very early cancer and ulcer except in a lesion which surrounds the pylorus, and here the small growth, no larger than an English walnut, presents a characteristic roentgenographic appearance.

PROGNOSIS OF ULCERS FROM THE ROENTGENOLOGIC STANDPOINT

The actual morbidity and mortality of chronic ulcer, or the frequency of serious complications, are obviously matters of the greatest interest in advising treatment. As we have no figures relating to the incidence of ulcer per thousand, we can be guided only by those conclusions which are based on the statistics obtained from the various avenues of discovery and treatment. Furthermore, we are not now concerned with ulcer in general, but with an ulcer that can be shown in a definite place, having definite characteristics; and therefore our prognosis must be individualized with increasing accuracy.

So far as ulcer in general is concerned, we have a greatly exaggerated idea as to its dangers. Passing usually as indigestion, relieved when symptoms are active by a variety of simple remedies, or the ingestion of foods and fluids, ulcer is a much more common disease than has been imagined. This is especially true of duodenal ulcer, the incidence of which is very high. Those who see severe cases, or meet with resulting accidents, such as perforation or hemorrhage, are likely to have an entirely erroneous impression of the average gravity of the disease. I believe that the statistics which emanate from surgical clinics showing that from 15 to 25 per cent. of ulcers perforate or bleed severely are utterly fallacious. In the course of a long and busy career, a general practitioner will see few, if any, fatal outcomes from ulcer, although, perhaps unknowingly, he will probably have treated many cases.

Hemorrhage is an alarming phenomenon, but hemorrhage from ulcer is very rarely fatal. Certainly, the natural tendency of the chronic indurated ulcer of the duodenum is to remain in about the same condition for years. The old indurated ulcers, with much cap deformity, bleed severely or perforate in an extremely small minority of instances.

The percentage of stenosis from duodenal ulcer is too small seriously to force it on our consideration until it actually occurs, and, in a way, it would be fortunate if all duodenal ulcers ultimately caused stenosis, because gastro-enterostomy in these cases is nearly always perfect in its results. The general health is not appreciably affected by a duodenal ulcer. Year in and year out, we have seen many patients who have not been permanently affected by medical cures, and who have refused radical treatment, maintain their flesh and strength, suffering perhaps from a minor disability which requires annoying care in diet, in order to forestall or relieve exacerbations of symptoms.

Ulcers of the stomach are quite different from those of the duodenum in that their natural tendency is to increase in size of crater and induration. While these old ulcers rather rarely bleed severely or perforate, they frequently persist in giving rise to symptoms. The small ulcers which show penetration of the mucosa with little induration, ordinarily of comparatively recent onset, seem to be more dangerous so far as perforation or hemorrhage is concerned; but one can easily get an exaggerated idea of the danger of these ulcers from the roentgenographic appearance.

To what degree one may urge surgery for the removal of gastric ulcer, on the theory that cancer originates from ulcer, is extremely hard to decide. One cannot disregard the opinion of that group of pathologists and surgeons who believe this a frequent occurrence, although the evidence is not regarded as convincing by the majority of pathologists and clinicians. Certainly, the clinical picture of cancer, as we see it, is absolutely different from that of ulcer. Admitting a small percentage of such degeneration, it seems that the expected mortality from the routine excision of gastric ulcers would be much higher than the mortality arising from their degeneration into cancer if not excised, especially if one takes into consideration the fact that gastro-enterostomy will cure many gastric ulcers that are rebelious to medical treatment.

RESULTS OF MEDICAL AND SURGICAL TREATMENT OF ULCER FROM THE ROENTGEN-RAY STANDPOINT

Unfortunately, we do not know what produces peptic ulcers and makes for the stubborn persistence of such lesions. All treatments except excision are empiric, and how they affect ulcers is still questionable. The theory of infection seems extremely tenable; but, apparently, there are other factors that at least enter into the continuance of the lesion. While the removal of the tonsils and of local infections around the teeth has given rise in some recent cases to the most prompt and striking cures, the results in cases of long standing have proved disappointing.

Medical treatment gives prompt relief from symptoms in most duodenal ulcers and in some gastric ulcers. I see no advantage in the classic rest in bed ulcer cure, with all the expense and loss of nutrition it entails, except that the patient is thereby kept under better control. The prolonged individualized frequent feeding treatment as emphasized by Sippy gives equally good results if the patient is up and about and possibly attending to daily occupations. The length of treatment I regard as a most important point, measuring the period by months rather than by weeks. So far as we know, medical treatment merely establishes favorable conditions for the spontaneous healing of the lesion, a phenomenon which probably occurs much more frequently without treatment than is generally appreciated.

While duodenal ulcer symptoms are almost always well controlled by dietetic treatment, the lesion is infrequently cured thereby. In the follow-up roentgen-ray study, evidence of ulcer persists, and eventually the symptoms return. It is amazing how many times some of these duodenal ulcer cases have been pronounced cured, and, according to statistics, how small a percentage of failures follow medical treatment. However, the danger to life, particularly in old cases, is negligible, and the question arises whether we are justified in urging surgical intervention for what is usually a minor disability. The younger the patient, the greater the excuse for surgery. To operate on a patient of 60 or more, when the symptoms of duodenal ulcer can be controlled satisfactorily by dietetic treatment, seems almost absurd. When dietetic restrictions are extremely irksome or incompatible with earning a livelihood, a frequent recurrence of the disability, in itself, amply justifies operation, even without an attempt at prolonged medical cure. The sociological condition of the patient may be the deciding factor.

The percentage of cases of gastric ulcer relieved by medical measures is not so great as in duodenal ulcer. There is, however, a fair percentage of actual cures of gastric ulcer by medical treatment, even when the lesion is old and much indurated. Surgery should be urged after a single period of dietetic treatment, if the disability is not relieved and the lesion shows a progressive tendency. Many will be confirmed in this opinion because of the possibility of cancerous degeneration of the gastric ulcer; a sequel, however, which is practically never seen in duodenal ulcer.

SUMMARY AND CONCLUSIONS

The frequency of peptic ulcer has been greatly underestimated, and the relative danger of the lesion greatly exaggerated, because only the more severe and complicated cases have come under observation or have been recognized through clinical study.

Until we know more definitely the cause of the lesion and the reasons for its stubborn persistence, we can hardly hope for a specific cure and a satisfactory routine for the handling of these cases.

Meanwhile, treatment must be individualized on the basis of the site and the character of the lesion as shown by roentgen-ray study; the subsequently demonstrated change in the lesion; the amount of disability, and the presence of complications such as hemorrhage, perforation and stenosis. But, in addition to all these considerations, in reaching a decision as to a plan of treatment, we must give due regard to the life expectancy in the individual patient, and the economic necessity for absolute rather than temporary symptomatic cure, which is the frequent limit of medical therapy.

270 Park Avenue.

CHILD HYGIENE AND THE PRIVATE PHYSICIAN *

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ST. LOUIS

I do not believe that any one—physician or layman—is opposed to the basic aims of the child hygiene movement; that is, the lowering of the mortality rate for infants and children and the prevention of sickness. In its origin, the movement was largely medical, and was directed toward the study and prevention of specific diseases; as, for example, the intestinal diseases of infancy. In its development, the scope of the movement has become much broader, and is directed chiefly to the rearing and development of a healthy race of infants and children.

The methods so far employed may be grouped under three headings: (1) the use of specific means, as, for example, the crusade for pure milk or the use of toxin-antitoxin in diphtheria; (2) educational methods, including such diverse items as propaganda through the press, the holding of health exhibits, the teaching of health habits to groups of children in the schools and the visitation in the home by health workers, and (3) the direct supervision of the infant and child by the physician through clinics, or—a better term—welfare conferences. It is extremely difficult to estimate the relative value of the methods employed, as they are so largely interrelated, and it is much more important to raise the question as to whether the methods in use are the best or the ones capable of producing the greatest possible results.

The Infant Welfare Conference had its origin a few years ago in the establishment of summer clinics to care for infants with gastro-intestinal diseases. As an outgrowth of this, all the year round clinics were established in order to lessen the conditions which predisposed to the "summer diseases." As the work progressed, it was found that the essential need was not a clinic for sick infants but a clinic for well infants, a place where the babies could be watched and the mothers guided and instructed in their care. Thus, what started as a purely therapeutic or medical clinic gradually developed into a preventive medical conference. Many of the early clinics were established in connection with milk stations where pure and even free milk was distributed, a combination which we know today is wrong in principle, as the milk station exerts a bad psychologic effect on the nursing mother. The preschool clinic or conference had its origin in an attempt to save from waste much of the work of the infant conference, as experience showed that a large number of children developed physical defects between the time they left the supervision of the infant clinic and the time they entered school.

There are certain inherent basic defects in the welfare conference to which the infant or child is brough from time to time for examination by the physician an for advice and in which the physician's work is supplemented by the home visitation of the nurse or socia worker. First, the welfare clinic must limit itself to th well child, and this is the rule of the well run conference. Experience has shown that, when the well chil and the sick child mingle in the clinic, the greater par of the work and attention must be given to the sic child; and, as the essential purpose of the welfare clini is prevention rather than correction or therapeutics, th presence of the sick child defeats the very purpose o the conference. Furthermore, the mingling of sick children and well children is contraindicated from the medical standpoint. The conference physician is working to prevent the development of diseases or conditions of which he has no personal or intimate knowledge, and thus, in many ways, he is groping in the dark. He cannot advise accurately or fully regarding the prevention of disease tendencies in the individual child unless he knows the reaction of the individual when sick. Every physician knows the interdependence of health and sickness, and the observation of the child when sick is in many instances the most important factor in determining what to do when the infant or child is well. All this is lost, in large extent, to the conference physician.

A second fault is the failure of the physician to see the child in its normal every day surroundings. There is a close and intimate relationship between the physical condition of the child and its environment. The attempt, for example, to do nutritional work without a personal knowledge of the child's home, his parents and his life will not meet with much success. To try to replace this personal touch with home visits by the nurse or social worker and to obtain a comprehensive picture from their written or personal reports is at best an unsatisfactory and incomplete substitute.

Another element of weakness lies in the constant change in the clinic personnel. The child loses not only in passing from one conference to another as he advances in age, as from the infant to the preschool period, but also from the constant change taking place in the staff. No matter how complete the written record, the personal knowledge of the infant or child must be picked up anew by each physician. Even more frequent are the changes in the nursing staff. This lack of continuity of supervision as the infant develops into the child becomes more marked the more intensive the work of the health center becomes, and it is a difficulty that we are finding of increasing perplexity in our work.

Lastly, the conference method has a decided limitation in the number of children reached, as only a small proportion are enrolled in a given district or community. Welfare clinics have been free as a rule and classed among the "charities," and most clinics have fixed regulations limiting the attendance to those children unable to pay for a physician's services. Yet those of us who have worked both in the free conference and in private work realize that there is just as much need of health work among the children of the middle and well-to-do classes of society.

The best results can be obtained only if there is direct and constant supervision of the child through infancy and childhood by one physician, who sees the child in sickness as well as in health, and who has an intimate and personal knowledge of its parents, its home life and daily environment, its play and companions. Without a full knowledge of all of these factors, the value of

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* Read before the American Child Hygiene Association, Washington, D. C., Oct. 12, 1922.

irect supervision is limited and handicapped. Furthermore, this supervision must reach the children of all lasses and must not be limited to the economically ependent. If my objections and conclusions are valid, here is but one logical deduction, and that is that the erson in the ideal position to supervise the health and elfare of the infant and child is the private physician -the man in general practice.

If this is true, the question naturally arises, Why then s this work not done by the private physician? Why he necessity for the welfare clinic or conference? The nswer is simple: Unfortunately, the vast majority of hysicians in private practice are not qualified to supervise the development of the infant and child. Few ecognize its importance; fewer still are interested; nd, most important, even fewer have been trained to pply in general practice the methods which have met vith such success in infant and child hygiene work. The last thing I have in mind in making this statement s an unpleasant or undeserved criticism of the practitioner of medicine. It is a simple statement of fact hat is apparent to those interested in child hygiene vork. One of the most frequent statements made to ne by parents is to the effect that "Dr. ——, our hysician, is fine when the children are sick, but he has no interest in them at other times." The mothers of oday have been educated to ask for guidance in the ringing up of the infant and child, and the private hysician has not been educated to give it. Twenty-five per cent. of the infants coming to the welfare linics in St. Louis who are taking condensed milk food had been taken from the breast and put on condensed milk by physicians in private practice.

The fault or blame lies in the training and education of the private physician. In the past, and the same holds to a large extent at present, our medical students have been trained to think in terms of disease rather than of health, and our teaching, which has been almost entirely in hospitals or dispensaries, has been directed almost exclusively to the recognition and treatment of pathologic conditions. Such teaching as the student has received in hygiene or health has been of an abstract nature and not concretely applied to the individual. The lack of knowledge on the part of the private physician in regard to the hygiene and development of the infant and child is the fault of the physician's training, not of the physician. There must be a distinct change in the character of our pediatric teaching, and this change is already taking place in our better medical schools. For example, instead of spending hours over the classification and pathologic physiology of the nutritional diseases of infancy, the point that must be emphasized and driven home is the care and feeding of the normal infant: the prevention of disease must be stressed equally with the pathogenesis, diagnosis and treatment. When this is done, we shall have a group of men in our community interested in giving ideal supervision to the infant and child; but we cannot with reason expect this change to take place over night. As I have tried to point out, the methods themselves have been gradually evolving, and to ask or expect the entire group of busy practitioners of medicine suddenly to change their attitude is to ask and expect too much. Some of us are familiar with the difficulty as applied to many of the pediatricians themselves. If the principles and practice of child hygiene are as important as we believe them to be, the situation will automatically correct itself in time.

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Clinical Notes, Suggestions, and New Instruments

TETANUS WITHOUT EVIDENT PORTAL OF ENTRY

George W. Goler, M.D., and Charles M. Reitz, M.D.
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E. W., a man, aged 27, with a negative history, had a root filling put in a tooth, Jan. 3, 1922. January 15, the neck became stiff, and he was unable to open his mouth. On the 16th, he began to have tonic and clonic spasms, involving all the muscles of the body, particularly the extremities and abdomen. Thirst increased, sweating became profuse, and there was great irritability. On the 19th, 11,000 units of tetanus antitoxin was given subcutaneously by a local physician. January 22, he was removed to the Park Avenue Clinical Hospital, Rochester, where a diagnosis of tetanus was made. The spinal canal was tapped, and he was given 4,000 units of tetanus antitoxin intraspinally, 11,000 intravenously and 20,000 subcutaneously. The filling was immediately taken from the dead tooth, which was extracted on the following day. He was given 200 c.c. of a 25 per cent. solution of magnesium sulphate subcutaneously, and morphin as necessary in one-fourth and one-half grain doses. January 25, 26 and 27, he was given tetanus antitoxin subcutaneously, 10,000 units each day. On the 24th, his tonic spasms had become less frequent, the muscles of the abdomen and the extremities began to relax, the jaw could be more widely opened, thirst was not so constant, and sweating was less profuse. From this time on, the patient made an uneventful recovery.

This case is reported to emphasize tetanus without an evident portal of entry, though the period of incubation points toward the filling of the tooth as an explanation of the manner in which infection entered the body. There was slow progress of the disease, influenced, doubtless, by the administration of 11,000 units of tetanus antitoxin subcutaneously on the 19th. Finally, it is necessary to view any patient who has stiffness of the jaw and tenseness of the abdomen, accompanied by sweating, even in the absence of a wound, as a victim of tetanus.

During the present year, one of us has had two more cases of tetanus; both following wounds, and treated in the general manner described above, and in both of which the patients recovered. Two recent articles on tetanus should be kept in mind: that of Park and Nicoll[1] and that of Meltzer[2] of the Rockefeller Institute, in which he calls attention to the inhibitory action on nerves and muscles of magnesium sulphate when used subcutaneously. Here, although we see tetanus rarely, one of us having seen but twenty cases in recent years, we keep constantly on hand, as recommended by Meltzer, a 25 per cent. solution of chemically pure magnesium sulphate for use in tetanus.

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1. Park, W. H., and Nicoll, Matthias, Jr.: Experiments on the Curative Value of the Intraspinal Administration of Tetanus Antitoxin, J. A. M. A. **63**: 235 (July 18) 1914.
2. Meltzer, S. J.: Inhibitory Properties of Magnesium Sulphate and Their Therapeutic Application in Tetanus, J. A. M. A. **66**: 931 (March 25) 1916.

Accidental Deaths in New York City.—During 1921, as the result of accidents, 3,483 persons died in New York City. About 75 per cent. of all deaths (2,496) from accidents were of males, as compared with 987 of females. Persons at the extremes of life suffered most heavily from accidents—in other words, those least able to take care of themselves. The most important cause of accidental death, numerically, was the automobile. During 1921, 849 persons were killed as the result of automobile accidents. This is equivalent to a ratio of almost 15 per hundred thousand, and is a net increase of one per hundred thousand since 1919. Males suffered a death rate of almost three times the female. The heaviest mortality was between the ages of 5 to 14 years, the years during which children use the streets most for play, and when they are least careful.—*School Health News*, November, 1922.

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SATURDAY, DECEMBER 30, 1922

ANAEROBIC OXIDATION IN THE BODY

Since the chief end-products of metabolism are more highly oxidized compounds than the substances that serve as foods, it is customary to regard the life processes as primarily oxidative in nature. Oxygen is quite as important as is food, if it is not actually even more essential to most organisms. Despite this well accepted fact, the mechanisms by which oxygen does its life-supporting work are far from being well understood. Indeed, it has been one of the long standing puzzles of science how certain types of oxidative reactions that can be carried out with difficulty at best in the laboratory, and there often only at temperatures incompatible with life, proceed so readily in the tissues or fluids of the living organism. Whereas there are some substances that are easily oxidized by the oxygen of the air, others (including the foodstuffs) require the oxygen to be made "active," as it has been fancifully stated. In such "activations," enzymes have long been conceived to play a significant part.

Some time ago, Bach[1] suggested the existence of what he termed "hydrolytic oxidative-reducing reactions" to explain certain phenomena of oxidation that proceed without the presence of free oxygen. An illustration is afforded by the Schardinger reaction in milk.[2] If methylene blue and an aldehyd are added to fresh specimens of this fluid, the dye becomes reduced and the aldehyd oxidized. The theory assumes that, through the agency of an enzyme, water—HOH—is disintegrated to yield nascent hydrogen. The methylene blue serves as a hydrogen acceptor; the aldehyd, as the oxygen acceptor. Thus, reduction and oxidation occur simultaneously without the advent of free oxygen. Conditions are thus established for what may be termed anaerobic oxidation.

Morgan, Stewart and Hopkins[3] of the Biochemical Laboratory at the University of Cambridge, England, have shown the possibility of the occurrence of important biochemical reactions in this way. Certain animal tissues, as well as milk, are able to bring about the oxidation of xanthin and hypoxanthin to uric acid under strictly anaerobic conditions, if a "hydrogen acceptor," such as methylene blue, is present. The English biochemists discuss evidence favoring the probability that the catalytic system responsible for the anaerobic oxidation is not distinct from that which controls oxidation in the presence of free oxygen.

In this connection, it should be noted that Hopkins[4] has made the remarkable discovery of the existence, in tissues, of a dipeptid—glutathione—of which the constituent amino-acids are glutaminic acid and cystein, and in which the constituent sulphur-containing groups are capable of functioning in an oxidation-reduction system. Substances permitting such reversible processes thus may actually occur in the body. At suitable hydrogen ion concentrations, reduced glutathione is oxidized by molecular oxygen, and under similar conditions it freely reduces methylene blue. On the other hand, in the tissues there are factors present which promptly reduce the oxidized product whenever its concentration is raised above an equilibrium value.

In such ways, transfer of both oxygen and hydrogen becomes possible in the organism. Instead of being transferred to the experimental methylene blue, however, hydrogen becomes transferred to molecular oxygen. In both anaerobic and aerobic oxidations, the dipeptid accelerates transport and acts as a "carrier." In this sense it is a catalyst. Hopkins and Dixon[5] have found, further, that coexisting in living tissues with the specialized enzymic mechanisms is a thermostable mechanism for oxidations and reductions. Materials in some close association with structural elements are oxidized, anaerobically or aerobically, with the coagency of the sulphur group in glutathione. The problem of tissue oxidation is thus being subjected to analysis from new points of view.

CONGENITAL PORPHYRINURIA

The discovery of chemical anomalies in the body almost invariably excites attention because of the comparative rarity of the cases. There is an almost uncanny mysteriousness in the failure of a person, year after year, to burn up the amino-acid cystin, for example, which is liberated daily in equal measure by digestion in innumerable other persons and yet disappears completely in their metabolic processes, instead of being excreted unchanged as it is in the cystinuric person. Thus, cystinuria, pentosuria and alkaptonuria are a never-failing source of interest for the student of metabolism—an interest which has been greatly extended by the added discovery that such metabolic anomalies are frequently congenital in character. There are now on record numerous instances of these inherited chemical defects which persist through more than one generation, and seemingly are transmitted in accord with the principles of mendelian inheritance.

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[2] Schardinger, F.: Ztschr. f. Untersuch. d. Nahrungs- u. Genussmittel **5**: 1113, 1902.

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[4] Hopkins, F. G.: Biochem. J. **15**: 286, 1921.

[5] Hopkins, F. G., and Dixon, M.: On Glutathione, II, A Thermostable Oxidation-Reduction System, J. Biol. Chem. **54**: 527 (Nov.) 1922.

Another perversion of metabolism, resulting in the excretion of derivatives of the blood pigment in the urine and sometimes also in the feces, has often been observed in certain types of intoxication, notably with sulphonmethane, sulphonethylmethane and quinin. The result, hematoporphyrinuria, has been regarded as almost diagnostic of such forms of acute poisoning. Recently, however, the porphyrins have come even more conspicuously to the attention of the medical profession, since it has been shown that their presence in the body may sensitize it to light. Sufficient doses of hematoporphyrin have sensitized mice so that they become narcotized and die in a few minutes after exposure to intense light, a true "light stroke."[1] Furthermore, injection of hematoporphyrin into the circulation of a human subject has resulted in so sensitizing him to light that exposure to the sun caused severe skin reactions during a period of weeks, and exposure to the Finsen rays produced severe ulceration.[2]

For some time, cases of porphyrinuria, congenital in origin rather than following some intoxication with a drug, also have been on record in medical literature. The credit of having recognized the possibility that they represent a rare inborn error of metabolism belongs to Günther.[3] It advertises itself primarily by the distinctly abnormal color of the urine. The known cases do not exceed fifteen in number; and as in the instances of other comparable chemical anomalies, the incidence has been preponderantly in the male sex. The latest record is by Mackey and Garrod,[4] in whose case the evidence of congenital onset is more complete than in any other recorded. In the patient, a boy, porphyrins were present in both the urine and the feces in considerable quantity. As in previous cases,[5] he presented an association of porphyrinuria with extreme sensitiveness of the superficial tissues to light, as shown by annual eruptions of hydroa aestivale on the exposed surfaces of the skin. A unique feature was the deep pink coloration of the milk teeth; in fact, the porphyrin pigment seems also to have deposited in the skeletal bones.

With respect to the possible genesis of the persistent porphyrinuria, it is worthy of note that there is no excessive blood destruction, if one may judge by the comparative normality of the blood count. Mackey and Garrod have pointed out that, whereas in cases of the anomaly alkaptonuria the characteristic homogentisic acid, as evidenced by the staining power of the urine, is not present until after food has entered the alimentary canal, so that the abnormal metabolic product has an exogenous source, porphyrinuria appears not to be influenced by diet. They believe rather that the porphyrin is an intermediate product between blood pigment and bile pigment.

The description of these unusual facts, reminding one of the occasional records of the deposition of cystin in the tissues in rare cases of cystinuria, should stimulate clinicians to be on the lookout for further instances of disordered pigment metabolism. Perhaps they will help to explain dermatologic lesions for which a satisfactory causation is not easily ascertained.

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[1] Wells, H. G.: Chemical Pathology, Philadelphia, W. B. Saunders Company, 1920, p. 485.

[2] Meyer-Betz: Deutsch. Arch. f. klin. Med. **112**: 476, 1913.

[3] Günther, Hans: Deutsch. Arch. f. klin. Med. **103**: 89, 1911-1912.

[4] Mackey, L., and Garrod, A. E.: On Congenital Porphyrinuria, Associated with Hydroa Aestivale and Pink Teeth, Quart. J. Med. **15**: 319 (July) 1922.

[5] The Porphyrins in Pathology, editorial, J. A. M. A. **60**: 998 (March 29) 1913.

ASPECTS OF THE TUBERCULOSIS PROBLEM

There are many persons still living who can recall the discovery of the micro-organism responsible for tuberculosis, the disease described as "the commonest, most fatal and, perhaps, the saddest of all those which oppress mankind." With growing knowledge of its etiology and manifestations has come greater mastery over its ravages. The day is not far past when a diagnosis of consumption—a malady that was killing one seventh of all people born under civilization—was equivalent to signing a death warrant. Nevertheless, the problem of meeting this enemy of mankind has been faced with resolution and with a reasonable measure of success. Sunshine, food and fresh air have had their advocates in this connection. The outcome of the various proposals, whether they concern treatment in the home or in the sanatorium, has been decidedly encouraging; yet, despite the seemingly favorable progress, there is no unanimity of opinion with regard to some of the most fundamental factors in the tuberculosis problem. Almost from year to year there has been a succession of different points of view, attesting to the fact that there is much still to be learned, and indicating the danger of basing propaganda on debatable premises.

An illustration is afforded by the changing views with respect to the mode of infection in tuberculosis. As Landis[1] has recently remarked, for some years the trend of opinion was strongly in favor of the alimentary mode of infection, and many experimental studies were carried out which seemed to support this belief. Within the last few years, however, the pendulum has swung back in favor of the inhalation theory. One is probably safe in saying that infection through the intestinal tract, while accountable for some cases, is of minor importance as the portal of entry.

The occurrence of primary intestinal tuberculosis is, of course, well recognized, particularly in children. Their intestinal mucous membrane seems to be especially permeable, and the infection in them appears to be due to the bovine bacillus, presumably derived from milk, which has entered through the gastro-intestinal tract. On the other hand, there are abundant statistics to indicate that pulmonary tuberculosis is almost always caused by the human type of tubercle bacillus. This fact has an important bearing on the debated question as to whether the tuberculosis of adult life is invariably traceable to infection in infancy. In his Gross lecture before the Pathological Society of Philadelphia, Opie [2] of St. Louis pointed out that there is no universal agreement concerning the portal of entry of micro-organisms which produce pulmonary tuberculosis. Von Behring, as is well known, has maintained that phthisis is acquired in early infancy. Opie challenged this view. He admits that a small number of instances of phthisis acquired in childhood pursue an unusually chronic course and reach a fatal termination in adult life after the lapse of many years. But Opie asserts that von Behring's conception of tuberculosis acquired in early infancy appears to be disproved by the severity and almost invariably fatal course of tuberculosis acquired during the first year of life. A positive tuberculin reaction at this period is evidence of progressive tuberculosis, and suggests a grave prognosis.

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[1] Landis, H. R. M.: Tuberculosis, the Oxford Medicine **5**: 263.

There is excellent experimental evidence in support of the conclusion that various animals are far more susceptible to tubercle bacilli received through the air passages than to those ingested with the food. Opie finds no reason for believing that the results of the experiments are not applicable to human beings. Adults, he remarks, enjoy a relative immunity from tuberculosis because they are already infected. This immunity is only relative, and can be overcome by reinfection with tubercle bacilli in considerable amount, or by conditions, such as malnutrition, which depress the resistance of the individual. Tuberculosis of the lungs of adults, that is, phthisis, is caused by tubercle bacilli which reach the lung by way of the air passages, and measures adapted to prevent the dissemination of the micro-organism tend to limit the occurrence of the disease.

It is evident, accordingly, that the problem of prophylaxis hinges in no small measure on the theory of the pathway of infection. Despite the persistent uncertainty about the theory of phthisiogenesis, the importance of which should not be underrated, it is gradually becoming possible to express the results of the modern treatment of tuberculosis in tangible statistics. A recent compilation [3] of what has been accomplished at the Mount McGregor Sanatorium shows in a surprising way the outcome of a six-year attempt to rehabilitate tuberculous employees. Out of the 896 patients who were discharged from the beginning up to Dec. 31, 1920, and on whom a report was available as of Dec. 31, 1921, 719, or 80 per cent., were known to be at work; ninety, or 10 per cent., were unable to work, and eighty-seven, or 10 per cent., were dead. As might be expected, such data will vary with the condition of the patients on admission, a factor with which the ability to keep at work after discharge varies directly. The figures cited are not presented here as something exceptional, but rather to reemphasize the degree of success which the management of the tuberculous is meeting at the present day.

THE ALLEGED RELATION BETWEEN ALKALOSIS AND TETANY

The trend of the normal processes of metabolism is to produce acid substances, so that the problem of neutrality regulation involves, above all, effective elimination of acids. In acidosis, this capacity may become jeopardized. Owing largely to the writings of D. Wright Wilson and his co-workers,[1] the view has gained ground that at times there may arise a condition designated as alkalosis, in which the blood and consequently other tissue fluids attain an unduly alkaline condition. There is here an implication, at least, of an increase in the hydroxyl ions of the blood as an expression of the abnormal variation in the acid-base balance of the circulating medium. It has further been taught that at such a juncture there is a hyperexcitability of the neuromuscular mechanisms of the body, which may frequently be demonstrated by the lowered threshold of electric stimulation, and may even result in manifest tetany. Wilson found that injections of acid relieve the symptoms of the tetany attending removal of the parathyroid glands, and concluded that the alkalosis which he believed to exist was overcome by the acid. Furthermore, attention was directed to the occurrence of tetany after intravenous administration of large doses of alkali, notably soda solutions. Cases of gastric tetany in which pyloric obstruction is attended by loss of acid gastric juice through vomiting, or in which the acid thus secreted cannot enter the intestine and be returned to the circulation, have been put into the same category on the hypothesis that a surplus of base may remain in the blood.

Greenwald [2] of the Harriman Research Laboratory attached to Roosevelt Hospital, New York, has vigorously attacked the theory that alkalosis is the cause of tetany in any of the illustrative instances just mentioned. He cites the evidence offered by several investigators [3] to show that in fact there is no change either in alkalinity or in carbon dioxid-combining power after parathyroidectomy. Even after administration of large doses of sodium bicarbonate with consequent tetany, marked changes in the blood have rarely, if ever, been demonstrated. The retention of carbon dioxid becomes so large that the reaction is changed only slightly. According to Greenwald, the tetany, instead of being due to alkalosis, is attributable in such cases to the high concentration of sodium salts. When convulsions appear after the injection of sodium carbonate or bicarbonate, the concentration of sodium in the plasma is the same as when convulsions appear after the injection of sodium chlorid or sulphate. All sodium salts injected in large excess are toxic and, apparently, several of them are about equally toxic. In each case, there is produced a sudden and marked disturbance of the relation between sodium ions and other cations. Osmotic pressure plays a part, and the nature of the anion is not without significance. The toxic action, according to Greenwald, may depend on the ability of the sodium ion to penetrate the cell and thus upset the ionic equilibrium therein, or it may depend on its being unable to penetrate while combined with an anion that does, and in that manner damaging the cell by virtue of the electrical disturbance thus produced at the surface. But whatever the precise mechanism may be, he adds, there seems to be little doubt that the convulsions following the injection of sodium carbonate are due to what Greenwald[4] has called "sodium poisoning," a disturbance, attributable to excess of sodium ion, of the normal relations between this and other cations.

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[2] Opie, E. L.: Phthisiogenesis and Latent Tuberculous Infection, Am. Rev. Tuberc. **6**: 525 (Sept.) 1922.

[3] Howk, H. J.; Dublin, L. I., and Knudsen, I. A.: The After-History of 953 Tuberculous Patients Discharged from the Metropolitan Life Sanatorium from 1914 to 1920, Am. Rev. Tuberc. **6**: 707 (Oct.) 1922.

[1] Wilson, D. W.; Stearns, T., and Janney, J. H., Jr.: The Effect of Acid Administration on Parathyroid Tetany, J. Biol. Chem. **21**: 169, 1915. Wilson, D. W.; Stearns, T., and Thurlow, M. deG.: The Acid-Base Equilibria in the Blood After Parathyroidectomy, ibid. **23**: 89, 1915. Wilson, D. W.; Stearns, T., and Janney, J. H., Jr.: The Excretion of Acids and Ammonia After Parathyroidectomy, J. Biol. Chem. **23**: 123, 1915.

[2] Greenwald, I.: The Supposed Relation Between Alkalosis and Tetany, J. Biol. Chem. **54**: 285 (Oct.) 1922.

[3] Hastings, A. B., and Murray, H. A., Jr.: J. Biol. Chem. **46**: 233 (March) 1921. Underhill, F. P., and Nellans, C. T.: J. Biol. Chem. **48**: 557 (Oct.) 1921.

These newer criticisms of the widely accepted alkalosis theory of tetany aver that such convulsions are not due to any single cause. Any one of a multitude of disturbances in the equilibrium within certain tissues may be responsible. Convulsions are to be regarded as a sign of approaching or partial disintegration of the neuromuscular apparatus. The defect may occur in any one of several structures, and may be due to any one of many causes, according to Greenwald's interpretation. At any rate, the subject now invites further investigation; and it is of paramount importance in medicine where the problem of rational therapy of tetany is concerned.

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[4] Greenwald, I.: J. Pharmacol. & Exper. Therap. **11**: 281 (May) 1918.

Ten Years' Work for Children.—Ten years' progress in public provision for the care of children is summarized by Grace Abbott, chief of the Federal Children's Bureau, in the tenth annual report of the chief of the Secretary of Labor, made public today. Since 1912, when the children's bureau was established, the number of states having special divisions dealing with child health has increased from one to forty-six; the number providing mothers' pensions has increased from two to forty; more than half the states have created commissions to make comprehensive inquiries with a view to bringing their child welfare legislation and administration up to standard, and a similar number have organized state bureaus or divisions dealing especially with dependent and delinquent children.

Current Comment

THE BACTERIOLOGY OF THE DUODENUM

The enormous multiplication of bacteria which goes on at times within the intestine, both in health and in disease, tends to obscure the fact that this luxuriance of microbial life is by no means equally existent in all parts of the alimentary tract. The flora of the healthy stomach consists almost exclusively of organisms swallowed. The bactericidal effect of the gastric juice has long been recognized; and the significance of the potency of this secretion in inhibiting the development of the myriads of micro-organisms that find their way into ingested foods deserves emphasis as a most important aspect of gastric function. Accordingly, the duodenum ordinarily receives relatively few living bacteria from the healthy stomach. MacNeal[1] has pointed out that, in conformity with the available scientific evidence, the secretions of the liver, the pancreas and the duodenal wall are very free from bacteria, and tend to flush out the duodenum. His investigations with Chace[2] have indicated that in health the duodenal portion of the intestine is quite free from living bacteria in the intervals when food is absent, and that it contains relatively few bacteria during digestion. Among the living micro-organisms most frequently encountered in the duodenum are gram-positive cocci. *Bacillus coli* is uncommon there. These interesting and essential findings seem to have been rediscovered in Minkowski's clinic at Breslau by Gorke,[3] who reports that the duodenal secretion of healthy persons is virtually sterile. He, too, refers to the dependence of the duodenal flora on the chemical and motor functions of the stomach. Only when these are depressed do the bacteria gain a considerable foothold immediately beyond the pylorus. These are facts of foremost importance in relation to possible enterogenous infections of the biliary tract, pathologic processes in which the colon bacillus is the microbial offender usually concerned.

SIMULATION OF CARCINOMA BY TRAUMATIC FAT NECROSIS OF BREAST

It is an established fact that fat necrosis may occur anywhere in the body where adipose tissue abounds; but, curiously enough, it has been overlooked that it may occur in the corpulent female breast as a result of trauma, and that the clinical manifestations may simulate closely those of carcinoma. It has fallen to the lot of Lee and Adair[4] to direct attention to this condition by giving a clear description of the clinical, gross and microscopic findings in five cases of their own, and by calling attention to two other cases verbally reported to them by Bloodgood. Ewing of New York has worked out the pathologic anatomy of the specimens. As it concerns an unrecognized entity, the details may be of interest. The age of the patients varied from 36 to 54 years, and the weight from 152 to 211 pounds (69 to 96 kg.); there was a history of trauma, in all cases, in the locality where the tumor developed from three months to ten years later: twice a blow on the breast, and in three, hypodermoclysis. Two patients suffered pain; in all there was a hard mass; in one, retraction of the nipple; in four, skin fixation, and in two, deep attachment. In one, the axillary nodes, not palpable clinically, were found at operation to be enlarged, and in two there was a history of hemorrhages. The duration of growth was from one to ten months, and the preoperative diagnosis was carcinoma in two cases, and benign tumor, fibro-adenoma and fat necrosis each in one case. The altered areas varied from 2 to 5 cm. in their greatest dimensions; in four cases, the margins were irregular; in two there was partial encapsulation, and in three, cysts with fluid contents. There were no chalky streaks or points in any of the specimens, and the color of the affected tissue, hardly of the firmness of carcinoma in any case, was opaque, light yellow in most places, and in some, creamy to brownish yellow. In all the specimens, the microscope revealed areas of necrotic fat tissue, and in four, newly formed connective tissue with scattered giant cells in places; in three cases, collections of lymphocytes had gathered in the changed fat tissue. A laminated, hyaline connective tissue wall was present in one specimen, and another presented a cyst lined with endothelial cells, while three contained cysts with an amorphous granular material. In no case was carcinoma present. The authors believe that the condition they describe is a distinct clinical entity which resembles carcinoma more than anything else. A history of trauma to the breast with subsequent swelling at the site of injury, unassociated with pain or firmness of the axillary nodes, they think, should suggest the possibility of traumatic fat necrosis.

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[1] MacNeal, W. J.: Marshall's Microbiology, Philadelphia, P. Blakiston's Son & Co., 1921, p. 596.

[2] MacNeal, W. J., and Chace, A. F.: A Contribution to the Bacteriology of the Duodenum, Arch. Int. Med. **12**: 178 (Aug.) 1913.

[3] Gorke, H.: Ueber die Bakteriologie des Duodenalsaftes, Mitt. a. d. Grenzgeb. d. Med. u. Chir. **35**: 279, 1922.

[4] Lee, B. J., and Adair, F. E.: Traumatic Fat Necrosis of the Female Breast and Its Differentiation from Carcinoma, Surg., Gynec. & Obst. **34**: 521 (April) 1922; Traumatic Fat Necrosis of the Female Breast and Its Differentiation from Carcinoma, Ann. Surg. **72**: 188 (Aug.) 1920.

MALNUTRITION IN INFANTS, AND ALLERGY TO FOOD PROTEINS

The occurrence of various types of idiosyncrasy to special foods as well as to other heretofore obscure clinical manifestations of disease has been interpreted from time to time as the outcome of anaphylactic reactions or some analogous form of sensitization to foreign proteins in the body. The justification for such an hypothesis is found, among other evidences, in the experimentally demonstrable results of inoculation with such products. There is apparently little difference in the outcome whether the antigenic protein is administered subcutaneously, intravenously or intraperitoneally. All of the parenteral routes are effective. In recent years the lining of the gastro-intestinal canal has been regarded as a barrier to the absorption of unchanged proteins. This belief was expressed by Abderhalden [1] in the seemingly cryptic statement that, owing to the profound digestive disintegration of the foodstuffs in the alimentary tract, our tissue cells never learn the true nature of the food we ingest. Admitting that absorption of unchanged protein through the intestinal mucosa or the mucosa of other surfaces might well serve to sensitize animals or man, recent writers [2] nevertheless still assert that the problem is not yet conclusively settled. Methods are at present available for detecting immunologic changes due to the absorption of foreign, that is, unchanged, dietary proteins. The accumulating evidence that under certain conditions the intestinal tract of infants is permeable to slightly altered or unaltered proteins has consisted in the demonstration of egg protein or milk protein in the blood or urine by means of precipitin or anaphylactic tests. This appears to be most likely to occur in malnourished infants or in those suffering from diarrhea. That antibodies may be produced under such circumstances is further made likely by the reports of Schloss and Anderson [3] at the Children's Hospital in Boston. Positive precipitin tests for milk protein in the blood were obtained in cases of severe diarrhea of infants. Whether the presence of reaction substances bears a causative relation to the clinical condition—a conclusion in harmony with many observations—or whether these evidences of reaction to cow's milk protein in the blood of athreptic infants is merely a sign of penetration of the intestinal barrier and entrance into the blood stream and a consequent formation of antibodies without direct etiologic significance, remains to be determined.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Hospital News.—Construction work has been commenced on the two new wards for the Bryce Hospital, Tuscaloosa, funds for which were made available by the legislature in 1919, but were only recently released by the governor. When completed the new addition will represent an expenditure of $150,000.——The new Madison County Home, Fegin Spring Cove, near Huntsville, was recently opened. All the occupants of the Huntsville poor house have been transferred to the county home.

ARIZONA

Personal.—Dr. Charles E. Irvin, Miami, has been appointed health officer of Gila County to succeed Dr. B. W. Hardy, who has removed to California.

COLORADO

Antivivisection Ballot.—It is said that the recent vote for vivisection (The Journal, p. 1620) was the largest ever cast on an initiated measure and the defeat was by a larger majority (5 to 1) than had ever been known before in the state. There were 35,416 votes against and 178,120 for vivisection.

Government Goes to Aid of Denver.—Dr. William Parran of the U. S. Public Health Service arrived in Denver recently following the request of Dr. William H. Sharpley, manager of the health board, and the City and County Medical Society, for help in suppressing the epidemic of smallpox prevalent in the city. The compulsory vaccination order was put into effect, November 14, and more than 85,000 persons were vaccinated by the city health officers. Of the 50,000 schoolchildren, only 275 have not been vaccinated. The disease reached its crest during the week of November 11, when eighty-four new cases and nineteen deaths were reported. Since then the disease has gradually decreased.

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[1] Abderhalden, Emil: Synthese der Bausteine in Pflanze und Tier, Berlin, 1912.

[2] For example, Karsner, H. T., and Ecker, E. E.: The Principles of Immunology, Philadelphia, J. B. Lippincott Company, 1921, p. 211.

[3] Schloss, O. M., and Anderson, A.: Allergy to Cow's Milk in Infants with Severe Malnutrition, Proc. Soc. Exper. Biol & Med. **20:** 5 (Oct. 14) 1922.

CONNECTICUT

Yale University News.—In its new and enlarged quarters at 111 College Street, New Haven, the Bureau of Appointments of Yale University has completed the most active year of its existence, the director announces. Among the activities, many of which have been mentioned in The Journal during the year, was the raising of a special loan fund among the medical school students and graduates by Dean Winternitz, for the benefit of self-supporting students and graduates in that school who, because of laboratory requirements and heavy schedules, find it particularly difficult to earn any considerable part of their expenses.——The annual meeting of the Association of University Professors was held in New Haven, December 28-29, in connection with the annual meeting of the American Historical Association, the American Philological Association and the American Archaeological Association. Any member of these associations was invited to use the Faculty Club. A special supplement of the *Yale University Bulletin* was issued for the convenience of the various organizations meeting at the university during the holidays.

FLORIDA

Physician's License Revoked.—Newspaper reports state that the license of Dr. Charles D. Hulbert, St. Petersburg, has been revoked by the Florida State Board of Medical Examiners on the ground that he was found guilty of performing an illegal operation.

Antimosquito Conference.—More than 100 delegates representing twenty-one cities and towns in the state, four railroads, the Florida Development Board, the U. S. Department of Agriculture, the U. S. Public Health Service, the state board of health and various state and women's organizations, held an antimosquito conference in Daytona, December 7-8. An effort was made to organize a state association for eradicating the mosquito. Dr. Raymond C. Turck, state health officer, who presided, spoke on "The Purposes and Aims of This Antimosquito Conference." Col. Joseph Y. Porter, first state health officer in Florida, gave an address, which was followed by the motion picture, "Warfare on the Mosquitoes."

GEORGIA

Physician's License Restored.—A letter from the secretary of the state board of medical examiners states that the license of Dr. William P. Turk, La Grange, has been restored. The license had previously been revoked because of violation of the Harrison Narcotic Law.

Personal.—Dr. Herman W. Hesse and Dr. Edward C. Demmond have been elected president and secretary, respectively, of the Chatham County Medical Society. Dr. Hesse and Dr. James N. Carter have also been elected members of the city council of Savannah.——Dr. George R. White, Savannah, will take up his residence in the West on account of his health.——Dr. Harry B. Neagle, Augusta, has been appointed health officer of Augusta and Richmond County.——Dr. Eugene E. Murphey has been reelected president of the Augusta Board of Health.

ILLINOIS

Hospital News.—A new county tuberculosis sanatorium will be erected in Joliet.——Plans have been completed for the erection of a hospital building at Bushnell at a cost of $100,000.——Joseph F. Miller has been appointed superintendent of the Methodist Hospital of Central Illinois, Peoria.

Pasteur Memorial Celebration.—On Tuesday, Dec. 26, 1922, the state health department gave a program in honor of the centennial anniversary of the birth of Louis Pasteur. The exercises were held in the senate chamber of the state house. Work was suspended in the department for an hour in order to give all members an opportunity to attend the celebration. A number of people from Springfield and vicinity were present.

Diphtheria Antitoxin Supply Low. — Field men of the department of public health are checking up on the diphtheria antitoxin stock of all distributing agents of the department, with the view of collecting all surplus supplies and placing them at points where supplies have been exhausted. This measure is necessary because state funds for purchasing antitoxin for free distribution have been completely exhausted.

Antivaccinationists Busy.—Field men attached to the state department of public health report that antivaccinationists are unusually busy in Illinois, vigorously opposing vaccination through every avenue of publicity open to them. Thousands of hand bills put out by the so-called "liberty league" are being distributed. Activities of this kind are concentrated, and are particularly vicious, at points where smallpox epidemics are most threatening.

Diphtheria on the Wane.—Reports to the state department of public health indicate that the peak of diphtheria incidence for the season was reached in November, during which a total of 2,297 cases was reported, as compared with 3,505 for the same month last year. To December 23, a total of 15,020 cases of diphtheria had been reported from the state, indicating that the total incidence for 1922 will fall 5,000 cases short of the total incidence last year, 20,793.

Communicable Disease Incidence Low. — With the year practically at an end, reports to the state department of public health indicate that the general communicable disease incidence will fall short of that for last year by more than 10,000 cases. To December 23, approximately 160,000 cases of all notifiable diseases had been reported from the state, as compared with 176,740 for 1921. Declines are especially noticeable in the incidence of diphtheria, scarlet fever, whooping cough, measles and smallpox. There were distinct increases in the reported prevalence of influenza and pneumonia, the heaviest incidence having occurred during the early months of the year.

Personal.—Dr. Alan G. Brooks has been appointed city physician of Robinson to succeed Dr. Leroy Newlin.——Dr. Samuel A. Graham, Clinton, has been appointed managing officer of the Lincoln State School and Colony to succeed the late Dr. C. B. Caldwell.——Dr. William R. Fringer has succeeded Dr. David B. Penniman as president of the Winnebago County Medical Society.——Dr. Ralph McReynolds and Dr. Arthur H. Bitter were elected president and secretary, respectively, of the Adams County Medical Society at the annual meeting.——Dr. J. S. Templeton, Pinckneyville, has been appointed district health superintendent to represent the state department of public health in Jackson, Perry, Jefferson, Randolph and Washington counties. This makes a total of twenty-one physicians attached to the field staff of the department.

Chicago

Pasteur Celebration.—At a meeting in which the Chicago Medical Society, the Chicago Chemical Society and other scientific organizations joined, the centenary of the birth of Pasteur was celebrated with a banquet at the Congress Hotel, December 27. Dr. Ludvig Hektoen presided and invocation was offered by Archbishop Mundelein. Addresses were delivered by Dr. Victor C. Vaughan, who discussed the life of Louis Pasteur and his work, and by the French consul in Chicago, M. Barthelemy.

Campaign Against Traffic in Drugs.—At a recent meeting of the executive council of the Chicago Medical Society, under the presidency of Dr. Hugh N. MacKechnie, a resolution was passed to enlist the 6,000 physicians of Chicago and Cook County in a campaign against the use of narcotics. The public information committee, of which Dr. Martin M. Ritter is chairman, will have charge of the society's activities. He will organize a speakers' bureau, composed of the leading physicians of Chicago and Cook County, to address various local groups and organizations and plead for organized action against the traffic. All members of clubs, fraternal organizations and societies will be requested to sign a petition to be addressed to the President asking a "national antinarcotic week" and the creation of a national antinarcotic conference for the suppression of narcotics.——John H. Montgomery and William J. Knick, proprietors of a drug store in State Street, Chicago, alleged to have conducted the largest illicit drug trade in the United States, were recently arrested after months of investigation by the federal authorities and are now on trial.

INDIANA

Hospital News.—The county commissioners have accepted plans for the erection of a tuberculosis sanatorium to be built at a cost of $350,000 near Crown Point. Work on the first unit will be commenced in the spring.

Personal.—Dr. Louis Severin and Dr. Clarence H. Mead, both of Bluffton, were elected president and secretary, respectively, of the Wells County Medical Society, recently.——Dr. William B. Kreider, Goshen, has been elected president of the Elkhart County Medical Society.——Major Larry B.

McAfee, Harrison, was decorated with the distinguished service medal by Brigadier General Aultman at Fort Benjamin Harrison, December 12.——Dr. James G. Royse, Indianapolis, has been appointed assistant state health officer to succeed Dr. W. F. King, who was recently appointed state health officer to succeed Dr. J. N. Hurty. Dr. Royse was formerly director of the bureau of venereal diseases of the state health department.

IOWA

Dubuque County Medical Society.—At the annual meeting of the society, December 12, Dr. Lilly Kinnier was elected president; Drs. Walter Cary and F. S. Leonard, vice presidents; Dr. Howard Thompson, secretary, and Dr. J. H. Schrup, treasurer.

Personal.—Dr. William Vernon Cone, Iowa City, has been awarded a fellowship as research worker in neuropathology by the National Research Council of the Rockefeller Foundation.——Dr. Eleanor M. Hutchinson, women's physician to the state epileptic colony, Woodward, has been appointed superintendent of the women's reformatory at Rockwell City.

Hospital News.—The Walker County Hospital has recently been incorporated by Dr. A. C. Jackson, who will establish a $75,000 hospital in Jasper, it is announced.——A new ten-story hospital building to be erected across the Iowa River is contemplated for the University of Iowa. When all units of the institution are completed the cost will be approximately $1,000,000.

Sioux Valley Medical Association Meets.—The Sioux Valley Medical Association will hold its fifty-fourth semiannual meeting at the Martin Hotel, Sioux City, January 25 and 26. Drs. A. J. Ochsner, professor of surgery, University of Illinois; Martin Fischer, professor of physiology, University of Cincinnati; William Engelbach, professor of medicine, St. Louis University; Dean Lewis, professor of surgery, Rush Medical College; Clifford Grulee, professor of pediatrics, Rush Medical College; M. A. Blankenhorn of the Department of Medicine, Western Reserve University; J. S. Evans, Jr., professor of clinical medicine, University of Wisconsin, and Henry Schmitz and Lewis Bremerman of Chicago will be present.

KENTUCKY

Urologists Elect.—At the first annual meeting of the Louisville Urological Society, December 12, Dr. Henry J. Farbach was elected president; Dr. E. Owsley Grant, vice president, and Dr. Herman B. Strull, secretary-treasurer. It was announced that a Kentucky state urological society will be organized, to have a section in the state medical association meeting.

Hospital News.—Dr. Herbert T. Thornburgh, Toledo, Ohio, has been appointed assistant superintendent of the Eastern State Hospital, Louisville, to succeed Dr. Harry S. Seiwell. ——Dr. John W. Moore has been appointed medical superintendent of the City Hospital, Louisville.——A hospital building will be erected at the Old Folks' and Rebekahs' Home, Eminence, at a cost of $60,000.

LOUISIANA

Personal.—Dr. Arthur G. Heath, Shreveport, was recently appointed chairman of the local board of health. Dr. Thomas P. Lloyd was elected vice chairman of the board.——Dr. James W. Walsworth, Monroe, has been elected president of the Ouachita Parish Medical Society.

MAINE

Venereal Disease Clinic to Be Opened.—The city of Auburn will establish a venereal disease clinic in the near future under the direction of Dr. Leo F. Hall, city health officer.

MARYLAND

Personal.—Under the state reorganization plan, to go into effect January 1, Dr. John S. Fulton, secretary of the state board of health, will become director of health. The present board of health, consisting of Drs. William H. Welch, Benjamin B. Perry, William W. Ford, E. F. Kelly and Tolley A. Biays has been reappointed by the governor.——Dr. J. Knox Insley has been appointed commissioner of labor and statistics for Maryland, his appointment to take effect January 1.

Cornerstone Laid.—The cornerstone for the new hospital for infectious diseases for Baltimore city, at Lake Montebello, to be known as the Baltimore Municipal Hospital, was laid December 19. Seven buildings to constitute the first group are under construction and will cost approximately $643,000, exclusive of grounds and furnishings. The wards will be ready for occupancy by October 1. Dr. Birckhead MacGowan, superintendent of Sydenham, now the city infectious hospital, which will be abandoned, will become director of the new hospital.

MASSACHUSETTS

Schick Test for Medical Students.—Dr. John A. Ceconi, epidemiologist in the Boston Health Department, administered the Schick test to 135 medical students of Tufts College, December 13. The health commissioner has recently been lecturing on the advantages of the test.

MICHIGAN

Hospital News.—The new state tuberculosis sanatorium for inmates of Michigan's penal institutions will be occupied by the middle of January.

Professor Lombard Resigns.—Prof. Warren P. Lombard, for thirty-one years professor of physiology at the University of Michigan, has resigned at the age of 68 in order to devote his time to research.

Personal.—Dr. David Littlejohn has resigned as head of the health department of Ishpeming to become director of public health and welfare of Bluefield, W. Va.——Dr. David M. Kane has been appointed city health officer of Sturgis.

Mentally Deficient Autoists.—Of twenty-three persons charged with reckless driving who were examined by Dr. A. L. Jacoby, city psychiatrist of Detroit, December 20, to determine their sanity, three were declared mentally deficient. The examinations were ordered by Judge Bartlett, and sentences were witheld until the court had received the psychiatrist's report. One man charged with driving his car 32 miles an hour was found to be of inferior intelligence, nearly deaf and possessed of very poor eyesight. Another alleged speeder was unable to read English and stated that he could not differentiate between the "go" and "stop" signals at street intersections.

Michigan's Laboratories.——During the last fiscal year, the Michigan Department of Health laboratories sent out antitoxin to the value of $60,000. Had the individuals using this serum been compelled to pay the contract prices formerly made to cities, it would have cost them $412,800—6.88 times as much as it cost the state to supply it free of charge. Michigan's laboratories, the annual report shows, carried out 141,869 tests, at a total cost of $77,216.91. This is a larger number than any reported by state laboratories in this country, although three state laboratories, the New York, Massachusetts and California, receive larger sums for operation. Had this work been done in commercial laboratories, the cost would have been, approximately, $500,000. The Kahn test has been added to the routine work of the laboratories. Michigan is now the only state whose laboratory tests for this disease include a routine check on the Wassermann test. In 1919, when the bureau of laboratories was reorganized, its routine included but five examinations. Now, according to the report, it is equipped to carry out fifty kinds of biologic tests.

MINNESOTA

Personal.—Dr. Ernest G. Sterner, St. Paul, was recently elected president and Dr. C. L. Larsen, vice president, of the Ramsey County Medical Society.

MISSOURI

Chiropractor Convicted.—It is reported that August Meyer, a chiropractor of St. Louis, was found guilty recently of practicing medicine without a license, and fined $50 in the court of criminal correction.

University News.—By the will of Mrs. Hannah Duryea the St. Louis University has been bequeathed securities valued at more than $50,000 to be used for dispensary purposes in connection with the medical school, Dean Loeb announces.

NEW HAMPSHIRE

Hospital News.—Miss McLennan has been appointed superintendent of the Portsmouth Hospital, Portsmouth.——The Jones Hospital, Colebrook, will in future be known as the Colebrook Hospital.——Miss Stevens and Miss Bryant have been elected superintendents of the Laconia Hospital, Laconia, and the Carrie F. Wright Memorial Hospital, Newport, respectively.

NEW JERSEY

Physician's License Revoked.—The New Jersey State Board of Medical Examiners reports that on November 23, the license to practice medicine and surgery of Dr. James F. Kerr, New York, was revoked on the charge of practicing criminal abortion.

NEW MEXICO

New County Health Officer.—Dr. Eugene O. Chimene, who resigned as health commissioner of Floyd County, Ga., to accept the same position in Greenville County, S. C., has recently been appointed by the New Mexico Bureau of Public Health as health officer of Union County, with headquarters at Santa Fe.

Personal.—Dr. Rollin M. Schwartz, full-time health officer of Santa Fe County, resigned recently to return to Cleveland. He is succeeded by Dr. Dudley B. Williams, Portales, who had been serving as full-time health officer of Torrance County, the work of which had to be discontinued on account of a severe drought that partially depopulated the county and which severely reduced its income.——Miss Margaret Tupper has resigned as supervising nurse of the Mexico State Bureau of Public Health, to take the public health nursing course at Columbia University, New York.——Dr. George S. Luckett, Santa Fe, state commissioner of public health, read a paper on "The First Three Years of Mortality Registration in New Mexico" before the first meeting of state insurance agents, recently.

NEW YORK

Hospital News.—The cornerstone was recently laid for the Wheel Chair Home for Incurables in Buffalo.——Forty additional acres of land have been obtained by the Home and Farm Institution for Mental Convalescents at Monticello, adjoining the seventy-three room hotel property recently purchased by the home. The farm will be utilized for occupational therapy for shell-shocked veterans of the World War and for mental incompetents.

New York City

Personal.—Dr. S. M. Evan recently returned from Europe on the steamship *Colombia* from Genoa and Naples.——Dr. F. G. Banting of the University of Toronto delivered an address before the New York Academy of Medicine on December 21 on "Pancreatic Extract in Diabetes Mellitus."

Tribute to Pasteur.—The centenary of the birth of Pasteur was celebrated on December 20 at the Waldorf Astoria by the Alliance Française of New York. M. Gaston Liebert, consul-general of France; Dr. Ernest Laplace, professor of surgery, University of Pennsylvania, and Prof. Andre Morize, Harvard University, were the speakers.

Pasteur Centenary.—A public exhibition of books, portraits, medallions and other objects relating to Pasteur will be held at the New York Academy of Medicine, 17 West Forty-Third Street, from 10 a. m. to 10 p. m., Dec. 27, 1922, to Jan. 10, 1923. At the commemorative exercises to be held at 8:30 p. m., January 10, the following addresses will be given: Prof. Russell Chittenden, Yale University, "Contributions of Pasteur to Chemistry"; Dr. William H. Welch, Johns Hopkins University, "Pasteur's Contributions to Biology"; Dr. E. F. Smith, U. S. Department of Agriculture, "Pasteur's Study of Silkworm Diseases"; Dr. Simon Flexner, Rockefeller Institute, "The Contributions of Pasteur to the Knowledge of Immunity and Therapy"; Dr. Herman Biggs, N. Y. State Health Department, "Pasteur and the Treatment of Rabies," and Dr. William W. Keen, Jefferson Medical College, "The Influence of Pasteur on Knowledge Concerning Surgical Infection and Puerperal Fever."

NORTH CAROLINA

Personal.—Dr. Eugene B. Glenn, Meriwether Hospital, Asheville, was recently elected president of the North Carolina Hospital Association.

OHIO

Personal.—Dr. Elmer O. Peterson, Canton, has been appointed a member of the city board of health by Mayor Curtis.

Hancock County Medical Society.—At the annual meeting of the society in Findlay, December 7, Dr. Don B. Biggs was elected president; Dr. A. Earl King, Mount Corey, vice president, and Dr. Earl J. Thomas, treasurer. Dr. Cornelia B. Kennedy was elected secretary for the fifteenth time. A banquet followed the business meeting.

PENNSYLVANIA

Philadelphia

Personal.—Dr. Richard A. F. Penrose, Jr., has been elected president of the Academy of Natural Science to succeed Dr. John Cadwalader.

Smallpox Quarantine.—For a third time within a few days a quarantine has been placed around a neighborhood in South Philadelphia. A cordon was drawn about the block from Fifteenth to Sixteenth streets, and from Wharton to Reed streets, and a corps of twenty physicians began vacinating the residents.

Campaign for Funds for College.—The Philadelphia College of Pharmacy and Science is endeavoring to raise $2,000,000 for expansion of its work, and has already raised the sum necessary for a building site, which has been purchased. It is planned to use the $2,000,000 for a group of buildings, with equipment, and in providing an adequate endowment. Rear Admiral W. C. Braisted, formerly surgeon-general of the Navy, is the president of the college.

Hospital News.—The Conemaugh Valley Memorial Hospital, Johnstown, of which Dr. William Bailey is superintendent, has recently completed a nurses' home which will accommodate 125 nurses. It was formally opened November 3, with a reception for the public. It is a four story and basement structure, erected at a cost of $210,000, including furnishings. The latter were provided by the Women's Memorial Hospital Association. Building will be continued in the spring by the erection of a new hospital building.——A hospital building will be erected at St. John's Lutheran Home at Mars.

SOUTH CAROLINA

Personal.—Dr. Clough H. Blake, Greenwood, was recently elected chairman of the local board of health.

Rural Sanitation Work.—During the past year, work has been conducted in eighteen counties in the state by the department of rural sanitation. Each of these counties had a full-time health department, and it is announced that the number of cases of typhoid and the infant death rate from intestinal disease decreased considerably. Nearly 400 public health lectures and 500 talks to schoolchildren were given, and nearly 15,000 homes were visited. Hookworm campaigns were carried out in four counties, and tuberculosis clinics were held throughout the territory. Of the 13,155 schoolchildren examined, 6,951 were found defective. A campaign will be conducted to establish a full-time health department in every county in the state.

TENNESSEE

Physician Violates Narcotic Act.—It is reported that Dr. J. Easterly Sproles, Bristol, was fined $100, December 11, in the district court at Abingdon, Va., on a charge of violating the Harrison Narcotic Law. The case of his brother, Dr. C. B. Sproles, also charged with illegally selling drugs, has been transferred to the Lynchburg docket, to be tried, Jan. 9, 1923.

Southern Surgical Association.—At the thirty-fifth annual meeting of the association held in Memphis, December 13-15, under the presidency of Dr. C. Jeff Miller of New Orleans, the following officers were elected: president, Dr. James F. Mitchell, Washington, D. C.; vice presidents, Drs. G. Battle Malone, Memphis, and Irvin Abell, Louisville, Ky.; treasurer, Dr. Urban Maes, New Orleans, and secretary, Dr. Hubert A. Royster, Raleigh, N. C. (reelected). White Sulphur Springs, W. Va., was selected as the meeting place for 1923.

Society News.—At the annual meeting of the Chattanooga Academy of Medicine, December 1, Dr. E. Dunbar Newell was elected president; Dr. H. Quigg Fletcher, vice president, and Dr. G. Victor Williams, secretary-treasurer. Dr. Willard Steele, the retiring president, gave a banquet, following the election of officers.——A number of America's outstanding educators, economists and welfare leaders appeared on the program of the home betterment congress of the Southern Cooperative League, held December 3-5, in Nashville, under the presidency of Dr. P. P. Claxton of the University of

Alabama, formerly U. S. Commissioner of Education. The purposes of this organization are to procure adequate appropriations for the advancement of public welfare, especially where it concerns public health and education; to promote law and order; to encourage proper social legislation, and to maintain a clearing house for gathering and disseminating information regarding social, educational and moral conditions in the South.

TEXAS

Three New Hospitals for Houston.—Three new hospitals will be ready for occupancy during 1923, it is announced. Work will be started immediately on the new unit of the Methodist Hospital; ground has been broken for the Hermann Hospital in Hermann Park, and the joint city and county hospital will be erected early in 1923 when $100,000 from the county's taxes becomes available. The Hermann Hospital, under the terms of the will of George Hermann, will be erected for those unable to pay hospital and surgical fees, while the city-county hospital will be for patients of Houston and of Harris County who are unable to meet these expenses. The first unit of the Hermann Hospital will cost approximately $200,000, and the same amount will be expended on the city-county hospital.

VIRGINIA

New Sanatorium Destroyed by Fire.—The Alleghany Sanatorium, Goshen, was destroyed by fire, November 30, at an estimated loss of between $100,000 and $150,000. The building was formerly used as a summer hotel, but was recently purchased by a corporation with a view to remodeling and opening it as a sanatorium.

New Medical Society.—A movement is on foot to organize a medical society along the Clinch Valley division of the Norfolk and Western and Louisville and Nashville railroads, composed of physicians from the counties of Tazewell, Buchanan, Russell, Dickenson, Wise and Lee. This society will be similar to the Southwestern Medical Society, comprising counties along the Norfolk and Western Railroad from Bristol to Roanoke.

PORTO RICO

Dr. Ashford Decorated.—In commenting on the awarding of the distinguished service medal to Dr. B. K. Ashford, the *Bulletin* of the Porto Rico Medical Association says: "This indefatigable worker for science and cultivator of affection is the model of the never wearying research worker, with his big heart open to all and for all, always scattering optimism wherever he passes." The medal was awarded in recognition of his distinguished services in France. Dr. Ashford's work, especially that with hookworm disease, is familiar to all in Porto Rico and elsewhere in Latin America.

Personal.—Dr. J. Capó has returned to San Juan, Porto Rico, after a trip to the United States and Europe.——Dr. Diego Biascoechea has also returned to Porto Rico from a trip to the United States.——Dr. Manuel Quevedo Baez, president of the Porto Rico Academy of Medicine, who has been in Spain for several months, has returned.——The *Bulletin* of the Porto Rico Medical Association mentions the arrival at San Juan of Dr. R. Townsend. He comes in response to the appeal made by the director of the Porto Rico board of public health to the American Red Cross for expert advice in the campaign against tuberculosis. Dr. Abel de Juan has been appointed as his assistant to accompany him on his tour of inspection throughout the island to determine the "tuberculosis index" of the country.

Alexander Righter Craig.—The *Bulletin* of the Porto Rico Medical Association pays tribute to the memory of "this good friend of the Porto Rico Medical Association and indefatigable worker for the American Medical Association of which he was the secretary at the time of the event we are mourning, his death, September 2. This good friend of our organization well deserves this small tribute of affection as he was the one who disinterestedly labored with the utmost earnestness to secure from the governing board of the American Medical Association the arrangements which allowed our organization to become affiliated with the association of which he was the secretary. Modest and efficient, he attended to the matters pertaining to his position with the zeal which is indispensable to give the impulse and sustain it through all the inconveniences inherent in such organizations." The board of the Porto Rico Medical Association under whose auspices the *Bulletin* is issued consists of Dr. Gutiérrez Igaravídez, president; Dr. R. López Nussa, vice president; Dr. Jacinto Avilés, treasurer; Dr. Agustín R. Laugier, secretary, and three councilors, Drs. F. J. Hernández, P. Malaret and H. López Sicardó.

CANADA

Medical Journals.—The *Canada Lancet* has recently incorporated the *Dominion Medical Monthly* and the *National Hygiene and Public Health Welfare Journal.*

Medical Association News.—The first clinical meeting of the Vancouver Medical Association was held recently in the Vancouver General Hospital, with Dr. J. J. Mason, the president, in the chair. The subject under consideration was "Acute Suppurative Otitis Media."

Alberta Medical Association.—At the annual meeting of the association, held in Edmonton, for three days recently, under the presidency of Dr. A. E. Archer, the following officers were elected for the ensuing year: president, Dr. Andrew F. Anderson, Edmonton; vice presidents, Drs. William Hackney, Calgary, and Edgar W. Allin, Edmonton; secretary, Dr. William H. McGuffin, Calgary, and treasurer, Dr. Thomas J. Costello, Calgary. Dr. Clifford R. Gilmour of Winnipeg presented a paper, and Dr. Alfred T. Bazin of Montreal delivered the lecture on surgery.

Public Health News.—Toronto's mortality rate for 1922 will be lower than that for 1921, according to the monthly report of the medical officer of health, who declares that, for the first six months of this year, the bureau of census at Washington, D. C., forecast a slightly higher rate for this year than that of last year. For the first six months of this year, Toronto's rate was 0.5 lower than the rate for last year, the deaths having continued to drop until the end of November, the probable annual rate stands at 10.4 per thousand, as compared with 11.2 for 1921. The chief cause of death in Toronto was organic heart disease, with cancer a close second. Infant mortality shows seventy-nine deaths for November this year as compared with ninety-three for last November, with a total of 896 for the first eleven months of this year and 1,132 last year. The total number of deaths during November, 1922, was 395, as compared with 445 for November, 1921.——A remarkable decrease in the number of cases of contagious disease is shown in the yearly report of the Sault Ste. Marie Board of Health, recently issued by the medical officer of health. He credits the low disease spread this year to precautions taken by the board of health. There was only one case of smallpox this year, while in 1921 there were 174 cases.——The city of St. John, New Brunswick, has recently installed a health center at Calverhill Hall. The building has been completely renovated and will house all civic health activities. The new health center will, to a considerable extent, serve the province as well as the city. Dr. Roberts, minister of health in the province, has declared that after May 1, 1923, all milk sold in the city must be pasteurized.

Personal.—Dr. George Vincent, president of the Rockefeller Foundation, recently addressed the Royal Canadian Institute at the University of Toronto on the subject of "International Medicine and Hygiene."——Prof. W. D. Tait, Montreal, has been appointed head of the psychologic clinic at McGill University, Montreal.——Dr. Hadley Williams, professor of surgery at Western University Medical School, London, Ont., read a paper on "Perforation of the Stomach and Duodenum" before a meeting of the second district of the Ontario Medical Association, in Kitchener, Ont., recently.——Dr. J. J. R. McLeod, professor of physiology at the University of Toronto and president of the American Physiological Society, read a paper on "Laboratory Contributions to the Study of Diabetes" before the annual meeting of the Academy of Medicine of Cleveland, Ohio, December 15.——Dr. John L. Todd of McGill University, Montreal, was recently decorated by Michel Straszewski, consul-general for Poland in Canada, with the Cross of Restored Poland, in recognition of his valuable services in research work for the Polish Republic. The Polish authorities claim that much of the successful campaign launched against the spread of typhoid in Poland was due to Dr. Todd's efforts.——Dr. C. M. Eaton of Vancouver, B. C., has recently assumed charge of the hospital in Atlin, B. C.——The following physicians have recently been elected fellows of the American College of Surgeons: Drs. Charles A. Young, Ottawa, Ont.; George C. MacIntyre, Toronto; Elmer W. Mitchell, Cobalt, Ont.; Robert V. B. Shier, Toronto; R. W. Irving and H. H. Murphy, of Kamloops, B. C.; J. W. Arbuckle, of Vernon, B. C., and W. H.

Lang, of Vancouver.——Dr. George E. Armstrong has been elected dean of the Medical Faculty in McGill University, Montreal.

GENERAL

A Warning.—A letter from Dr. H. Milton Conner of the Mayo Clinic, Rochester, Minn., announces that an impostor using his name is traveling about the country obtaining loans from physicians. Three such cases have so far been reported to Dr. Conner.

Southwestern Medical and Surgical Association.—At the annual meeting of the association in El Paso, Texas, recently, the following officers were elected: president, Dr. Roderick D. Kennedy, Globe, Ariz.; vice presidents, Drs. John R. Van Atta, Albuquerque, N. M., and Jesse R. Gilbert, Alamogordo, N. M., and Dr. Harry R. Carson, Phoenix, Ariz., secretary.

American Chemical Society Elects Officers.—Dr. Edward C. Franklin, professor of organic chemistry, Leland Stanford Junior University, has been elected president of the American Chemical Society, succeeding Dr. Edgar F. Smith of the University of Pennsylvania. Dr. Wilder D. Bancroft, Cornell University, was reelected a director of the society, and William Hoskins, consulting chemist of Chicago, was made a new director of the society. The following councilors-at-large for the period from 1923 to 1925 also were elected: Roger Adams, University of Illinois; G. N. Lewis, University of California; Dr. Ralph H. McKee, Columbia University, and Dr. William McPherson, Ohio State University.

Mortality from Typhoid Fever, 1921.—The Department of Commerce, through the Bureau of the Census, announces that there were over 8,000 deaths from typhoid fever in 1921 in the registration area, which comprises 82 per cent. of the total population of the United States. The death rate from this disease was 9 per hundred thousand population in 1921 as compared with 7.8 in 1920. Only nine states in the registration area show lower rates in 1921 than in 1920: California, 4.3 per hundred thousand population; Connecticut, 3.6; Maine, 7.6; Michigan, 7.7; Montana, 3.5; New Hampshire, 3.6; North Carolina, 12.0; Vermont, 5.4; Washington, 5.4. Of the eleven states having separate rates for negroes, the lowest adjusted rate for the white population in 1921 was 3.6 and the lowest for the colored was 1.9, both for New York State, while the highest adjusted rate for the white population was 24.8 for Kentucky and for the colored 40.7 for Tennessee.

Mortality from Diabetes, 1921.—The Department of Commerce, through the Bureau of the Census, announces that about 15,000 deaths in 1921 from diabetes mellitus were recorded in the registration area, which comprises 82 per cent. of the population of the United States. Within this area the death rate from diabetes per hundred thousand population was 16.8 in 1921 as compared with 16.1 in 1920. Adjusted rates which make allowances for differences in the sex and age distribution of the population in the various states are given. In the thirty-four states of the registration area, the highest adjusted rate (21.8) appears for New York and the lowest (6.4) for Tennessee. For the states with considerable colored populations adjusted rates have been calculated separately for the white and colored populations. In this group of eleven states, the highest adjusted death rate from diabetes for the white population is 21.5 per hundred thousand population for New York, and the highest adjusted rate for the colored population is 22 for Pennsylvania. The lowest adjusted rate for the white population is 6.4 for Tennessee and the lowest for the colored population is 4 for Mississippi.

Bequests and Donations.—The following bequests and donations have recently been announced:

Children's Hospital, Boston, $128,450, as the result of a drive for funds, $5,000 of which was donated anonymously.

New Methodist Episcopal Hospital, Philadelphia, $75,000 for the building fund, by an anonymous donor.

St. Luke's Hospital, Bedford, Mass., $40,000 for the establishment of a pathologic laboratory, the gift of an anonymous friend.

For a Catholic hospital at Wilmington, Del., $30,000; supplied by thirty donors giving $1,000 each.

Methodist Hospital of Southern California, Los Angeles, $10,000 roentgen-ray equipment for the new addition, through a friend of Dr. Rex Duncan.

Hale Hospital, Haverhill, Mass., $5,000, for the maintenance of a room and free treatment for poor patients; Haverhill Old Ladies' Home and the Children's Aid Society, each $1,000, by the will of Hazen B. Goodrich of Haverhill.

Rosary Hill Home, the cancer hospital at Hawthorne, N. Y., $5,000, by the will of the late Dr. Horatio R. Storer of Newport, R. I.

Seaside Home for Crippled Children, Long Island, $2,500, the proceeds of a benefit performance.

Jewish Hospital, Philadelphia, for the maintenance of the Rebecca Fleisher Solarium, $2,000, by the will of Ida F. Fleisher.

Women's Colleges in the Orient, $250, the proceeds of a benefit tea at South Bend, Ind.

Missionary nursing service in Maine and Alaska was provided for in the will of Jane A. Delano, a nurse, who died in France while with the American Red Cross.

Maine General Hospital, Portland, several thousand dollars, by the will of Anna M. Milliken, Scarboro.

Jewish Consumptive Relief Society, Denver, maintenance of a bed in memory of his sister, by A. Portfolio.

St. Mary's Hospital, Minneapolis, endowment of a free bed in memory of her two sons, by Mrs. Elizabeth Gilroy. It will be known as the Elizabeth Gilroy Endowment Fund.

Mount Carmel Hospital, Columbus, Ohio, a Carrara marble statue in memory of Sister M. Brendon, former superior of the institution, from members of the staff.

Maternity Hospital, Wilkes-Barre, Pa., the surgical instruments of the late Dr. Edward C. Wagner, valued at several thousand dollars, by his widow.

Research Institute of Cutaneous Medicine.—The Court of Common Pleas No. 5 of the City of Philadelphia has just granted an amendment to the charter of the Dermatological Research Institute, authorizing a change of name to the "Research Institute of Cutaneous Medicine." The phrase "Cutaneous Medicine" was adopted advisedly, as the research will be extended to the relationship of skin diseases and general disturbances of the body. This change of name was requested by reason of the sale of laboratories with its entire arsphenamin plant to the Abbott Laboratories of Chicago. The Research Institute of Cutaneous Medicine has purchased a property at the corner of Twenty-First and Pine streets, Philadelphia, which it is equipping for academic research work in dermatology, syphilology and cognate subjects, and which will be ready for occupancy about the first of the year. With the funds accruing from the sale of the laboratories, added to the value of the securities purchased with past profits, an endowment fund of almost three quarters of a million dollars will be available for research work. It is expected that this fund will be kept intact and that the interest therefrom will suffice to support research from year to year. While investigative work in dermatology is carried on in many hospital and university clinics here and abroad, this is the first institute of the kind to be endowed with a permanent fund for this branch of medicine. The manner of the creation of this endowment fund is also unique in the annals of medical history, it is stated. On the staff of the Research Institute of Cutaneous Medicine are: Dr. Jay Frank Schamberg, director; Dr. John A. Kolmer, head of the department of pathology and bacteriology; Herman Brown, B.Sc., chemist; Malcolm Harkins, V.M.D., bacteriologist; Charles Weiss, Ph.D., associate in experimental pathology; Dr. Joseph V. Klauder, fellow in experimental syphilology; Dr. S. S. Greenbaum, fellow in dermatologic pathology; Dr. Dorothy W. Weiss, fellow in bacteriology; Dr. Baldwin Lucké, fellow in pathology; Clara C. Kast, B.Sc., assistant in bacteriology; Carola Richter, assistant in research immunology; Anna M. Rule, assistant in research syphilology; Elizabeth Yagle, B.Sc., assistant in bacteriology, and Anna M. Leyde, technical assistant in bacteriology. On the board of directors of the institute are Mr. Herbert L. Clarke, former president of the board of trustees of the Polyclinic Hospital and College for Graduates in Medicine (new graduate school of medicine of the University of Pennsylvania); Dr. David Riesman, professor of clinical medicine in the University of Pennsylvania; Dr. Albert D. Ferguson, physician to the Widener Home for Crippled Children, and Dr. George W. Raiziss.

LATIN AMERICA

Personal.—Dr. J. M. Allende, one of the editors of the *Revista Médica de Cordoba*, Argentina, and of the *Revista de la Asociación Médica Argentina*, is now in this country visiting both Eastern and Western clinics. He is planning to take a postgraduate course in surgery.——Dr. Eliseo Ramirez has been appointed secretary of the Academy of Medicine of Mexico.——Dr. J. de Jesus González of León, Gto. Mexico, has just completed twenty-five years of active practice in ophthalmology. He celebrated the occasion by publishing a compilation of his most important papers on neurology.——Dr. G. Díaz Lombardo and Dr. Francisco Reyes of Mexico City have been appointed members of the Superior Board of Health.

Celebration of Pasteur Centennial at Buenos Aires.—The *Semana Médica* relates that the committee appointed by the city authorities to plan the tribute to the memory of Pasteur voted six different measures: (1) to change the name of Córdoba Street to Louis Pasteur Avenue; (2) to lay the cornerstone of the new Pasteur Institute building on the day of the centennial; (3) to erect six pavilions for chronic cases and convalescents at the Rodríguez Hospital; (4) to erect a hospital in the suburbs for the tuberculous, to be called the Pasteur Hospital, placing the first stone on the day of the centennial; (5) to donate to the medical school a tract of ground for construction of a laboratory for the science of foods and dietetics, and (6) to place a silver tablet with a tribute from the city of Buenos Aires on the tomb of Pasteur in the Paris Pasteur Institute. The idea of erecting a statue of Pasteur in the grounds of the medical school was considered but was abandoned, as the national committee in charge of the tribute to Pasteur intends to erect a statue elsewhere. Iribarne urged collection of a fund for a prize to be awarded for the best monograph on Pasteur's life and works.

Organization of the Profession in Argentina.—Owing mainly to the efforts of Dr. Nicolás Capizzano, 25 per cent. of the physicians of Argentina have enrolled in the new organization to promote the financial, social and ethical interests of the profession. This Sindicato de Médicos publishes a breezy *Bulletin*, address, Soler 4829, Buenos Aires. It discusses the various matters affecting the profession, and reproduces the talks of the director and his aids as they visit different medical centers trying to rouse the profession to the necessity for making a common stand against abuses and exploitation by outsiders, and against quackery and nostrums, and raising the standards of the profession in general. The latest issue of the *Bulletin* contains an account of various quack practices, written by Dr. Nestor Mercader from personal observation, and a pharmacist writes of certain unprofessional practices among pharmacists. One of the aims of the organization is to compile a directory of Argentine physicians, and the *Bulletin* lists the names and addresses of those already enrolled. In display type, it keeps proclaiming that the isolated are unable to defend themselves. They are exposed to attack on all sides. The director recently visited Rosario at the request of the local medical society, and the *Revista Médica del Rosario* reproduces his address and reports the numerous enrolments which followed. He stated that Argentina has one physician to 1,500 inhabitants, about the same proportion as in Germany, where, he said, "the *proletariado médico* is already a fact."

FOREIGN

Indian Assistant Surgeons' Association.—The seventeenth annual conference of the All-India Sub-Assistant Surgeons' Association was held at Indore in December.

Exhibition of Medical Photography.—There is to be a national exhibition of photography at Geneva, Switzerland, opening May 11, 1923. Dr. A. Jentzer, rue de l'Université, Geneva, is in charge of the medical section.

Medical Men as Barristers.—Dr. R. St. G. S. Bond, surgeon commander of the Royal Navy, professor of hygiene, Royal Naval College, Greenwich, England; Dr. G. H. Dart, London, and Dr. W. W. Jameson, London, were called to the bar, November 17.

Nobel Peace Prize.—The Norwegian arctic explorer and zoologist, Prof. Fridtjof Nansen, has been awarded the Nobel Peace Prize for his work in relieving the starving populations of Russia and Asia Minor and for his endeavor to promote the brotherhood of nations.

International Union Against Tuberculosis.—The next meeting of the union will be held at Berne, Switzerland, in 1924. It is proposed to hold the 1926 meeting in the United States, under the presidency of Dr. Theobald Smith, director of the Rockefeller Animal Research Laboratory at Princeton, N. J.

Anthrax Prevention.—The International Advisory Committee on Anthrax, which has been set up in accordance with a resolution of the third session of the International Labor Conference, Geneva, in 1921, held a meeting in London, England, December 5, with Sir William Middlebrook in the chair.

Pasteur Scholarships.—A society has been organized at Copenhagen to endow scholarships for Danish medical men who wish to take a course of study at the Paris Pasteur Institute or similar institutions in any country. Dr. S. P. L. Sørensen is the president of the new society, and it is proposed to award the first scholarship on Pasteur's birthday.

Individual Psychology Congress.—The International Society for Comparative Individual Psychology met at Munich, December 8 to 10. The addresses and discussions concerned chiefly Adler's system of comparative individual psychology as applied to psychology, characterology, psychotherapy, pedagogics, welfare work for the young, and art. The secretary was Dr. Else Sumpf, Kaulbachstr. 75, Munich.

The Swiss Antivenereal Disease Society.—At a recent meeting of this society it was decided that the moving picture educational films on venereal diseases now being prepared by commercial firms should be presented under the auspices of the society, and that some physician should be present to introduce the subject, in order to maintain the scientific character of the propaganda. The society voted to take part in the international hygiene exposition at Strasbourg in 1923.

Congress on Experimental Psychology. — Our German exchanges mention that the eighth gathering is to be held at Leipzig, April 17 to 20, 1923. Addresses are to be presented by O. Selz on "Types of Personalities and Means to Distinguish Them"; by R. Sommer and J. Cohn on "Sex and Personality"; by W. Peters on "Heredity and Personality," and by F. Krueger on "The Conception of Structure in Psychology." For further particulars, address Prof. F. Krueger, Liviastr. 6, Leipzig.

Royal Society Medals.—The Royal Society has awarded one of the royal medals to Prof. J. Barcroft of Cambridge, for his researches in physiology; the Buchanan medal to Sir David Bruce for his investigations and discoveries in tropical medicine; the Copley medal to Sir Ernest Rutherford for his researches in radioactivity and atomic structure; the Davy medal to Prof. J. F. Thorpe for his work in synthetic chemistry, and the Darwin medal to Prof. R. C. Punnett, professor of genetics in the University of Cambridge.

Chair Endowed at Glasgow.—On the death, recently, of Mr. Gemmell, brother of the late Dr. Samson Gemmell, regius professor of medicine in the University of Glasgow, the fortune which passed to him on the death of Dr. Gemmell, amounting to approximately £100,000, has been bequeathed to various Glasgow institutions. The sum of £20,000 is left to the trustees of the university for the purpose of endowing a chair in the faculty of medicine or science, to be known as the Samson Gemmell chair. The choice of subject is left to the trustees. The remainder of the estate will be used to establish a permanent Gemmell Bequest Fund, its income to be applied to charities in Glasgow.

The Semicentennial of the "Progrès Médical."—This Paris medical journal was founded in 1873 by Bourneville, and it announced as one of its aims the promulgation of the rather novel idea of the necessity for supplementing clinical examination with experimental tests. The semicentennial of the foundation was celebrated recently by a banquet and concert, which assembled three generations of medical journalists, nearly a hundred in all. Prof. C. Richet presided at the banquet, and the history of the *Progrès médical* was reviewed by the present editors, Dr. M. Loeper and Dr. M. Genty. This exchange has long been regularly indexed in the Foreign Current Literature department. Of late it has made rather a specialty of reproductions of bedside lectures by eminent clinicians, with footnotes to tell the final outcome of the cases.

Personal.—Dr. W. Hellpach, professor of psychology at the Technologic College at Karlsruhe, has been appointed *kulturminister* for the state of Baden. He is editor of the *Aerztliche Mitteilungen* and a leader in the organized system of graduate courses.——Prof. T. Rovsing of Copenhagen has been elected an honorary member of the Italian Urologic Society. He has also recently been made a commander in the Finnish "White Rose" order.——The *Policlinico* mentions the arrival at Rome of the fourteen public health officials of various nationalities who are on a tour of inspection of public health systems in different countries, under the auspices of the Rockefeller Foundation, at the request of the League of Nations. A number of addresses were made by Italian specialists; among others, Devoto, of the Clinic for Industrial Affections, spoke on the "Hygiene of Labor." The hospitals, colonies, sanitary systems, aqueducts and reclamation works were visited.——In addition to the other tributes to Professor Barduzzi on his retirement from the chair of dermatology and syphilology at the University of Siena, a gold medal was presented to him by the physicians of the Livorno district. He organized twelve years ago a regular course on the history of medicine, giving his services gratuitously, and this course he will continue.——The Marcel-Benoist Swiss prize commission has awarded the prize for 1921 to Dr. C. Brunner, director of the canton hospital at Münsterlingen, for his works on infected wounds.——Professor Hamburger was given an ovation by students and other friends on his return to Groningen after his two months' trip to this country. He is professor of physiologic chemistry, physiology and histology at the University of Groningen, and he had been invited to deliver the Dohme lecture at Johns Hopkins University. He lectured also at Boston, Washington, Toronto and Montreal, giving a total of fourteen lectures, on eight different subjects. The Dohme lecture was on "The Increasing Importance of the Problems of Permeability in Biology and Medicine."

Deaths in Other Countries

Dr. **E. Jepson**, former mayor of Durham and at one time ship surgeon; November 13, aged 73.——Dr. **E. H. Eastwood**; had served as bacteriologist to the Deccan War Hospital, Poona, India; to the North Russian Expeditionary Forces and to the Royal Victoria Hospital, Netley; demonstrator of pathology in the University of Sheffield; November 13, aged 30.——Dr. **Thomas Lyle**, alienist; former superintendent of the Birmingham Asylum; at Newcastle-on-Tyne, November 15.

CORRECTION

Dosage of Ergot.—In the article by J. C. Hirst on "Cesarean Section" in The Journal, December 16, the author is reported as stating that the dosage of ergot used represents 2 grains of the crude drug to each cubic centimeter. This should be 2 grams.

Government Services

THE 1924 BUDGET AND ANNUAL REPORTS OF VARIOUS DEPARTMENTS

Following is a summary of matters pertaining to the public health with appropriations in these documents:

The estimates of appropriations for 1924 as contained in the budget amount to $3,078,940,331, which is $195,298,359 less than the appropriations already made for the fiscal year, 1923.

ESTIMATED APPROPRIATIONS, WITH COMPARISONS FOR PREVIOUS YEARS

	Estimated 1924	Estimated 1923	Actual 1922
Executive Office and Independent Establishments:			
U. S. Veterans' Bureau Salaries and expenses........	$ 54,573,000	$ 34,416,909	$ 5,698,047
Compensation increase.......	....	3,500,000	2,134,908
Vocational rehabilitation.....	120,000,000	140,000,000	178,809,861
Hospital facilities...........	5,000,000	6,000,000	1,000,000
Medical services............	45,442,264	64,402,435	69,584,346
Department of Agriculture:			
Bureau of Animal Industry, meat inspection...........	$ 3,625,000	$ 3,610,000	$ 3,713,692
Bureau of Entomology, prevention of spread of moths.	510,000	550,000	506,322
Bureau of Home Economics..	45,000	45,000	....
Enforcement of Packers and Stock Yards Act..........	380,000	387,000	155,759
Enforcement of Insecticide Act	110,000	110,000	105,095
Department of Commerce:			
Bureau of Census...........	$ 1,607,000	$ 2,198,000	$ 2,764,445
Interior Department:			
Bureau of Mines...........	$ 1,700,000	$ 1,515,000	$ 2,351,398
Bureau of Education........	187,653	158,858	153,861
St. Elizabeth's Hospital......	910,000	1,100,000	948,495
Territories:			
Care of insane in Alaska..	187,653	158,858	153.861
Education in Alaska.......	325,000	320,000	296,618
Medical relief in Alaska...	88,000	88,000	101,823
Suppressing liquor traffic in Alaska	9,000	9,000	14,803
Building and Grounds of Public Works................	75,000	41,500	176,986
Howard University, Freedmen's Hospital........	57,000	......	....
St. Elizabeth's..........	140,000	210,000	10,600
Columbia Institute for Deaf	9,500	8,500	......
Special Funds:			
Alaska public schools......	50,000	50,000	56,319
Trust Funds:			
Personal funds of St. Elizabeth patients............	225,000	200,000	186,560
Indian Service:			
Support of schools.........	4,300,000	4,300,000	4,447,881
Pensions:			
Fees for examining surgeons	330,000	330,000	327,867
Department of Labor:			
Bureau of Immigration......	$ 3,002,775	$ 3,280,774	$ 3,578,199
Children's Bureau:			
Maternity and child hygiene	726,000	648,000	390,560
Miscellaneous	317,000	316,924	77,180
Employment Service.......	220,000	231,189	200,396
Women's Bureau..........	100,000	99,000	75,422
Navy Department:			
Bureau of Navigation Naval Home, Philadelphia........	$ 155,000	$ 158,000	$ 105,559
Bureau of Medicine and Surgery	2,265,000	3,029,000	3,566,812
Public works, hospitals and medical supply depots......	....	300,000	....
Naval Hospital Fund........	3,364,637	3,500,000	2,408,116
State Department:			
Relief and protection of American seamen..........	$ 195,000	$ 200,000	$ 240,786
Rescuing shipwrecked American seamen................	3,000	3,000	4,295
Prisons for American convicts in foreign lands.....	8,500	7,500	7,422
Treasury Department:			
Internal Revenue:			
Enforcement of prohibition and narcotic acts........	$ 9,000,000	$ 9,250,000	$ 7,215,255
Public Health Service:			
Salaries and expenses.....	3,297.672	3,538,723	4,049,158
Prevention of epidemic diseases	334,792	399,750	574,462
Pay of personnel and hospital maintenance........	4,878,925	5,611,394	3,801,658
Expenses, Division of Venereal Diseases...........	225,953	398,600	194,895
Public Works:			
Marine hospitals...........	15,000	500,000	166,393
Quarantine stations........	......	300,000	171,974
Hospital facilities and construction	1,200,000	8,000,000	10,852,995
War Department:			
Medical Department.........	$ 1,040,660	$ 845,899	$ 1,162.086
Soldiers' Home..............	5,785,000	5,833,800	9,690,515
District of Columbia:			
Health and sanitation........	$ 2,522,667	$ 1,819,346	$ 2,126,459

Annual Report of Postmaster General for 1922

A part of the report of the postmaster general deals with the steps taken by the Post Office Department in bettering the individual health of the postal workers throughout the country. This was accomplished through an arrangement with the U. S. Public Health Service in fifty-eight cities throughout the country where postal employees were given the privilege of a voluntary medical examination by surgeons of the U. S. Public Health Service. The arrangement allows the examination of 100 employees a day in each of these cities. During last year also 985 volunteer postal workers were examined in New York and Chicago as a test, with the result that many defects were found in their eyes, teeth, tonsils and feet, and in their diet and their general physical condition. Mention is also made by Postmaster General Work in the annual report of a crusade to improve the physical working conditions in the post offices throughout the country.

Annual Report of War Department for 1922

There are several items of interest to the Public Health contained in the report of the War Department dealing with physical training and education:

Citizens' Military Training Camps.—During the year, twelve citizens' military training camps were conducted for the period of one month each. Attendance at the camps was purely voluntary. Instruction was provided by selected Regular Army officers and officers of the Reserve Corps. Medical officers, chaplains and hostesses were also on duty. Altogether, 40,697 applications were received, 11,202 of the applicants being authorized by the War Department to report, of whom 9,973 completed the course.

Education and Recreation.—The total enrolment at army post schools during the year was 13,460, which includes 8,365 in vocational courses and 5,095 in educational courses. The army personnel which served as instructors at post schools included 178 commissioned officers, nine warrant officers and 994 enlisted men. In addition, there were forty-four civilian instructors employed. An appropriation of $1,200,000 was made for the vocational education of soldiers during the year, of which $120,000 was saved.

Chemical Warfare Service.—The activities of the Medical Division of the Chemical Warfare Service during the year have been concerned chiefly with the investigation of the after-effects of warfare gases on both human beings and animals. A special study is being made of the development of tuberculosis as a result of gas exposure. Extensive arrangements are also being made for determining the action of gases on body metabolism, the blood and excretions of the body.

Annual Report of Navy Department for 1922

The principal features of the report of the Navy Department dealing with health include education in the naval establishment and the Navy Medical Corps.

The educational system has been expanded by the Bureau of Navigation during the last year to such an extent that 322 ships and stations were using the courses prescribed, with an approximate enrolment of 8,000 men.

The Bureau of Medicine and Surgery has continued its educational policy and special instruction. Three new schools are in process of organization, namely, a graduate school of dental medicine, school of aviation medicine, and a school of field service with marines. In spite of various attempts to obtain suitable candidates for admission into the Naval Medical Corps, few applications have been received, and the personnel is still short of its required strength. The Hospital Corps is approximately 600 under its authorized strength, the report states. The Navy Nurse Corps has continued to assist efficiently in the care of the sick in naval hospitals and on board hospital ships.

Annual Report of the Interior Department for 1922

The report of the Interior Department contains quite a number of items of public health interest:

Bureau of Education.—A reorganization of this bureau as effected during the last year, it is pointed out, has proved successful. Importance of the work in school hygiene and physical education has justified the employment of an additional specialist and an additional clerk. A new division of physical education and school hygiene was recently created. The rural schools division has done effective work circulating among rural school officers and others 25,070 leaflets and 20,300 circulars on subjects pertaining to rural school work. The division has also sent representatives into twenty-two different states for the purpose of investigating school conditions.

Care of Insane and Other Relief in Alaska.—At the close of the year there were 231 patients at the Morningside Hospital for the Insane in Alaska, an increase of fourteen patients over the preceding year. The sanatorium there has under construction a modern building to be used exclusively by the children. The work of education for the natives of Alaska has been successfully conducted. It includes the school service, the medical service and the reindeer service.

Eleemosynary Institutions.—St. Elizabeth's Hospital: There were 3,900 patients, as against 3,827 a year ago, representing an increase of seventy-three patients. There has been a steady improvement in the care and treatment of patients and the physical equipment of the institution.

Freedmen's Hospital: The number of patients under care totaled 3,553, as compared with 3,773 in the previous year, showing a decrease of 128. The physical condition of the hospital is reported as having been improved. One of the great needs, the report adds, is a laboratory building.

Columbia Institution for the Deaf: During the fiscal year there were under instruction in the advanced department of the institution, known as Gallaudet College, sixty-five men and forty-nine women, a total of 114, representing the District of Columbia, Canada and thirty-five states. This is a decrease as compared with the previous year. Of the total number in the Kendall School, forty-two were admitted as beneficiaries of the District of Columbia.

Maryland School for the Blind: Under this part of the report it is stated that the Secretary of the Interior has authority to issue permits for the instruction of blind children of the District of Columbia at this institution.

Annual Report of the Commissioner of Internal Revenue

The Prohibition Unit and the Narcotic Division are included in this report.

Prohibition Unit.—A complete reorganization of this unit occurred during the year with satisfactory results. The report shows that the number of employees in Washington increased from 503 at the beginning of the year to 596 at the close. In the field, the force was increased from 1,818 to 2,881.

Narcotic Division.—During the year the report shows that a total of 71,171 ounces of narcotic drugs and preparations came into the possession of the government through enforcing the internal revenue narcotic laws, an increase of 37,082 over the previous year. At the beginning of the year the narcotic field force consisted of 157 agents and inspectors, which number was increased to 176 during the year.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Dec. 4, 1922.

Slander Leads a Physician to Attempt Suicide

Every physician has to endure at some time the slander of idle and evil tongues. Recently an elderly physician, who had retired from practice, attempted to perform a small operation for genito-urinary trouble on a widow, who was an old patient and friend. After ascertaining the exact condition under anesthesia, he proposed to swab with iodin. The woman expressed a wish that no one else be present in the room, a request to which he reluctantly consented. After a preliminary injection of one-sixth grain of morphin, he proceeded to induce light anesthesia with a mixture of chloroform, two parts, and ether, three parts. The patient took the anesthetic well, but after a few minutes stopped breathing. Resuscitation was attempted, and two other physicians were summoned; but the patient never rallied, and died nine hours after the induction. The physician had previously administered an anesthetic to the patient on four occasions, and although he knew that she was suffering from mitral disease with some hypertrophy and dilatation, he did not anticipate any trouble with the anesthesia. He gave a certificate recording the cardiac condition and stating that the cause of death was collapse after administration of an anesthetic. The certificate was accepted without demur, but the fact came out afterward that the physician was one of the patient's executors, and benefited to a considerable extent under her will, which was made many years ago. Then the voice of scandal was heard. At the funeral the remark was made that the physician had practically murdered her. Complaints reached the coroner, who ordered an exhumation and postmortem examination, to which the physician was not invited. He took a room at a hotel under an assumed name, where he was found unconscious from an overdose of sulphonmethane. He left a letter addressed to the coroner in which he said: "It seems clear from the action of the authorities and from their not inviting me to the postmortem on Mrs. Jelfs that some charge is contemplated against me, and this can only be of one nature, i. e., to show that I was interested in her death. The anxiety of the last few days, my dear wife's grief, and the blaze of posters in the evening papers, together with the importunities of the press, have rattled me to such an extent that I am going to sleep. I can be shown to be interested in the death, but was more interested in the patient's life, for it is known to others that she was on the point of making a new will which would have been to my advantage. With regard to motive, I wish to put forward that my wife's marriage settlement covered some $360,000, and she has never denied me anything." The physician recovered, and the necropsy on his patient completely exonerated him; but he was put on trial for attempted suicide, to which he pleaded guilty. The judge passed a sentence of four days' imprisonment, which meant that he was immediately discharged. The judge said that the case was particularly pathetic. The physician had behaved in a way that was entirely consistent with medical etiquette, and had done everything possible to save the patient's life. He condemned the scandal mongers and the statements in the press. He stated that we do not recognize trial by newspaper in this country. He would not say that the physician's character had been reestablished; it had been doubly established. From the medical standpoint, the comment is obvious that the physician was imprudent in his own interest when he administered an anesthetic alone to a patient by whose death he was a beneficiary.

Surgeon Sued for Performing an Operation Without the Patient's Consent

At Capetown, a case came before the supreme court in which a surgeon was sued for $50,000 damages because he performed a serious operation for cancer in a public hospital without the patient's consent. He was, however, under the impression that the patient's consent had been obtained, and he maintained that the operation was the only method of preventing death. The plaintiff's lawyer argued that his client was entitled to refuse an operation and take the risk of death, and that the surgeon should have explained to him the necessity for operation and obtained his consent. The jury returned a verdict for the defendant.

Indian Medical Research

At the recent session of the Indian legislature at Simla, the assembly unanimously passed a resolution supporting a proposal of the governing body of the Indian Research Fund Association to establish an imperial medical research institute at Delhi. The association was founded in 1911, and has organized teams for research in various parts of India on leprosy, hookworm, deficiency diseases, kala azar, malaria, yellow fever and lathyrism. The results are published in the *Indian Journal of Medical Research*. It is now felt that there is need for a central institute where the best workers will coordinate the results. There is no lack of funds, even in these impecunious times. In addition to the government subsidy, certain anonymous donors in India have made generous contributions on condition that the institute will train Indians and create an atmosphere in which to cultivate Indian talent to cope with the medical and health problems affecting the people of India. After the scheme had been provisionally planned, the Royal Society was asked to nominate a leading specialist from home to investigate the proposal. Professor Starling, the occupant of the chair of physiology at University College, was accordingly sent out to India. He has reported in favor of a central institute made up of two separate parts—an institute proper and an institute of clinical medicine. In the former there should be established at once three sections, one on bacteriology, one on medical biology (to include entomology, protozoology and helminthology) and the third on biochemistry. Each of these should have a director with one or more assistants. Professor Starling also suggested that later on sections should be developed for pharmacology and medical statistics. For the institute of clinical medicine, he proposed a hospital of at least 120 beds with attached laboratories, which were to be chemical, bacteriologic and pathologic for graphic measurements and for cardiography and roentgenography. The whole unit he wished to place under a director with three assistants, one chemical, one bacteriologic and pathologic, and one clinical. He also held that the presidency towns of Calcutta, Madras and Bombay should develop their schools of tropical medicine, and that selected workers from these should be sent to the central institute at Delhi.

The Surgery of the War

The second of two volumes on surgery, which form part of the medical history of the war, prepared under the general editorship of Major General Sir W. G. Macpherson, has been published. It deals with special surgery as distinct from the more general surgery of the first volume. A dominating feature of war surgery, as revealed in the new volume, is the remarkable development of military orthopedics in the special military surgical hospitals. Restorative work, involving replacements of extensive bony losses to the face, jaw and limbs, and plastic operations for injuries to the face were carried out for the first time by the army medical authorities. Major General Sir G. H. Makins contributed the chapter on injuries to blood vessels. Remarkable results were achieved in three directions: joining the cut ends of vessels, stitching slits in injured vessels, and replacing interruptions in vessels by silver tubes for the temporary circulation of the blood. The last operation was learned from Professor Tuffier, with whom the British surgeons were in constant association. The tube is coated with paraffin, and though it becomes occluded it allows time for the collateral circulation to be established.

Sight Testing by Opticians

Sight testing and the prescribing of glasses by opticians are extensively practiced in this country, often with deplorable results. In 1906 and again in 1919, the opticians made applications to the legislature for the legal recognition of their craft for the purpose of sight testing. This has led to the issue by the Council of British Ophthalmologists of an important report on the subject. The council states that it would welcome any scheme which would lead to greater efficiency in the making and fitting of spectacles, and that it recognizes the need for greater supply of properly trained opticians. Ophthalmic surgeons have often to deplore the inefficiency displayed in carrying out their prescription of glasses. The opticians state that a large majority of persons desiring refraction visit them rather than ophthalmic surgeons, and their association argues that it is in the public interest that the optician should be a skilled man and under supervision. A qualified optician, they say, would recognize a case in which the eye could not be properly treated by glasses, and would refer the patient to a physician. But the Council of British Ophthalmologists rejoins that no course of training short of full medical qualification can secure the skill necessary for this. In their opinion, state recognition of sight testing by persons possessing only an optical qualification would not be in the interests of the public. Changes in the refraction are often produced in the early stages of serious eye disease, and in many of these the optician may be successful in raising the acuteness of vision to normal, but almost inevitably he would fail to recognize the disease. Indeed, disease serious to the eye and even threatening life may occur with perfect central vision. An adequate examination of the eyes and determination of the refraction cannot be made in young children without the use of mydriatics. These cannot be used in an indiscriminate manner, and in certain diseases of the eye they are dangerous. The treatment of headaches associated with errors of refraction demands not only the use of glasses but also constitutional treatment which can be given only by a physician. The sight-testing optician endeavors either to supply spectacles with which the customer considers he can see to his liking, or to provide such lenses as will make the eye focus accurately. All are agreed that the former procedure is indefensible. As to the latter, the eye is an integral part of the body. Without exposing it to the greatest danger it cannot be dealt with as an inert, isolated optical instrument.

Rat Conference

A rat conference, attended by health officers and other officials, has been held in London to inaugurate the fourth "annual national rat week." Mr. E. C. Read, technical adviser on rat repression to the ministry of agriculture, opened the discussion. He said that in this country we had only played with the question of rat and mouse destruction. Our commerce made us a great center of rat attraction. Rats came ashore from the ships to the docks and warehouses, and then migrated to the cities, where they had an excellent means of communication through the sewers. If the sewers were not kept clear, the buildings never could be. He suggested that the health authorities of London and the surrounding counties of Middlesex, Essex, Surrey and Kent organize a unified scheme for the treatment of the sewers in that area. All metropolitan boroughs bordering on the river Thames should employ a whole-time rat catcher, whose services should be at the disposal of occupiers of infested premises.

Sir Frederick Andrews (pathologist, St. Bartholomew's Hospital) emphasized the danger of using a bacterial virus for the destruction of rats in urban districts. Professor Bainbridge had experimented with a large number of rat viruses and found that he was able to kill from 30 to 60 per cent. of the rats fenced in an area under natural conditions. But the surviving rats acquired immunity from the viruses. The viruses used came under two heads: one was a variety of the bacillus of Gaertner, which in man caused a considerable number of cases of food poisoning; the other, *Bacillus aertrycke,* also affected man. During the autumn, there had been in this country a considerable number of cases of food poisoning which had affected small groups in one household and were traced to one or the other of these bacilli. Some years ago, a large number of men employed in a drapery store and living on the premises were taken ill with abdominal pain, diarrhea, vomiting and pyrexia. Women employed at the same establishment and living in a different part of the premises were not affected. In the men's premises, but not in the women's, a rat virus had been used. In country districts, rat viruses might justifiably be employed, but in urban districts they should not; reliance should be placed on the use of barium carbonate and squills.

PARIS

(From Our Regular Correspondent)

Dec. 1, 1922.

Public Health Statistics in France

The minister of public health has commissioned Dr. Raoul Pacaud to make a critical study of the public health statistics of France. With a view to ascertaining the methods that are employed in the various regions of France in the collection of statistics on public health, Pacaud communicated with 674 municipalities, large and small, throughout the country. He received 600 replies. Of these 600 communes, 267 stated that no medical certificate accompanied the declaration of death. Of the 333 communes in which the execution of a medical certificate is customary, fifty-one require that it shall be made out by a public health officer; in 220 it is prepared by the attending physician, while sixty-two do not require a statement of the cause of death. The mayors of the communes in which the deaths are reported by public health officers admitted that the public health statistics could not be relied on for their accuracy, no matter how conscientious the public health officer was in fulfilling his duties, for the reason that it is difficult for him to secure accurate information on which to base his retrospective diagnosis. It would seem, therefore, that the best method is to require the attending physician to make out the death certificate; but the right of privileged communication with one's physician plays an important rôle in France.

The characteristic features of the system in use at Arcachon (which has since been adopted by several more important towns, for instance, Clermont-Ferrand and Pau) are these: The declaration of death is based on a certificate of the attending physician, which certificate consists of three parts: (1) one section is intended for the public health officer and bears the name and age of the deceased and the date of death; (2) a second section is intended for a physician who is designated by his confrères to record the statistics; the name of the deceased is omitted but the name of the disease causing the death is given; also all the demographic information needed is supplied; this second section must be forwarded under seal by the attending physician, immediately after the death of the patient, to the physician in charge of the statistics; (3) the third section is in the nature of a memorandum which the attending physician keeps; he may add any matters of information that he desires, which will later prove of great value for general reference. This system seems to guarantee a maximum of accuracy, and respects, at the same time, the right of privileged communication.

The International Conference on Serums

The second Conférence sérologique internationale, which was convoked by the League of Nations Health Conference, has just been held in Paris in the Pasteur Institute. Dr. Roux, director of the Pasteur Institute, congratulated the members of the conference on the important progress that had been made in the standardization of serums and serology. These countries were represented: France, Great Britain, United States, Japan, Belgium, Austria, Denmark, Germany, Poland, Roumania, Russia and Switzerland.

Professor Bordet and Professor Ehlers

During the recent ceremonies in connection with the fall opening of the University of Paris, Dr. H. Roger, dean of the Faculté de médecine, announced that Professor Bordet of the University of Brussels and Professor Ehlers of the University of Copenhagen had been granted by the Faculté de médecine the title of doctor of medicine *honoris causa.* Roger made reference to the many new ideas that Bordet's researches had brought to science, and to the immense service that his discoveries had rendered humanity. The original work of this scholar, whom he referred to as "one of the greatest biologists of the present age," was awarded the Nobel prize at the suggestion of the Faculté de médecine of Paris.

Professor Ehlers studied in France, having completed at the Saint Louis Hospital in Paris, nearly forty years ago, his studies in dermatology. He has devoted himself chiefly to the campaign against leprosy. During the war, he gave liberally of his time and energy to the support of the French cause, having organized and directed the Danish auxiliary ambulances in Belgium, France, Poland, Russia and Serbia. He helped organize movements in favor of France, and aided also in the repatriation of French prisoners.

A Pasteur Tag Day

At the suggestion of the *Bienvenue française,* a special tag day will be set apart in connection with the commemoration of the centenary of Pasteur. The funds collected will be turned over to the Academy of Sciences, which will distribute them among French scientific laboratories.

Modifications in the Regulations of the Academy of Medicine

At a recent session the Academy of Medicine discussed in a secret committee meeting a number of changes in its regulations. Among the proposed reforms, the plan of bestowing the title of "honorary member" on academicians who, for reasons of health or owing to the fact that they reside at a distance, are never present at the meetings, in order to be able to admit new members who would be more active, did not meet with the support of a majority. However, the academy decided to make extensive changes as regards the distribution of members among the various sections. The eleven sections existing at present are to be reduced to six, the lines of which will not be so closely drawn, so that it will be possible to admit to membership specialists for whom, under the present condition of affairs, it is difficult to find places.

BERLIN

(From Our Regular Correspondent)

Dec. 2, 1922.

Injurious Effects of Hypnosis

Prof. H. Schultz, formerly an assistant of the Jena psychiatrist Professor Binswanger, but now director of the Lahmann Sanatorium at the "Weisse Hirsch" near Dresden, published recently an enlightening article on the injuries to health caused by hypnosis. By hypnosis we mean, of course, the bringing about of a changed consciousness through the influence of words and other forms of suggestion. The suggestion is transmitted through the application of highly uniform stimuli; for instance, through fixing the gaze on a certain point or by looking the suggestor fixedly in the eye (fascination); by slow, uniform strokes or passes applied to the body of the subject, as is done in representations of animal magnetism, and by still other methods. Everything depends on the will of the subject. Only subjects that voluntarily place themselves at the disposal of the operator or those that are more or less influenced by embarrassment, fear, unrest, mystical clouding of judgment, and the like, are brought by these measures into an hypnotic state, in which various manifestations are produced according to whatever turn the operator gives the situation. Frequently, when the subject has come out of the hypnotic state, he has only a dim recollection of what has occurred. Especially characteristic for hypnosis is an extraordinary receptivity for ideas (heightened suggestibility). While it is true that even in a waking condition every thought has the tendency to be translated into some manifestation of the will or the emotions, this tendency toward realization becomes in the hypnotic state extremely accentuated. The higher qualities of the mind, such as judgment, self-determination and clear orientation, are, in the hypnotic condition, beclouded and inactive. Just as, in the waking state, a purpose does not occupy permanently the consciousness of the willer but breaks its way through only after the lapse of a certain length of time, so it is with the realization of ideas received while in a hypnotic state; they often appear after a long time has elapsed, and their origin remains obscure to the one who experiences them. For instance, the hypnotized subject is told to be present in a few days at a certain place at a certain hour. He does as he is told, but usually avers that he did not know that he was acting under hypnotic influence, and assigns other reasons for his actions.

It would be an entirely false conception to conceive of these manifestations as merely a harmless play of the imagination. A living man is an organic unit, and emotions that are called forth in a hypnotized subject cause distinct and pronounced variations in metabolism. For instance, if the suggestion is given the subject that he is swallowing milk, the gastric secretion will be different from that produced if the suggested fluid is bouillon. While these phenomena are analogous to those occurring in the waking condition, there is one manifestation that is characteristic of hypnotic experiments, the reversing of consciousness. Hypnosis is an experiment on the brain. Therefore, no conscientious physician will hypnotize a subject unless he has good reason to do so, any more than he would perform a surgical operation unless the indications were present, and the conception that hypnosis is based on cerebral changes, and the evidence of the accompanying accentuated general bodily modifications make it readily understood that careless playing with these things in unsuitable cases may lead to grave injuries to health. These injuries consist of unpleasant after-effects, such as a feeling of pressure in the head, dizziness, disturbances of sleep, disturbances of speech, and a state of motor or nervous excitement, and are due either to false technic or—which is even more serious—to the selection of unsuitable subjects for the experiment.

Nervous persons of all kinds, especially if there is a disposition to mental disease, may become seriously ill if they are the subjects in ill advised experiments in hypnotism. For hypnotic experiments only such persons may be employed as have been declared suitable by physicians familiar with the conditions. The layman is entirely incapable of passing judgment in this matter. Any knowledge of the subject that is worth while can be obtained only by special and thorough scientific training, and any person who jeopardizes the health of his fellow men by instituting, under the guise of experimentation, sensational stunts in hypnotism is criminally culpable. Mental disturbances lasting several months as the result of hypnosis applied to unsuitable subjects are fully attested, and there have been numerous penalties imposed on hypnotic operators on account of the impairment of the health of their subjects.

Besides the dangers to health, there are grave social dangers associated with an improper use of hypnotism. Hypnotic experiments if abused may easily lead to the enslavement of a subject, which may be taken advantage of by unscrupulous persons. The question whether a person in a hypnotic state may be induced against his will to commit a crime through automatic compliance with a suggestion does not seem to present very serious aspects. Schultz thinks that such a thing would be impossible.

A Scheme of Automatic Fee Adjustment

Since the cash fees that physicians receive for their services these days, partly on account of the depreciation of the circulating medium and partly owing to the high prices of foodstuffs, are often insufficient to pay their living expenses, they often resort in agricultural regions to the scheme of accepting payment in kind for their services. For instance, the physicians in Allgäu, Bavaria, have made butter the basis of their liquidations. For every consultation during their regular office hours they exact 1 pound of butter, and for a domiciliary visit they require 1½ pounds of butter to be furnished them. In the Rhine Province the physicians have made wheat the basis of payment. For an office consultation the minimum charge is 3 pounds of wheat; for a call in the home they figure 5 pounds of wheat; for a double kilometer of extra mileage they demand 1½ pounds; for a confinement, 50 pounds, and for the management of premature birth, 25 pounds.

Marriages

Daniel E. Berney, Scranton, Pa., to Miss Rose Marie Quittelier of Brussels, Belgium, in Brussels, October 30.

Thomas C. Witherspoon, Butte, Mont., to Miss Rita De Courtney of Anaconda, December 15.

Philip Childs Potter, New York, to Miss Zaidee Tillinghast, Milton, Mass., December 16.

William A. Bradshaw, Pittsburgh, to Miss Helen Logan of Carnegie, Pa., October 28.

Simon Leonard Victor to Miss Doris D. Levy, both of Pittsburgh, November 30.

Laurence M. Codori to Marie A. Silk, both of Philadelphia, November 30.

Deaths

John Edwin Owens, Chicago; Jefferson Medical College, Philadelphia, 1862; died, aged 86, from bronchitis, at his home in Chicago, December 21. Dr. Owens was born in Charleston, Md., in 1836. Following his graduation he entered the medical service of the Union Army and was assigned to duty in Chicago. He became attending surgeon at St. Luke's Hospital in 1865, continuing in this capacity until 1912, when he became consulting surgeon. He was chief surgeon of the Illinois Central Railroad from 1869 to 1911, and of the Chicago and Northwestern Railway continuously since 1888. He also served as medical director of the Chicago Exposition in 1893. He was professor of orthopedic surgery in Rush Medical College from 1879 to 1882, of the principles and practice of surgery in the Women's Medical College from 1877 to 1883, and of the principles and practice of surgery in the Chicago Medical College. At the time of his death he was emeritus professor of surgery in Northwestern University. Dr. Owens was well known as a writer on surgical subjects and was prominent in medical and surgical organizations throughout the country.

Henry Whitman Kilburn, Lucerne, Switzerland; Medical School of Harvard University, Boston, 1884; member of the Massachusetts Medical Society; the American Ophthalmological Society and the New England Ophthalmological Society; formerly ophthalmic surgeon to the Carney Hospital, Boston, and instructor in the Boston Polyclinic; aged 65; died, December 4, in Los Angeles.

Joel W. Fithian ⊕ Camden, N. J.; Jefferson Medical College, Philadelphia, 1887; member of the Philadelphia Pediatric Society; superintendent of the Sunny Rest Sanitarium, Ancora; formerly obstetrician to the Cooper Hospital; member of the board of health; at one time county coroner and member of the city council; aged 58; died, December 9.

Albert Ralston Matheny ⊕ Pittsburgh; Jefferson Medical College, Philadelphia, 1898; member of the American Association of Industrial Physicians and Surgeons; served in the M. C., U. S. Army, during the World War; on the staff of the Presbyterian and chief surgeon of the Pittsburgh Hospital, where he died, December 9, from pneumonia, aged 48.

Jesse Montgomery Mosher, Albany, N. Y.; Albany Medical College, Albany, N. Y., 1889; clinical professor of mental diseases at his alma mater; member of the Medical Society of the State of New York; American Neurological Association and the American Psychiatric Association; aged 58; died suddenly, December 7.

Jasper D. Fitch, Mohawk, N. Y.; Medical Department of the University of the City of New York, 1872; member, and at one time president of the board of education; author of "A History of Herkimer County" and many other works; aged 73; died, December 5, at the Masonic Home, Utica, from injuries sustained in a fall.

Lodrick M. Jones, Milledgeville, Ga.; Atlanta Medical College, Atlanta, Ga., 1878; member of the Medical Association of Georgia and the American Psychiatric Association; for twenty-five years on the staff, and for fifteen years superintendent, of the Georgia State Sanatorium, where he died, December 7, aged 72.

Warren David Calvin ⊕ Fort Wayne, Ind.; Rush Medical College, Chicago, 1895; formerly professor of dermatology and physiology at Fort Wayne College of Medicine; served in the M. C., U. S. Army, during the World War, with rank of captain; aged 55; died, December 6, from arteriosclerosis.

Martin N. Triplett, Floodwood, Minn.; University of Louisville Medical Department, 1895; village president; member and president of the board of education; at one time member of the North Dakota state legislature; aged 56; died, December 8, from myocarditis.

John Gilbert Phillips ⊕ Northfield, Minn.; Northwestern University Medical School, Chicago, 1905; formerly city physician; aged 45; died, November 27, at St. Mary's Hospital (Mayo Clinic), Rochester, following an operation for biliary calculi.

Edwin Thompson Bruce ⊕ Louisville, Ky.; Hospital College of Medicine, Louisville, 1905; served in the M. C., U. S. Army, during the World War; aged 42; died, December 4, following an appendectomy.

Samuel Ramsey Milliken, Dallas, Texas; Columbia University College of Physicians and Surgeons, New York, 1902; served in the M. C., U. S. Army, during the World War; aged 43; died, December 3, in Washington, D. C., following a long illness.

Miller Royal Whitenack ⊕ Newark, N. J.; Columbia University College of Physicians and Surgeons, New York, 1900; a member of the New Jersey Pediatric Society; aged 48; died, December 12, at the Presbyterian Hospital, from septicemia.

Henry Orendorf, Louisville, Ky.; Kentucky School of Medicine of Louisville, 1871; formerly professor of cutaneous, venereal and genito-urinary diseases at the University of Louisville Medical Department; aged 79; died, December 7.

Enrique V. Agramonte, New York; Bellevue Hospital Medical College, New York, 1872; formerly of Cuba; consulting ophthalmologist to the French Hospital; aged 77; died, December 4, from myocarditis and pulmonary edema.

Alexander R. Mitchell, Hereford, Md.; University of Maryland School of Medicine, Baltimore, 1877; member of the Medical and Chirurgical Faculty of Maryland; aged 67; died, December 12, at the Mercy Hospital, Baltimore.

George Ashton Bardsley ⊕ Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1897; formerly on the staff of the St. Christopher Hospital for Children; aged 47; died, October 26.

Albert J. Remsberg, Warfordsburg, Pa.; University of Maryland School of Medicine, 1874; a practitioner of Warfordsburg for more than a half a century; aged 76; died, December 7, from senility.

T. Mitch Anderson, Mountain View, Mo.; College of Physicians and Surgeons, Keokuk, Iowa, 1881; member of the Missouri State Medical Association; died, November 2, from cerebromeningitis.

Fuller S. Derr, Watsontown, Pa.; Jefferson Medical College, Philadelphia, 1884; member of the Medical Society of the State of Pennsylvania; aged 62; died, December 6, from acute indigestion.

John Jewett Darby, Port Townsend, Wash.; University of Oregon Medical School, Portland, 1918; on the staff of the U. S. Marine Hospital; aged 32; died, December 8, from appendicitis.

Charles Burr Caldwell ⊕ Lincoln, Ill.; St. Louis University School of Medicine, St. Louis, 1905; managing officer of the Lincoln Home and Colony; aged 43; died suddenly, December 17.

Abraham Lincoln Burson, Irwin, Ohio; Ohio Medical University, Columbus, 1896; member of the Ohio State Medical Association; aged 56; died suddenly, December 3, from heart disease.

Addison E. Cattron, Sharpsville, Pa.; Cleveland Medical College, 1894; member of the Medical Society of the State of Pennsylvania; aged 60; died, December 6, from pneumonia.

George Ewh, Talmadge, Neb.; University of the City of New York, 1878; member of the Nebraska State Medical Association; aged 68; died in December, from heart disease.

Louis Daniel Joseph ⊕ Bradford, Pa.; Jefferson Medical College, Philadelphia, 1904; aged 43; shot himself accidentally while cleaning his gun, November 23.

Peter B. Davis, Earlington, Ky.; Vanderbilt University Medical Department, 1876; formerly member of the state legislature; aged 66; died, December 4.

George Frederick Speiser, Los Angeles; Northwestern University Medical School, Chicago, 1921; aged 36; died, December 11, in Chicago, from tuberculosis.

Charles Bruff Downing, Genoa, Ohio; Toledo Medical College (Medical Department Toledo University), Toledo, Ohio, 1913; aged 46; died, December 3.

David R. Stout, Butler, Tenn.; Medical Department University of Tennessee, Memphis, 1891; aged 62; died, November 7, from uremia.

Charles F. Poppele, Decatur, Ill.; Eclectic Medical Institute, Cincinnati, 1874; aged 82; died, December 7, from acute atrophy of the liver.

Jerome S. Beeler, Evansville, Ind.; Hahnemann Medical College and Hospital of Chicago, 1883; aged 73; died, December 10.

Nelson S. Westcott, New York; Medical Department of Columbia College, New York, 1865; aged 81; died, December 4.

John A. Meskimen, Allison, Ill. (licensed, Illinois, 1878); Civil War veteran; aged 79; died, December 3, from senility.

Loren R. Simpson, Richmond Dale, Ohio; Eclectic Medical Institute, Cincinnati, 1879; aged 69; died, December 9.

The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other General Material of an Informative Nature

TWO ELECTRONIC DIAGNOSES

The Reactions of a Guinea-Pig and a Sheep to the Reaction of Abrams

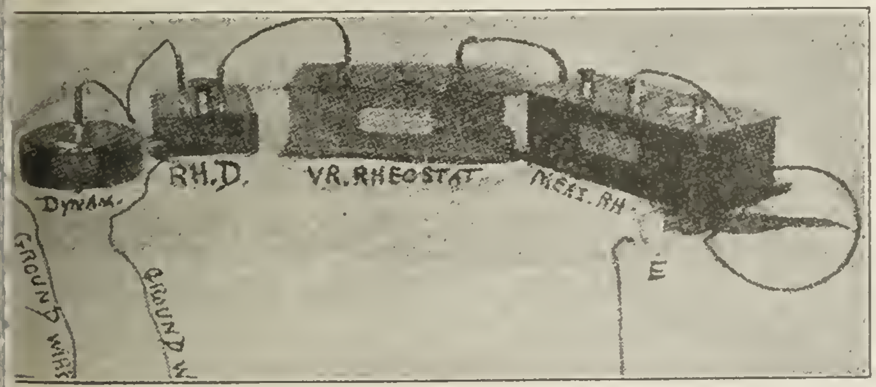
"A friend of mine, and an enthusiastic patient of one of the ostles of Dr. Albert Abrams, urged that I send a specimen blood for diagnosis." Thus writes Dr. J. E. Hughes of hawnee, Okla., who sends us the diagnosis sheet that was ceived from one J. W. Eisiminger of Oklahoma City who erates a "Physico-Clinical Laboratory for the Electronic eactions of Abrams." Eisiminger, like many of Abrams' isciples, is not a physician but an osteopath. The report ade by the osteopath on the specimen of blood sent in by r. Hughes reads as follows:

> "Congenital diminished resistance, cerebro-spinal and digestive strain, 39 ohms, Metastatic Carcinoma. 6 Liver and right colon, Tuberculosis Genito-urinary tract, 6 ohms. Colisepsis. 4 ohms. streptococci, infection, 12/25 ohms. in gall bladder region."

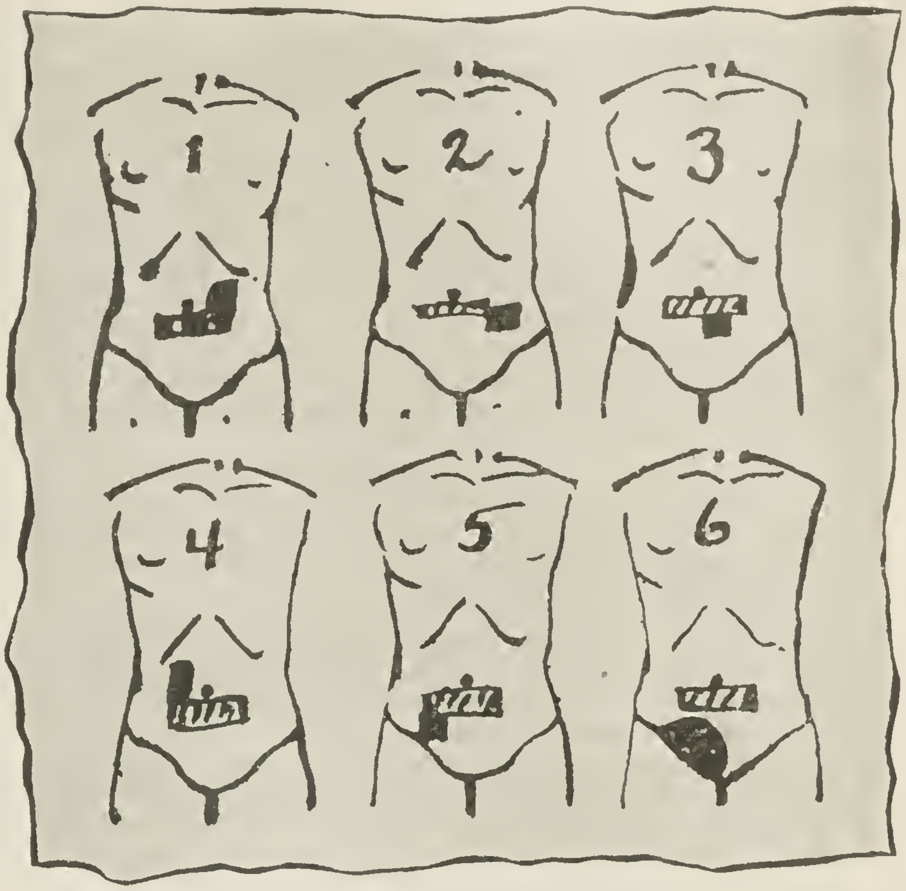
If, after reading this diagnosis, you feel a little bit dazed d are not quite sure just what it means, do not blame he Journal—we don't either. It is copied, just as given, om the typewritten report furnished by Eisiminger. One ets the impression that the patient was in bad shape. Metastatic carcinoma," "Tuberculosis genito-urinary tract," Colisepsis," a streptococcic infection in the gallbladder region -all sound portentous and disquieting. But on reading rther in Dr. Hughes letter we learn: "The specimen was t from Mr. P———, whose history was sent with it, but as obtained from one of our unsuspecting and believed-to-be rtuous female guinea-pigs. The pig was duly arranged facing est when the blood was taken." In closing, Dr. Hughes entions that the collection of the blood specimen was witessed by three physicians and that, in view of the diagnosis iven, they all feel that "a great injustice has been done our uinea-pig family."

We fear, however, that Dr. Hughes may have omitted some nportant steps in the obtaining of the specimen. While he dmits that the guinea-pig faced west when the blood was aken, he does not state whether or not the operation was erformed in a subdued light, which, it seems, is one of the quirements. Neither does he mention whether or not it was red-headed guinea-pig; people with red hair, according to r. Abrams, are in a class by themselves. But most important of all, nothing seems to have been said by Dr. Hughes of the religious affiliations of the guinea-pig. As has been mentioned before, Abrams claims that one's electronic reactions vary with his religious belief so that Abrams can determine a man's religion by testing a specimen of his blood.[1] We reproduce with this article part of a page from Abrams' house-organ, *Physico-Clinical Medicine*, showing the various areas of dulness in a Catholic, a Methodist, a Seventh Day Adventist, a Theosophist, a Protestant and a Jew, respectively.

Who knows but Mr. Eisiminger may have assumed that the blood specimen he had under examination was from a Theosophist when the guinea-pig may have been a Christian Scientist? Now the area of dulness for Christian Scientists has not yet been mapped out by Albert Abrams—possibly it is the *terra incognita* of the abdomen. In any case, it was expecting too much of Osteopath Eisiminger to suppose that he would be able to give a correct diagnosis when such vitally important data as the religion of the patient was withheld.



This is the apparatus used by Albert Abrams and his disciples for agnosing the disease of John Doe from a few drops of John's blood. e specimen of blood is put in the "dynamizer" (*"Dynam."*). The nergy" which is said to emanate from this blood ("energy" which body but Dr. Abrams and his disciples has ever been able to demonrate) travels through the wire to the "rheostat dynamizer" (*"Rh. D."*), ich is said to be used "for stepping up energy." The mysterious force then said to travel by wire to the "vibratory rate rheostat" (*"VR. eostat"*), which is said to admit energy "at vibratory rate of disease." om this the "energy" travels by wire to the "measuring rheostat" *Meas. Rh."*) for "determining energy." But it has not yet reached e end of its trip; it goes on through a wire to the electrode (*"E."*) hich is applied to the healthy "subject" who has to face west and must in a dim light! Then Abrams, and his followers, by percussing the domen of the "subject" purport to tell what ails John Doe and where s ailment is located.



Photographic reproduction from Albert Abrams' house organ *Physico-Clinical Medicine* for September, 1922. This chart represents the areas of dulness Abrams claims to have found in determining the religion of individuals by means of the "Electronic Reactions." 1 represents the areas of dulness for a Catholic; 2, Methodist; 3, Seventh Day Adventist; 4, Theosophist; 5, Protestant; 6, Jew.

As though this were not enough, now comes Dr. L. J. Moorman of Oklahoma City with another diagnosis from Eisiminger. Dr. Moorman tells us that he sent Osteopath Eisiminger "some sheep's blood on blotting paper furnished by him, with a blank, supposedly for a fifteen year old boy." "The next day," says Dr. Moorman, "I received the following diagnosis, for which I paid $10.00":

> "Congenital diminished resistance cerebro-spinal strain 38 ohms. Metastatic carcinoma of left lung and pancreas. 8 ohms. Neisserian infection genito-urinary tract, eyes, 4 ohms. Tuberculosis of genito-urinary tract, 4 ohms."

Dr. Moorman states that Eisiminger explains the phrase "congenital diminished resistance cerebro-spinal strain" as referring to hereditary syphilis. He says further that when Eisiminger delivered the diagnosis "he insisted on discussing the question of treatment and figured the cost at $290.00, but agreed to guarantee a cure for $250.00."

It is unfortunate, in the interest of scientific accuracy, that Dr. Moorman gives us no data regarding the religion of the sheep nor does he say whether or not it was a red-headed animal. Neither does he mention whether the sheep was facing west and in a subdued light at the time that the blood specimen was taken. We mention all these details because they seem to be necessary to a proper understanding of the subject.

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[1] A twelve-page reprint on the Abrams' vagaries will be sent on receipt of a two-cent stamp to cover postage.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

HAYES ASTHMA CURE

To the Editor:—What do you know regarding the P. H. Hayes Asthma Treatment of Buffalo, N. Y.? Lee W. Paul, M.D., Ilwaco, Wash.

Answer.—The Hayes asthma remedies, exploited by P. Harold Hayes, Buffalo, N. Y., were analyzed in the pharmaceutical institute of the University of Berlin by J. Kochs, and, according to the *Arbeiten aus dem Pharmazeutischen Institut der Universität*, Berlin, vol. iv, p. 122, with the following results. Six of the seven remedies were examined:

No. 781.—A cough medicine for use in colds, catarrhs, bronchitis and for the relief of asthma. Dose 20 to 30 drops. This was said by the analyst to contain about 6.5 per cent. of oils, consisting chiefly of oils of turpentine and peppermint, emulsified and sweetened with syrup.

T. I. Q.—A remedy that is to be taken in doses of 15 minims three times a day before meals. According to the report, it contained 13.7 per cent. of iodin in the form of potassium iodid, to which had been added a little wine and a small percentage (0.1) of hydrochloric acid.

No. 769 A.-C.—A remedy to be given in doses of 30 minims at bedtime, to be repeated two or three times in several hours. This, says Kochs, was a slightly reddish syrup containing 6.7 per cent. of iodin combined as potassium, sodium and ammonium iodids.

T. II. Q.—A preparation to be taken in doses of 15 minims three times a day immediately after meals. The analytical report shows it to contain 1.08 per cent. of iron in the form of an iron peptonate.

No. 808.—These were small capsules filled with 0.1 gm. (1.5 grs.) of a loose white powder. It is said "to strengthen the lungs and reduce the tendency to taking cold." Analysis showed it to consist of quinin sulphate.

No. 763.—Small white sugar-coated pills. These are said to act mildly on the liver and regulate the digestion. The active principle of these pills as shown by the analysis was resin of jalap.

This information appears in "Nostrums and Quackery," Vol. I, and also in the pamphlet "Miscellaneous Nostrums" (price, 30 cents) issued by the Propaganda department.

BLASTOMYCETIC DERMATITIS—CYSTICERCUS CELLULOSAE-CUTIS

To the Editor:—1. Where can I get any literature on blastomycetic dermatitis? What is the best local application for this? I know the regular treatment with iodids, the roentgen ray, curettement, arsphenamin, etc., but these do no good. Possibly there is some soothing application that can be made. 2. What is the best method of getting rid of *Cysticercus cellulosae?* I have no electrical outfit to try cataphoresis. I have Stelwagon, and other works. If you can suggest anything or any literature, I will be thankful. Please do not sign my name.

Inquirer, Alabama.

Answer.—1. An adequate account of blastomycetic dermatitis appears in most of the well known books on dermatology. Roentgen rays or curettement, with the iodids or arsphenamin, will usually cure the cutaneous lesions, and they benefit all of the lesions. If improvement is not secured from these measures, there may be an error in diagnosis. The treatment outlined in Stelwagon's book is brief, but it is correct and practical.

2. The treatment for infestation with *Cysticercus cellulosae-cutis* is surgical removal.

CONVERSION OF CENTIGRADE TO FAHRENHEIT

To the Editor:—1. Please give the easiest rule for converting a temperature in Centigrade into Fahrenheit. 2. Also a weight from kilograms into pounds. F. V. Gammage, M.D., Akron, Ohio.

Answer.—1. Multiply by 9, divide by 5 and add 32.

2. Multiply by 2.2.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Alabama: Montgomery, Jan. 9. Chairman, Dr. Samuel W. Welch, Montgomery.

Arizona: Phoenix, Jan. 2. Sec., Dr. Ancil Martin, 207 Goodrich Bldg., Phoenix.

Colorado: Denver, Jan. 2. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

District of Columbia: Washington, Jan. 9. Sec., Dr. Edgar P. Copeland, Stoneleigh Court, Washington.

Hawaii: Honolulu, Jan. 8. Sec., Dr. G. C. Milnor, 401 Beretania St., Honolulu.

Illinois: Chicago, Jan. 9-11. Supt. of Registration, Mr. V. C. Michels, Springfield.

Indiana: Indianapolis, Jan. 9. Sec., Dr. W. T. Gott, Crawfordsville.

Kansas: Topeka, Feb. 13. Sec., Dr. Albert S. Ross, Sabetha.

Minnesota: Minneapolis, Jan. 2-4. Sec., Dr. Thomas S. McDavitt, 539 Lowry Bldg., St. Paul.

National Board of Medical Examiners: Written examination in Class A medical schools. Part I and II, February 12-14 and February 15-16. Sec., Dr. John S. Rodman, 1310 Medical Arts Bldg., Philadelphia. Application for the February examination must be sent in by January 1.

New Mexico: Santa Fe, Jan. 8-9. Sec., Dr. R. E. McBride, Las Cruces.

North Dakota: Grand Forks, Jan. 1. Sec., Dr. G. M. Williamson, 860 Belmont Ave., Grand Forks.

Oklahoma: Oklahoma City, Jan. 9-10. Sec., Dr. J. M. Byrum, Shawnee.

Pennsylvania: Philadelphia, Jan. 30-Feb. 3. Sec., Mr. C. D. Koch, Professional Credentials Bureau, 422 Perry Bldg., Philadelphia.

Rhode Island: Providence, Jan. 4-5. Sec., Dr. Byron U. Richards, State House, Providence.

South Dakota: Pierre, Jan. 16. Director, Dr. H. R. Kenaston, Bonesteel.

Vermont: Burlington, Feb. 13. Sec., Dr. W. Scott Nay, Underhill.

West Virginia: Charleston, Jan. 9. State Health Commissioner, Dr. W. S. Henshaw, Charleston.

Wisconsin: Madison, Jan. 9-11. Sec., Dr. John M. Dodd, 220 E. Second St., Ashland.

Michigan October Examination

Dr. Beverly D. Harison, secretary, Michigan State Board of Registration in Medicine, reports the written examination held at Lansing, Oct. 10-12, 1922. The examination covered 14 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 8 candidates examined, 6 passed and 2 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Johns Hopkins University	(1916)	82.7
University of Toronto	(1914) 81.4, (1917)	78.8
University of Budapest	(1921)*	84
University of Berne	(1917)* 76.3, (1921)*	76.5
FAILED		
University of Athens	(1913)*	65.4
University of Naples	(1920)*	70.3

* Graduation not verified.

Ohio Reciprocity Meeting

Dr. H. M. Platter, secretary, Ohio State Medical Board, reports that eighteen candidates were licensed by reciprocity at the meeting held Oct. 3, 1922. The following colleges were represented:

College	Year Grad.	Reciprocity with
LICENSED BY RECIPROCITY		
Georgetown University	(1921)	Dist. Colum.
George Washington University	(1921)	Dist. Colum.
Northwestern University	(1918)	Illinois
Detroit College of Medicine and Surgery	(1920), (1921)	Michigan
University of Michigan Medical School	(1912), (1921, 2)	Michigan
St. Louis University School of Medicine	(1903), (1921)	Missouri
New York Homeo. Med. Coll. and Flower Hosp.	(1921)	New York
Syracuse University	(1894)	New York
Hahnemann Med. Coll. and Hosp. of Philadelphia	(1901)	Indiana
University of Pennsylvania	(1904)	Penna.
University of Pittsburgh	(1914)	Penna.
Meharry Medical College	(1915) Mississippi, (1921)	Missouri
Medical College of Virginia	(1895)	W. Virginia

Nostrums.—"The Profession has sunk into the Craft of deceiving, and amusing and making Profit by new Medicins, or Preparations brought into Fashion, and highly Esteem'd, as long as the Mode of Crying them up shall last."—The Craft and Frauds of Physic Expos'd. By R. Pitt, M.D., London, 1703.

Book Notices

Report on Encephalitis Lethargica. Being an account of further enquiries into the epidemiology and clinical features of the disease; including an analysis of over 1,250 reports on cases notified in England and Wales during 1919 and 1920, together with a comprehensive bibliography of the subject. By Allan C. Parsons, M.R.C.S., A Medical Officer of the Ministry of Health. With contributions by A. Salusbury Macnalty, M.D., A Medical Officer of the Ministry of Health, and J. R. Perdrau, M.B., Pathologist, Lambeth Infirmary. Reports on Public Health and Medical Subjects, No. 11. Boards. Price, 10 shillings net. Pp. 344. London: His Majesty's Stationery Office, 1922.

The reports of about 1,300 cases of epidemic (lethargic) encephalitis form the basis of this study. There is perhaps little that is altogether new in the volume, but, it seems, there is nothing thus far reported about this strange disease that has not been taken into account; the names of 1,200 authors and more than 1,500 articles contributed on this subject during 1917-1921 comprise the bibliography. As a result of the studies of von Weisner, Netter, MacIntosh and Marinesco, it is said that the main histologic picture of epidemic encephalitis can be clearly drawn. The lesion is definitely inflammatory. The changes consist of a cellular infiltration in the perivascular lymph sheaths and in certain areas of gray matter. There is no marked change in the meninges, although in three cases examined by Bassoe and Hassin, the pia was slightly congested, with perivascular infiltration with plasma cells and leukocytes. In the brain substance the changes are most conspicuous in the upper part of the pons and in the basal nuclei. In most cases the small or medium sized veins were most affected. The cellular exudate consists chiefly of large and small mononuclear lymphocytes, along with a certain number of the polyblasts of Maximow, and a few plasma cells. The infiltration in some cases was found by MacIntosh to be so dense, particularly in the basal nuclei and upper parts of the pons, as to form actual foci. Such foci have been noticed to occur at times in the roots of the cranial nerves. Severe and widespread changes in the nerve cells, which ranged from slight chromolysis to complete disappearance of the Nissl granules, atrophy of the protoplasm, and shrinkage, atrophy and final disappearance of the nucleus, were noted by De Fano and Ingleby, and others. De Fano found within and without the nerve cells "minute bodies" which consisted of a central, generally basophil particle, and of a delicate little stainable body, irregularly round or oval. Similar "minute bodies" have been traced within and without the cells infiltrating a salivary gland from an acute case of epidemic encephalitis. De Fano tentatively suggests that such findings may be due to the presence in the tissues of a living agent, the cause of the disease, on the analogue of the Negri bodies in rabies.

Untersuchungen über den Syphiliserreger. Von Dr. med. et phil. F. W. Oelze, Assistent an der Hautklinik der Universität Leipzig. Paper. Pp. 74, with 9 illustrations. Leipsic: Leopold Voss, 1922.

In the progress of his research on the morphology of *Spirochaeta pallida,* executed with the help of a stereoscopic microscope, Oelze observed that the spirochete is really spiral shaped, which can be proved by watching it rotate within the observation chamber. The spirals wind clockwise. The last winding, or the apex of the spirochete, is likely to oscillate to the right or to the left. If one end of the spirochete is fixed, its whole body is able to oscillate in either direction. Single parts of a spirochete stretched near its center may oscillate to the right or to the left, but simultaneously in only one direction. On the living spirochete, no flagella are to be observed, a detail important for the microscopic diagnosis of syphilis. In accord with Silberstein, the author states that the use of the live dark field is the most satisfactory method for the recognition of *Spirochaeta pallida.* In opposition to Silberstein, he finds that the light field and the dark field, in judging a normal Giemsa specimen, are of equal value to the experienced observer. The Giemsa stain does not permit in the colored dark field a reliable distinction between *Spirochaeta pallida* and *Spirochaeta refringens.* If the adjustment of the dark field is not very accurate, an apparent shortening of the spirochetes, especially of *Spirochaeta pallida,* is observed. The diagnosis in the living dark field specimen is the most reliable method. The reactions of *Spirochaeta pallida* toward the different methods of staining are discussed in detail, and the measuring of the spirochete as to the length of its axis and its true length is reported in tabular form. The measuring of the series of *Spirochaeta pallida* coming from primary and secondary syphilis, and of nonpathogenic spirochetes occurring in the mouth, did not lead to the development of any practical results. It is uncertain whether biologic differences between different strains of spirochetes show morphologic manifestations. So far as the locomotion of the spirochete is concerned, observation in a quiet medium and in specially constructed chambers furnishes interesting data. Among those that are relevant as to diagnosis are the rotary motions and the bending and stretching in fresh specimens, and the oscillations of each end. As to microscopic research work on the influence of therapy, it should be kept in mind that syphilis in the rabbit and the hare is not an absolutely reliable guide for the experimental study of human syphilis. One also has to distinguish between the disappearance of the spirochetes in superficial lesions after arsenic therapy and their resistance in deeper structures. A sterilization of the whole system cannot be deduced from disappearance of the spirochete from surface lesions. Photomicrographs illustrate the contentions of the author. A schematic drawing explains the difference between the true length of the spirochete and the length of the axis, and throws light on the peculiarities of its spirals.

La Méthode Psychanalytique. Par le Dr. Raymond de Saussure, avec une préface de M. le Professeur Sigmund Freud. Paper. Pp. 187. Lausanne, Switzerland: Librairie Payot & Cie, 1922.

To the physician who is seeking a simple and conservative account of the principles and technic of psychanalysis, with well chosen references to the literature, this book can be heartily recommended. The language is simple, and the points are well illustrated by the case history and a dream analysis from a patient who made a good recovery. The author disclaims all originality and professes to give nothing but an account of the views of Freud, and it is especially striking that he is at great pains to emphasize the conservatism of Freud, his recognition of the influence of instinctive trends other than those of sex in the determination of dreams and functional symptoms, and the presence of constitutional deficiencies in hysterical patients which psychanalysis cannot change. It is the failure to grasp these facts that has done much to bring discredit on the method.

The Principles of Physics and Biology of Radiation Therapy. By Dr. Bernhard Kroenig, Professor of Gynecology and Obstetrics, etc., University of Freiburg im Breisgau, and Dr. Walter Friedrich, Chief of Division of Radium Therapy, University of Freiburg im Breisgau. With an Appendix by Dr. Henry Schmitz, Professor of Gynecology and Head of Department, Loyola University School of Medicine, Chicago, Illinois. Cloth. Price, $8. Pp. 271, with 117 illustrations. New York: Rebman Company, 1922.

This translation is not only valuable as a source of information, but also interesting as a historical document, being a milestone in the development of roentgenotherapy. It is the outcome of collaboration between a clinician and a physicist, demonstrating in its achievements the difference between a product of mere empirism and the building up of a medical proposition along exact scientific lines. At first the physical principles of roentgenotherapy are elucidated, and the pertinent technical terms are defined. Then follows the presentation of the conceptions and methods concerning the intensity, hardness and dose of the rays. The necessity of exact measuring is emphasized, and the various appliances used for this purpose are discussed and compared. The importance of secondary irradiation is explained and, contingent to that, the question of the field or fields of entrance is dealt with. This is followed by the determination of the biologic principles guiding roentgenotherapy. The biologic action of the rays transmitted through various filters is taken up and thoroughly discussed in a numerical determination of the relation of the biologic action to the hardness of the rays. This is carried through in observations on the skin, on malignant tumors and on the human ovary. The question of intermittent dosage and massive treatment confined to one sitting is dwelt on and decided in favor of the former.

The influence of heat as an enhancing factor for the therapeutic action of rays is decided in the negative. Each chapter is closed with a summary. An appendix deals with experimental work concerning the efficacy of various types of modern roentgen-ray apparatus. It also contains the reports on research work into the influence of the focus distance and the size of the field of entrance on the efficiency quotient of the original dose of rays. The last chapter contains the reports on experimental work on isodoses of short radium capsules, conducted by the translator in the roentgenologic institute of the Freiburg university. The difficulty of translating technical German into good English was satisfactorily overcome by the translator.

Medicolegal

Not Duty to Pursue Patient and Advise Operation

(Haskell v. Hanson (Minn.), 188 N. W. R. 1007)

The Supreme Court of Minnesota, in affirming an order denying the defendant's motion for a new trial after a verdict had been directed in favor of the plaintiff for the amount of his bill, says that, in February, 1915, the index finger of the defendant's left hand was cut by a saw, and the plaintiff was employed to attend him. The plaintiff amputated the finger and dressed the stump, which healed but remained sensitive and caused the defendant more or less pain when he used his hand. The plaintiff advised a second operation to overcome the pain, and it was performed in July, 1915. The plaintiff dressed the stump but once, informing the defendant that he might thereafter dress it himself. It healed properly, but the pain continued. The defendant did not return for further treatment. The parties lived in the same town, met frequently on the streets, and from time to time the defendant informed the plaintiff that his finger still pained him. In 1920, the defendant having failed to pay the plaintiff's bill, this action was begun to recover the amount thereof, resulting as stated above.

One of the grounds for the defendant's motion for a new trial was newly discovered evidence, shown by affidavits stating that after the trial the defendant had a third operation performed on his finger and as a result the pain disappeared. But whether the defendant had produced sufficient evidence to entitle him to go to the jury with the counterclaim which he had previously made for damages for alleged malpractice was the sole question presented to the supreme court. He contended that proper practice required the plaintiff to operate a third time to removed the portion of the finger which was the seat of the pain, and, because he neither operated nor advised having another operation, he was derelict in the performance of the professional duty he owed him. The plaintiff contended, on the other hand, that after he dressed the finger the last time the defendant neither asked for nor demanded further treatment, and that it was not his duty to volunteer his services.

The medical testimony offered by the defendant tended to show that the sensitive condition was caused either by the end of a nerve or by a bony projection in the stump of the finger, that the trouble could probably be remedied by an amputation higher up, and that, if a patient came to a physician and asked him what he should do, the physician, in the exercise of his judgment, might properly advise such an operation. None of the physicians testified that the plaintiff had failed to operate skilfully or that the sensitiveness resulted from improper medical or surgical treatment. They agreed that abnormal sensitiveness in the stump of an amputated member is not unusual, and that another amputation will not certainly remedy the condition.

Viewing the evidence in the light most favorable to the defendant, the court discovers nothing showing that the plaintiff failed to exercise due skill and diligence in anything done or omitted. True, his employment was general, and not special, and hence it was his duty to give his patient continued attention if his condition required it. He did not insure the removal of the abnormal sensitiveness in the finger when he performed the second operation. Although it was performed with reasonable skill, the result hoped for was not accomplished. The result of a third operation might have been more fortunate, but it was not the duty of the plaintiff to pursue the defendant and advise that it be performed. If the defendant wanted advice or further treatment, he should have gone back and asked for it. It is unreasonable to suppose that he would wait for five years in the continued expectation that the plaintiff would give him further attention. The supreme court is of the opinion that he failed to make a prima facie case of malpractice, and that the ruling of the trial court in directing a verdict for the amount of the plaintiff's bill, after the defendant's evidence was in, and denying the defendant's motion for a new trial, was correct.

Not Patent or Proprietary Medicine

(McHenry v. Royal Neighbors of America (Mo.), 242 S. W. R. 147)

The Kansas City (Mo.) Court of Appeals, in affirming a judgment in favor of the plaintiff on a fraternal beneficiary certificate issued by the defendant on the life of the plaintiff's wife, says that, when the latter applied for the insurance, she answered "No" to the question: "Have you within the last three years used any 'patent' or proprietary medicine?" The defendant contended that, as a violation of the warranty involved in this answer, the applicant had used pills, or tablets, of some description. The testimony tended to show that she had, at times, purchased tablets, or pills, for her own or her family's use in regulating the bowels or liver. There was no testimony showing that she actually took any of these medicines. Admitting that she did, were these "patent" or proprietary medicines? The physician who sold them testified that they were merely regulatory potions, which he had prepared for use in his practice. Webster defines "patent" as a writing securing to an inventor for a term of years the exclusive right to his invention, while "proprietary" is defined as "belonging or pertaining to a proprietor; considered as property owned; as proprietary medicine"; also, "proprietary articles, manufactured articles which some persons have an exclusive right to make and sell."

The physician who sold these pills or tablets to the insured testified that he did so without having prescribed them, and that he had prepared them for use in his practice, and made no claim that they were in any sense "patent" or proprietary. In the face of this evidence, the court holds that the medicine so purchased was neither "patent" nor proprietary.

Waiver of Privilege by Plaintiffs

(Hethier v. Johns (N. Y.), 135 N. E. R. 603)

The Court of Appeals of New York, in reversing a judgment obtained by the plaintiff that was affirmed by the appellate division of the Supreme Court of New York, says that the plaintiff, in this action to recover damages for personal injuries, gave evidence as to her physical condition after the accident which she charged was caused by the negligence of the defendant. She stated that, because of that condition, she consulted a physician, and described, in part at least, what occurred at the consultation. The physician was called as a witness by the defendant, who sought to examine him on the subject. His evidence was excluded. The ruling of the trial judge was erroneous. When the plaintiff in an action brought to recover damages for personal injuries caused by the negligence of the defendant describes these injuries and their results, and it appears that he has consulted, or been treated by, a physician in regard to them, he waives the protection of Section 834 of the New York Code of Civil Procedure (now Section 352 of the Civil Practice Act). The physician may then be called by the defendant and examined as to any information acquired by him in the course of such consultation or treatment. The rule as it was formerly understood was altered by the decision of this court in *Capron* v. *Douglass,* 193 N. Y. 11, 85 N. E. 827. This court took the position that, when the patient tenders to the jury the issue as to his physical condition, it must in fairness and justice be held that he has waived the obligation of secrecy which would otherwise exist.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Hygiene, Baltimore

November, 1922, **2**, No. 6

*Two Strains of Diphtheria Bacillus. P. D. Meader, Baltimore.—p. 601.
*Biochemical Differentiation of Bacteria. H. W. Smith, Indianapolis.—p. 607.
*Effect of Following Injection of Diphtheria Antitoxin on Intracutaneous Test for Virulence of Diphtheria Bacilli. M. Beattie, San Francisco.—p. 656.
*Relation Between Breast and Artificial Feeding and Infant Mortality. R. M. Woodbury.—p. 668.

Biochemical Differentiation of Bacteria.—A review is made by Smith of the more important literature on bactericidal substances, supplemented by a few experiments designed to substantiate the deductions which are drawn during the course of the review. Smith states that bacteria may be divided into two great groups, corresponding roughly to their reaction to Gram's stain.

Administering Diphtheria Antitoxin After Intracutaneous Test.—Since the intracutaneous lesion produced by as small an amount of diphtheria toxin as one-twentieth minimum lethal dose is not inhibited by the administration of an intraperitoneal injection of 200 units of antitoxin five hours after the injection of the toxin, Beattie asserts, it follows that a protective dose of antitoxin can be administered not only after intracutaneous virulence tests with pure cultures of morphologic diphtheria bacilli, as suggested by Eagleton and Baxter, but also can be administered after intracutaneous virulence tests with field cultures. This is possible because practically all virulent field cultures contain enough diphtheria bacilli to produce at least one-twentieth minimum lethal dose of toxin, when inoculated intracutaneously according to the technic described by Force and Beattie.

Infant Feeding and Infant Mortality.—The analysis of the influence of feeding on mortality made by Woodbury is based on data for 22,422 live born infants in eight cities. The analysis shows that artificial feeding, as actually practiced in typical city populations, is associated with a mortality between three and four times as high as the mortality among breast-fed infants. This excess mortality is not to be explained either by the slight overweighting of the group of artificially fed with infants in certain groups characterized by high mortality rates; and it appears in all nationality and in all earnings groups, though with variations depending probably on the particular conditions prevailing in the groups. The ratio is much higher (6.3) in the group with earnings of $1,250 and over (4.1).

American Journal of Medical Sciences, Philadelphia

November, 1922, **164**, No. 5

Endocrinology as Key to Solution of Major Medical Problems. C. E. de M. Sajous.—p. 625.
Résumé of Our Knowledge of Functions and Interrelations of Endocrine Glands. F. A. Faught and T. J. Ryan, Philadelphia.—p. 646.
*Auricular Flutter; Report of Cases. J. H. Keating and J. Hajek, New York.—p. 656.
*Wassermann Test in Its Relation to Prenatal and Congenital Syphilis. R. A. Kilduffe, Pittsburgh.—p. 677.
*Two Instances of Defective Interventricular Septum of Heart. H. W. Carey, Troy, N. Y.—p. 684.
*Treatment of Hypertoxic Cases of Typhoid Fever by Transfusion with Recently Artificially Immunized Blood. L. Neuman, Washington, D. C.—p. 690.
Case of Congenital Absence of Spleen. S. McLean and H. R. Craig, New York.—p. 703.
Delay in Treatment of Cancer. C. E. Farr, New York.—p. 712.
Vibrating Sensation in Diseases of Nervous System. R. T. Williamson, Manchester, Eng.—p. 715.
Relationship Between Central and Peripheral Involvement of Cranial Nerves. E. Sachs, St. Louis.—p. 727.
*Orthostatic Albuminuria: Study of Unusual Case. W. B. Blanton, Richmond, Va.—p. 742.

Tachycardia, Flutter, Fibrillation Are Stages in Cardiac Insufficiency. — Clinical experience has convinced Keating and Hajek that paroxysmal tachycardia, flutter and fibrillation are stages of the same pathologic condition causing cardiac insufficiency. Paroxysmal tachycardia is the first stage, flutter the second and fibrillation the third. Eight cases are reported. In all the cases the auricle showed a remarkable stability while fluttering. Atropin, rest, exercise or emotion, while affecting the ventricle, had no effect whatever on the auricular rate. Five of the cases were associated at one time or another with other forms of arrhythmia. As regards treatment, rest and digitalis restored many hearts to normal rhythm. The authors believe that the use of quinidin sulphate is still in the experimental stage. Some few patients are not influenced by treatment, and the condition persists for years.

Wassermann Test and Congenital Syphilis. — Kilduffe's investigations seem to warrant the conclusion that the results of cord Wassermanns are not to be unreservedly relied on when taken alone, and should not be made the sole basis for a diagnosis of syphilis. If the subject of prenatal and congenital syphilis is to be the object of a concentrated attack, it is obvious that serologic investigations must be extended to include not only both parents but also the child at birth, and in later infancy when the results of Wassermann reactions are apt to be more truly indicative of the presence or absence of syphilitic infection.

Defective Interventricular Septum.—The two cases described by Carey have to do with defects in the interventricular septum, and although both were congenital, one produced no symptoms whatever and the other caused symptoms, signs that were supposed to be due to an open ductus Botalli. In the interventricular septum in the first case, just beneath one leaflet of the aortic valve, was an aperture 1.5 cm. in diameter, which opened on the right side just beneath the adjacent leaflet of the pulmonary artery. On account of this defect there was an arteriovenous communication between the ventricles. In the second case there was a funnel-shaped depression in the muscle of the interventricular septum with an opening into the right ventricle at its upper margin.

Artificially Immunized Blood in Treatment of Hypertoxic Typhoid.—Two cases of typhoid fever of the hypertoxic type were treated by Neuman with recently artificially immunized blood, and the result in each case has been unusually gratifying. This is not intended as a general treatment for typhoid fever. The mild and moderately severe cases will respond to careful nursing and a high caloric diet. The rationale of this treatment is founded on experimental and clinical facts as they pertain to typhoid immunization.

Orthostatic Albuminuria.—Blanton cites a case of persistent albuminuria in a woman, aged 23. The history, physical examination and functional tests of the kidneys failed to show evidence of nephritis. Albumin persisted at the expiration of three weeks in bed, making it difficult at first glance to reconcile this case with the usual description of orthostatic albuminuria. However, the marked reduction of albuminuria (from 2 to 0.3 gm.) with rest and support of the back makes the condition clearly of the same general category as the postural or orthostatic albuminuria, though probably of a more severe grade than usually encountered. The evidence of a vasomotor disturbance in this patient is brought out, and this additional factor may account for the persistence of albuminuria with rest.

American Journal of Physiology, Baltimore

November, 1922, **62**, No. 3

Determination of Blood Catalase; Factors Affecting Ratio Between Quantity and Activity of This Enzyme. R. Okey, Iowa City.—p. 417.
*Studies in Fatigue. XII. Effect of Suprarenal Secretion on Nonfatigued and Fatigued Skeletal Muscle. C. M. Gruber, St. Louis.—p. 438.
Output of Sugar from Liver as Affected by Carbohydrate and Minimal Epinephrin. C. D. Snyder, L. E. Martin and M. Levin, Baltimore.—p. 442.
*Effect of Intravenous Sodium Bicarbonate on Intestinal Movements. C. E. King and J. G. Church, Nashville, Tenn.—p. 459.
Comparative Studies of Digestion. I. Digestive Enzymes of Coelenterates. M. Bodansky and W. C. Rose, Galveston, Tex.—p. 473.
Comparative Studies of Digestion. II. Digestion in Elasmobranchs and Teleosts. M. Bodansky and W. C. Rose, Galveston, Tex.—p. 482.
*Influence of Epinephrin on Metabolism in Various Excised Tissues. E. G. Martin and R. B. Armistead, San Francisco.—p. 488.
Study of Action Currents of Nerve with Cathode Ray Oscillograph. H. S. Gasser and J. Erlanger. St. Louis.—p. 496.
*Effect of Splenectomy on Integration of Muscular Movements in Rat. D. I. Macht and E. M. Finesilver, Baltimore.—p. 525.
II. Influence of Sodium Citrate on Peristalsis. W. Salant, N. Kleitman and L. H. Wright, Augusta, Ga.—p. 531.

- *Utilization of Oxygen in Blood at Different Stages of Anoxemia. C. H. Greene and C. W. Greene, Columbia, Mo.—p. 542.
- Reproduction on "Synthetic" Diets When Purified Agar is Added to Mixture. H. S. Mitchell, Battle Creek, Mich.—p. 557.
- *Effects of Insulin on Experimental Hyperglycemia in Rabbits. F. G. Banting, C. H. Best, J. B. Collip, J. J. R. Macleod and E. C. Noble, Toronto, Can.—p. 559.

Effect of Suprarenal Secretion on Muscle.—Gruber found that suprarenal secretion evoked by splanchnic stimulation increases the height of muscular contraction of both nonfatigued and fatigued skeletal muscle. The quantity of epinephrin secreted must be fairly large judging from the height of betterment and the duration of improvement when compared with the results from injections of epinephrin intravenously. In as much as epinephrin secreted by splanchnic stimulation affects nonfatigued and fatigued skeletal muscles alike, it cannot be regarded a specific antagonist to the so-called fatigue substances. It increases the height of contraction and irritability of both muscles. Its exact mode of action has not been determined.

Effect of Sodium Bicarbonate Injected Intravenously on Intestinal Movements.—The intravenous injection of 50 c.c. of 2.5 and 6 per cent. sodium bicarbonate solutions into dogs called forth a vigorous motor reaction of the small intestine. The most constant feature of the reaction was an increase in tonus. Frequently local rhythmical movements appear, occasionally true peristalsis. The intensity of the reaction ran somewhat parallel to the dosage. The reactivity of the intestine was diminished after several successive administrations. The reaction in some cases was diminished by atropin, in others not. Epinephrin temporarily abolished it. The point of attack appeared to be peripheral in the enteric nervous mechanism. The possibility of harm, in the intravenous use of bicarbonate clinically, is pointed out.

Influence of Epinephrin on Tissue Metabolism.—Experiments by Martin and Armitstead are interpreted as showing that the thermogenic influence of epinephrin is not specific for any one kind of tissue but extends to most sorts, if not to all.

Effect of Splenectomy on Muscle.—The integration of the muscular movements and running speed were studied by Macht and Finesilver in rats by the so-called "rope method." The effect of splenectomy on such rats was investigated. It was found that the extirpation of the spleen did not interfere with the coordination of the muscles or the running time of the animals. On the contrary, the data obtained indicated that the muscular integration, if anything, was improved and the running speed was certainly shortened.

Influence of Sodium Citrate on Peristalsis.—Intravenous and intramuscular injections of sodium citrate stimulated the motor function of the intestines but its action on the small intestine was greater than on the large intestine, the amount required to stimulate the contractions being less, the latent period being shorter in the former than in the latter. The action of citrate also varied in different animals. Experiments with citrate on the isolated intestine indicated that stimulation was the main effect in the rabbit's intestine and depression the most frequent result in the cat's intestine. Citrate had no effect on the uterus in situ. Evidence was produced showing that stimulation of the intestine in intact animals by sodium citrate was due to its action on the endings of the motor nerve fibers and not on the muscle substance. It was suggested that the depression of the isolated intestine might be due to stimulation of the inhibitory mechanism.

Utilization of Oxygen in Blood in Anoxemia.—In the intact animal the Greenes have supported by new analytical and experimental data the following points: The utilization of oxygen from the blood is nearly constant, and is independent of the arterial oxygen tension until the venous oxygen reserve is exhausted. Thereafter, the oxygen utilization parallels the saturation of the arterial blood. Respiratory and circulatory crises occur at the approach of the point where the arterial saturation is reduced below the normal level of oxygen utilization. The oxygen tension of the alveolar air does not materially affect the blood flow until the crisis is approached. The blood flow and the oxygen utilization may show minor changes secondary to changes in the blood pressure or to the condition of the animal. In such changes the blood flow and the oxygen utilization vary inversely. The venous oxygen content represents an oxygen reserve available, apart from the circulatory compensations, for an increased oxygen consumption above the basal level.

Effect of Insulin on Experimental Hyperglycemia.—When the fall in blood sugar due to subcutaneous injection of insulin is thoroughly established, according to Banting et al., piqûre epinephrin, mechanical and carbon monoxid asphyxia and ether do not cause the usual degree of hyperglycemia. There may be a distinct increase in the percentage of blood sugar but very seldom is this sufficient to raise it to the normal level existing before insulin was given. Even when the insulin is given at the same time as the animal is subjected to the experimental condition used to cause hyperglycemia, the latter may be either entirely absent or greatly diminished.

Georgia Medical Association Journal, Atlanta

November, 1922, **11**, No. 11

- Acute Conditions of Abdomen Requiring Surgical Interference. L. C. Fischer, Atlanta.—p. 427.
- Surgery of Gastric Cancer. F. K. Boland, Atlanta.—p. 430.
- What Clinical Manifestations Are Sufficient to Justify Diagnosis of Gallbladder Trouble? W. P. Nicolson, Atlanta.—p. 435.
- Clinical Survey of Present Results Attained by Nonsurgical Drainage of Pathologic Gallbladders. G. M. Niles and H. N. Kraft, Atlanta.—p. 437.
- Cholecystectomy Versus Cholecystostomy. T. C. Davison, Atlanta.—p. 441.
- Maternal Mortality. C. A. Witmer, Waycross.—p. 445.
- Apothesine. W. M. Folks, Waycross.—p. 447.
- Spinal Anesthesia or Analgesia. B. H. Wagnon, Atlanta.—p. 449.
- Operability. A. B. Patton, Athens.—p. 452.
- Use of Pituitrin in Abdominal Surgery. J. C. Pate, Macon.—p. 454.
- Double Uterus. H. W. Birdsong, Athens.—p. 455.
- Improved Treatment for Recently Embedded Gunpowder Grains in Skin (Adhesive Plaster Dressing). M. B. Hutchins, Atlanta.—p. 458.

Iowa State Medical Society Journal, Des Moines

November, 1922, **12**, No. 11

- Medical Ideals. E. S. Evans, Grinnell.—p. 427.
- Acute Perichondritis of Larynx: Report of Case. F. A. Will, Des Moines.—p. 430.
- *Thoracoscopy and Its Practical Importance, Especially in Surgery of Chest. H. C. Jacobaeus, Stockholm, Sweden.—p. 432.
- Chronic Appendicitis. G. Kessel.—p. 437.
- Diagnosis of Appendicitis. M. J. Kenefick, Algona.—p. 440.
- Radiation Treatment of Hyperthyroidism and Basal Metabolism Test. H. Swanberg, Quincy, Ill.—p. 442.
- Ophthalmology and Lesser Alcohols. J. M. Downing, Des Moines.—p. 446.
- Indications for Urologic Examination. R. L. Latchen, Sioux City.—p. 449.
- Adenoids and Eye Strain in School Children—Why Many Leave School. P. R. Wood, Waterloo.—p. 451.

Diagnostic Value of Thoracoscopy.—For the diagnosis and localization of pleural and lung tumors, Jacobaeus regards it as being of great importance to make a roentgen-ray examination before as well as after the induction of pneumothorax. By making a roentgen-ray examination after the induction of pneumothorax valuable information is obtained, which complete that already obtained by the roentgen-ray examination made before the induction of pneumothorax. By thoracoscopic examination valuable information is obtained for the diagnostic and localization of pleural and lung tumors, which successfully complete the result of roentgen-ray examination. If there is no opportunity of using a pressure differential apparatus, it might be advantageous to include pneumothorax previous to the operation in the pleural cavity. If pressure differential apparatus be employed, then pneumothorax for the thorascopic examination ought to be induced as shortly before the operation as possible, in order that the inflation of the lung after the operation may not be rendered more difficult or impossible. If the lung is inflated after the operation, more favorable conditions for the course of healing are eventually obtained.

Journal of General Physiology, Baltimore

November, 1922, **5**, No. 2

- Stability of Bacterial Suspensions. IV. Combination of Antigen and Antibody at Different Hydrogen Ion Concentrations. P. H. De Kruif and J. H. Northrop, New York.—p. 127.
- Stability of Bacterial Suspensions. V. Removal of Antibody from Sensitized Organisms. P. H. De Kruif and J. H. Northrop, New York.—p. 139.

Adhesiveness of Leukocytes to Solid Surfaces. W. O. Fenn, Boston.—p. 143.
Effect of Hydrogen Ion Concentration on Phagocytosis and Adhesiveness of Leukocytes. W. O. Fenn, Boston.—p. 169.
Influence of Ammonium Salts on Cell Reaction. M. H. Jacobs, Philadelphia.—p. 181.
Micro-injection Study on Permeability of Starfish Egg. R. Chambers, Woods Hole, Mass.—p. 189.
Relation of Reaction and of Salt Content of Medium on Nitrifying Bacteria. C. S. Meek and C. B. Lipman, Berkeley, Calif.—p. 195.
Equivalence of Age in Animals. S. Brody and A. C. Ragsdale, Columbia, Mo.—p. 205.
Permeability of Cells for Oxygen and Its Significance for Theory of Stimulation. E. N. Harvey, Woods Hole, Mass.—p. 215.
Permeability of Living Cells to Dyes as Affected by Hydrogen Ion Concentration. M. Irwin, Cambridge, Mass.—p. 223.
Aspects of Selective Absorption. W. J. V. Osterhout, Cambridge, Mass.—p. 225.
Sodium Chlorid and Selective Diffusion in Living Organisms. J. Loeb, New York.—p. 231.
Influence of Salts on Rate of Diffusion of Acid Through Collodion Membranes. J. Loeb, New York.—p. 255.
*Mechanism of Influence of Acids and Alkalies on Digestion of Proteins by Pepsin or Trypsin. J. H. Northrop, New York.—p. 263.

Influence of Acids and Alkalis on Digestion of Proteins.—The effect of the addition of acid on the amount of ionized protein has been compared by Northrop with the effect on the rate of digestion of gelatin, casein, and hemoglobin by pepsin. A similar comparison has been made of the addition of alkali in the case of trypsin with gelatin, casein, hemoglobin, globin and edestin. In general, it appears that the rate of digestion may be predicted from the amount of ionized protein as determined by the titration curve or conductivity. The rate of digestion is a minimum at the isoelectric point of the protein and a maximum at that p_H at which the protein is completely combined with acid or alkali to form a salt. The physical properties of the protein solution have little or no effect on the rate of digestion.

Journal of Laboratory and Clinical Medicine, St. Louis

November, 1922, **8**, No. 2

Technic of Basal Metabolic Rate Determination in Psychoneurotic Patients. B. S. Levine, Waukesha, Wis.—p. 73.
*Comparative Concentration of Urea in Blood and Saliva in Series of Pathologic Cases. H. W. Schmitz, New York.—p. 78.
Report of Seven Cases of Nicotin Poisoning. W. D. McNally, Chicago.—p. 83.
*Local Wassermann Test in Early Diagnosis of Primary Syphilis. D. Stern and H. Rypins, Minneapolis.—p. 86.
Action of Proteins and Blood Serum on Colloidal Gold Solution and Its Quantitative Interpretation. P. Reznikoff, New York.—p. 92.
*Central Influence of Atropin and Hyoscin on Heart Rate. W. J. R. Heinekamp, Chicago.—p. 104.
*Basal Metabolism and Blood Sugar Tolerance. G. H. Hoxie, Kansas City, Mo.—p. 112.
*Simple Method to Determine Coagulation Time of Blood. H. J. Goeckel, Cranford, N. J.—p. 122.
Mask for Alveolar Air Testing Outfit. H. J. Goeckel, Cranford, N. J.—p. 124.
Simple Apparatus for Continuous Extraction of Liquids by Liquids Lighter than Water. F. De Eds, San Francisco.—p. 125.
Modified Electrode for Use in Clinical Electrocardiography. H. M. Korns and E. J. Warnick, Cleveland.—p. 128.
Estimation of Uric Acid in Blood. H. Brown and G. W. Raiziss, Philadelphia.—p. 129.
*New Method for Sterilizing Proteins and Other Colloidal Compounds Without Denaturization. C. A. Mills, Cincinnati.—p. 134.
Method of Dividing Urinary Bladder for Experimental Purposes. J. A. H. Magoun, Jr., Rochester, Minn.—p. 136.
Modified Sahli Hemoglobinometer. W. K. Trimble, Kansas City, Mo.—p. 138.

Comparative Concentration of Urea in Blood and Saliva.—Comparative simultaneous analyses of forty-five specimens of blood and saliva, representing various pathologic conditions, are reported on by Schmitz. The urea content of saliva averaged 89.4 per cent. of that of the blood. It is asserted that salivary urea determinations may be employed in determining the functional activity of the kidneys where for any reason it is impracticable to obtain blood specimens.

Local Wassermann Test Diagnosis of Primary Syphilis.—The Wassermann test carried out by Stern and Rypins on the chancre serum of thirty-four demonstrated cases of primary chancre was positive in all cases. Of the thirty-four cases giving positive local Wassermann reactions, twenty showed negative blood reactions and no secondary manifestations. The local Wassermann reaction was positive with 0.0125 c.c. in all cases and in some cases with only 0.004 c.c. of chancre serum. Treatment of the lesions locally with a spirocheticide appears to have no effect on the complement fixing antibodies, although the spirochetes may disappear. A local as well as hematogenous site of origin for the specific complement-fixing antibodies appears established. In cases in which no dark-field microscope is available, in which the spirochetes are not found, or in which a lesion has been treated by a spirocheticide, the local Wassermann reaction is a practicable, simple and valuable means of diagnosis of primary syphilis at the time most important for prognosis and treatment.

Influence of Atropin and Scopolamin on Heart Rate.—The experimental evidence submitted by Heinekamp showed that small doses of atropin, 0.0003 gm. in dogs, 0.001 gm., in man, produce inhibition of the heart due to direct stimulation of the cardioinhibitory center. Scopolamin exerts a similar action to that of atropin on the medulla of *Pseudomys troosti* except that the primary stimulation is followed by depression.

Basal Metabolism and Blood Sugar Tolerance.—Experience leads Hoxie to believe that the simple closed circuit types of calorimeters are worth while in actual practice. The variations in reports on the basal metabolism rate seem due more to the condition of the patient than to the type of apparatus. Such reports, however, are not final. It is necessary to correlate clinical observation with the laboratory tests. The blood sugar tolerance test cannot be substituted for the calorimeter, nor any close parallelism drawn. Both studies are needed if a complete knowledge of the patient's function and vitality is sought. A revision of the terminology and standards of the blood sugar curves is needed before this study can be introduced into general practice.

Simple Method to Determine Coagulation Time of Blood.—Goeckel uses two hanging drop culture slides each with two ground out cavities. The cavities are of about 15 mm. diameter and approximately matched. The time of the appearance of the drop of blood after making the puncture is carefully noted and a rather liberal long drawn drop of blood is placed in each of the cavities of one slide by inverting the cavities over the puncture. This slide is then placed on top of the second slide. This gives enclosed chambers of small size, each with a drop of blood suspended on the upper wall of the chamber. When the slides are tilted on end the noncoagulated blood has a tendency to gather toward the bottom border giving a contrast of a light and a dark zone, which effect is accentuated by the slight magnification due to the curved surface of the cavity. This tilting is repeated about every thirty seconds after the third minute, alternating the incline to cause the blood to flow toward the lighter area. When the coagulation begins, a distinct clumping of the cells becomes visible. When the coagulation is completed no mobility will be seen, that is all parts of the drop will become fixed or coagulated. By this method a coagulation time up to seven minutes appears to be a safe limit.

Sterilizing Proteins Without Denaturization.—Mills asserts that protein solutions may be completely sterilized without alterations in their properties by letting stand the required length of time with the proper concentrating of mercuric chlorid, the precipitate being redissolved and the mercury rendered dialyzable by addition of sodium chlorid. The mercury and salt may then be removed by dialysis, placing copper outside the dialyzing tube to amalgamate with the mercury.

Laryngoscope, St. Louis

November, 1922, **32**, No. 11

Functional Examinations of Acuity of Hearing and Its Relation to Perception of Sounds of Different Pitches Produced by New Electric Acumeter. J. Guttman, New York.—p. 829.
Acute Mastoiditis, Complicated by Acute Concurrent Disease. C. F. Adams, Trenton, N. J.—p. 846.
Aural Lesions as Cause of Severe Systemic Infections. T. J. Harris, New York.—p. 850.
Hay-Fever. M. S. Ersner, Philadelphia.—p. 856.
Suction Treatment in Acute Infections of Ear. E. R. Carpenter, Dallas, Tex.—p. 864.
Peroral Endoscopy and Laryngeal Surgery. C. Jackson, Philadelphia.—p. 868.
Total Blindness of Both Eyes in Boy Seven Years of Age Cured by Ethmoid Operation, and Opening Sphenoid Sinus. D. N. Husik, Philadelphia.—p. 874.
Sensitization Diseases. A. A. Eggston, New York.—p. 877.
Reflexes from Respiratory Tract. H. C. Jackson, New York.—p. 887.
Self-Retaining Tongue-Depressor. A. J. Herzig, New York.—p. 900.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Irish Journal of Medical Science, Dublin

November, 1922, **5**, No. 9

Radical Cure of Inguinal Hernia. R. V. Slattery.—p. 389.
*Acute Leukemia with Cerebral Hemorrhage. T. T. O'Farrell.—p. 399.
Case of Faciohypoglossal Anastomosis for Facial Palsy. R. A. Stoney. —p. 404.
New Pelvimeter. R. E. Tottenham.—p. 409.

Acute Leukemia with Cerebral Hemorrhage.—The main symptoms in O'Farrell's case were vomiting with slight headache. Investigation into the girl's previous history revealed no outstanding feature, except that during the previous month she had had two rather severe uterine hemorrhages, each of about a week's duration. Her menstrual history prior to this had been quite normal. Then the temperature rose to 104 F. The only finding on examination was one enlarged and freely mobile gland in the left posterior triangle of the neck, just above the clavicle. No other enlarged glands could be felt. Then there developed rapidly, but in succession, sore throat and pains all over the body; the appearance of profound toxemia; a small subcutaneous hemorrhage on the front of the left shin; labored breathing, general distress and cyanosis and sweating commenced for the first time. The patient became delirious, passed her hand frequently over her head and tried to sit up in bed. At this time the heart presented a well marked tick-tack rhythm. Later the patient passed clots of blood per vaginam and then relapsed into a profound coma and death ensued soon afterward. The illness was of only one week's duration and the patient was aged just 16. Both lungs and pericardium were spotted over by many petechial hemorrhages. A small antemortem thrombus was found in the apex of the left ventricle. The glands at the roots of the lungs were not enlarged. The peritoneal cavity contained a moderate amount of rather blood stained fluid. There was a small petechial subserous hemorrhage in Douglas' pouch. The spleen was small and rather firm; a recent infarct was present. The stomach and intestines were normal and the mesenteric glands did not show any decided enlargement. The kidneys were somewhat enlarged and a little congested. On removing the calvarium and opening the dura, the cerebrospinal fluid did not appear to be under tension. The vessels on the surface of the brain were congested. During the removal of the brain a perforation occurred into what appeared to be a hemorrhagic cyst in the under surface of the left frontal lobe. The surface of the cerebellum was covered with subarachnoid petechial hemorrhages. On opening the left frontal lobe of the brain a large hemorrhage was found. In extent it was three inches from before backward, and two inches from above downward. It was situated obliquely in the anterolateral aspect of the lobe, limited in front by a thin shell of the left inferior frontal gyrus; was well walled off above by the marginal gyrus; below it had perforated onto the orbital surface; posteriorly it extended to the head of the caudate nucleus marginally and almost to the insula laterally. The hemorrhage lay altogether within the vascular area supplied by the cortical branches of the anterior cerebral artery. The blood clot, which was semifluid, contained what appeared to be ploughed up brain substance. Up to this point the clinical history taken with the general naked eye appearances would lead to a diagnosis of septicemia. Examination of the hematoxylin and eosin preparations revealed the fact that the white cells were not all polymorphonuclears; in fact, a very large number were mononucleated cells which resembled myelocytes, proving the case to be one of acute leukemia.

Lancet, London

Nov. 25, 1922, **2**, No. 5178

Minor Surgery of Children. L. E. Barrington-Ward.—p. 1101.
*Histogenesis of Myeloid Sarcoma. M. J. Stewart.—p. 1106.
*Intracranial Hemorrhage in New-Born;' Fracture of Skull of Infant. A. C. Ballance and C. A. Ballance.—p. 1109.
Use of Dimol (Dimethylmonomethoxyphenol) in Treatment of Summer Diarrhea in Infants. A. N. M. Davidson.—p. 1112.
Treatment of Nonmalignant Affections of Colon. W. A. Lane.—p. 1114.
Preliminary Treatment of Acute Obstruction from Cancer of Colon by Cecostomy. J. P. Lockhart-Mummery.—p. 1117.
*Recuperative Ultraviolet Ray Baths. E. J. Deck.—p. 1117.

Histogenesis of Myeloid Sarcoma.—The view is advanced by Stewart that the osteoclast should be regarded as a true bone cell, arising from the fibrous reticulum or supporting fibrous tissue framework of the bone, periosteum, or endosteum as the case may be, rather than the reticulum of the marrow. That is to say, reticulum which is in process of forming osteoclasts should be regarded as already differentiated, to a considerable extent, as bone reticulum, while the osteoclast itself, although not osteogenic, is a specific bone cell, an end product cell with a definite and specialized function in relation to osseous tissue. In this view, myeloid sarcoma is a specific tumor of the fibrous framework of the bone in which the formation of fully developed osteoclast-like giant cells is continually going on. The difference between these "myeloid" giant cells and normal osteoclasts, increased size, increased number of nuclei, etc., are merely such as are commonly associated with conditions of neoplasia. Since none of its constituent cells are derived from specific bone marrow cells Stewart insists that the name "myeloma" is inaccurate and should be dropped. It has the further disadvantage that its use may cause confusion with the entirely different disease, multiple myeloma. Osteoclast sarcoma would be the obvious title. The use of the term "giant cell sarcoma" or "giant cell tumor," so much in favor with American writers is, in Stewart's opinion, to be deprecated, inasmuch as it fails to make a distinction between myeloid sarcoma on the one hand and frankly malignant giant cell sarcoma on the other. Chronic hemorrhagic osteomyelitis he believes to be a complete misnomer, being based on a quite erroneous view of the pathology of the condition. The myeloid tumor of tendon sheaths bears only a superficial resemblance to myeloid sarcoma of bone, and is probably endotheliomatous in nature.

Intracranial Hemorrhage in Newly Born.—A case of difficult forceps delivery is narrated by the Ballances in which the child sustained an intracranial hemorrhage because of a frontal bone fracture. An operation was performed on the fourteenth day. The broken fragment had allowed the escape of the effused blood from within the cranial cavity to the subpericranial region beneath the scalp. The depressed fragment of frontal bone was removed. The baby made a good recovery. Six weeks after the operation no opening in the skull could be detected, so rapidly had the pericranium thrown out new bone.

Ultraviolet Ray Baths.—Deck draws attention to the beneficial results to be obtained by exposing the whole body to multiple arcs giving forth rays in which the ultraviolet ray predominates. The method of producing this rich volume of rays is the electrical combustion of practically pure electrodes containing 99 per cent. of tungsten. It is asserted that this method of treatment may be beneficial in wasting diseases attended with anemia; as a rapid aid to healing for chronic ulcerations, such as bedsores and varicose ulcers. In the case of malignant disease there is no risk of aggravating the condition by the treatment or of doing the patient harm in any other way.

Annales de Médecine, Paris

November, 1922, **12**, No. 5

Early Occlusion in Ulcerous Colitis. P. Lecène and A. Lemierre. —p. 337.
*Superficial Phlebitis in the Tuberculous. L. Bernard et al.—p. 346.
*Familial Character of Schick's Reaction. E. Rist and Weiss.—p. 356.
Involuntary Movements in Epidemic Encephalitis. E. Krebs.—p. 374.
Digestive Assimilation. Legrand.—p. 402.
Case of Distoma Hepaticum. P. Mauriac.—p. 415.

Superficial Phlebitis of Upper Limbs in the Tuberculous.—Bernard and his co-workers describe three cases of this rare affection. In one of them the tuberculous origin was directly established; in the other two cases it was very probable.

Familial Character of Schick's Reaction.—Rist and Weiss corroborate the findings of the Americans in this line.

Bulletin de l'Académie de Médecine, Paris

Nov. 7, 1922, **88**, No. 36

*Levulose in Diabetes. M. Labbé.—p. 189.
Increasing Frequency of Deaths from Cancer. Tuffier.—p. 193.
Intensive Serotherapy of Diphtheria. P. Lereboullet.—p. 201.
*Treatment of Tuberculous Peritonitis. P. F. Armand-Delille.—p. 203.
*Influence of Rays in Pathogenesis of Cancer. M. Benoit.—p. 206.

Levulose in Diabetes.—Labbé is rather skeptical about the supposed advantages of levulose in the treatment of diabetes. He does not believe that any carbohydrates are able to ameliorate the diabetic acidosis. It is rather the absence of fat and especially of proteins, which exerts a favorable influence. He believes, that carbohydrates relieve only the acidosis of healthy subjects deprived of carbohydrates.

Cure of Tuberculous Peritonitis by General Sun Baths.—Armand-Delille recommends the sun treatment, which may give results even where surgery has failed.

Influence of Rays in Pathogenesis of Cancer.—Benoit found that white light reduced the number of successful inoculations in mice sarcoma to 50 per cent.; ultraviolet light still more, while the red and infrared rays seemed to have a stimulating influence on the growth. His experiments were made on forty-eight mice and controls.

Bulletins de la Société Médicale des Hôpitaux, Paris

Oct. 27, 1922, **46**, No. 29

Treatment of Leprosy with Arsenical. Gougerot.—p. 1379.
Case of Chronic Epidemic Encephalitis with Hyperthermia. E. Ledoux. —p. 1382.
*Linked Liver and Renal Functions. G. Etienne and J. Bénech.—p. 1390.
Cell Count in Cerebrospinal Fluid. M. Renaud.—p. 1393.
*Shock Treatment of Puerperal Infection. M. Renaud.—p. 1394.
Radiography in Mutilating Leprosy. Delamare and Chukri.—p. 1396.
Epidemic Encephalomyelitis with Lumbosacral Localization. H. Bourges and M. Jobard.—p. 1399.
*Vaccine Therapy of Pulmonary Affections. Bourges and Jobard.—p. 1402.
*Polyneuritis Due to Tetrachlorethane. A. Léri and Breitel.—p. 1406.
Chronic Multiple Tendon Synovitis. P. Vallery-Radot et al.—p. 1412.

Connection of the Hepatic and Renal Functions.—Etienne and Benech show on three cases of edematous nephritis that the elimination of glycuronic acid follows closely the amount of urine excreted.

Shock Treatment of Puerperal Fever.—Renaud reports the almost immediate cure in a case of grave puerperal fever after intravenous injection of antistreptococcus serum plus epinephrin.

Vaccine Therapy of Acute and Chronic Pulmonary Affections.—Bourges and Jobard report favorably on the use of a mixed vaccine of staphylococcus, streptococcus and tetragenus in a case of asthma and another of pneumonia.

Polyneuritis Due to Tetrachlorethane.—Léri and Breitel describe two cases of polyneuritis of long duration due to tetrachlorethane. The predominating symptom was a paralysis of the interossei of the feet and hands.

Nov. 3, 1922, **46**, No. 30

*Subcutaneous Injections of Human Blood in Hemorrhages Following New Arsenical Preparations. J. A. Sicard.—p. 1419.
Two Cases of Cruveilhier-Baumgarten Cirrhosis (with Persistence of Umbilical Vein). J. Huber.—p. 1421.
Cure of Aplastic Hemorrhage by Repeated Subcutaneous Injections of Blood. P. Emile-Weil and V. Isch-Wall.—p. 1424.
Exfoliative Dermatitis After Intramuscular Injections of Bismuth. M. Pinard and Marassi.—p. 1434.
Anuria Due to Mercury in a Case of Chronic Nephritis. P. Menetrier et al.—p. 1435.
*Benzene Erythema. G. Milian.—p. 1441.
Meningococcus Sepsis with Permanent Nephritis. C. Gandy and L. Deguignand.—p. 1445.
*Excitation in Uremia Provoked by Calcium. P. Pagniez and A. Ravina. —p. 1451.
*Action of Calcium Chlorid in Normal Persons. A. Lemierre and J. Lévesque.—p. 1453.

Subcutaneous Injections of Human Blood in Hemorrhages Following New Arsenical Preparations.—Sicard employs subcutaneous injections of 100 to 200 c.c. of whole blood, preferably of a blood relative, in these cases, as well as in anemia. No addition of an anticoagulant is necessary if the blood is taken in a vessel the walls of which are coated with paraffin.

Benzene Erythema.—Milian describes a case of symmetric erythema of extremities in a man habitually working with dyes dissolved in benzene. Some tests showed that the epidermis of the patient was hypersensitive also to the application of cold. Milian believes that it was due to an alteration of sympathetic centers of the cord by syphilis.

Delirium in Uremia, Provoked by Calcium.—Pagniez and Ravina's patient was a nephritic having an azotemia of less than 0.1 per cent., with hypertension, albuminuria, permanent edema and constant gallop rhythm. He took 8 gm. of calcium chlorid. A state of violent excitation followed; with delirium and hallucinations, and the previously calm patient attempted suicide. They believe that it was due to a general effect of the comparatively large dose of a crystalloid, not to any special effect of the calcium chlorid.

Action of Calcium Chlorid in Normal Persons.—Lemierre and Lévesque examined the influence of a daily intake of 12 to 8 gm. of calcium chlorid on a healthy man on a salt-free diet. The subject lost in weight (loss of water), and felt extremely depressed physically and mentally on the last two days of the diet. Stopping the calcium chlorid, plus intake of sodium chlorid, produced a state of exhilaration and gain in water. For forty-eight hours he was what Ambard calls "salt drunk." The threshold of chlorid was lowered, while it did not change in a case of nephritis, in which the ureosecretory index was made worse. The tabulated details in comparative tests in health and in nephritis demonstrate anew the potent action of calcium chlorid on the interstitial circulation and the hydration of the organism.

Paris Médical

Oct. 21, 1922, **12**, No. 42

Psychiatry in 1922. A. Barbé.—p. 345.
Recent Works on Hallucinations. G. Halberstadt.—p. 352.
General Considerations on Psychanalysis. Schitlowski.—p. 357.
*Electric Accidents from House Current. V. Balthazard.—p. 361.
Mental Impairment from Extracortical Lesions. J. Camus.—p. 363.
Convulsions, Hysteria and Epilepsy. Chavigny.—p. 368.
Medical Responsibility. E. H. Perreau.—p. 370.

Electric Accidents from House Currents.—Balthazard adds another case to the list he has compiled since 1914 in which the ordinary alternating current of 110 volts electrocuted a person accidentally shortcircuiting this comparatively weak current. The action of the electric current is scarcely felt when the body opposes the normal resistance. It averages about 10,000 ohms, so the intensity of the current's action is only 110 volts divided by 10,000 ohms, which equals 11 milliamperes. But if the hands are wet or greased or if the feet are in water, the resistance of the body may drop to 1,000 ohms or less, and the quotient of 110 divided by 1,000 is 110 milliamperes and we know that 80 milliamperes of an alternating current will kill a dog.

Nov. 4, 1922, **12**, No. 44

Diseases of Children in 1922. Lereboullet and Schreiber.—p. 393.
*Sudden Death in Young Children. A. B. Marfan.—p. 409.
*Dyspepsia in Children. Taillens.—p. 413.
*Glycemia in Diphtheria. P. Lereboullet et al.—p. 417.
*Serotherapy of Scarlet Fever. R. Debré and J. Paraf.—p. 418.

Sudden Death in Children, Especially the So-Called Thymus Death.—Marfan believes, that there are many causes of sudden death in young children. Some sort of autointoxication in eczema may be the cause, while it is probably a local lesion of the superior cervical ganglion in cases of retropharyngeal abscess, etc. The only thing which these and other sudden deaths have in common is a certain predisposition of the young organism for it. Marfan describes a case of a rachitic girl of 21 months, who had suffered from several attacks of epileptiform convulsions before. The child was in a hospital under observation for a few days, and died suddenly, just while she was being dismissed as perfectly healthy. She had an enlarged thymus (35 gm.). The heart was in systole. The real thymus death is not due to compression of organs. It happens chiefly under anesthetics. The victims are usually pale and fat children, with rickets and enlargement of lymphatic glands. Marfan considers the causes of it as identical with the causes of rachitis, and recommends specific treatment if indicated by the Wassermann and tuberculin tests.

Dyspepsia in Children.—Taillens finds that dyspepsias in young children often have no anatomic causes. The usual site is the stomach, and very many children have hyperchlorhydria, some have a hypochlorhydria. He rejects the typical test meal in favor of meals to which the children are accustomed.

Glycemia in Diphtheria.—Lereboullet and his co-workers found a normal sugar content in the blood of light cases, but a distinct diminution in severe diphtheria. This decrease was sometimes accompanied with signs of insufficiency of the suprarenal capsules, to which they attribute also the hypoglycemia.

Treatment of Scarlet Fever with Convalescents' Serum.—Debré and Paraf report favorably on the action of convalescents' serum in treatment of scarlet fever.

Schweizerische medizinische Wochenschrift, Basel

Nov. 9, 1922, **52**, No. 45

Anatomic Basis of Traumatic Tuberculosis. H. v. Meyenburg.—p. 1093.
Trauma and Tuberculosis of Lungs. R. Massini.—p. 1099.
Trauma and Bone and Joint Tuberculosis. F. Zollinger.—p. 1105. Conc'n No. 47.
Use of Corset, Especially Maternity Corsets. Lévy-du-Pan.—p. 1109.

Nov. 16, 1922, **52**, No. 46

Bone and Joint Tuberculosis and Accident Insurance. Descoeudres.—p. 1117.
The Question of Traumatic Tuberculosis. M. Pierroz.—p. 1122.
*So-Called Traumatic Tuberculosis. D. Pometta.—p. 1124.
Trauma and Bone and Joint Tuberculosis. F. Zollinger.—p. 1126. Cont'n.

So-Called Traumatic Tuberculosis.—Pometta finds that most of the cases reported to the Swiss Accident Insurance Institute as a traumatic tuberculosis, are attributed to an event which cannot be considered as a trauma at all. It is usually simply part of the usual daily work or even only a movement. The causal connection of the tuberculosis with such a supposed accident becomes stronger and the accident more and more important in direct proportion to the time which elapses between it and the legal proceedings. Although this causal connection is usually more or less *bona fide* artificial, it is probable that the kind of work the patient was doing, is responsible for the localization and the development of the tuberculosis. But this is to be considered as an occupational trouble and not as an accident. Very often, the first changes supposed to be due to the accident, were already tuberculous.

Pediatria, Naples

Nov. 1, 1922, **30**, No. 21

*Attempts to Immunize Infants. A. Corica.—p. 985.
Child Mortality at Naples. A. de Capite.—p. 990.

The Opsonic Index in Infants Vaccinated Against Typhoid.—Corica injected antityphoid vaccine subcutaneously in six healthy infants and three healthy children between 8 and 11, and tabulates the findings with this experimental immunization. The opsonic index in the older children increased from 0.65 or 0.90 to 1.40 up to 2.07 after four injections. In the infants, the range before was from 0.76 to 0.97 and after five injections the range was only from 0.84 to 0.92; the index actually declined in three. When given by the vein, the opsonic index rose from 0.75 to 1.20 in the one infant tested, but in the older children the rise was considerable, by both routes, and there was a febrile reaction. In the infants the temperature did not rise above 38 or 38.5 C. The benefit from vaccine therapy, therefore, he says, must be from some nonspecific reaction.

Riforma Medica, Naples

Oct. 9, 1922, **38**, No. 41

Lymphocytosis and Lipolytic Power of the Serum in Pulmonary Tuberculosis. A de Martini.—p. 961.
Roentgen-Ray Treatment of Certain Eye Affections with Short Wave Rays. C. Guarini.—p. 963.
*Fuchsinophil Bodies in the Sputum. P. M. Franco.—p. 964.
*Risks of Spinal Anesthesia. M. Gioseffi.—p. 966.
Present Status of Erythremia. M. Reale.—p. 969.

Fuchsinophil Corpuscles in Sputum.—Franco found tubercle bacilli in 398 of 607 sputa examined, but fuchsinophil bodies were found only in 16.2 per cent. In the 103 with positive findings no tubercle bacilli could be found in 38. This group included 23 in which these fuchsinophil bodies were found for months or years before tubercle bacilli finally appeared in the sputum; in 15 cases the fuchsinophil bodies did not appear until after the tubercle bacilli had vanished from the sputum. He describes the characteristics of these bodies which range from the size of a gonococcus to that of the smallest erythroyctes. The Much granules are not so large and take stains differently. The physical-chemical reactions of the fuchsinophil bodies are like those of tubercle bacilli, although they do not bear formaldehyd so well as the latter. Franco emphasizes their importance for diagnosis and prognosis when tubercle bacilli cannot be found.

Risks of Intraspinal Anesthesia from Clinical and Medicolegal Standpoints.—Gioseffi cites statistics from the literature showing a mortality ranging from 0.07 to 0.5 per cent. of 3310, 9322, 3355, etc., in groups of cases in which the anesthetic had been injected intraspinally. Braun stated in 1921 that the hospital fatalities with it averaged 1 per cent. Gioseffi here reports a fatal case in detail. The otherwise healthy man of 65 was dismissed the twelfth day after a Bassini operation for left inguinal hernia. Soon afterward he complained of transient severe pain at the site of the intraspinal injection and in the legs. The fourteenth day, two days after leaving the hospital, symptoms of meningism developed with paresis, paraplegia and other symptoms of spinal cord disease, with dissociation of sensibility, septicemia, splenomegaly and jaundice, with death seven weeks after the first symptoms. Notwithstanding the fact that the symptoms did not develop until after a free interval of twelve days, Gioseffi accepts the causal connection with the intraspinal anesthesia, summarizing similar experiences from the literature.

Oct. 16, 1922, **38**, No. 42

*Intravenous Injections of Oxygen in Animals. L. Torraca.—p. 985.
Surgical Experiences with Oblique Inguinal Internal Hernia. L. Girolamo.—p. 986.
Myxoma of Ovary. R. Micotti.—p. 988.
Fight Against Venereal Diseases in Sweden. A. Sundqvist.—p. 991.
Present Status of Deforming Osteo-Arthritis. E. Aievoli.—p. 993.

Intravenous Injections of Oxygen in Animals.—Great quantities of oxygen introduced intravenously do not dissolve completely in the blood. Torraca finds that one part accumulates in the peritoneal, but not in the pleural or pericardial cavity. Some of the gas is eliminated through the skin, which can be plainly seen if the animal is submerged in water.

Anales de la Facultad de Medicina, Lima

May-June, 1922, **5**, No. 1

*History of Solanum Variegatum. Ache.—p. 42.
*Prophylaxis of Peruvian Verruga. J. Arce.—p. 58.
Aims and Purposes of Teaching of General Pathology. H. F. Delgado.—p. 82.
*Malta Fever in Lima. R. Rebagliati.—p. 94.

Medical History of the Cucumber in Peru.—Ache quotes from Peruvian poetry and novels to show the traditional reputation of the cucumber as the cause of dysentery and malaria. He has also found in the archives of the Lima Medical Society for 1862, reports of several cases of severe dilatation of the stomach, paralysis of bladder and bowel and peritonitis, all following two or three days after eating cucumbers. In one case the young man had eaten two exceptionally large ripe cucumbers when very tired and thirsty.

Prophylaxis of Peruvian Verruga.—Arce explains that the cause and mode of transmission of this disease in both its mild and its malignant form are now more than suspected. It seems to be peculiar to a certain small district in Peru, and hence it would certainly be possible to stamp it out. This would eradicate it and banish this disease from the face of the world. He pleads to have this work undertaken without delay, before the scourge has extended to other zones in or outside of Peru offering equally favorable conditions for the intermediate host.

Malta Fever in Lima.—Rebagliati describes some endemic foci of this disease in Peru. He insists that it should be called by a more descriptive name, such as melitococcia. The disease may run a course from a few days to a year or more. An autogenous vaccine has given the best results in treatment in his experience. The onset may be insidious or stormy, with a chill, neuralgia, sore throat or orchitis. The diagnosis is rendered positive by the blood findings. Transmission may be by flies as well as by goat's milk.

Anales de la Facultad de Medicina, Montevideo

June-July, 1922, **7**, No. 4-5

*Radiosusceptibility. F. Voltz.—p. 187.
*Case of Banti's Disease. J. Nin y Silva.—p. 192.
*Deep Radiotherapy for Sarcoma. J. Nin y Silva.—p. 199.
Experiences with Delbet's Stock Vaccines. E. Blanco Acevedo.—p. 203.
Idem. Clivio Nario.—p. 211.
*Aneurysm in Neck. Manuel B. Nieto.—p. 215.
*Median Glossitis. José May.—p. 219.
Experiences with Intraspinal Anesthesia. G. J. Devincenzi.—p. 228.
Report of Foundling's Asylum. Maria Armand Ugón.—p. 238.
Extraction of Corncob in Rectum. V. Pérez Fontana.—p. 264.
Bismuth in Treatment of Syphilis. Luis M. Otero.—p. 267.

Recent Research on Sensitiveness to Radiant Energy.—Voltz relates that his own experimental research has demonstrated that the radiosensitivity of a cell is proportional to its kinetic energy, its energy in an unstable form. It also depends on its nourishment. External factors cooperate likewise: warmer temperatures, exposure to light, injurious influences of various kinds, all these increased the radiosensitivity of the plants in his experiments. The biologic effect of irradiation may thus differ entirely with differences in the nourishment, illumination, temperature or external noxious influences, although the rays and other circumstances may be the same in all.

Splenectomy in Banti's Disease.—Nin y Silva casually discovered the enlarged spleen, debility and asthenia of the first stage of Banti's disease in a woman of 55 with influenza. After splenectomy all the symptoms subsided; in eleven days the erythrocytes had increased from 3,100,000 to 4,656,000 and the hemoglobin from 40 to 75 per cent. The spleen weighed 4 kg. and showed the changes characteristic of the first phase of Banti's disease. The general condition improved at once and the patient gained several pounds in weight, but the headaches to which she had long been subject continued. The spleen had been enlarged for about a year.

Sarcoma of Leg Treated by Deep Roentgenization.—The sarcoma had developed on the dorsum of the foot of the young woman under a nevus. She refused amputation and the tumor was resected but in three months three metastatic tumors developed near the ankle and the glands in the inguinal region were swollen. Under deep roentgen crossfire exposures the lesions in the leg rapidly retrogressed and the general health improved. In two months she had gained nearly 6 kg. but three small tumors had appeared in the leg, one at the site of the old main tumor.

Ligation of Carotid Artery for Aneurysm.—In Nieto's case the aneurysm had developed in two weeks, but the symptoms had been only those of a phlegmon in the neck. The aneurysm was infected. The common carotid was ligated, and this cured the aneurysm without any cerebral disturbances at the time or during the two years since to date.

Median Glossitis.—The peculiar lozenge-shaped aspect of the chronic lesion in the middle of the tongue is shown in an illustration. The painless, stationary course, refractory to all treatment is emphasized.

Deutsche medizinische Wochenschrift, Berlin

Oct. 13, 1922, **48**, No. 41

Importance of Colloids for the Action of Drugs. H. Kionka.—p. 1371.
Comment on Kleinschmidt's "Eruptions in Syphilis." A. Buschke.—p. 1373.
Psychosexual Element in Asthma. N. Costa.—p. 1373.
*Indications for Calcium Chlorid. P. Bernhard.—p. 1375.
Pulmonary Changes in Puerperal Sepsis. J. Hagemann.—p. 1376.
Toxicity of Aromatic Nitro-Compounds. J. Stukowski.—p. 1377.
*Roentgen Cure of Jaundice. G. Szemzö.—p. 1379.
Treatment of Hydrocele. F. Franke.—p. 1381.
Case of Idiopathic Cyst of the Common Bile Duct. H. Bolle.—p. 1381.
Tissue Necrosis from Scrap from Indelible Pencil. E. Glass.—p. 1383.
Verbal Suggestion in Hypnotism. F. Wolf.—p. 1383.
Inherited Syphilis and Twin Pregnancies. F. Thoenes.—p. 1386.
*Pedunculated Tuberculosis of Peritoneum. S. Semenow.—p. 1387.
Muscle Changes in Asiatic Cholera. Warasi.—p. 1387.
Sciatic Neuralgia Due to Formation of Calculus. C. X. Hiéroklés.—p. 1388.
Laparotomy to Extract Swallowed Pieces of Metal. Kern.—p. 1388.
Substitution of Potassium Iodid by Tincture of Iodin. A. Winckler.—p. 1388.
Bronchiectasia. Goldscheider.—p. 1389.
Bandages for the Eyes. K. Steindorff.—p. 1389.

Indications for Calcium Chlorid.—Bernhard corroborates the favorable influence of injections of 5 or 10 c.c. of a 10 per cent. solution of calcium chlorid in asthma. He also found that it had an excellent, although passing, effect in edema of lungs.

Roentgen Cure of Jaundice.—The icterus was chiefly dynamic. No bilirubin was present in the urine, no acholia in the feces. The icterus was cured by the application of one erythem dose of roentgen ray on the spleen.

Pedunculated Tuberculosis of Peritoneum.—The case was an ascitic form with formation of comparatively large pendulous nodules, like the perlsucht of cattle. It seems to be the fourth case on record.

Klinische Wochenschrift, Berlin

Oct. 21, 1922, **1**, No. 43

Biological Problems in Neurosyphilis. A. Hauptmann.—p. 2121.
*Spirochete Icterogenes and Pseudoicterogenes. P. Uhlenhuth and M. Zülzer.—p. 2124.
Experiments on Vitamins. F. Groebbels.—p. 2130.
Influence of Inorganic Salts on the Sugar Metabolism. I. St. Lorant.—p. 2131.
Behavior of Blood Platelets After Injections of Irritants. R. Stahl.—p. 2132.
Combination of Heat and Hofmeister's Anionic Series as Reaction of Liability of Plasma. G. v. Gerlóczy.—p. 2134.
*Roentgen Ray Acute Intoxication. E. Schlagintweit and H. Sielmann.—p. 2136.
Extirpation of Submaxillary Gland in Angina Ludovici. E. Rehn.—p. 2138.
Acromegaloidism. R. Ehrmann and L. Dinkin.—p. 2139.
Comment on Curschmann's Article in No. 32. O. Porges and D. Adlersberg.—p. 2139.
Vasoconstricting Substances in Blood. W. Hülse.—p. 2140.
Acid-Alkali Equilibrium in Experimental Kidney Changes. K. Beckmann.—p. 2140.
Teratomas of Larynx. H. Lichtenstein.—p. 2141.
Case of Malformation of Colon. W. Horn.—p. 2141.
Surgical Treatment of Epilepsy. L. Pussep.—p. 2142.
Hygienic Views on Present State of People's Nutrition. A. Juckenack.—p. 2145.
Importance of Roentgen Rays for Modern Natural Sciences. P. P. Ewald.—p. 2147.
Extrasystoles and the Predominance of Automatism of Subordinate Centers. C. J. Rothberger.—p. 2150. Cont'd.

Spirochete Icterogenes and Pseudoicterogenes.—Uhlenhuth and Zülzer state that saprophyte spirochetes of the water may be changed by cultivation in culture mediums containing serum until they behave serologically like *Spirochete icterogenes*. Though the transmission of Weil's disease by rats seems to be well established, a primary infection from the water is not impossible.

Acute Toxic Constitutional Reaction to Roentgen Exposures.—Schlagintweit and Sielmann found in cases of severe disturbances following large doses of roentgen rays a dilution of the blood manifested by a decrease in the relative amount of erythrocytes and a decrease in the chlorid content of the blood. Sodium chlorid given in whatever form gave full relief. The quickest way was to give 1 c.c. of a 5 per cent. solution intravenously, but the ingestion of 5 or 10 gm. by the mouth also had a favorable effect.

Münchener medizinische Wochenschrift, Munich

Oct. 13, 1922, **69**, No. 41

*Experiments on Colloid Treatment. H. Bechhold.—p. 1447.
Pathology of Tonsillitis. A. Dietrich.—p. 1449.
*Hematoidin. H. Fischer and F. Reindel.—p. 1451.
Treatment of Syphilis with Bismuth Compounds. G. Giemsa.—p. 1452.
*Quantitative Wassermann Reaction. B. Spiethoff.—p. 1453.
*Quantitative Modification of Abderhalden's Reaction. A. Gersbach.—p. 1454.
Diseases of Liver and Gallbladder. R. Ehrmann.—p. 1457.
Postoperative Tetany and Pregnancy. H. W. Stenvers.—p. 1458.
Local Eosinophilia in Postpneumonic Effusion. Schotter.—p. 1460.
Bleeding in Goiter Operations. A. Krecke.—p. 1461.

Experiments on Colloid Treatment.—Bechhold demonstrates the possibility of preventing the death of mice inoculated with the bacillus of swine plague, in doses that otherwise kill in two to four days. He accomplished this by the simultaneous or even subsequent injection of different substances. All the substances which protected in a marked manner were colloids, although not all of them were proteins.

Therefore Bechhold proposes the general term "colloid treatment" instead of the special term "protein treatment." Water had a favorable influence, which he attributes to its action on the corpuscles and proteins of the blood. Some of the proteins (for example an emulsion of killed staphylococci) and some of the substances leading to leukocytosis (croton oil) were without any influence. Colloidal metals did not protect more than their "protecting colloid," when used alone. Peptones were without appreciable influence. The dose is very important: It must not be too small nor too big. The optimal amount of casein by the vein was 0.0027 to 0.011 gm. per kg. of body weight. This would be in men of 70 kg., about 0.189 to 0.77 gm.

Hematoidin.—Fischer and Reindel find that hematoidin gives reactions and crystals which are identical with mesobilirubin, a reduction product of bilirubin. Its crystals in the brain, liver, etc., correspond to bilirubin.

Quantitative Wassermann Reaction and Changes in it During the Day.—Spiethoff demonstrates the value of serial complement fixation with different amounts of serum. He finds by this method that there can be changes in the titer during the day.

Quantitative Modification of Abderhalden's Reaction.—Gersbach uses the original method, and determines the dialyzed amino-acids with Riffart's method (using buffers).

Wiener klinische Wochenschrift, Vienna

Sept. 28, 1922, **35**, No. 38-39

Universal Skin Affections in Infants. C. Leiner.—p. 751.
*Pathology of Argyll Robertson Pupil. E. Redlich.—p. 756.
*Therapeutic Use of Skin Anaphylaxis. K. Stejskal.—p. 761.
Pains in the Stomach. E. Schütz.—p. 762.
Auto-Observation of Steinach Operation Without Rejuvenation. M. Zeissl.—p. 764.
*Is Ozone a Remedy? J. Pichler.—p. 765.
Scientific Bases of Public Health Work. F. Hamburger.—p. 768.
Importance of Procuring Human Milk for Infants' Welfare Work. A. Reuss.—p. 771.

Pathology of Argyll Robertson Pupil.—Redlich attributes the Argyll Robertson phenomena to a lesion of afferent fibers of the nucleus of the oculomotorius. The lesion is due to the metaluetic affection of the ependyma of the aqueduct of Sylvius, analogous to the meningitis.

Possibilities of Therapeutic Use of Skin Anaphylaxis.—Stejskal reports the favorable influence of injections of any protein into the neighborhood of inflamed or stiff joints or just below epitheliomas of the skin, although he does not consider this method of treatment sufficiently tested for general use.

Is Ozone a Remedy?—Pichler points out that pure ozone does not smell. The smelling substances produced by electric sparks are oxids of nitrogen, which are only noxious.

Oct. 5, 1922, **35**, No. 40

Tuberculosis and Pregnancy. H. Peham.—p. 781.
*Relations of Acid and Alkali to Tetany. H. Elias.—p. 784.
Malignant South American Lymphogranuloma of Mycotic Origin. W. Haberfeld.—p. 786.
Rubin's Test for Patency of Fallopian Tubes. J. Novak.—p. 789.
Comment on Schur's "Genesis of Hunger Pain." O. Porges.—p. 791.
Statistics of Tuberculosis in Children. K. Barchetti.—p. 792.

Relations of Acid and Alkali to Tetany.—Elias points out that a therapeutic influence of acid or alkali does not prove anything for the etiology of any disease. This is especially true in tetany. In tetany, disturbances in the acid alkali metabolism are not essential. The phosphoric acid ion seems to have a special function in increasing the irritability of nerves, in very small doses. Its amount in the blood is increased in tetany.

Oct. 12, 1922, **35**, No. 41

Treatment of Puerperal Fever. H. Peham.—p. 799.
Etiologic and Pathogenetic Classification of Epidemic Encephalitis. W. Berger.—p. 801.
Determination of Metabolism in Patients. Marie Krogh and O. Rasmussen.—p. 803.
Processes Present in Plants During the Latency of Injury by Roentgen Rays. E. Petry.—p. 806.
*Treatment of Sciatica by Injections. A. Bum.—p. 806.
Comment on Maliwas' "Mineral Springs." J. Schütz.—p. 808.

Treatment of Sciatica by Injections.—Bum injects quickly 120 to 150 c.c. of a solution containing 0.7 per cent. sodium chlorid and 0.07 to 0.1 per cent. of calcium chlorid into the perineurium of the sciatic nerve. He believes that the favorable action is purely mechanical, and rejects therefore all other substances which might be harmful.

Zentralblatt für innere Medizin, Leipzig

Sept. 30, 1922, **43**, No. 39

Impetigo-Nephritis. E. Hering.—p. 633.

Oct. 7, 1922, **43**, No. 40

*Specific Treatment and Protein Therapy. W. Vermehren.—p. 649.

Nov. 4, 1922, **43**, No. 44

Review of Laryngology (July-October, 1922). O. Seifert.—p. 713. Conc'n No. 45, p. 729.

Specific Treatment and Protein Therapy.—Although admitting the nonspecific part in the action of vaccines, Vermehren emphasizes their advantages over the nonspecific injections of proteins.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

Oct. 21, 1922, **2**, No. 17

*Bacteriophagy of Typhoid Bacilli. J. W. Janzen and L. K. Wolff.—p. 1818.
*Umbilical Colic in Children. H. L. Coopman.—p. 1825.
The Duration of Dreams. G. Jelgersma.—p. 1828.
Some Reaction Phenomena Accompanying Physiologic Phenomena. J. J. van de Belt.—p. 1831.
Uterine Cancer with Survival for Ten Years. H. L. Coopman.—p. 1844.

Typhoid Bacteriophage.—Janzen and Wolff report some curious findings with bacteriophagy of different strains of typhoid bacilli. They tabulate them for comparison and comment on the pitfalls when we commence to generalize from special findings. Their experience warns of the necessity for beginning again at the beginning in each new research of the kind. Their experience has further increased their admiration of d'Herelle's pioneer work in opening this new field for research.

Umbilical Colic in Children.—Coopman relates a typical case out of his wide experience with such cases, which clears up the cause of recurring colic in the navel region in children; the child usually vomits during the colic. When there is no tender point on the right, close to the navel, and the pain is alike on both sides of the navel and the temperature keeps normal, a neurosis may be accepted as the explanation, although this form is rare. But when the recurring transient colic in the navel region is accompanied with the tender point to the right, it is a manifestation of chronic appendicitis, and can be permanently cured by appendicectomy.

Hygiea, Stockholm

Oct. 30, 1922, **84**, No. 20

*Technic for Pneumoperitoneum. D. E. Holmdahl.—p. 833.
Graphic Abbreviations for Lung Findings. C. O. Segerberg.—p. 846.

Improved Technic for Artificial Pneumoperitoneum.—Holmdahl extols the advantages of puncturing for pneumoperitoneum in the left anterior axillary line, the patient lying on his right side, the shoulders raised a little. The needle is introduced just above the margin of the thorax, just far enough down to escape the pleura, at about the eighth intercostal space. As the needle pierces the thorax wall and the diaphragm and emerges in the open abdominal cavity, the manometer gives warning at once by the negative pressure.

Upsala Läkareförenings Förhandlingar, Upsala

Sept. 11, 1922, **27**, No. 5-6

*Puerperal Thrombosis and Embolism. P. Häggström.—p. 305.
Cystinuria in Sweden. C. T. Mörner.—p. 351.
Tests for Cystin in Urine. C. T. Mörner.—p. 367.

Puerperal Thrombosis and Embolism.—Häggström found varices in 112 of the 11,476 maternity cases investigated, and ten of these 112 developed thrombosis. The lying still and the relaxed position after childbirth and the common bradycardia aid in the predisposition to thrombosis at this time, as also the generally increased numbers of blood platelets and of leukocytes. The latest views regard infection as of minor importance in thrombosis, although opinions are divided on this.

JOURNALS ABSTRACTED IN THE CURRENT MEDICAL LITERATURE DEPARTMENT, JULY-DECEMBER, 1922

The following journals have been abstracted in the Currrent Literature Department of The Journal during the past ix months. Any of the foreign journals, except those starred, will be lent by The Journal to subscribers in the United tates and to Fellows of the American Medical Association for a period not exceeding three days. Only one journal may e borrowed at a time. Requests for periodicals should be addressed to the Library of the American Medical Associaion and six cents in stamps should be enclosed. This covers the average expense of mailing a journal. Domestic jourials can be obtained by sending the approximate amount direct to the respective publishers. Thus most of the journals ndexed are accessible to the general practitioner, no matter where located.

Acta Chirurgica Scandinavica. Irregular. 20 kroner. Stockholm.
Acta Medica Scandinavica. Irregular. 20 kroner. Stockholm.
Acta Pediatrica. Irregular. $6 per volume. Upsala.
Acta scholae medicinalis universitatis imperialis in Kioto. Irregular. 3.30 yen. Kioto.
American Journal of Anatomy. Bi-m. $7.50 per volume. 36th St. and Woodland Ave., Philadelphia.
American Journal of Diseases of Children. M. $4. American Medical Association, 535 N. Dearborn St., Chicago.
American Journal of Hygiene. Bi-m. $6. 310-312 W. Monument St., Baltimore.
American Journal of the Medical Sciences. M. $6. Lea & Febiger, 706 Sansom St., Philadelphia.
American Journal of Obstetrics and Gynecology. M. $6. C. V. Mosby Co., St. Louis.
American Journal of Ophthalmology. M. $10. 7 W. Madison St., Chicago.
American Journal of Physiology. M. $5 per volume. 1222 St. Paul St., Baltimore.
American Journal of Psychiatry. Q. $5 per volume. Johns Hopkins Press, Baltimore.
American Journal of Public Health. M. $5. 370 Seventh Ave., New York.
American Journal of Roentgenology. M. $6. Paul B. Hoeber, 67 E. 59th St., New York.
American Journal of Syphilis. Q. $7. C. V. Mosby Co., St. Louis.
American Journal of Tropical Medicine. Bi-m. $5 per volume. Williams & Wilkins Co., Baltimore.
American Review of Tuberculosis. M. $5. Williams & Wilkins Co., Baltimore.
Anales de la Facultad de Medicina, Universidad de Lima. Bi-m. 1.20 soles per issue. Lima, Peru.
Anales de la Facultad de Medicina, Universidad de Montevideo. M. 6 pesos per year. Montevideo.
Annales de l'Institut Pasteur. M. 55 francs. Paris.
Annales des maladies vénériennes. M. 52 francs. Paris.
Annales de médecine. M. 55 francs. Paris.
Annali d'igiene. M. 60 lire. Rome.
Annali italiani di chirurgia. M. 70 lires. Naples.
Annals of Medical History. Q. $8. Paul B. Hoeber, 67 E. 59th St., New York.
Annals of Otology, Rhinology and Laryngology. Q. $6. Times Bldg., St. Louis.
Annals of Surgery. M. $7.50. J. B. Lippincott Co., E. Washington Square, Philadelphia.
Annals of Tropical Medicine and Parasitology. Irregular. £1 2s. 6d per volume. Liverpool.
Arbeiten aus dem anatomischen Institut der kaiserlich-japanischen Universität zu Sendai. Irregular. Price varies. Tokyo.
Archiv für Gynaekologie. Irregular. Price varies. Berlin.
Archiv für Kinderheilkunde. Irregular. 80 marks per volume. Stuttgart.
Archiv für klinische Chirurgie. Irregular. Price varies. Berlin.
Archiv für Verdauungs-Krankheiten. Irregular. 135 marks per volume. Berlin.
Archives of Dermatology and Syphilology. M. $6. American Medical Association, 535 N. Dearborn St., Chicago.
Archives of Diagnosis. Q. $3. Rebman Co., 141 W. 36th St., New York.
Archives Franco-Belges de Chirurgie. M. 55 francs. Brussels.
Archives of Internal Medicine. M. $5. American Medical Association, 535 N. Dearborn St., Chicago.
Archives des maladies de l'appareil digestif et de la nutrition. Bi-m. 30 francs. Paris.
Archives des maladies du cœur, des vaisseaux et du sang. M. 36 francs. Paris.
Archives de médecine des enfants. M. 40 francs. Paris.
Archives de médecine et de pharmacie militaires. M. Paris.
Archives of Medical Hydrology. Irregular. 15 francs. London.
Archives médicales belges. M. 30 francs. Liége.
Archives of Neurology and Psychiatry. M. $6. American Medical Association, 535 N. Dearborn St., Chicago.
Archives of Occupational Therapy. Bi-m. $5. Williams & Wilkins Co., Baltimore.
Archives of Ophthalmology. Bi-m. $6. G. P. Putnam's Sons, 2 W. 45th St., New York.
Archives of Radiology and Electrotherapy. M. £2, 2 shillings per year. Rebman Co., 141-145 W. 36th St., New York.
Archives of Surgery. Bi-m. $6. American Medical Association, 535 N. Dearborn St., Chicago.
Archivio italiano di chirurgia. Irregular. 90 francs per volume. Bologna.
Archivio italiano di scienze mediche coloniali. M. 36 lire. Tripoli.
Archivio per le scienze mediche. Bi-m. 36 francs. Torino.
Archivos de cardiología y hematología. Bi-m. 24 pesetas. Madrid.
Archivos españoles de pediatría. M. 25 pesetas. Madrid.
Archivos latino-americanos de pediatría. M. $5. Buenos Aires.
Beiträge zur klinischen Chirurgie. Irregular. Price varies. Tubingen.
Boletin de Medicina y Cirugia. M. Guayaquil, Ecuador.
Boston Medical and Surgical Journal. W. $6. 126 Massachusetts Ave., Boston.
Brain. A Journal of Neurology. Irregular. 24 shillings. London.
Brazil-medico. W. 25 milreis. Rio de Janeiro.
Bristol Medico-Chirurgical Journal. Q. 3 shillings per issue.
British Journal of Children's Diseases. Q. 25 shillings per year. London.
British Journal of Experimental Pathology. Bi-m. £2. London.
British Journal of Psychology. (M. Sec.) Q. 25 shillings. London.
British Journal of Surgery. Q. $10. William Wood & Co., 51 Fifth Ave., New York.
British Journal of Tuberculosis. Q. $2.50 per year. G. E. Stechert & Co., 151 W. 25th St., New York.
British Medical Journal. W. 1 shilling 3 d. per issue. London.
Bulletin de l'Académie de médecine. W. 40 francs. Paris.
Bulletin of the Johns Hopkins Hospital. M. $4. Baltimore.
Bulletin of the Lying-In Hospital, New York. Irregular. $1. Bulletin of Lying-In Hospital Press, New York.
Bulletin médical. Semi-w. 20 francs. Paris.
Bulletin of the Medical and Chirurgical Faculty of Maryland. M. (except June, July, August and September) 25 cents. 1211 Cathedral St., Baltimore.
Bulletin of the Naval Medical Association of Japan. Irregular. Tokio.
Bulletin of the Porto Rico Medical Association. Bi-m. San Juan, Porto Rico.
Bulletins et mémoires de la Société médicale des hôpitaux de Paris. W. 65 francs. Paris.
Calcutta Medical Journal. M. Rs. 5. Calcutta.
California State Journal of Medicine. M. $4. Butler Bldg., 135 Stockton St., San Francisco.
Canadian Journal of Mental Hygiene. Q. $2. 207 St. Catherine St., West, Montreal.
Canadian Medical Association Journal. M. $6. 836 University St., Montreal.
*Casopis lekaruv ceskych. W. 170 k. Prague.
China Medical Journal. Bi-m. $5. Shanghai.
Chirurgia degli organi di movimento. Irregular. 80 francs. Bologna.
Colorado Medicine. M. $2. Metropolitan Bldg., Denver.
Crónica médica. M. $3.50. Lima, Peru.
Delaware State Medical Journal. Q. $1. 309 Shipley St., Wilmington.
Deutsche medizinische Wochenschrift. W. $6 per year. Leipzig.
Deutsche Zeitschrift für Chirurgie. Irregular. 200 marks per volume. Leipzig.
Deutsches Archiv für klinische Medizin. Irregular. Price varies. Leipzig.
Echo medical du nord. W. 15 francs. Lille.
Edinburgh Medical Journal. M. 40 shillings.
Encéphale. M. 70 francs. Paris.
Endocrinology: Bulletin of the Association for the Study of Internal Secretions. Bi-m. $6. 1100-1103 Title Insurance Bldg., Los Angeles.
Finska lakaresällskapets handlingar. Bi-m. 60 Finnish marks per year. Helsingsfors.
Gaceta médica de Caracas. Semi-m. 24 bolivares. Caracas, Venezuela.
Gaceta médica de Mexico. Irregular. $6. Mexico City.
Gann. Irregular. Tokio.
Gazette des hôpitaux. W. 35 francs. Paris.
Glasgow Medical Journal. M. 30 shillings per year.
Gynécologie et Obstétrique. M. 65 francs. Paris.
Hospitalstidende. W. 30 kronen. Copenhagen.
Hygiea. Semi-m. 24 kroner. Stockholm.
Illinois Medical Journal. M. $3. 155 N. Ridgeland Ave., Oak Park.
Indian Journal of Medical Research. Q. 10s. Calcutta.
Indian Journal of Medicine. Q. Rs. 6. Calcutta.
Indian Medical Gazette. M. Rs. 14-8. Calcutta.

W.—Weekly; M.—Monthly; Semi-m.—Semi-monthly; Bi-m.—Bi-monthly; Q.—Quarterly. * Cannot be loaned.

International Journal of Psycho-Analysis. Q. $6. London.

Irish Journal of Medical Science. M. £1 5s. Dublin.

Jahrbuch für Kinderheilkunde und physische Erziehung. M. 100 marks per volume. Berlin.

Japan Medical World (Nippin No Ikai Sha). M. $6. Tokio.

Journal of the American Medical Association. W. $6. 535 N. Dearborn St., Chicago.

Journal of the Arkansas Medical Society. M. $3. 810 Boyle Bldg., Little Rock.

Journal of Bacteriology. Bi-m. $5 per volume. Williams & Wilkins Co., Baltimore.

Journal of Biochemistry. Q. $5.50 per volume. Tokio.

Journal of Biological Chemistry. M. $5 per volume. Rockefeller Institute for Medical Research, 66th St., and Avenue A, New York.

Journal of Bone and Joint Surgery. Q. $5. 372 Marlborough St., Boston.

Journal of Cancer Research. Q. $5 per volume. Williams & Wilkins Co., Baltimore.

Journal de chirurgie. M. 85 francs. Paris.

Journal of Experimental Medicine. M. $5 per year. Rockefeller Institute for Medical Research, 66th St. and Avenue A, New York.

Journal of the Florida Medical Association. M. $1.50. 602-603 Consolidated Bldg., Jacksonville.

Journal of General Physiology. Bi-m. $5. Rockefeller Institute for Medical Research, 66th St. and Avenue A. New York.

Journal of Immunology. Bi-m. $5 per volume. Williams & Wilkins Co., Baltimore.

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SOCIETIES

A.—Association
Acad.—Academy
Am.—American
Coll.—College
Conf.—Conference
Cong.—Congress
Conv.—Convention
Dist.—District
Hosp.—Hospital
Internat.—International
M.—Medical or Medicine
Nat.—National
Phar.—Pharmaceutical or Pharmacy
Phys.—Physicians
Ry.—Railway or Railroad
S.—Society
Surg.—Surgical Surgeon or Surgery

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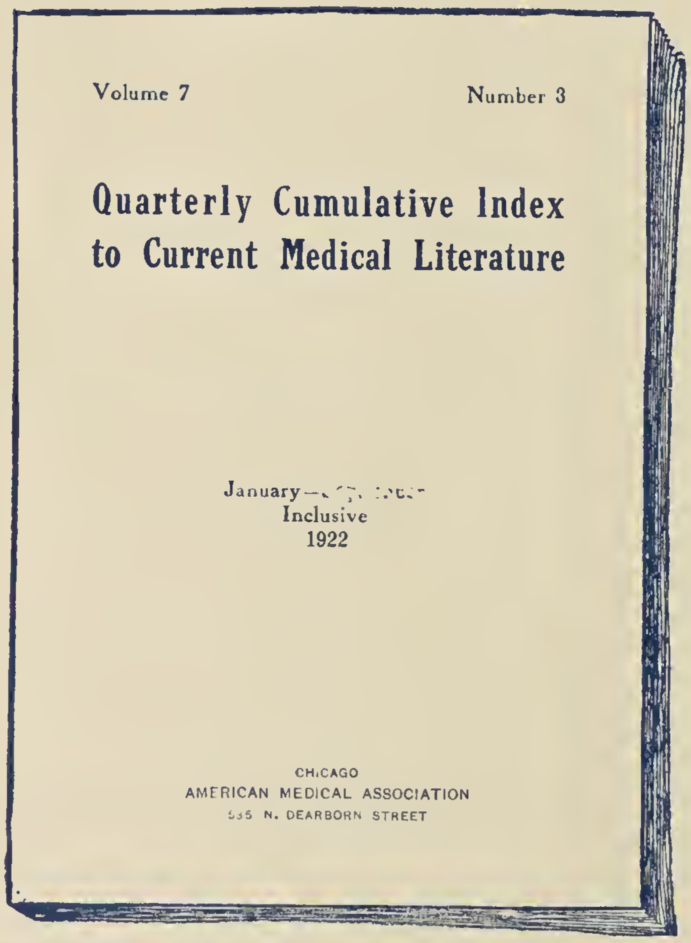

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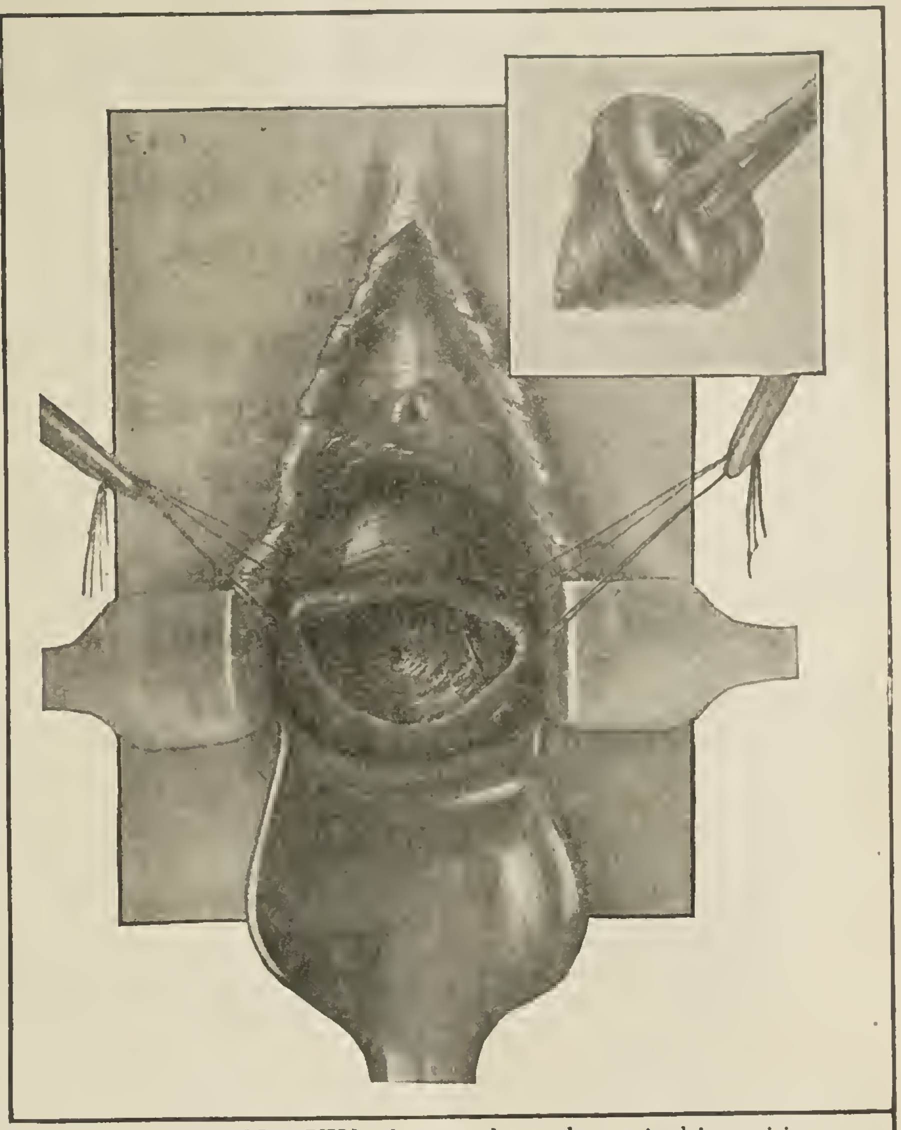

TRACHELOPLASTY, showing the wedge excised in excision

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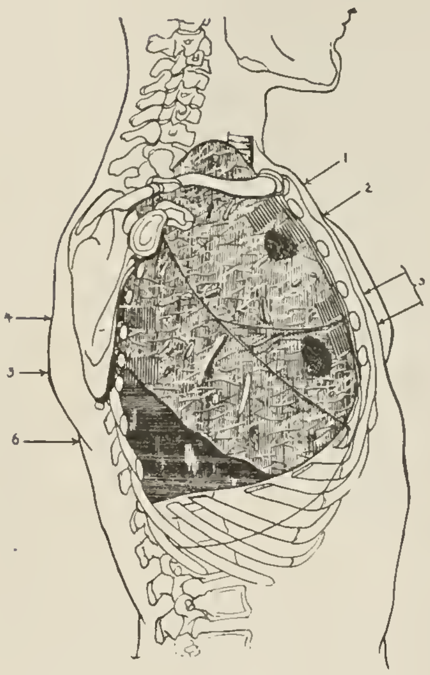

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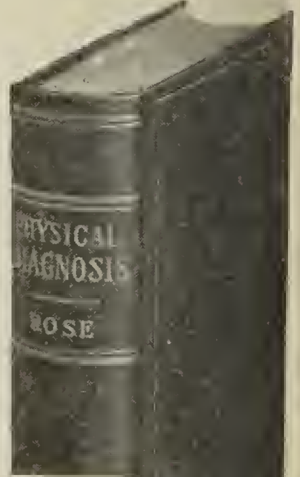

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Rhode Island Medical Society	Frank E. Peckham, Providence	J. W. Leech, 111 Broad St., Providence	Providence, June 7, 1923
South Carolina Medical Association	Charles F. Williams, Columbia	Edgar A. Hines, Seneca	Charleston, Apr. 17-19, 1923
South Dakota State Med. Assn	Gilbert G. Cottam, Sioux Falls	R. D. Alway, 423 S. Lincoln St., Aberdeen	Watertown, May, 1923
Tennessee State Medical Assn	Holland M. Tigert, Nashville	Larkin Smith, 154 Eighth Ave., N., Nashville.	Nashville, April 10-12, '23
Texas, State Medical Association of	Joseph Becton, Greenville	Holman Taylor, 207½ W. 11th St. Fort Worth	Ft. Worth, May, 1923
Utah State Medical Association	J. C. Landerberger, Salt Lake City	Wm. L. Rich, Boston Bldg., Salt Lake City	
Vermont State Medical Society	J. A. Stevenson, Chester	W. G. Ricker, St. Johnsbury	Bennington, Oct. 11-12, 1923
Virginia, Medical Society of	John Staige Davis, University	Mr.G.H.Winfrey, 104½ W. Grace St., Richmond	
Washington State Medical Assn	John H. O'Shea, Spokane	C. H. Thomson, 508 Cobb Bldg., Seattle	
West Virginia State Med. Assn	John N. Simpson, Morgantown	Robert A. Ashworth, Moundsville	Beckley, June 19-21, 1923
Wisconsin, State Med. Society of	Sidney S. Hall, Ripon	Rock Sleyster, Wauwatosa	
Wyoming State Medical Society	G. A. Fox, Cheyenne	Earl Whedon, Sheridan	Laramie, June 19-21, 1923

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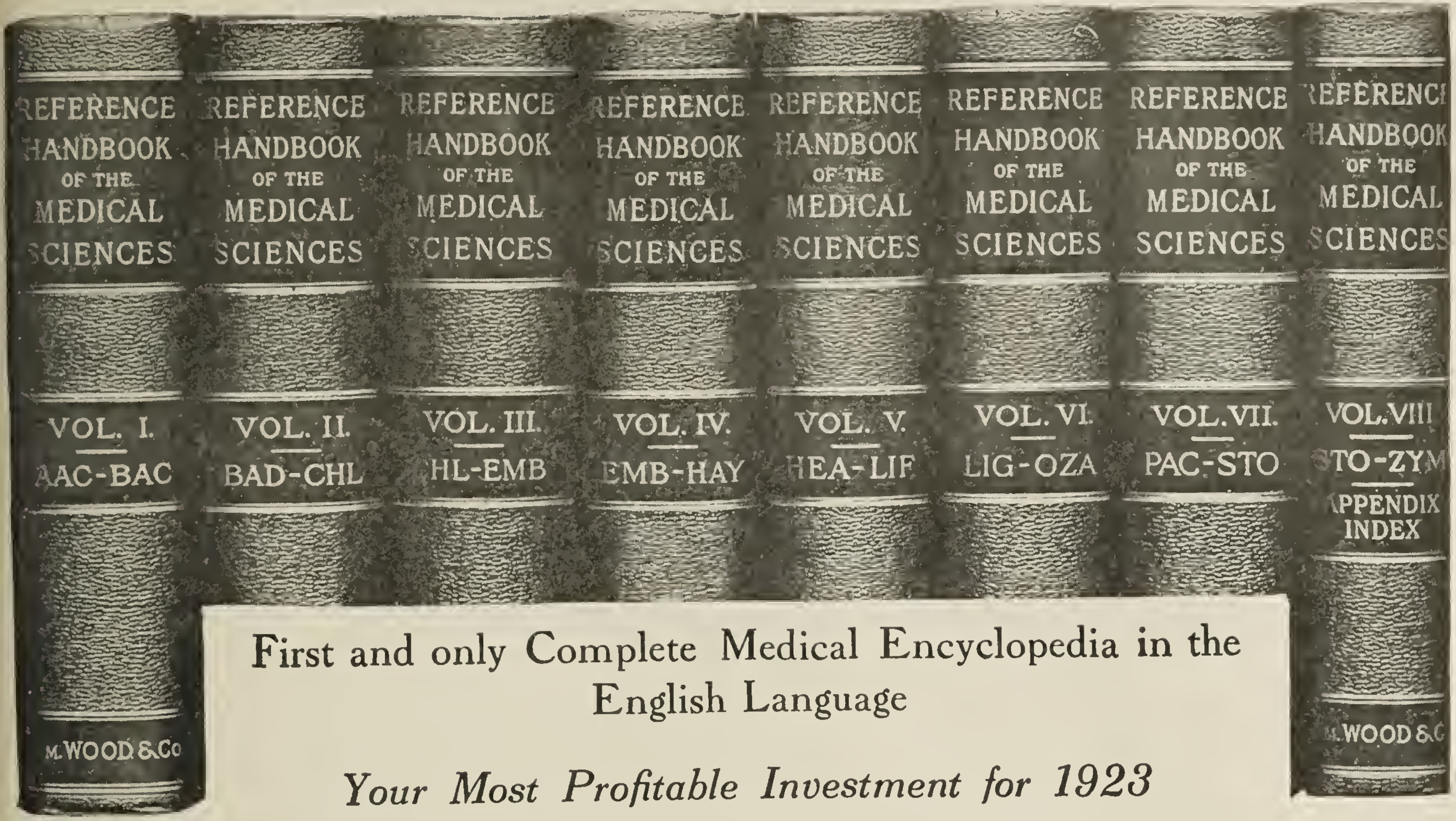

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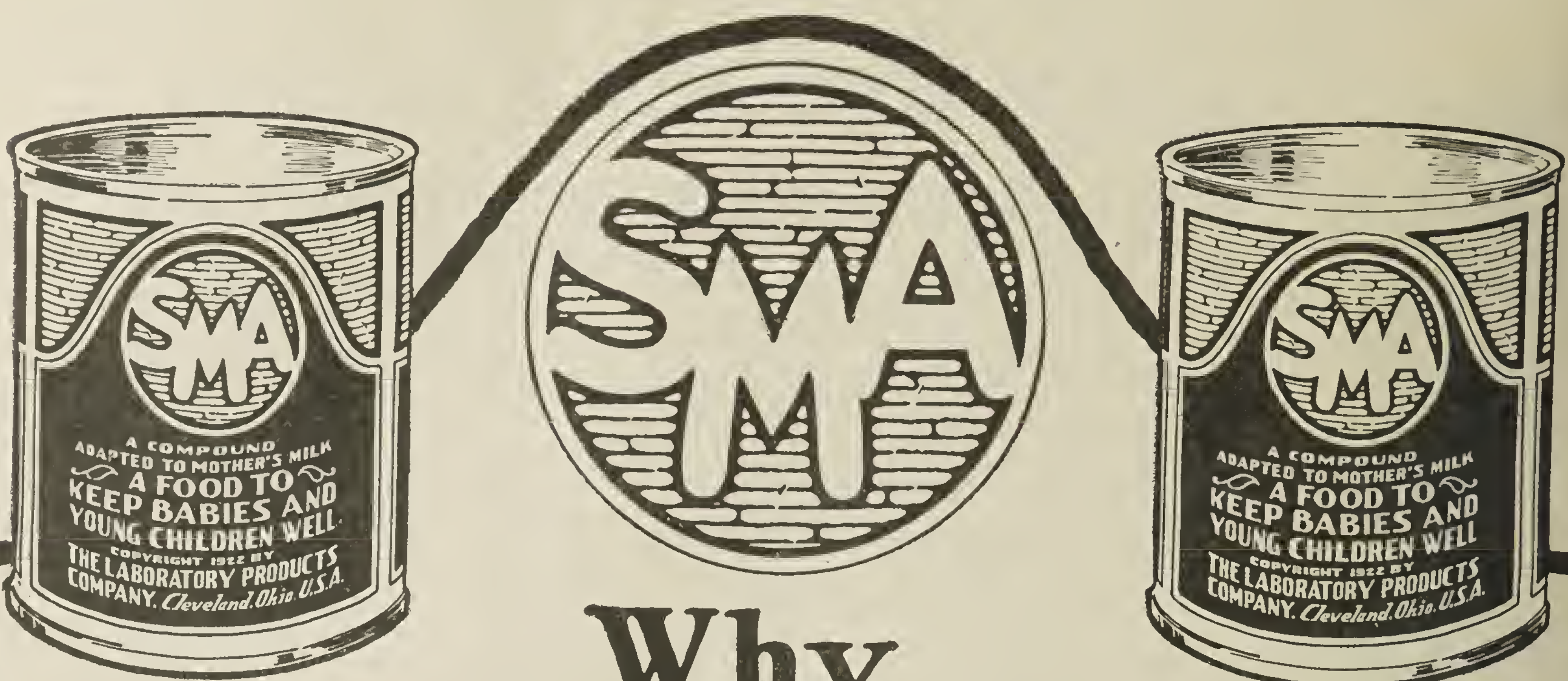
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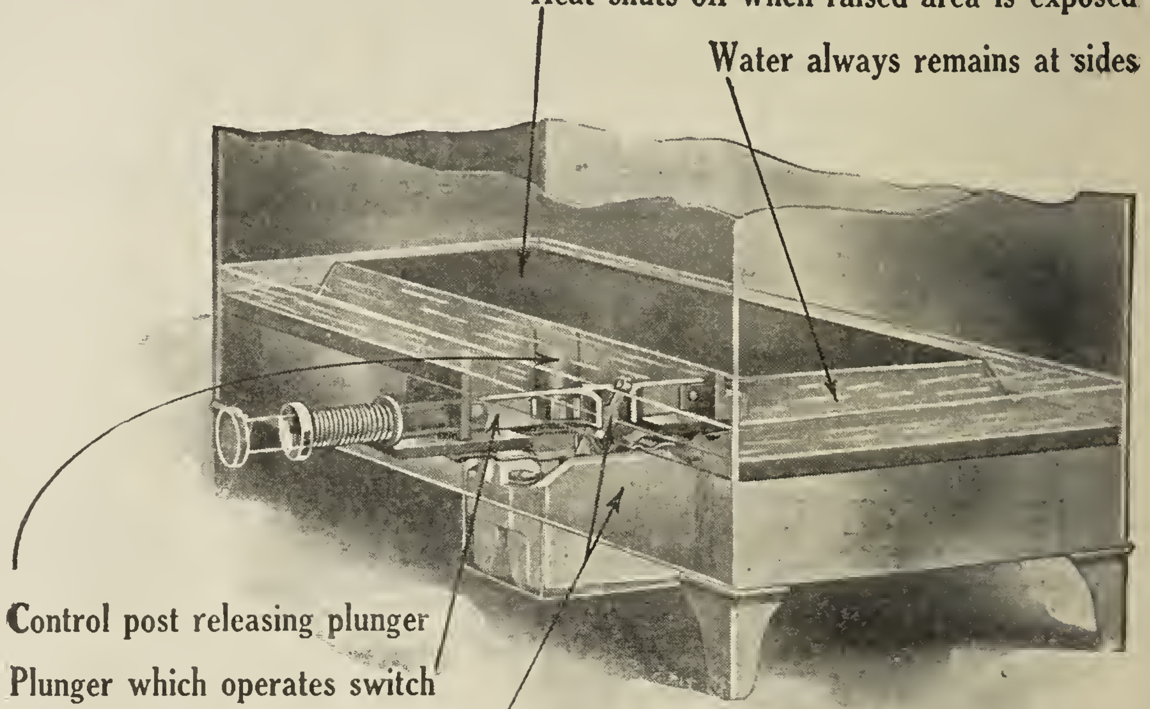
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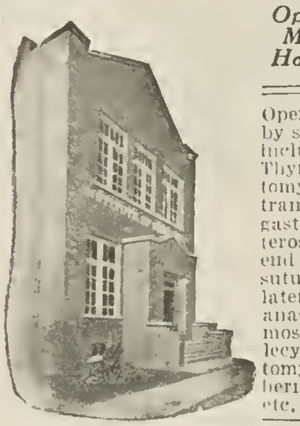

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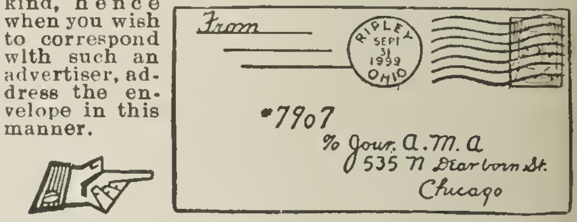

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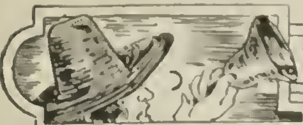

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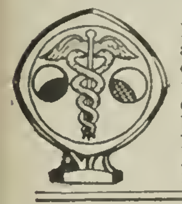

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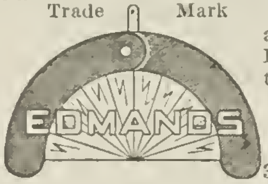

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The writer of this statement, an Oregon doctor who obtained a desirable assistantship through his classified ad in THE JOURNAL is just one of the many who write "giving the good system due credit."

And "something that is worthwhile" usually comes to every user of the classified columns.

Rates and further details on page 20

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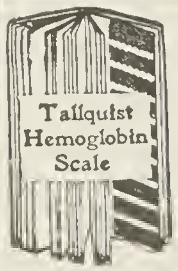

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Tonics and Sedatives

Happy New Year

The old year is dead, a new one is born.
The road stretches onward to distant delights,
May each day be happy and free from all harm,
And glorious dreams make pleasant the nights.

◆

The Wonders of Surgery

Hanover (Pa.) Record-Herald

One of the most unusual operations performed in the county was carried out successfully at the York Hospital Thursday, when four vertebrae were removed from the spine of little Aline Smith, ten-year-old daughter, of Mr. and Mrs. James Smith of near Davidsburg.

The operation is a most delicate one and the mortality rate is very high. Drs. Barnes and Johnson performed the operation known as laminectorum, in a manner which indicated that the child will recover from paralysis which has affected the whole lower part of the body.

◆

Add Contributing Causes

Letter received by a Kentucky schoolma'rm

Miss Cooper:—James failed to attend school yesterday afternoon on account of indisposition superinduced by eating some bad candy. J. G. O———.

◆

SOMETHING TO CHEW ON

A young country minister, noted for his jollity, was dining at a farmhouse one Sunday and when his plate of roast chicken was passed to him he remarked facetiously, "Well, here's where that chicken enters the ministry."

"Hope it does better there than it did in lay work," rejoined the bright boy of the family.—*Boston Transcript.*

◆

When Hurt She Started Out to Whine But Now There Is an End o' Cryin'!

United Press Item

Kansas City, Mo., Dec. 13.—Mrs. Lorene Caldwell, 23 years old, today won $1,000 because of her endoctrine gland.

She contended an injury to the gland in an automobile accident was responsible for her present weight—320 pounds—a gain of 160 pounds in two years.

◆

THE OLD ONES ARE THE BEST

In this family there was an incredible number of small children. Little Willie, aged 6—and he had five younger brothers and sisters—was taken in one morning to see his father, who happened to be laid up with influenza. Little Willie was quiet, almost reverent, in the sickroom. When it was time for him to go he went up to his father's bedside and said:

"I bin good, ain't I, pop?"

"Yep, son," the old man wheezed.

"Then, pop," coaxed little Willie, "kin I see the baby?"

◆

THE WISE CONGRESSMAN

A wise congressman confessed that, although he was always forgetting their faces and never remembering their names, he had no difficulty in being pleasant to his followers in the House.

"When I meet somebody in the lobby whom I don't know from Adam, and I see he expects me to know who he is, I take him warmly by the hand, look straight into his eyes, and say, 'And how is the old complaint?' I have never known it to fail."—*The Epworth Herald*, Chicago.

◆

Quietly, Quietly Passing

Waupun (Wis.) Leader

Rev. John Reynolds, for a number of years pastor of the Methodist church of Beaver Dam, died at Elgin, Ill., Friday, Dec. 8, of silent Jaundice.

(Continued on page 24)

(Continued from page 20)

WANTED—ASSISTANT PHYSICIAN, Essex County Hospital for Mental Diseases, Cedar Grove, N. J. Salary ranging from $1,800 to $2,400 per year, with maintenance. Add. Dr. Guy Payne, Supt., Cedar Grove, N. J. B

WANTED—IN A STATE HOSPITAL IN Pennsylvania, three assistant physicians, women; applicants must be graduates of a class A medical college and eligible for State Board registration; good salary with maintenance; opportunity for advancement. Add. 5067 B, % AMA.

WANTED—EXPERIENCED, WELL-trained oculist and aurist assistant; consideration only granted applicants supplying fullest details first letter; small photo if convenient; applicants must be Protestants of most excellent personality, preferably married, refined, good habits, with best fundamental and special training, capable of handling high class clientele and eye and ear research; location, Chicago; position open March 1; remuneration, $2,000 first year, with $500 advance each year for three to five years and share of total income thereafter. Add. 5056 B, % AMA.

WANTED—RADIOLOGIST — PHYSICIAN experienced in radiography to take charge of the x-ray department of a 50-bed hospital; send at once credentials and salary expected. Add. Sister Superior, St. John Infirmary, 116 Coburg St., St. John, N. B., Canada. B

WANTED — ASSISTANT TO RENTGENOLogist in New York City; recent graduate, single, of good appearance, progressive, absolutely reliable and loyal; hard worker; one who speaks German preferred; New York state license desirable, but not essential; no roentgenological experience required; splendid opportunity for the right man to break into x-ray line; salary $1,200 per year with opportunity for advancement; apply own handwriting, stating nativity, religion, education and references; photo desired. Add. 5049 B, % AMA.

WANTED — FIRST ASSISTANT PHYSIcian (male) at the Bridgewater State Hospital (insane); applicant must be experienced in psychiatry and registered in Massachusetts. For further information regarding this position, apply to Dr. F. H. Carlisle, Medical Director, Bridgewater State Hospital, State Farm, Mass. B

WANTED—ASSISTANT PHYSICIAN FOR tuberculosis sanatorium, New York state; 125 beds; salary $1,500 and maintenance; married or single; Gentile; send recent picture and full qualifications first letter; must be available by Jan. 15, 1923. Add. 5044 B, % AMA.

WANTED — OCULIST — $5.000 MAN wanted who is an unusually proficient refractionist; this is a permanent position and requires a man of marked courtesy, good appearance and a wide experience in refraction work; to a man who can meet these requirements, the position offers exceptional business training. Add. 5021 B, % AMA.

WANTED—RESIDENT PHYSICIAN, SINgle, for Waverly Hill Sanatorium; a splendid opportunity to become thoroughly conversant with diseases of the chest; complete x-ray and clinical laboratories; dispensary service; salary $1,200 per year, with full maintenance; please send photograph and references with application. Add. Oscar O. Miller, Medical Director and Superintendent, Box 540, Louisville, Ky. B

WANTED — ASSISTANT PHYSICIANS— A male and a female physician, junior grade, at $1,440 per year, with full maintenance, wanted to assist in development of new school for feebleminded at Belchertown, Mass.; unusual opportunity for work; applications to be accompanied by photograph and full particulars. George E. McPherson, M.D., Supt., Belchertown State School, Belchertown, Mass. B

WANTED—AT ONCE — ASSISTANT FOR mine contract practice in western Pennsylvania; young single man, Protestant; salary $200 per month; everything furnished except table board and laundry. Add. 4962 B, % AMA.

PHYSICIANS WANTED

WANTED—RESIDENT AND SENIOR resident physicians, Muirdale Sanatorium, Wauwatosa, Wis.; salaries from $120 to $180 per month, with maintenance. For full information write to the Milwaukee County Civil Service Commission, 470 Jefferson St., Milwaukee, Wis. C

WANTED—PHYSICIAN FOR BROAD Brook, Conn.; good location, modern house to rent, reasonable; doctors residence 19 years; excellent proposition for Catholic man; population territory 2,000 to 2,500; insurance appointments possible. Add. 5064 C, % AMA.

WANTED—TUBERCULOSIS SPECIALIST for Michigan Department of Health traveling clinic; salary, $3,000 yearly and all expenses; state age, nationality, education, medical and tuberculosis experience, recommendations; position available January 15. Address Deputy Commissioner, Michigan Department of Health, Lansing, Mich. C

WANTED—PHYSICIAN AS ASSISTANT superintendent, Topeka State Hospital; salary $2,500 per year, with maintenance; give full particulars in first letter, including age, preliminary education, school, date of graduation, religion, race, domestic relation, experience and references; send recent photograph if convenient. Add. Dr. M. L. Perry, Superintendent, State Hospital, Topeka, Kan. C

WANTED — A YOUNG MARRIED MAN, interested in industrial work, to take charge of one of the collieries of a large coal company, located in Virginia; salary at the start, $165; extras and everything furnished; in making application state school graduated from, hospital training or experience, height and weight; only applications of interest to us will be acknowledged. Add. 5058 C, % AMA.

WANTED—RESIDENT PHYSICIAN WITH experience in tuberculosis work; salary $1,443 with maintenance; opportunity for advancement. Applications giving statement of qualifications, previous hospital, record, etc., should be sent to Dr. G. Kremer, Medical Superintendent, Sea View Hospital, S. I., N. Y. C

WANTED—A WOMAN PHYSICIAN FOR the staff of a large state hospital for mental diseases; salary $1,440 per year and maintenance. Add. 5051 C, % AMA.

WANTED — HOUSE PHYSICIAN IN large hospital in Illinois; registered physician who desires training in laboratory and x-ray work; salary $100 per month and maintenance; general practitioner with years of experience preferred; send references with first application. Add. 5052 C, % AMA.

WANTED—AN ASSISTANT SUPERINTENDENT in a large state hospital for mental diseases; salary $2,500 with quarters and maintenance for family; must be an experienced psychiatrist, with executive ability and not over 35 years of age; position offers rare opportunities to a competent man who can learn new methods and has ability; send full particulars as to reference and experience, wtih recent photograph. Add. 5050 C, % AMA.

WANTED — RESIDENT PHYSICIAN FOR an industrial plant hospital; first aid, physical examinations, etc.; 8-hour service; private practice permitted; western New York town; must register; $250 per month without maintenance; give education, experience, age, nationality, religion, references, first letter; none others considered. Add. 5048 C, % AMA.

WANTED—RESIDENT PHYSICIAN IN 20-bed private hospital; prefer recent graduate who has had no hospital experience; must be honest and energetic; send references with first letter; salary $100 per month and maintenance; Kansas. Add. 5045 C, % AMA.

WANTED — DOCTOR FOR MINE PRACTICE in western Pennsylvania; salary $225 per month; room furnished; reference and Pennsylvania license required; full particulars in first letter. Add. 5029 C, % AMA.

WANTED — YOUNG PHYSICIAN FAMILIAR with Wassermann technic, routine chemical and bacteriological work in eastern state hospital laboratory; excellent opportunity for research and personal advancement; state registration not necessary; preference given to unmarried, recent graduate. Add. 5010 C, % AMA.

WANTED — A RESIDENT PHYSICIAN for six months' medical service in an approved hospital, with some extra work on obstetrics, pediatrics and emergency surgical cases. beginning Jan. 1, 1923; salary $100 per month and maintenance. Add. 5035 C, % AMA.

WANTED — GENERAL PRACTITIONER or surgeon; nearest surgeon 30, 50 and 70 miles; to locate in rich farming locality; Illinois town 3,000; three factories; good roads, good schools; 70 miles from St. Louis; office equipment optional; specializing. Add. 5031 C, % AMA.

(*Continued on next page*)

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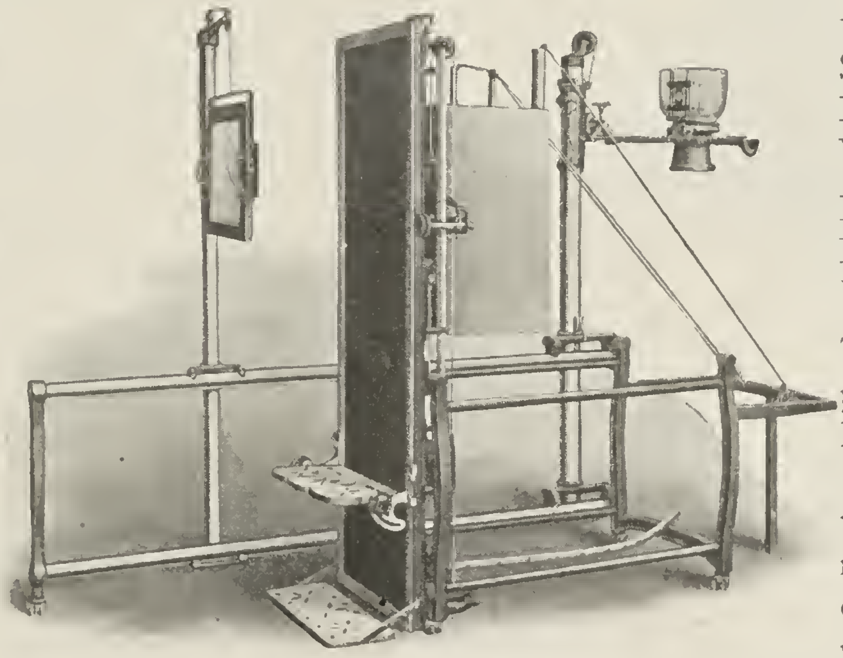

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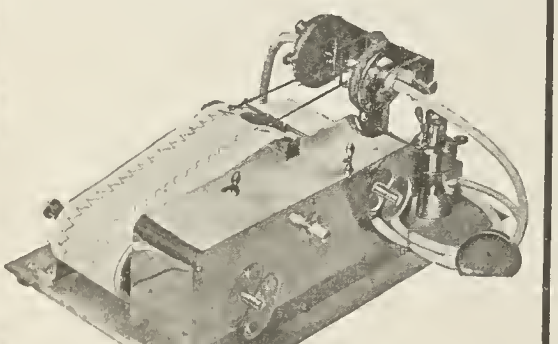

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(Tonics and Sedatives Continued)

DR. PEPYS' DIARY

Dec. 17.—This night to a surprise birthday feast for ye wife of Dr. Stake and there come a great crowd and many stories told. Ye best, however, that ye lady hath forgotten that ye same was her birthday, but ever ye custom of ye ladies to forget a few of the same.

Dec. 20.—Early to ye office and there laboring until well-nigh midafternoon, whence did go into ye shoppes to purchase ye trinkets for ye holidayes, but such a mad rush of women as to deter even ye boldest of men—and did bethink me how ye sex which we are wont to consider so fragile and weak doth at this time assume powers truly remarkable. Thenne, too, whereas she seemeth at most times to find difficulty in making up ye mind, at this season she doth buy here and there, scattering ye shekels like chaff to ye wind. Withal, however, once in ye midst of ye multitude I must needs catch ye contagion and begin likewise to pluck here and there, coming forth in ye twilight laden with this and that and all ye pockets gaping with ye parcels and a good five pounds shot away more rapidly than ever I have seen before.

Dec. 24.—Already beginning to come ye usual giftes from ye patients, cigarette cases, mufflers, slippers, ties, books and ye like; but among others a large globe of ye world and when ye top is removed there lieth within a small bottle and six glasses—a merry conceit, indeed, and I was minded to jest thereat, saying that it showed truly what some think ye most important thing in ye world, and that ye world do be full of ye stuff, and that ye world revolveth around ye glass, and that ye glass maketh ye world merry and that ye spirit of ye world becometh smaller; but after all ye jests seemeth but slim and like to occur to everyone.

Dec. 25.—This night to bed well content with ye day and thankful indeed that all ye preparations being properly made everything hath gone satisfactorily. There remaineth but a few things to exchange on ye morrow for that all ye friends have selected wisely and well, perhaps for that I have dropped hither and thither a delicate hint as to ye desires saying to one: "Ah! I would indeed be joyful to read this booke, but I cannot afford ye same," and to another: "If Santa Claus were good he would send me that," and finding, too, ye Santa Claus an excellent assistance in keeping ye children in order.

Dec. 27.—This night to hear read in glorification of ye great Pasteur, at whose name let no dog bark. A goodly crowd assembled and a feast of friendship between nations, again marking ye fact that science and humanity to man maketh all nations one.

◆

The Metamorphosis

New York Herald

Dr. Whitenack was a victim of the germ known as streptococcus hermolyticus, which, in the language of the layman, has the effect of turning the blood into water.

◆

FROM THE NURSES' EXAMS.

Contribbed by a Virginia colleague

Question: What is meant by the term "resolution" in pneumonia?

Answer:—Resolution is the stage where the red blood corpuscles resolve to do better work.

◆

Plural Pleurisy

Worcester (Mass.) Evening Gazette

At the doctor's office yesterday afternoon Horgan found out that by the light practice he has been indulging in, he has developed pleurisy of the shoulder and collar-bone.

◆

From the Doctor's Correspondence

Letter received by a Pennsylvania colleague

Dr. Wilson.—Pleas send me some pill for moof my Bowles. Them kind that will make my stomak little—my stomak to fat and I dont like it—it in my way. You know what I mean.

(Continued on page 26)

(Continued from preceding page)

WANTED—PATHOLOGIST IN PANAMA—Laboratory work is unlimited; prefer unmarried physician; $300 per month with maintenance; transportation from New York. 1631, Aznoe's National Physicians' Exchange, 30 N. Michigan, Chicago. C

WANTED — PATHOLOGISTS FOR OHIO, New Jersey, Missouri, Michigan, Florida appointments; salaries ranging $3,000 to $5.000 annually; excellent openings. Add. 1632, Aznoe's National Physicians' Exchange, 30 N. Michigan, Chicago. C

WANTED—RESIDENT PHYSICIAN, JANuary 1; one year's service; general hospital 110 beds; salary $75 per month, with maintenance; send photo and credentials when applying to superintendent. Highland Park General Hospital, Highland Park, Mich.★ C

WANTED — COMPETENT PHYSICIAN for state hospital for insane in the middle west; single man preferred; excellent opportunity. Add. 4947 C, % AMA.

WANTED—PHYSICIAN — SPLENDID OPportunity to fit for general practice. Add. State Infirmary, Howard, R. I. C

WANTED—CLASS A PHYSICIANS, PATHologists for salaried positions; internists, assistants, surgeons, hospitals, contract, industrial, group, appointments; if you desire a permanent position anywhere send for application form. Aznoe's National Physicians' Exchange, 30 N. Michigan, Chicago. C

WANTED — CHIEF RESIDENT IN UROlogical department; applicant must be a graduate of a reputable medical school and have served at least one year's internship in a recognized hospital; an excellent opportunity for study and research in urology and additional opportunity in skin diseases; no salary; maintenance only. Dr. Walter E. List, Superintendent, Minneapolis General Hospital, Minneapolis, Minn.★ C

WANTED—CHIEF RESIDENT IN NEUROlogical department; must have served at least 1 year's internship in a recognized hospital and be a graduate of a reputable medical school; an excellent opportunity for study and research; no salary; maintenance only. Dr. Walter E. List, Superintendent, Minneapolis General Hospital, Minneapolis, Minn.★ C

WANTED — RESIDENT PHYSICIAN IN 125-bed hospital; complete laboratory equipment; salary $1,200 per year and maintenance. Apply T. Kivett, Supt. Mercer Hospital, Trenton, N. J. C

INTERNS WANTED

Advertisements marked with a star (★) are of hospitals on the list of those approved for intern training by the Council on Medical Education & Hospitals of the A. M. A.

WANTED—INTERNS FOR SIX MONTHS' service at The New York Throat, Nose and Lung Hospital, 231 East 57th St.; an examination will be held at the hospital on Thursday, Feb. 1, 1923. Applications may be mailed to Mrs. G. VanTassel, Supt. D

WANTED — INTERN — IMMEDIATELY—White Plains Hospital; 50 beds; soon to be increased to 100 beds; active services; surgical, medical, obstetrical, nose and throat; salary $75 per month and maintenance. Apply to Dr. Walter W. Mott, 43 Waller Ave., White Plains, N. Y.★ D

WANTED — INTERN, ROTATING SERvice of one year, beginning January 1, in 116-bed Class A hospital, with exceptional facilities; compensation $20 per month and maintenance; give full information and references first letter. F. R. Nuzum, M.D., Medical Director Cottage Hospital, Santa Barbara, Calif.★ D

WANTED—TWO INTERNS FOR GENERAL hospital, 300 beds, rotative service, surgery, medical, ear, nose and throat, obstetrics, etc.; salary $50 per month; wanted for six months only, and none but first class medical college need apply; give information and reference in first letter. Add. 4923 D, % AMA.

WANTED—INTERN—SIX MONTHS' SERvice beginning immediately, in approved hospital; salary $100 a month, in addition to board, room, laundry and uniform; excellent surgical service in addition to training in medicine, ear, nose and throat; hospital affiliated with Jackson clinic. Add. Methodist Hospital, Madison, Wis.★ D

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Hospital Use

IMPERVIOUS CILKLOID excels for covering all wet packs and dressings, and for all purposes where rubber tissue, oiled silk and other impervious materials have been used in the past.

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WANTED—TWO INTERNS FOR 250-BED general hospital, rotating service; salary $600 each per year and maintenance. Add. Superintendent San Joaquin General Hospital, French Camp, Calif. D

WANTED — BY BINGHAMTON STATE Hospital for Mental Diseases, Binghamton, N. Y., medical interns; salary ranging from $1,200 to $1,900 yearly, with maintenance. Add. Dr. Charles G. Wagner, Supt., Binghamton, N. Y. D

WANTED — INTERNS FOR APPROVED hospital appointments in all parts of United States. Aznoe's National Physicians' Exchange, 30 N. Michigan, Chicago. D

LABORATORY TECHNICIANS WANTED

WANTED—POSITION AS LABORATORY technician for group of physicians; 8 years' experience in research, public health and hospital laboratories; thoroughly competent in all standard laboratory procedures; prefer commission basis for salary. Add. 5028 V, % AMA.

WANTED—X-RAY AND PATHOLOGICAL laboratory technician, able to do complete laboratory work; standardized hospital, 125 beds, middle west; give references and state salary expected. Add. 4938 V, % AMA.

WANTED—COMBINATION LABORATORY and x-ray technicians for positions Virginia, Ohio, West Virginia, Wisconsin, Louisiana, Indiana, North Carolina; salaries ranging $100 to $200 per month and maintenance. 1640. Aznoe's National Physicians' Exchange, 30 N. Michigan, Chicago. V

WANTED—EXPERT LABORATORY TECHnicians, pathologists and x-ray operators, male and female. for positions in all parts of the country; excellent opportunities. Write Aznoe's National Physicians' Exchange, 30 N. Michigan Ave., Chicago. V

REPRESENTATIVES WANTED

WANTED — DETAIL MAN: PHYSICIAN experienced in representing pharmaceutical house to physicians, preferably with knowledge of organotherapeutic products. Please give full information as to college, experience, etc. Add. 5061 JJ, % AMA.

WANTED—PHYSICIAN WITH HOSPITAL experience to represent us in a purely professional way; applicant must be a thoroughly qualified medical practitioner and experienced in the administration of anesthetics; good permanent position as a member of our scientific staff; please address us in full confidence; communications will be treated as confidential. E. R. Squibb & Sons, Executive Office, 80 Beekman St., New York City. JJ

WANTED — REPRESENTATIVES — MEN who want a high grade proposition and a good income; a publisher of medical journals wants a few energetic, well educated solicitors; this work is with the medical profession exclusively and good territory is open; instruction and all supplies furnished free; also solicitors now calling on physicians can make some extra money with these journals as a side line; men of good personality and selling ability should investigate at once. For further information add. 5008 JJ, % AMA.

WANTED — PHYSICIANS — ANY ONE tired of night calls and wishing to travel around and look up a new location can find congenial, profitable work taking subscriptions for Lippincott's medical books; this work pays well, you get every dollar you earn, weekly, and it furnishes permanent employment to those who desire it; many young physicians have used this method to pay college debts, search out a desirable location, acquire needed business experience and furnish capital on which to build a practice; all correspondence confidential. Add. Manager, Medical Department, J. B. Lippincott Company, E. Washington Sq., Philadelphia, Pa. JJ

LOCATIONS WANTED

WANTED — LOCATION — ILLINOIS — Where physician is needed; general practitioner, age 32, Protestant, married; can speak German; prefer community near Chicago with good schools; will consider real estate; give full details. Add. 5065 E, % AMA.

WANTED — A COMPETENT PHYSICIAN with best references wishes location in Virginia, West Virginia or Maryland; not averse to a good coal practice; give details in first letter. Add. 5040 E, % AMA.

(Continued on next page)

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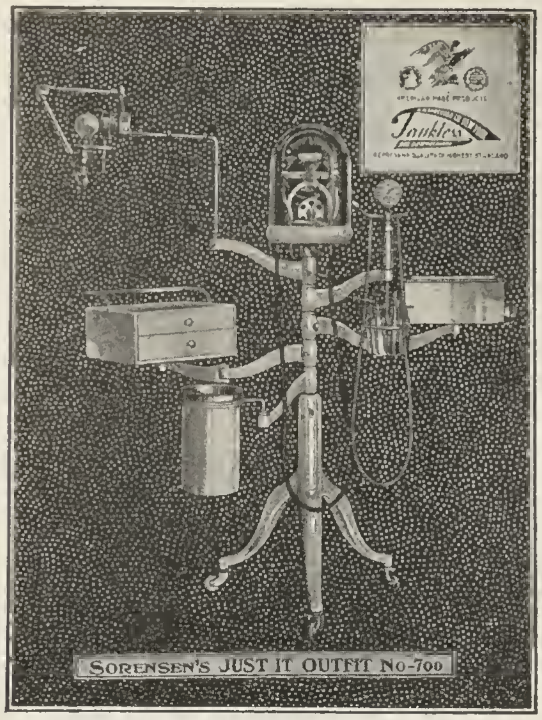

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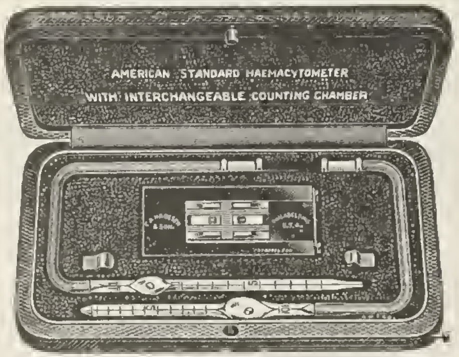
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PHILADELPHIA, U.S.A.

Where to Buy It? See the Adlets, page 21.

(Tonics and Sedatives Continued)

Blaming the Doctor for Everything

St. Paul (Neb.) Phonograph

Mr. and Mrs. Henry Bader have a new boy in their home and he is a welcome visitor because both he and his fond mother are doing so well. Dr. Hanisch is responsible for this young man and he is receiving the thanks of the Bader family for his goodness.

◆

A Matter of Diagnosis

Letter of excuse brought by an employee to a Pennsylvania industrial physician

To whom this may concern. In my analysis of Mr. P. H. ——— case I find the first cirvicle caused his headaches and Virtigo the third dorsal condition helps to keep a constant pain in chest wich is a conditon that is showing considerable improvement 7 Dorsal relieving constipation and Lumbar 2 and 4 taking care of the tired feeling in his legs. My analysis would read as follows

C 1 D 7 L 4
D 3 L 2

Yours Respectfully submitted
—————, D. C.

◆

The Capon Is a Funny Bird

Yankton (S. Dak.) Press

Did you ever hear a capon—one of those birds that started out to be a rooster and was interrupted in early life? They cluck a little, and try to crow without success, and make a noise a bit like a crow, or something as though they had been out on a toot and tried to yell.

◆

CURRENT COMMENT

Haven't You Felt This Way?

New York Tribune

One of the great disappointments of a football game is that the cheer leaders never seem to get injured.

Blue Language

Asheville Times

"What sounds worse than a phonograph almost rundown?" inquires one paragrapher. A pedestrian who is almost run down.

◆

Mixing Things

Item in Nevada State Journal

YOUNG GIRL SCALDED TO DEATH BY ENRAGED BULL

Santa Rosa, Cal., Nov. 6.—Evelyn Cloyd, 15, an inmate of the State Home at Eldridge, was scalded to death yesterday, according to information received here today. The girl went to a faucet to get water. Her clothing caught on a hot water faucet, the impact turning on the water and tbrowing the girl under it. Before she could be rescued she was past recovery, the report said.

◆

Add Causes of Death

Elkins (W. Va.) Enterprise

Mrs. Alice Roberts, aged 25 years, died at 1:30 o'clock Thursday afternoon in a local hospital of complications.

Which is reminiseent of the following:

A German whose wife had been operated on called daily at the hospital to inquire as to her condition. The first day he was told that she was doing well; the next day she was said to be "improving," and each day thereafter she was said to be "improving."

On the fifth day when he arrived, he was told that his wife, due to a late embolism, had died during the night.

"I t'ink," he said slowly, as he turned away, "dot maybe she had too many of dose imbrovements."

(Continued from preeeding page)

WANTED—ASSOCIATION OR LOCATION, preferably with surgeon and hospital facilities, class A graduate; 2 years' internship, good obstetrical and surgical training; post-graduate work in surgery; Protestant, Mason, American; highest refcrences. Add. 5062 E, % AMA.

WANTED — LOCATION, PARTNERSHIP, association, contract or group practice wanted by general surgeon, aged 42; 16 years' practice, 5 of which were postgraduate study of surgery in some of the best hospitals and clinics; now conducting own hospital; wife ill; must change. Add. 4843 E, % AMA.

WANTED—LOCATION WITH GROUP OR partnership in eye, ear, nose and throat; had 3 years' special training; 8 years' special practice; 2 years with group. Add. 4961 E, % AMA.

WANTED—EITHER CONTRACT OR ASSISTANT contract practice or assistantship to surgeon; graduate Class A school; 31 years old, Protestant, single; 2½ years' hospital; 2½ years' practice; 1 year army; available immediately. Add. Dr. H. T. Boozer, Nogales, Ariz. E

NURSES & DIETITIANS WANTED

WANTED—COMPETENT NURSE TO PURCHASE equipment and manage small private hospital, central California; three visiting physicians; gross income past year $15,000; rental $100 per month; purchase price, $3,000 cash; do not write unless you mean business; bona fide opening for right person. Add. 5063 T, % AMA.

WANTED—SUPERINTENDENT OF nurses, assistant superintendents, surgical, general duty, instructresses, laboratory technicians, dietitians desiring hospital positions anywhere in United States, write for free book. Aznoe's Central Registry for Nurses, 30 N. Michigan, Chicago. T

NURSES AND DIETITIANS' LOCATIONS WANTED

WANTED—SUPERINTENDENT OF nurses, Kansas; $1,800 year; superintendent, Wisconsin, $150 per month; superintendent, Oklahoma, $150 per month; combination superintendent and superintendent of nurses, Oklahoma, $150 per month. Add. 1634, Aznoe's Central Registry for Nurses, 30 N. Michigan, Chicago. W

WANTED — TWO-YEAR GRADUATE nurse wants position as general duty nurse in hospital; excellent references. 1633, Aznoe's Central Registry for Nurses, 30 N. Michigan, Chicago. W

WANTED — LOCATION — GRADUATE nurse desires general duty hospital appointment; 2 years' surgical experience since graduation. 1641, Aznoe's Central Registry for Nurses, 30 N. Michigan Ave., Chicago. W

WANTED — SURGICAL NURSE, GRADUATE of Evanston Hospital, Evanston, Ill.; 6 years' surgical experience since graduation. 1628, Aznoe's Central Registry for Nurses, 30 N. Michigan, Chicago. W

WANTED — POSITIONS, SUPERINTENDENT of nurses, assistant superintendents, surgical, general duty nurses, dietitians, laboratory technicians, furnished promptly anywhere in United States; no charge for this service. Aznoe's Central Registry for Nurses, 30 N. Michigan, Chicago. W

WANTED—POSITION AS DIETITIAN IN small hospital or as assistant in large hospital. 1629, Aznoe's Central Registry for Nurses, 30 N. Michigan, Chicago. W

PARTNERSHIP WANTED

WANTED—PARTNERSHIP WITH ESTABLISHED physician or surgeon; wide experience in major surgery; A1 school; 2 years intern; 2 years abroad; 45, married; speak German; accept probation on salary; references. Add. 5053 H, % AMA.

SITUATIONS WANTED

WANTED—ASSOCIATION WITH OBSTETRICIAN or assistantship to general practitioner doing obstetrics; Class A graduate; internship; special obstetrical training; 3 years' general and obstetrical practice; surgical assistant; aged 30, married, Protestant, amhitious, capable; references exchanged. Add. 5060 I, % AMA.

WANTED — A GRADUATE NEW YORK licensed physician desires part time salaried position in New York City; 28 years old, single, ambitious; moral and professional references; English, Spanish, French fluently. Add. 5057 I, % AMA.

WANTED—SURGEON, MARRIED, UNDERstands English, 34 years old, 7 years' surgical and gynecological experience in Berlin's largest hospital, desires surgical position in a hospital or private clinic. Obararzt Maas, Am Friedrichshain 33, Berlin, Germany. 1

WANTED—POSITION AS SUPERINTENdent of ethical tuberculosis sanatorium, or as that of medical examiner for corporation or municipality; 8 years devoted exclusively to diseases of chest, five of which have been spent in tuberculosis sanatoria, four in government institutions for the tuberculous; married, aged 40; executive ability; only first-class position considered; necessary credentials can be submitted. Add. 5009 I, % AMA.

WANTED — ASSISTANTSHIP TO REPutable surgeon, group or institution in or near New York City, by young physician; single, 32; experienced pathologist; 4 years' intensive surgical training under big man in Chicago; excellent references. Add. 5022 I, % AMA.

WANTED — WILL ASSIST GENERAL practitioner or surgeon, or salaried appointment, industrial plant, or contract practice, but there must be a future; New York City graduate; 27; one year interned tropics; one year New York City; general practice two years; make good appearance; energetic; excellent health and habits; married; one child; references; will go New York or reciprocating states; can invest; available at once. Add. 5026 I, % AMA.

WANTED—PHYSICIAN DOING ALL GENeral surgery; also experienced hospital superintendent, desires salaried position with corporation, railroad, hospital or clinic; aged 42; married; 17 years' experience; now conducting general hospital; minimum beginning salary, $4,000 yearly. Add. 5032 I, % AMA.

WANTED — POSITION AS ASSISTANT superintendent or on medical staff of sanitarium; 5 years' experience; New York or New England location preferred; further information or personal interview desired; excellent references. Add. 5027 I, % AMA.

WANTED — SITUATION, CONTRACT practice or location by physician; graduate Columbia; aged 32; Protestant; married; seven years' experience medicine, surgery; hard worker; prefer New York, Ohio, Michigan; available immediately. Add. 4999 I, % AMA.

WANTED—YOUNG WOMAN X-RAY TECHnician with 5 years' experience in the larger institutions, wishes a change in position; capable of taking charge of laboratory in hospital clinic and conducting it successfully; best of references. Add. 4987 I, % AMA.

WANTED—FULL TIME EYE, EAR, NOSE and throat appointment; Class A graduate; central west preferred. 1635, Aznoe's National Physicians' Exchange, 30 N. Michigan, Chicago. I

WANTED—POSITION — ASSISTANT TO general practitioner or assist in surgery; percentage or salary; Class A man; good references. 1636, Aznoe's National Physicians' Exchange, 30 N. Michigan, Chicago. I

WANTED—POSITION—A YOUNG PHYSIcian desires hotel, insurance, hospital or industrial appointment; can be interviewed in New York City. 1637, Aznoe's National Physicians' Exchange, 30 N. Michigan, Chicago. I

WANTED—FULL TIME ASSISTANTSHIP to surgeon or general practitioner; Columbia University graduate; can be interviewed in New York City. 1638, Aznoe's National Physicians' Exchange, 30 N. Michigan, Chicago. I

WANTED—POSITIONS—CLASS A PHYSIcians are registered with us from all parts of United States for salaried positions anywhere; we have candidates whose references, moral and medical standings have been carefully investigated; open for ethical appointments; no charge for our service. Aznoe's National Physicians' Exchange, 30 N. Michigan, Chicago. I

WANTED — POSITION BY GRADUATE nurse; recognized training school; graduate of New York Post-Graduate in anesthetics; now anesthetist for large group in west. Add. 4984 I, % AMA.

(*Continued on next page*)

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(Continued from preceding page)

WANTED — ASSISTANTSHIP, HOSPITAL, industrial or contract position; Rush Medical College graduate; central or east. 1639. Aznoe's National Physicians' Exchange, 30 N. Michigan, Chicago. I

APPARATUS WANTED

WANTED — LYNCH SUSPENSION OUTfits, with bronchial, esophageal tubes, forceps, etc.; must be mechanically perfect; list accessories and state lowest prices. Add. Intern Staff, % Eye, Ear, Nose and Throat Hospital, New Orleans, La.★ L

WANTED — BY PHYSICIAN IN NEW York City, Bergonie apparatus for the treatment of obesity. Add. 4948 L, % AMA.

WANTED—MICA PLATE WAGNER ELECtric machine; give full details and price. Waterman Institute, Indiana University, Bloomington, Ind. L

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FOR SALE — X-RAY PLANT IN SAN Francisco, fully equipped. In physicians and dentists office building, central business district. Write E. J. A., % Cal. State Jour. Med., Balboa Bldg., San Francisco, Calif. K

FOR SALE—WAPPLER X-RAY, EMPIRE Model, 220 volts, 60 cycle; gas tube, treatment tube stand and areal; in good condition; used very little; suitable for physician or dentist; will sacrifice. Dr. F. L. Covert, 533 Tussing Bldg., Lansing, Mich. K

FOR SALE—APPARATUS — COMPLETE refraction outfit, excellent condition; new would cost $150; consists leather case, complete sets spheres, cylinders, etc.; about 200 lenses; electric lighted automatic test cabinet; Geneva lens measure; trial frame tools; sacrifice entire outfit, $90. Add. 5033 K, % AMA.

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FOR SALE — SOUTHERN CALIFORNIA — City practice; no real estate to buy; $7,000 yearly earned; take the lease, location, equipment and high grade household goods for $2,500; residence apartment adjoins office on main business thoroughfare; has been a physician's office for past 30 years; a great opportunity for an eastern doctor who has saved some money and wants to get away from the winter blasts. Add. 5043 N, % AMA.

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FOR SALE — ILLINOIS CORN BELT — Unopposed $6,000 village and country practice; property modern, consists of office, residence, garage, etc.; good fees, colections 98 per cent.; price, $4,000; easy terms; drugs optional. Add. 5066 N, % AMA.

FOR SALE — SOUTHWESTERN IOWA — $5,000 practice; population 800; prosperous farming community; good roads, accredited high school; big territory; specializing; price, $600; invoice office equipment and drugs; real opportunity; adv. appears once. Add. 5054 N, % AMA.

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FOR SALE—SOUTHERN KANSAS—$7,000 practice; established 20 years; practically no competition; collections good; town of 1,000; 3 new churches; 2 new schools; thickly settled community; instruments, supplies and drug stock, library, $1,200. Add. 4933 N, % AMA.

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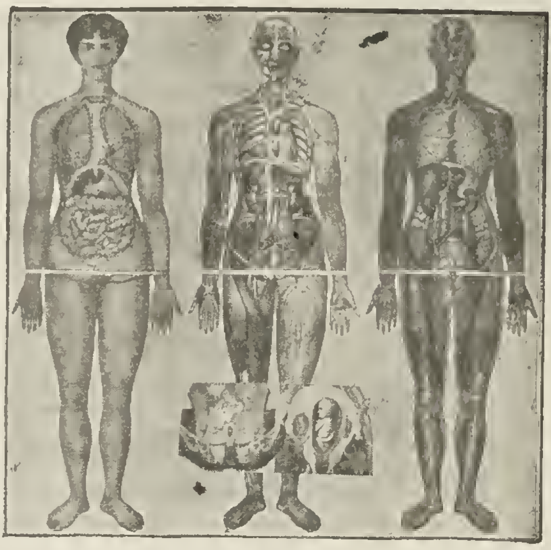

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FOR SALE — KANSAS — ESTABLISHED practice of 20 years and equipment for sale; splendid opportunity for physician to locate in thriving town of 1,000; $1,200, immediate possession; terms to suit. S-1626, Aznoe's National Physicians' Exchange, 30 N. Michigan Ave., Chicago. N

FOR SALE — SOUTHEASTERN MINNEsota; general practice; established 30 years; office and equipment; population 1,400; rich farming community; American; excellent roads, schools, churches; unusually fine opening; terms very reasonable; homeopath preferred. Add. 5006 N, % AMA.

FOR SALE—UNOPPOSED, LONG ESTABlished practice in southern Minnesota; large territory, good roads, good collections; fine deal on practice; complete office equipment; $1,400; terms; household, $1,000. S 3333, Aznoe's National Physicians' Exchange, 30 N. Michigan Ave., Chicago, Ill. N

FOR SALE — MINNEAPOLIS, MINN.— Practice, fixtures, lease; only doctor busy downtown corner; industrial, genito-urinary, general medicine and surgery; 3 rooms, rental $50; cash last year over $6,000; office established 10 years; price, $2,000 cash. Add. 112 Temple Court. N

FOR QUICK SALE—MONTANA — FLAThead Valley; an unopposed practice in town of 600; worth $8,000 to $9,000 yearly; average trip, 6 miles; large mill being erected; $2,500, including car and office equipment; terms; full information. Add. 5016 N, % AMA.

FOR SALE—NEBRASKA—MEDICAL PRACtice and drug store combined, near Lincoln; no competition; well established; collections $7,000 annually; Protestant community; good school; electric lights; invoice $3,500; price, $2,500; $1,500 cash required; balance time. Add. 4982 N, % AMA.

FOR SALE—NEBRASKA — NORTH CENtral town; physician's practice; no competition; wishes to retire; will make splendid proposition on equipment and property; price, $8,500; terms. S-1627, Aznoe's Natoinal Physicians' Exchange, 30 N. Michigan Ave., Chicago. N

FOR SALE — ONEONTA, N. Y.—OFFICE and home equipment with or without real estate; progressive manufacturing city of 12,000; will introduce buyer; general practice; special attention to office work; diseases of eye, ear, nose, throat; same address 35 years; reason, sell rather than freight goods to California; investigate. J. P. Elliott, M.D. N

FOR SALE — OKLAHOMA — BUSINESS and good will of physician, deceased; pediatrician, in town of 100,000, in the southwest; rapidly growing; practice established for many years. Add. 5055 N, % AMA.

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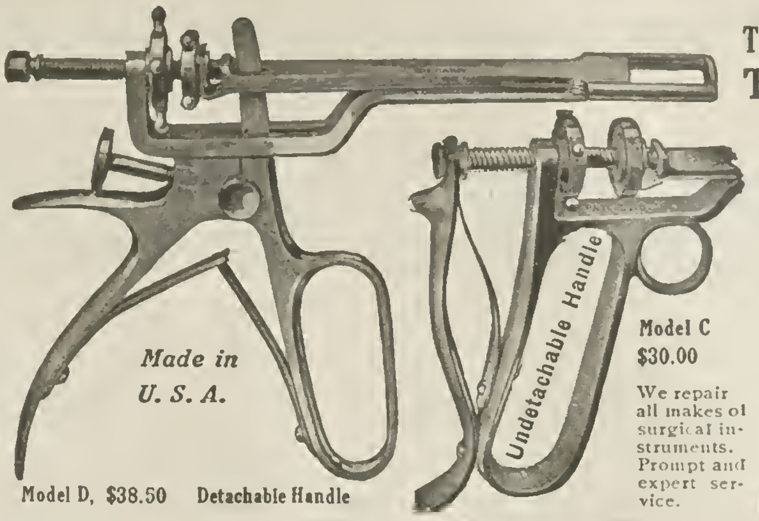

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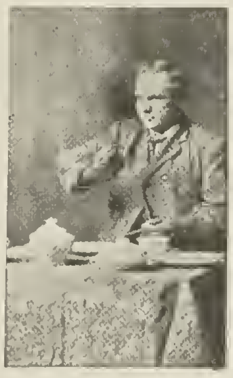

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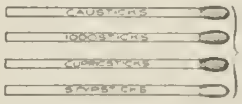

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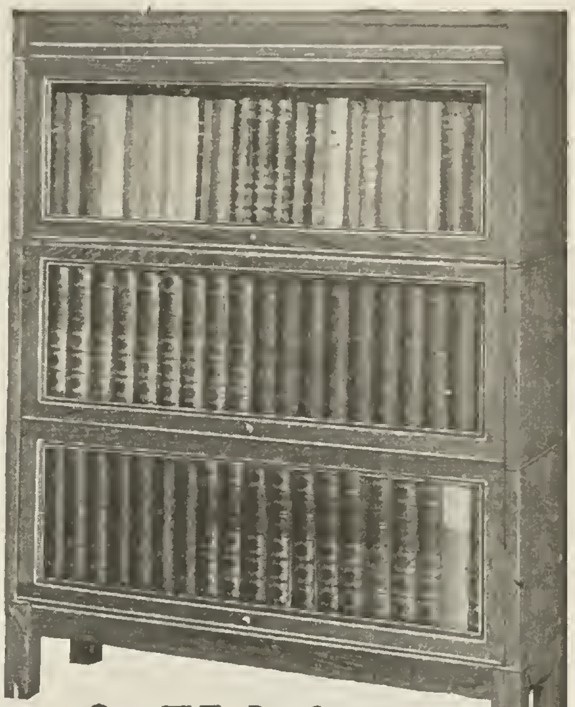

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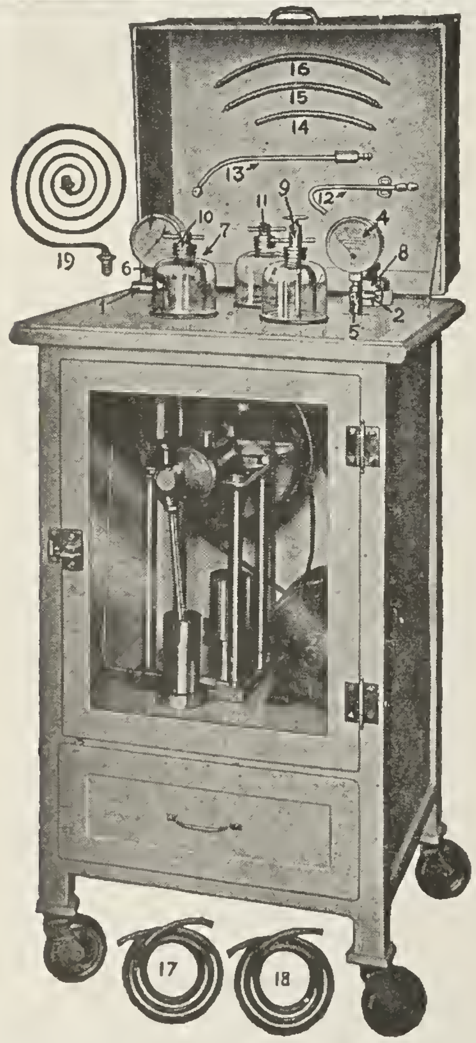

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(Continued from preceding page)

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HOW DO YOU RELIEVE PAIN? IN many cases, the Burdick deep therapy lamp is a valuable ally. Write today for full details. See page 23, this Journal. KK

HELPING THE PUBLIC SELECT ITS household remedies. What the house of Squibb is doing in this direction is described on page 32, this Journal. On page 33, you will find interesting details regarding the advantages of Squibb's Liquid Petrolatum and Squibb's Cod Liver Oil. The advantage of prescribing these products is obvious. KK

MORE COMFORTABLE ABDOMINAL SUPPORT. The "Curtis" Support very ingeniously avoids pressure where pressure is not needed, and gives maximum of support. Why not write today for the Hornbro Catalogue A and obtain ful details. See page 34, this Journal.

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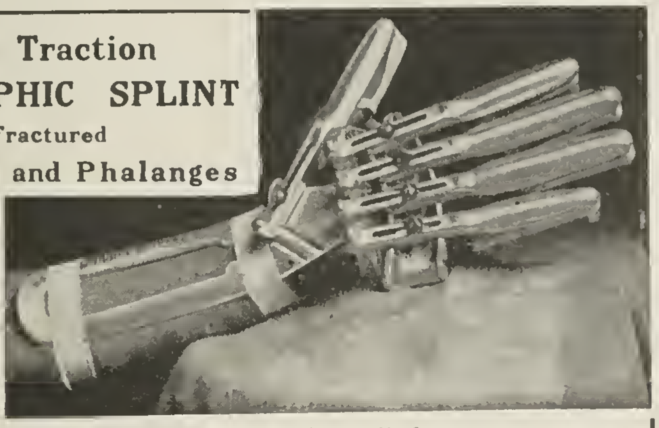

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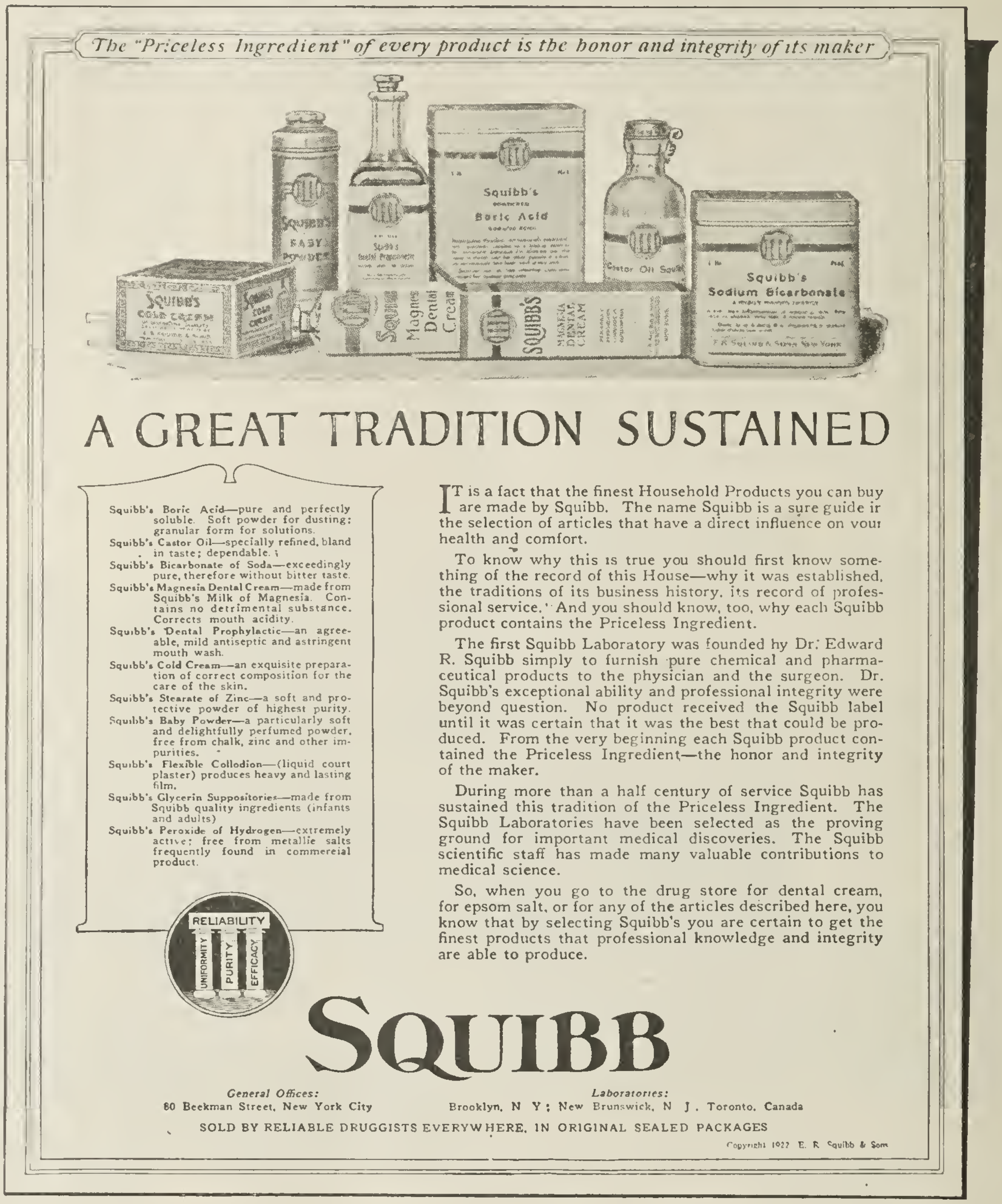
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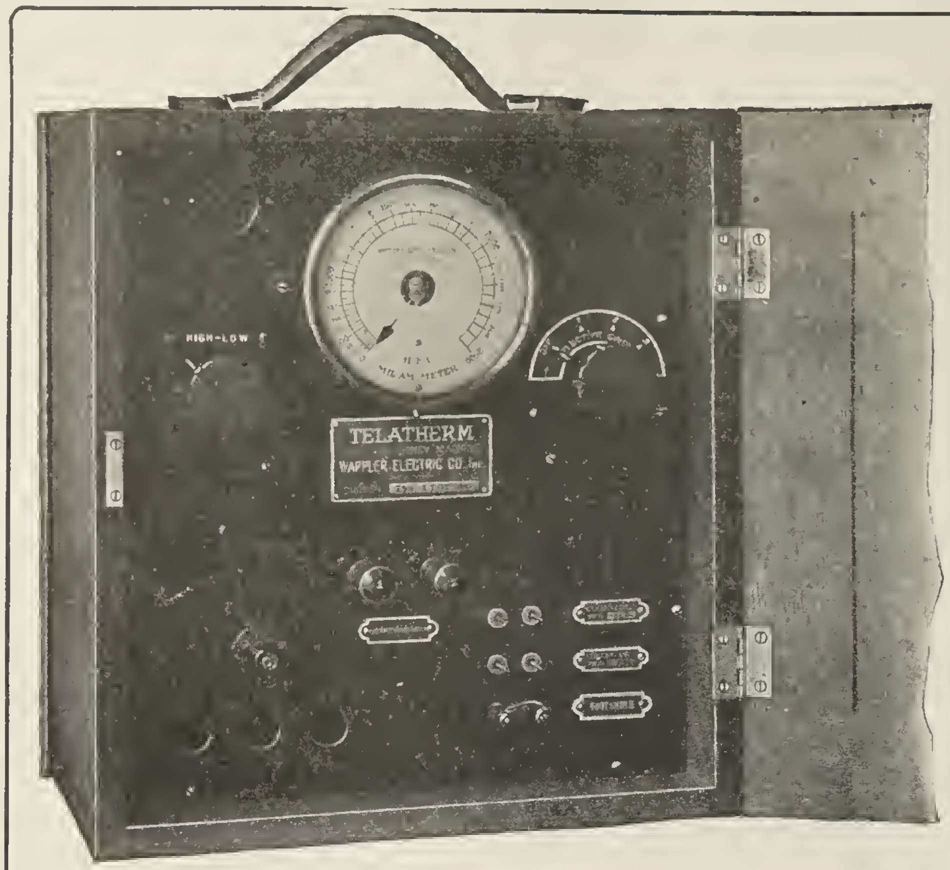

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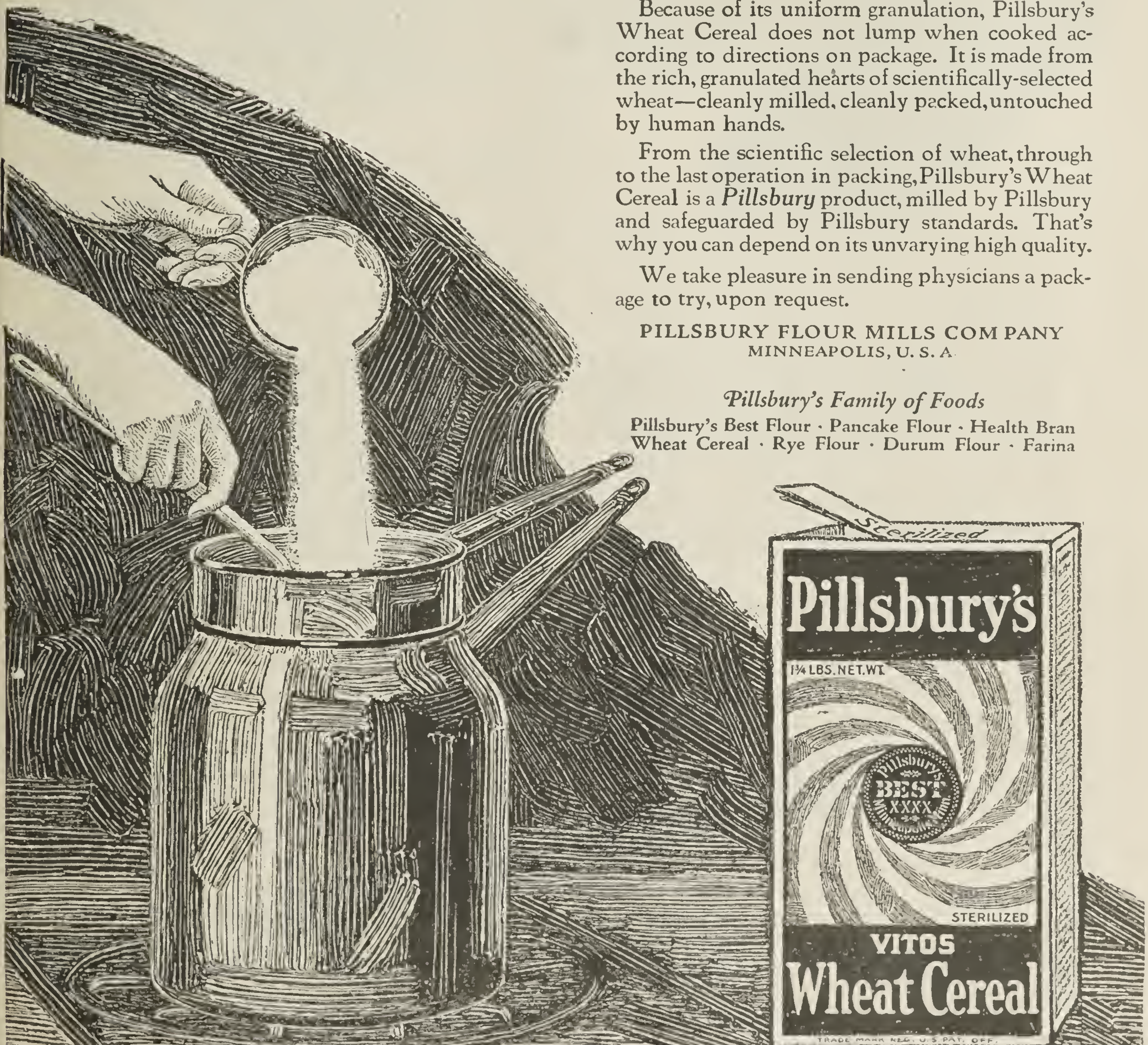

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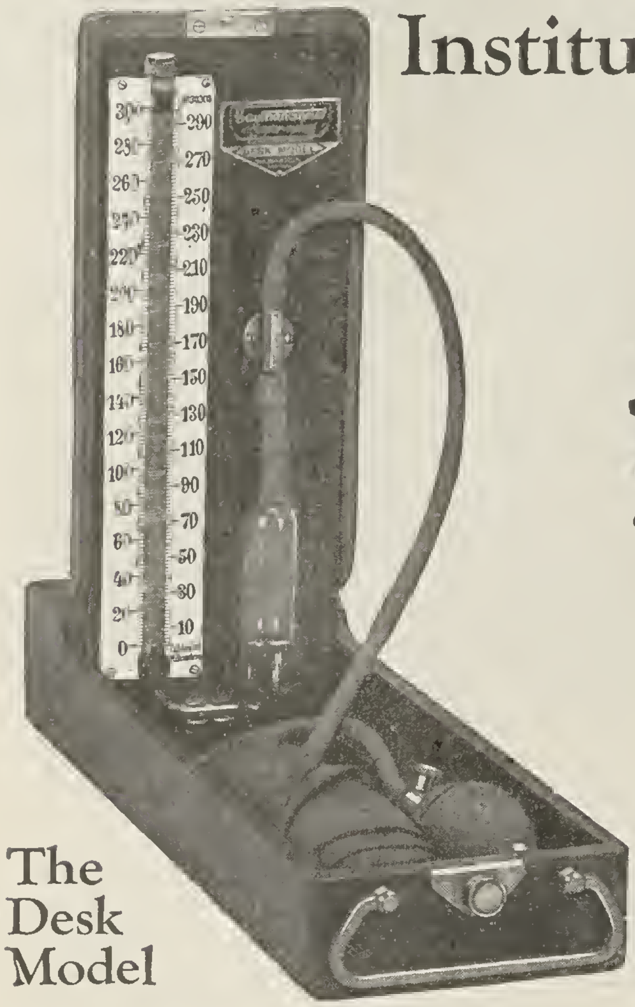

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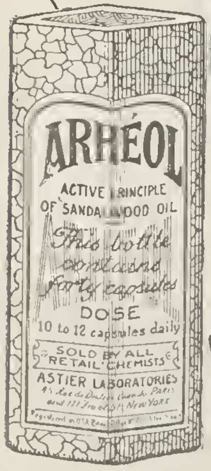
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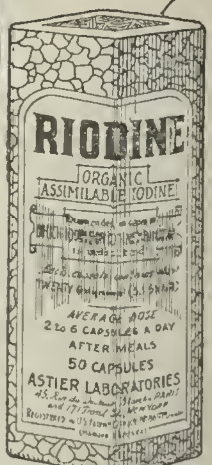

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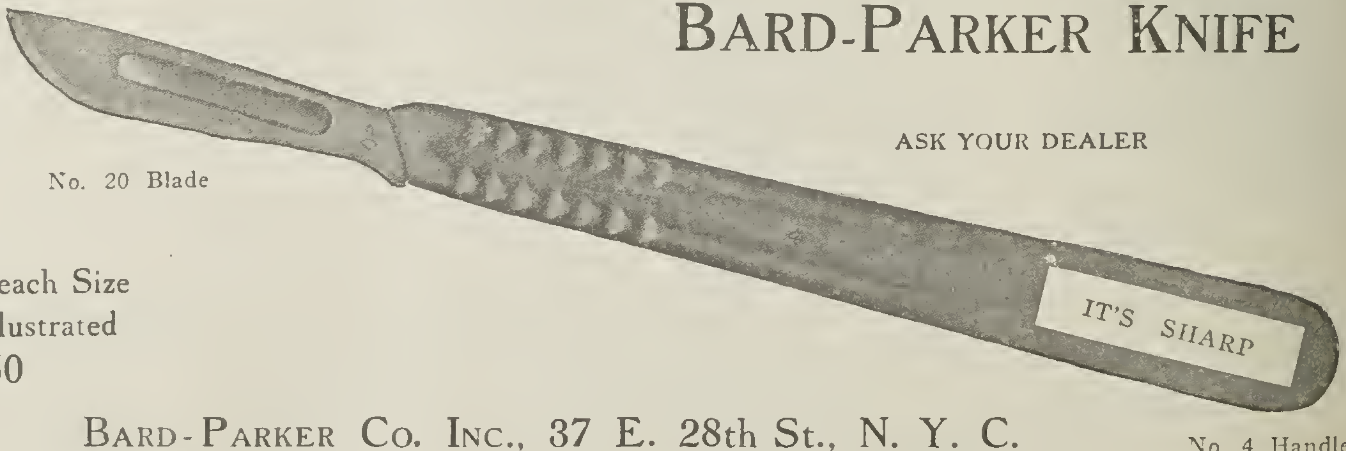

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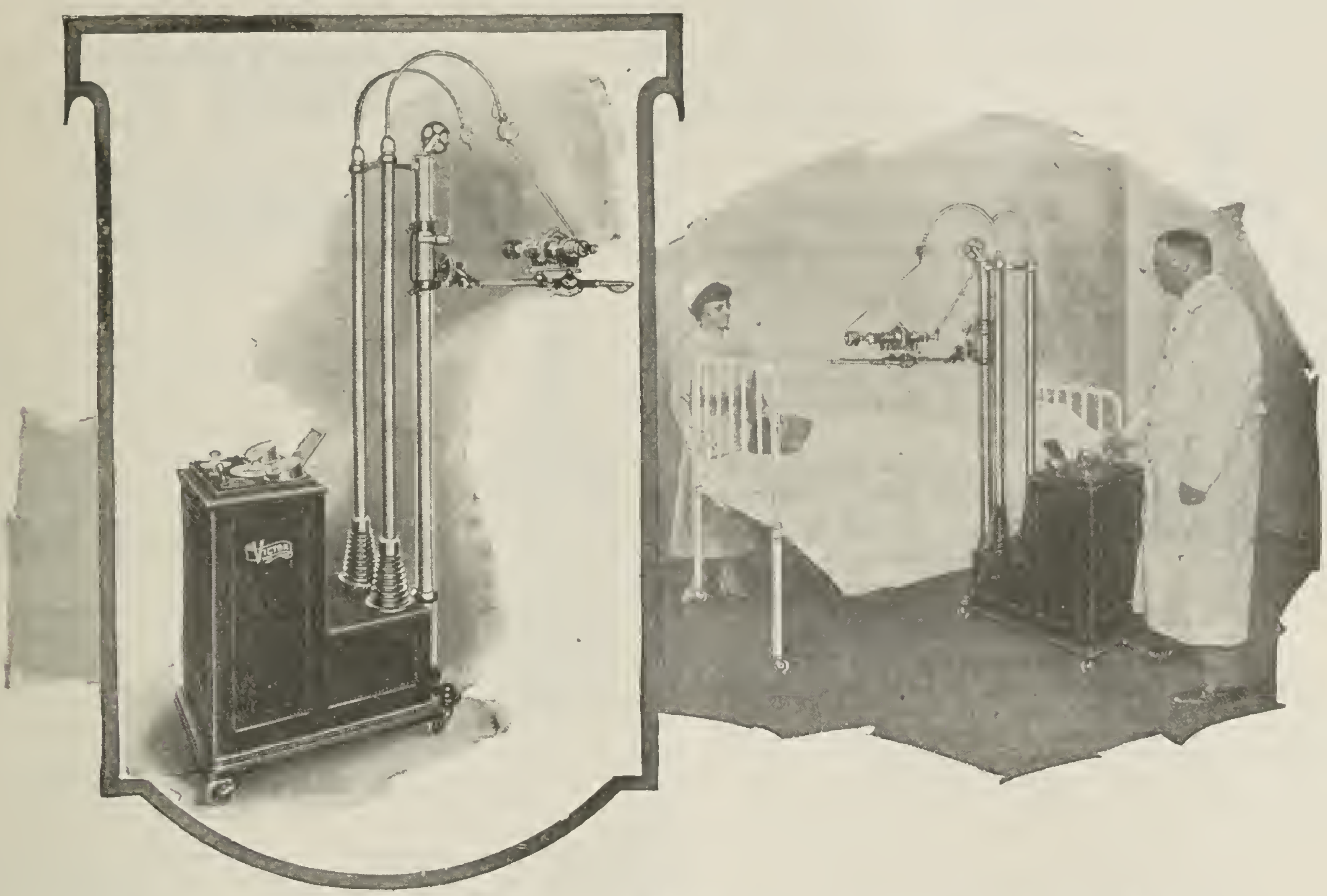

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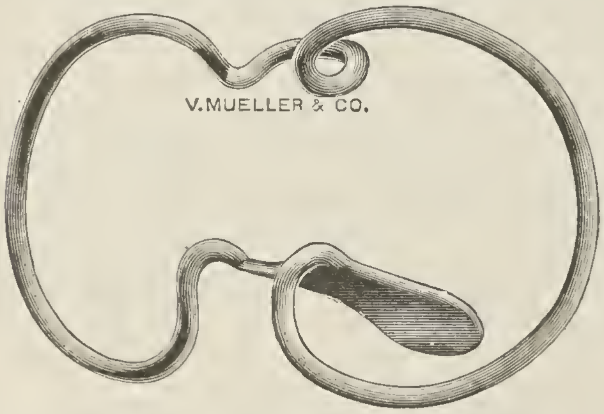
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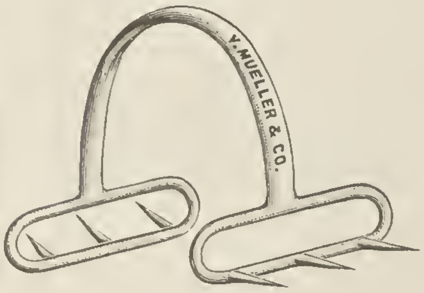
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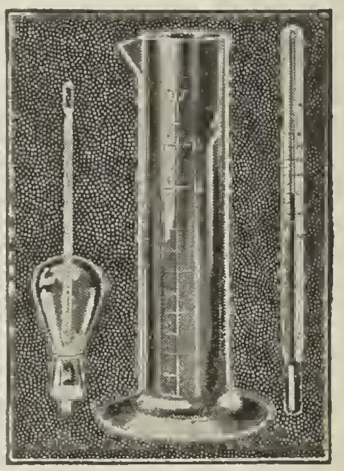

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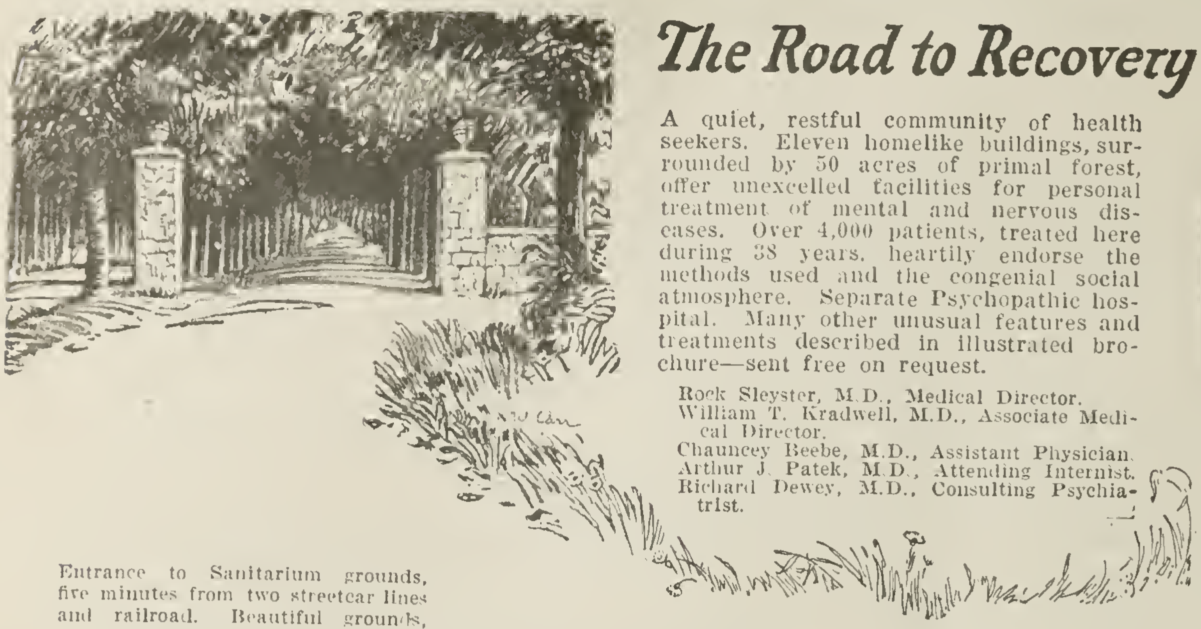

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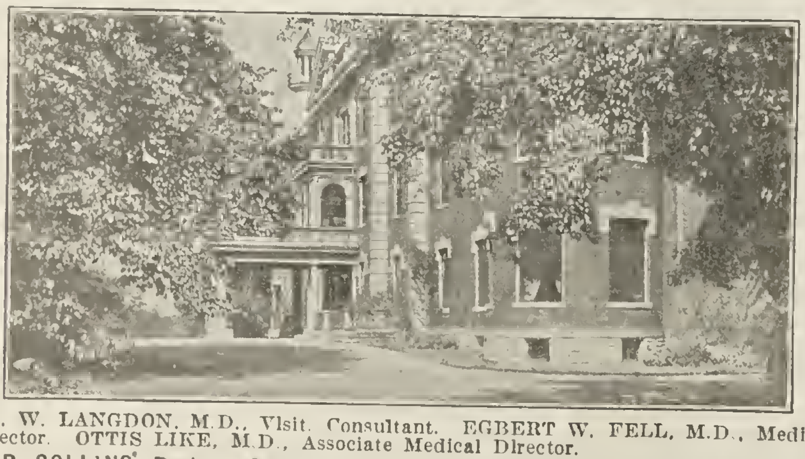

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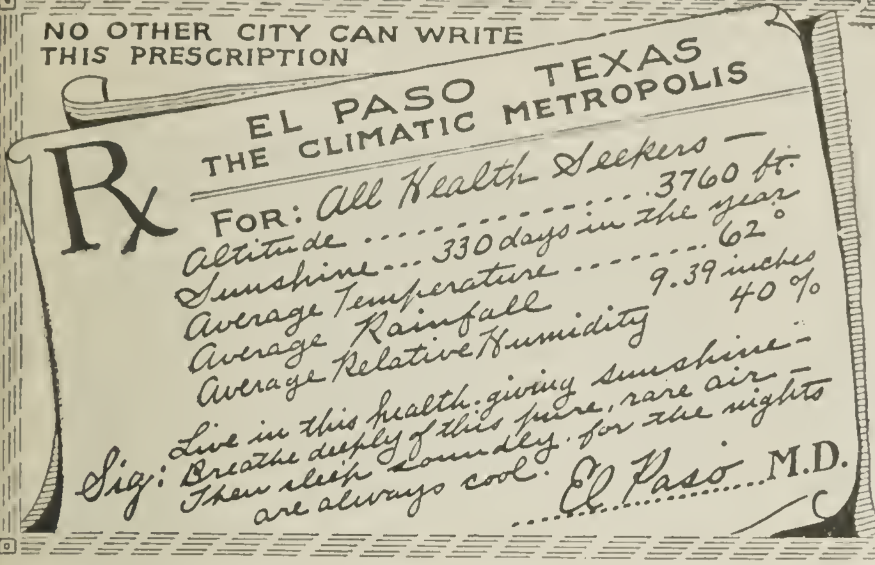

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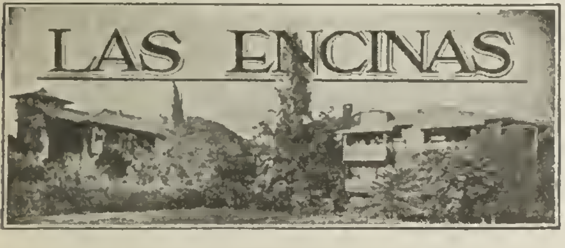

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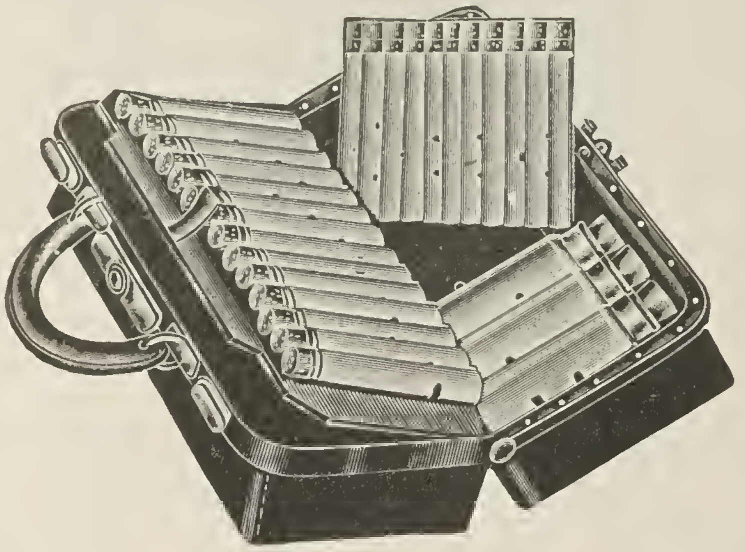

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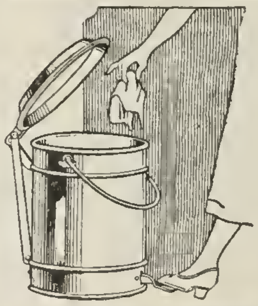

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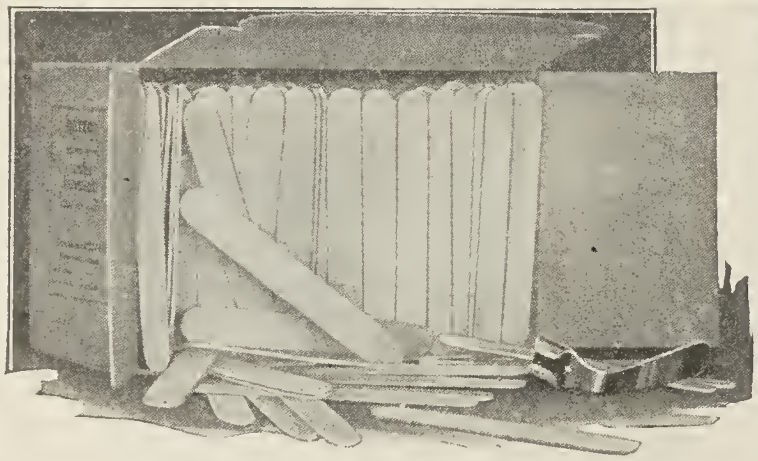

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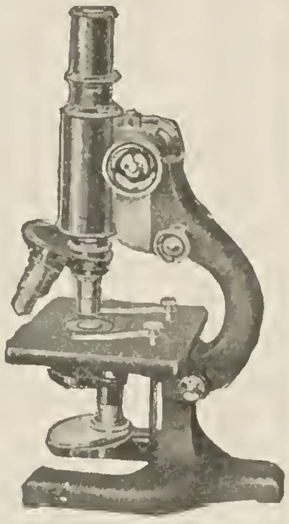

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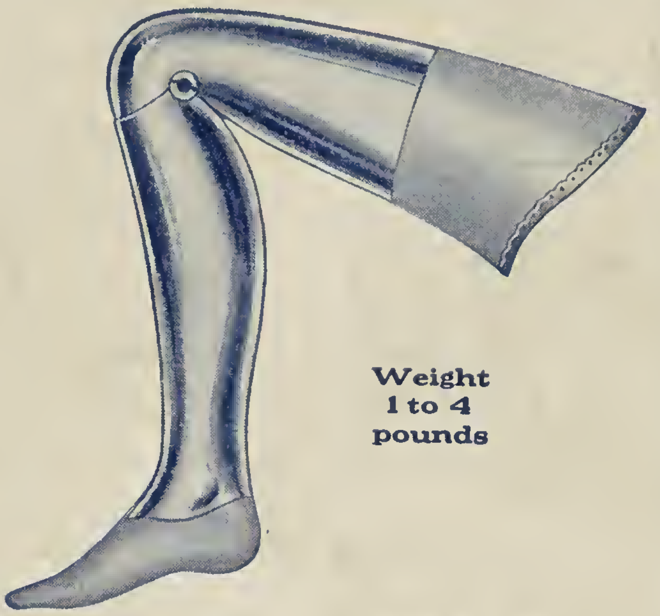

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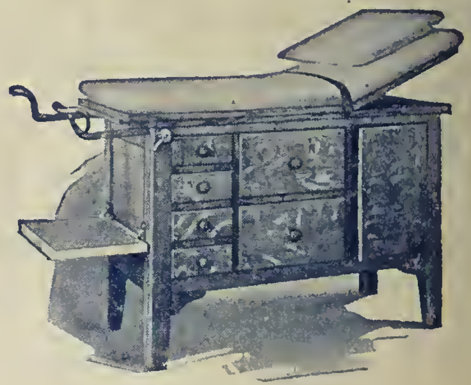

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